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Eric A. Storch
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Assessing Variants and Complications in Anxiety Disorders

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ISBN 978-1-4614-6451-8 ISBN 978-1-4614-6452-5 (eBook)
DOI 10.1007/978-1-4614-6452-5
Springer New York Heidelberg Dordrecht London

Library of Congress Control Number: 2013933720

"To my wife Dawn, for the endless encouragement and support all these years."

Dean McKay

"This book is dedicated to the children, adults, and families who have allowed me the honor of working with and learning from them."

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Part I

Complexities in Assessment of Primary Anxiety Conditions

Assessment of Social and Generalized Anxiety Disorder

1

Michelle C. Capozzoli, Sarah A. Hayes-Skelton, Idan M. Aderka, and Stefan G. Hofmann

Introduction

Accurate assessment of an individual's psychopathology is crucial to providing appropriate treatment recommendations and for tailoring treatment to an individual's particular needs. Fortunately, for clinicians who treat individuals with social anxiety disorder (SAD) and generalized anxiety disorder (GAD), a number of assessment measures have been found to be valid and reliable. SAD, also called social phobia, is characterized by a fear of social and performance situations (American Psychiatric Association, 2000). Individuals with SAD fear that they will act in a way that embarrasses or humiliates themselves, and as a result, endure great distress in social situations or avoid such situations. In contrast, GAD is defined by excessive worry about multiple topics that occurs on most days for at least 6 months (American Psychiatric Association, 2000). This worry is difficult to control and accompanied by physical symptoms such as feeling keyed up/on edge or being easily fatigued. This chapter presents several types of assessment measures for SAD and GAD and briefly describes complicating factors commonly associated with both disorders.

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Assessment of SAD and GAD

Clinician-Administered Measures for SAD and GAD

A good place to start when considering a diagnosis of SAD or GAD is with semi-structured clinical interviews of Axis-I disorders. The Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Brown, Di Nardo, & Barlow, 1994) can be used to assess current and past episodes of anxiety in enough detail to determine DSM-IV diagnosis as well as to gather information useful in a functional analysis of symptoms. The ADIS-IV has good to excellent test–retest reliability (Brown, Di Nardo, Lehman, & Campbell, 2001). The Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 1996) systematically assesses for the presence of current and past Axis-I disorders and has demonstrated good discriminant validity and inter-rater reliability for DSM-IV anxiety disorder diagnoses (Kranzler et al., 1995; Zanarini & Frankenburg, 2001). Both measures contain modules on anxiety, mood, substance use, eating, and

D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*, DOI 10.1007/978-1-4614-6452-5_1, © Springer Science+Business Media New York 2013

somatoform disorders, but the ADIS-IV focuses more in depth on symptoms of anxiety, whereas the SCID focuses more broadly on Axis-I psychopathology.

Clinician-Administered Measures for SAD

One of the most widely used measures to assess SAD is the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987). The LSAS assesses 24 situations (13 performances and 11 social interactions) that individuals with SAD may fear or avoid, such as going to a party, meeting strangers, and speaking up at a meeting. For each situation, fear and avoidance are rated separately on a scale of 0–3. Thus, six subscale scores can be derived from the LSAS: fear of performance situations, fear of social interaction situations, total fear, avoidance of performance situations, avoidance of social interaction situations, and total avoidance. The total score can be obtained by adding the fear and avoidance ratings for all items. The LSAS has high reliability, high convergent, and discriminant validity, and its subscales have been found to be normally distributed (Heimberg et al., 1999).

Another clinician-administered measure of social anxiety is the 18-item Brief Social Phobia Scale (BSPS; Davidson et al., 1991, 1997). The BSPS assesses seven situations commonly feared or avoided by individuals with SAD, with fear and avoidance of these situations coded separately. In addition, the BSPS assesses the extent of four physiological reactions to social anxiety, including blushing, heart palpitations, tremors, and sweating. Thus, the BSPS has three subscales: fear, avoidance, and physiological arousal. The BSPS has high inter-rater reliability, as well as test–retest reliability, internal consistency, and construct validity (BSPS; Davidson et al., 1991, 1997).

Self-report Measures of SAD

A self-report version of the LSAS (LSAS-SR) was evaluated and has highly similar psychometric properties compared to the clinician-administered version (Fresco et al., 2001). The LSAS-SR was further found to be sensitive to treatment change (Baker, Heinrichs, Kim, & Hofmann, 2002) and to have the same four-factor structure as the clinician-administered version (Oakman, Van Ameringen, Mancini, & Farvolden, 2003). Finally, the LSAS-SR has successfully discriminated between individuals with and without SAD and between diagnostic subtypes of SAD (Rytwinski et al., 2009).

The Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989) is a widely used, comprehensive measure of SAD. It includes 32 items tapping anxiety and avoidance in social situations, as well as cognitions and somatic responses occurring before and during social situations. The SPAI also includes an agoraphobia subsection (13 items), which is subtracted from the total score. Thus, the SPAI measures social anxiety beyond agoraphobia. The SPAI has good internal consistency and high test–retest reliability (Turner et al., 1989) and demonstrated good concurrent validity with other measures of social anxiety (Herbert, Bellack, & Hope, 1991) and with reports of daily social behavior (Beidel, Borden, Turner, & Jacob, 1989; Beidel, Turner, Stanley, & Dancu, 1989).

The Social Phobia Inventory (SPIN; Connor et al., 2000) was developed in an attempt to create a comprehensive measure of SAD that would also be short and easy to administer. Based on the BSPS clinician-administered measure, the SPIN includes 17 items assessing SAD-related fear, avoidance, and physiological symptoms. The SPIN has good internal consistency, test–retest reliability, and convergent and divergent validity (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Connor et al., 2000). It successfully discriminates between individuals with and without SAD (Connor et al., 2000) and is sensitive to both pharmacological (Connor et al., 2000) and psychological treatments (Antony et al., 2006).

The Social Phobia Scale (SPS; Mattick & Clarke, 1989) includes 20 items that pertain to situations in which one is observed by others (e.g., speaking to a group, writing in public). The SPS has good internal consistency as well as convergent and discriminant validity (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). The

SPS successfully differentiates between individuals with and without SAD (Brown et al., 1997; Heimberg et al., 1992) but not between diagnostic subtypes of the disorder (Heimberg et al., 1992). In addition, the SPS could not discriminate between individuals with speech phobia and individuals with SAD (Ries et al., 1998) or between individuals with panic disorder and individuals with SAD (Brown et al., 1997; Peters, 2000). The SPS was sensitive to treatment effects (Ries et al., 1998) and predicted anxious response to a stressful social challenge (Gore, Carter, & Parker, 2002).

The Social Interaction and Anxiety Scale (SIAS; Mattick & Clarke, 1989) is comprised of 20 items measuring anxiety in social interactions. The SIAS has good internal consistency as well as convergent and discriminant validity (Heimberg et al., 1992). It discriminates between individuals with and without SAD (Brown et al., 1997; Heimberg et al., 1992), between individuals with SAD and individuals with other anxiety disorders, and between diagnostic subtypes of the disorder (Heimberg et al., 1992; Ries et al., 1998). The SIAS was sensitive to the effects of treatment (Ries et al., 1998) and predicted anxious response to a stressful social challenge (Gore et al., 2002). The SIAS has been shown to have a single interaction-anxiety factor, thus supporting construct validity of the measure (Safren, Turk, & Heimberg, 1998).

The Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983) was developed using 12 of the 30 original items included in the Fear of Negative Evaluation scale (Watson & Friend, 1969). Using item response theory, Rodebaugh et al. (2004) found the BFNE to be superior to the full-length version, as it better discriminated between a wider range of severity levels of fear of negative evaluation. The BFNE has been found to have excellent internal consistency, test–retest reliability, convergent and discriminant validity and to successfully discriminate between individuals with SAD, individuals with panic disorder, and community controls (Collins, Westra, Dozois, & Stewart, 2005). Moreover, the BFNE was found to be sensitive to the effects of psychological treatment (Collins et al., 2005).

Linked to the concept of fear of negative evaluation, fear of positive evaluation has also been found among individuals with SAD (e.g., Alden, Taylor, Mellings, & Laposa, 2008; Wallace & Alden, 1997). The Fear of Positive Evaluation Scale (FPES; Weeks, Heimberg, & Rodebaugh, 2008) was developed to assess this construct. The FPES includes ten items that focus solely on fears of positive evaluation, and respondents are required to indicate the degree to which the statement is true for them on a 0–9 scale. Of the ten items, only the eight straightforwardly worded items comprise the final score. The FPES has good internal consistency and test–retest reliability and good convergent and discriminant validity (Weeks, Heimberg, & Rodebaugh, 2008) Weeks, Heimberg, Rodebaugh, & Norton, 2008). The NPES has also been found to have a single factor which was related but distinct from fear of negative evaluation (Weeks, Heimberg, & Rodebaugh, 2008).

Behavioral Assessment Tasks for SAD

Frequently employed types of standardized behavioral assessment tasks (BATs) include conversation with a same-gender stranger, conversation with an opposite-gender stranger, and an impromptu speech given to a small audience. Other situations sometimes include solving simple math problems on a chalkboard in front of an audience or discussing controversial topics with strangers (e.g., Beidel, Borden, Turner, & Jacob, 1989; Hofmann, 2000; Hofmann et al., 2004). Subjective anxiety ratings are typically obtained by using a subjective unit of discomfort scale (SUDS). Patients are then asked to give SUDS ratings before and after the BAT, and sometimes at regular intervals during the BAT. In addition, behavioral indicators (such as length of an impromptu speech) and physiological indicators (such as heart rate) are assessed before, during, and after the test. Ideally, it is recommended to choose a multimodal assessment strategy in conjunction with a well-controlled behavioral test (i.e., participants are asked to speak about one or more specific topics for a

specified amount of time). However, practical limitations often need to be considered. For example, whereas heart rate data can be easily and inexpensively recorded, electrodermal activity is considerably more complicated to record ambulatorily in the context of a behavioral test. It should also be noted that different autonomic indicators measure different aspects of psychophysiological arousal; electrodermal activity is primarily influenced by the sympathetic nervous system, heart rate frequency by both the sympathetic and the parasympathetic nervous system, and a certain frequency band of heart rate variability primarily by parasympathetic arousal (vagal tone). In all cases, the clinician or researcher needs to be aware that the act of speaking leads to heightened physiological arousal. Furthermore, the posture (standing vs. sitting) is an important factor to consider. Greater arousal will be obtained if the subject is asked to stand.

The Social Performance Rating Scale (SPRS; Fydrich, Chambless, Perry, Buergener, & Beazley, 1998) was developed to assess structured, videotaped interactions, in terms of eye gaze, vocal quality, length, discomfort, and conversation flow. Each facet of social performance is rated on a 5-point scale with specific behavioral anchors for each rating. Other ratings are similarly anchored in behavioral descriptions. The SPRS was found to have excellent inter-rater reliability and good internal consistency, as well as divergent and convergent validity (Fydrich et al., 1998). The SPRS successfully differentiated between individuals with SAD, individuals with other anxiety disorders and individuals without a psychiatric disorder (Fydrich et al., 1998).

The Social Behavior and Anxious Appearance Rating Scale (SBA; Voncken & Bögels, 2008) was based on earlier behavioral rating scales of Rapee and Lim (1992) and Bögels, Rijsemus, and De Jong (2002) and was developed to rate behaviors and appearance in social interactions. The scale consists of 11 items assessing anxious appearance (e.g., blushing, fidgeting, laughing nervously) and 16 items measuring social behavior (e.g., making eye contact, completing of sentences, coherence, silences). Each item of the SBA scale is rated on a 9-point Likert scale, with a high score indicating a more anxious appearance and better social behavior. The SBA has excellent internal consistency and good inter-rater reliability (Voncken & Bögels, 2008) and has been applied to both social interactions and speech tasks (Voncken, Alden, Bögels, & Roelofs, 2008; Voncken, Dijk, de Jong, & Roelofs, 2010).

The Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993) is a structued procedure for eliciting social-evaluative stress. It consists of a 5-min anticipatory period, a 5-min public speaking task, and a 5-min mental-arithmatic task, all performed in front of an audience. Most studies use endocrine and cardiovascular measures of stress measured before, during, and 1 h following the test, but use of psychological outcome measures is also possible (Williams, Hagerty, & Brooks, 2004). The TSST has been found to result in significant increases in heart rate and cortisol (both serum and saliva) and is not affected by personality traits (Kirschbaum et al., 1993). It is important to note that many factors (e.g., smoking, pregnancy, time of day) can influence cortisol levels and thus may have an impact on the results of the TSST (Williams et al., 2004).

Assessment of GAD

Clinician-Administered Measures of GAD

In addition to the comprehensive diagnostic interviews described at the beginning of the chapter, clinicians and researchers may also consider clinician-administered assessments for the evaluation of generalized anxiety symptoms, such as the Hamilton Anxiety Rating Scale (HARS or HAM-A; Hamilton, 1959, 1969). The HARS was originally designed as a fairly unstructured interview that assessed the severity of 14 symptom clusters (anxiety, tension, sleep, concentration, etc.) that are frequently experienced in those with high levels of anxiety, particularly, generalized anxiety. In order to standardize its administration and to provide clear anchor points, the Structured Interview Guide for the Hamilton Anxiety Scale (SIGH-A; Shear et al., 2001) was developed to provide a structured guide to the assessment with

a focus on the frequency and intensity of the various symptoms. The SIGH-A has demonstrated high inter-rater and test–retest reliability (Shear et al., 2001).

Although they are quite different disorders, symptoms of GAD and obsessive–compulsive disorder (OCD) can oftentimes be described similarly by patients, as they share a core feature of intrusive, difficult-to-control thoughts. One key difference, however, is that the content of intrusive thoughts (or obsessions) in OCD is not simply of excessive worries about real-life problems, as in GAD. Specifically, patients with OCD have intrusive thoughts that surround their core fear (contamination, harm, inappropriate or unacceptable behavior, etc.), while patients with GAD worry about a number of events and activities, spanning from work to health to relationships. Furthermore, while patients with GAD find the worries difficult to control, patients with OCD will actively try to ignore, suppress, or neutralize such thoughts (or images, impulses) with other thoughts or actions (i.e., compulsions).

Self-report Measures of GAD

The Generalized Anxiety Disorder Questionnaire-IV (GADQ-IV; Newman et al., 2002) was designed to assess the presence of worry and its excessiveness and uncontrollability, duration, presence of the six associated symptoms, as well as the degree of interference and distress. Each item is assessed on a 9-point Likert-type scale. The GADQ-IV has demonstrated good test–retest reliability as well as convergent and discriminant validity. Additionally, it has been shown to have excellent specificity and sensitivity (89% and 83%, respectively; Newman et al., 2002).

The Intolerance of Uncertainty Scale (IUS; Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994) is a 27-item self-report measure that is designed to assess intolerance of uncertainty using a five-point Likert-type scale. Intolerance of uncertainty, or a "dispositional characteristic that results from a set of negative beliefs about uncertainty and its implications" (Dugas & Robichaud, 2007, p. 24), is often considered a cognitive vulnerability factor for the development of chronic worry (Koerner & Dugas, 2008). In addition to GAD, intolerance of uncertainty is also considered a key factor in the development and maintenance of OCD (Tolin, Abramowitz, Brigidi, & Foa, 2003), and individuals with both disorders report higher levels of intolerance of uncertainty than individuals with other anxiety disorders (Dugas, Gagnon, Ladouceur, & Freeston, 1998; Steketee, Frost, & Cohen, 1998). The IUS has been shown to have excellent internal consistency ($\alpha = 0.95$) and convergent validity in a sample of students (Buhr & Dugas, 2002). Likewise, the IUS discriminated between a clinical sample of individuals diagnosed with GAD from a non-anxious control sample (Dugas et al., 1998).

The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) is a 16-item self-report questionnaire designed to measure the intensity and excessiveness of worry without assessing the particular content of worry. This widely used measure has good to very good internal consistency across clinical and college student samples (α from 0.86 to 0.93, Molina & Borkovec, 1994). Likewise, it has been shown to be related to other measures of worry (Davey, 1993; Meyer et al., 1990). PSWQ scores have also been shown to be higher for clients diagnosed with GAD compared to clients diagnosed with other anxiety disorders, notably OCD (Brown, Antony, & Barlow, 1992).

Other self-report measures for GAD include the Why Worry Scale-II (Freeston et al., 1994), a 25-item measure that assesses the perceived positive consequences of worry, and the Worry Domains Questionnaire (Tallis, Eysenck, & Mathews, 1992), a 25-item measure that was designed to measure nonpathological worry. Thought suppression, which in the context of GAD, pertains to experiential avoidance and the suppression of negative affect, may be assessed using the White Bear Suppression Inventory (Wegner & Zanakos, 1994). This measure contains 15 statements with which respondents rate their agreement on a 5-point Likert scale (e.g., "I wish I could stop thinking about certain things"). For older patients, clinicians may consider utilizing

the Worry Scale for Older Adults (Wisocki, 1988), a 35-item measure designed to measure the extent and frequency of which older adults worry about events commonly associated with aging.

Behavioral Assessment Tasks for GAD

A number of exposure exercises have been developed for the treatment and study of GAD. For example, the worry exposure is a method developed by Craske, Barlow, and O'Leary (1992) as an intervention for pathological worry. In this variant of imaginal exposure, individuals are instructed to mentally expose themselves to worry at set times, for a prolonged period, by thinking about the feared events. The exposure takes place by conjuring up an image of the most feared expectation and focusing on this for a period of about 25 min. Individuals are then instructed to brainstorm alternative explanations or outcomes of the feared event and to evaluate these options.

Hofmann et al. (2005) induced worry by asking participants to listen to a script about having to give a presentation in front of a large class. This script contained a number of ruminative self-statements (e.g., "You will feel overwhelmed by negative thoughts as you are facing the audience") adapted from the Self-Statement During Public Speaking Scale (Hofmann & DiBartolo, 2000). Participants were then asked to worry about this particular situation for 30 s. Psychophysiological data, including heart rate and skin conductance, were collected during the worry period, after which participants were asked to rate their distress on a scale from 0 (no distress) to 100 (very distressed).

Hofmann, Schulz, Heering, Muench, and Bufka (2010) also designed a worry induction as part of a study examining the physiological correlates of GAD and Major Depressive Disorder (MDD). Following a 5-min baseline resting period, participants were asked to engage in a worry period or relaxation period for 5 min, the task order for which was randomly assigned. During the worry period, participants were instructed to worry about their most worriesome topic (e.g., money, health, relationships, etc.) as identified in a diagnostic interview and to redirect their attention to worrying about this topic if they found that their attention had wandered. During the worry and relaxation periods, heart rate, skin conductance level and other psychophysiological data were collected. After each task, participants rated their average level of anxiety and their worry level during the task on a scale from 0 = not at all to 10 = extremely.

Complicating Factors

Depression

Major depressive disorder (MDD), and mood disorders in general, are commonly comorbid with anxiety disorders (see also Chap. 23). In a study by Brown, Campbell, Lehman, Grisham, & Mancill (2001), MDD was present in 14% of those diagnosed with SAD and 26% of those diagnosed with GAD. Furthermore, the presence of comorbid depression is associated with greater symptom severity in patients with SAD (Erwin, Heimberg, Juster, & Mindlin, 2002) and in patients with GAD (Newman, Przeworski, Fisher, & Borkovec, 2010). Among patients with SAD, those who also have comorbid depression have greater anxiety-related cognitions and higher levels of negative evaluations of social performances than those patients without comorbid depression (Ball, Otto, Pollack, Uccello, & Rosenbaum, 1995; Wilson & Rapee, 2005).

To assess for depression, the mood disorder modules in the larger overall assessment of Axis I disorders may be used, such as the SCID-I (First et al., 1996) or ADIS-IV (Brown et al., 1994). Clinician-administered interviews designed solely for assessment of depression include the Montgomery-Asberg Depression Rating Scale (Montgomery & Åsberg, 1979) and the Hamilton Depression Rating Scale (Hamilton, 1960). Validated and reliable self-report measures of depression include the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the Quick Inventory of Depressive Symptomatology – Self-Report (Rush et al., 2003).

Substance Use Disorders

Substance use disorders are highly comorbid with both SAD and GAD (see also Chap. 22). In a recent epidemiological survey of comorbid substance use and anxiety disorders, 21.3% of patients with SAD and 15.9% of patients with GAD who sought treatment in the past 12 months for these disorders also had comorbid substance use disorders (Grant et al., 2006). In general, both SAD and GAD are characterized by both cognitive and behavioral avoidance of anxiety-provoking experiences due to the physiological and emotional distress that the anxiety can cause. As is described in Morris, Stewart, and Ham (2005), alcohol use may reduce both this physiological and cognitive arousal, providing negative reinforcement for alcohol consumption.

Assessing substance use is particularly important prior to starting therapy, especially exposure-based therapy, since individuals may experience increased distress at the beginning of therapy. This is particularly important if an individual's habitual coping response to increased stress is to increase substance use. Likewise, substance use prior to engaging in a potential anxiety-provoking situation could function as a safety behavior, potentially minimizing the effect of an intervention. For this reason, a thorough assessment of substance use should also include an evaluation of prescription and nonprescription medication, such as benzodiazepine use.

Personality Disorders

Although often overlooked in initial assessment and treatment planning, personality disorders can significantly interfere with effective treatment, and patients with SAD and GAD have been found to have higher rates of personality disorders as compared to other anxiety disorders (Reich et al., 1994) (see Chap. 15). Notably, in individuals with SAD, Avoidant Personality Disorder (APD) is highly comorbid (Brooks, Baltazar, & Munjack, 1989; Jansen, Arntz, Merckelbach, & Mersch, 1994). However, the APD diagnosis may simply reflect a higher symptom severity level of SAD (Holt, Heimberg, & Hope, 1992). In general, comorbid personality disorders are associated with poorer treatment response (Pollack, Otto, Rosenbaum, & Sachs, 1992), premature termination of treatment (Sanderson, Beck, & McGinn, 1994), and increased risk of self-injurious thoughts and behaviors (Corbitt, Malone, Haas, & Mann, 1996).

Cognitive Functioning

Current and lifetime prevalence rates of cognitive impairment are estimated to be 1.2% and 2.5–13.6%, respectively, for those with SAD, 2.3% and 1.4–6.0% for patients with GAD (Castaneda, Tuulio-Henriksson, Marttunen, Suvisaari, & Lönnqvist, 2008). If impairment is suspected or reported, it is vital to assess cognitive functioning at the outset of treatment, as such impairment may interfere with successful treatment and thus be relevant for treatment recommendations and for treatment planning.

There are a number of measures designed to assess specific areas of cognitive functioning, depending on the area of interest. Intelligence may be measured using the Wechsler Adult Intelligence Scale (Wechsler, 1981) and the Wide Range Achievement Test (Wilkinson, 1993). Memory problems may be tested using the Wechsler Memory Scale (Wechsler, 1997), which contains subscales measuring several aspects of memory. Furthermore, various components of cognition may be measured using the Luria-Nebraska Neuropsychological Battery (Golden, Hammeke, & Purisch, 1980) and the California Verbal Learning Test-II (Delis, Kramer, Kaplan, & Ober, 2000).

Social Skills

It is common for individuals with SAD to perceive their social performances more negatively than those without SAD (e.g., Glasgow & Arkowitz, 1975; Norton & Hope, 2001). However, it is often less clear whether these perceived social skills deficits reflect actual deficits

or are biased interpretations influenced by social anxiety. Some studies have shown that there are no differences in social performances between those with higher and lower levels of social anxiety (e.g., Cartwright-Hatton, Tschernitz, & Gomersall, 2005; Rapee & Lim, 1992; Strahan & Conger, 1998), whereas others have demonstrated that those without social anxiety perform better socially than those with social anxiety (e.g., Norton & Hope, 2001; Stopa & Clark, 1993). It is therefore likely that some individuals with SAD will present with some social skill deficits and others will not, making a careful appraisal of social skills an important part of a comprehensive assessment.

There are a number of self-report measures designed to assess social skills (see Nangle, Hansen, Erdley, & Norton, 2010, for a review). However, because many of the measures focus on the respondent's perception of their performance or on the discomfort associated with being in various social situations, observational assessments of social skills may be more accurate. For example, the Assessment of Interpersonal Problem-Solving Skills (Donahoe et al., 1990) asks individuals to watch videotaped interpersonal scenes and then to respond by identifying any problem behaviors, then describe what else could have been said or done in that situation, and finally, the individuals are asked to role-play their proposed solutions.

Discussion

The present chapter reviewed the most common assessment instruments for social and general anxiety disorder. Given the multidimensional and multifaceted nature of social and generalized anxiety, we recommend that clinicians and researchers use multimodal assessments that include self-report, clinician-report, behavioral, cognitive, and psychophysiological measures. Due to space limitations, we did not cover psychophysiological assessments. A review of the literature identified a large number of assessment instruments, especially of self-report measures. These measures show generally satisfying psychometric properties.

For future research, we recommend that a much greater emphasis is placed on the person's cultural, ethnic, social, and sexual background. Often the assumption has been that anxiety is experienced similarly across the world, bolstered by epidemiological surveys showing similar prevalence rates of anxiety disorders across cultures (Horwath & Weissman, 1997). However, there is growing evidence that the way anxiety is expressed and experienced may differ across cultures (Kirmayer, 1991). Likewise, sometimes anxiety may be specific to certain cultures or cultural contexts. For example, a culture-specific expression of SAD, taijin kyofusho (TKS), has been widely described as prevalent in Japanese and Korean cultures. Whereas SAD expressed in Western cultures centers on the fear of embarrassing oneself, individuals with TKS fear doing something, or presenting an appearance that would embarrass others (Hofmann, Asnaani, & Hinton, 2010). Alternatively, anxiety can present in cultural contexts, as, for example, some individuals only experience social anxiety when communicating in their secondary language. As described by Friedman (2001), individuals differ on the view of the self, the use of language, how symptoms are experienced, and the clinician's knowledge of the possible variations in the expression of anxiety symptoms across cultures, all of which can affect the assessment and interpretation of assessments.

Likewise, particularly in the assessment of social anxiety, questions often address anxiety associated with interaction with members of the opposite sex. These questions have a very different meaning for individuals who may identify as gay, lesbian, bisexual, or transgender. Therefore, it may be more accurate to ask patients about anxiety associated with interacting with people who they are attracted to. Clearly, when assessing social anxiety and generalized anxiety, it is important to be aware of an individual's cultural background and the ways that it may influence the assessment and its interpretation.

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2 Assessment and Treatment of Deficits in Social Skills Functioning and Social Anxiety in Children Engaging in School Refusal Behaviors

Frank M. Gresham, Michael J. Vance, Jeffrey Chenier, and Katherine Hunter

Since compulsory attendance in primary and secondary schooling came with the Education Act of 1944, student's absences have been markedly followed within the United States. Although most students attend school consistently, there is a subset of students who for one reason or another fail to attend school on a regular basis. Students may miss school for a variety of reasons including traditional truancy, anxiety, medical reasons, or fear of being bullied to name a few. Beyond missing out on educational opportunities, absenteeism deprives a child from the various social, emotional, and mental health services that are available in schools today. Absenteeism has been shown to be a risk factor for suicide attempt, teenage pregnancy, and substance use (Kearney, 2008). Additionally, chronic absenteeism is a precursor of eventual dropout (Alexander, Entwisle, & Kabbani, 2001) which is linked with economic, marital, social, and psychiatric problems (U.S. Census Bureau, 2005; Kearney, 2008).

Dr. Frank M. Gresham is the author of the Social Skills Intervention System, which includes an assessment tool (SSIS-RS) and a tiered model of Social Skills Instruction that is discussed within this chapter. Both the Social Skills Intervention System-Rating Scales and the SSIS intervention guides are used as examples of methods of assessment and treatment for individuals engaged in Social-Anxiety mediated school refusal behaviors within this chapter.

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Prevalence

Research by the National Center for Children in Poverty examining Early Childhood Longitudinal Study Kindergarten Cohort data (U.S. Department of Education, National Center for Education Statistics, 2006) showed that over 11% of kindergartners, over 8% of first graders, and 6% of third graders miss 18 or more days in a school year. Additionally, the data show that over half of the students who were chronically absent in kindergarten were chronically absent in first grade. These chronically absent students were rated by their teachers as having lower socioemotional development and functioning than children who had normal attendance (Romero & Lee, 2007). Chronically absent students were also rated as having low functioning in regards to interpersonal relations and self-control and were more likely to have internalizing and externalizing problem behaviors (Romero & Lee, 2007).

National Center for Education Sciences data also indicates that 19% of fourth graders and 20% of eighth graders were reported as missing school for 3 or more days in the previous month in 2005, a pattern that has held relatively steady between 1994 and 2005 (Table 2.1) (U.S. Department of Education, National Center for Education Statistics, 2006). Other trends of interest include that if the student was eligible for a free/reduced lunch, diagnosed with a disability, or was an English language

D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_2,

Table 2.1 Percentage of students who reported missing 3 or more days in the previous month

	0 days		1–2 days		3–4 days		5+ days	
	4th	8th	4th	8th	4th	8th	4th	8th
1994	52	44	30	33	11	13	7	9
1998	53	44	30	34	11	14	6	8
2002	52	45	30	35	11	13	6	7
2003	49	44	30	35	13	14	8	8
2005	52	45	29	35	12	13	7	7

Table 2.2 Percentage of students, by grade, with English-language accommodations or other school support

	1994		1998		2002		2003		2005	
	4th	8th	4th	8th	4th	8th	4th	8th	4th	8th
Total	18	22	17	22	18	20	22	22	19	20
ELL										
Yes	–	–	23	26	20	23	20	23	21	23
No	–	–	17	22	18	20	22	22	19	20
Classified as having a disability										
Yes	–	–	26	31	23	28	27	30	24	29
No	–	–	16	21	17	19	21	21	19	20
Free Reduced Lunch										
Eligible	–	–	21	26	21	24	25	26	23	25
Not Eligible	–	–	14	20	16	18	20	19	17	18
Location										
Central City	20	24	17	22	18	21	22	23	20	22
Urban fringe/large town	17	21	16	21	17	20	20	20	18	20
Rural/small town	17	20	18	23	18	19	23	22	20	19

ELL = English Language Learner

learner, he/she was more likely to have missed 3 or more days of school in the past month (Table 2.2).

History of Classification Systems

Given the variety of reasons a student may be absent from school, a number of theories regarding classification systems have been developed to describe the phenomena that lead a student to engage in behaviors such as refusing or attempting to refuse school or to experience great distress when at school. When researchers began to see chronic school absenteeism as a clinical concern, rather than merely a more common feature of delinquency as was typically described (e.g., Healy, 1915; Burt, 1925; Williams, 1927), the initial descriptions of nonattendance were primarily related to the role of anxiety in chronic school absenteeism.

Broadwin (1932) described two types of "truants;" first those who were truant for more traditional reasons such as, "a loss of interest because of inability to keep up with the pace of the class or because the child can do more advanced work, unwitting and even willful encouragement of the parents, and 'bad' associates," (p. 253) and secondly, those students who are truant because of, "a deep seated neurosis of the obsessional type or displays a neurotic character of the obsessional type" (p. 254). Broadwin (1932) suggests that these children are in need of additional study and describes them as students who are "miserable, fearful, and (will) at the first opportunity run home despite the certainty of corporal punishment". This description of truancy as a function not of

an aversive environment or competing reinforcement outside of school but of a neurotic character led to additional work looking at school absenteeism as a clinical problem rather than a delinquency one.

Partridge (1939) described five types of groups engaged in truancy: an undisciplined group, a hysterical group, a desiderative group, a rebellious group, and a psychoneurotic group that was markedly different from the first four groups. Similar to Broadwin's second group of truants, Partridge described the psychoneurotic group as individuals whose behavior was not simply a means of escaping environmental concerns or fulfilling wants but instead reflected an overabundance of anxiety. Partridge also noted that this group frequently had an overprotective parent.

Johnson, Falstein, Szurek, and Svendsen (1941) spoke similarly about an emotional disturbance that led to prolonged absences from school, which they referred to as "school phobia." Similar to Partridge and Broadwin, Johnson et al. reported a subset of school refusers for whom anxiety was considerable, which were different from those who were seen as simple truants. Johnson et al. suggested that school phobic children had an acute anxiety that was caused by either an emotional conflict or an organic disease. The children's anxiety subsequently created an increase of anxiety in their mothers, which was followed by a poorly resolved dependent relationship of these children to their mothers.

Building on the "school phobia" diagnosis, Coolidge, Hahn, and Peck (1957) talked about school absenteeism as something specific to the school and not wholly related to the dependent nature of children's relationships with their mothers. Like the Johnson description, Coolidge et al. described a neurotic type of school phobia that was characterized by younger children with anxiety symptoms that suddenly occurred. Unlike the Johnson descriptions, Coolidge et al. also included a more traditional group of school refusers who were typically older and had a more gradual onset of school refusal behaviors. This group was similar to the non-anxiety groups described by Broadwin (1932) and Partridge (1939) while still adhering to the school phobia term.

Kennedy (1965) continued on the Coolidge et al. (1957) dichotomy related to school phobia. He described school phobia as being either Type 1, having acute onset, or Type 2, reflecting a "way of life" that was more gradual in development and more chronic in nature. He suggested that both types had common symptoms including:

(a) Morbid fears associated with school attendance and a vague dread of disaster
(b) Frequent somatic complaints: headaches, nausea, drowsiness
(c) Symbiotic relationship with mother, fear of separation
(d) Anxiety about many things: darkness, crowds, noises
(e) Conflict between parents and the school administration

Despite their similarities, Kennedy maintained that the two types were two different categories of disorders that would require differing types of treatments.

Berg, Nichols, and Pritchard (1969) continued classifying school phobic children as acute (nonproblematic school attendance for at least 3 years prior to the current episode) and chronic (all other cases) but added additional classification requirements:

1. *Severe difficulty in attending school*, often amounting to prolonged absence.
2. *Severe emotional upset*, shown by such symptoms as excessive fearfulness, undue tempers, misery, or complaints of feeling ill without obvious organic cause on being faced with the prospect of going to school.
3. *Staying at home with the knowledge of the parents* when they should be at school, at some stage in the course of the disorder.
4. *Absence of significant antisocial disorders* such as stealing, lying, wandering, destructiveness, and sexual misbehavior (p. 123).

Definitional Issues

While there are a number of similarities across each of these explanations of excessive absence,

and though they frequently use similar terminology (with varying degrees of relatedness) there are a number of differences as well. Differences across the foundation of and use of classification systems have made it difficult for researchers and clinicians to come to a consensus about the definition and classification of students who engage in school refusal behaviors. This difficulty is bolstered by the fact that both the DSM-IV (American Psychiatric Association, 2000) and proposed DSM-V diagnostic categories (American Psychiatric Association, 2011) do not include a specific formal diagnosis related to problematic absenteeism. Instead, school refusal behaviors are typically addressed under coexisting conditions that often occur comorbidly with school refusal behaviors. These can include but are not limited to Oppositional Defiant Disorder, Conduct Disorder, Separation Anxiety Disorder, Panic Disorder with Agoraphobia, Generalized Anxiety Disorder, Social Anxiety Disorder, and Specific Phobia. While all of these diagnoses could be related to school refusal behaviors, it does not necessarily follow that a student who engages in school refusal behaviors would qualify for any of these disorders.

Despite the long standing theoretical bases that have led to these differing classification systems, they all leave something to be desired because of the number of different environmental contingencies that lead to the same behavior, school refusal. This is easily seen in the number of differing nosologies related to the same behaviors. Whether considered school phobia or psychoneurotic truancy, the behaviors being described are similar and could be related to a number of common symptoms as suggested by Kennedy (1965). Even though distinctions such as chronic vs. acute and anxiety related vs. conduct disordered may be useful in classification, it does not stand to reason that a student who is engaging in school refusal for the first time (acute) has not been anxious about school for a long period of time. Additionally, problematic conduct outside of school does not necessarily mean that a student does not have debilitating anxiety problems within school. Students who engage in externalizing problematic behaviors are not necessarily free from internalizing problems or social anxiety. Research has repeatedly found that individuals referred with school refusal problems have been comprised of a number of subgroups including individuals with anxiety disorders, depressive disorders, and both (Bernstein, 1991; Bernstein & Garfinkel, 1986).

This heterogeneity of school refusers led Kearney and Silverman (1993) to create a functional model of child-motivated school refusal behaviors. In this model they aimed to examine school refusal behaviors from a functional point of view, probing environmental contingencies that could reinforce school refusal behavior, rather than only assessing perceived diagnostic correlates that use internal states to explain behavior. This functional view allows a greater direct link from behavioral function to treatment. Similar to prior functional explanations of behavior (e.g., Iwata, Dorsey, Slifer, Bauman, & Richam, 1994; Durand & Crimmins, 1988), Kearney and Silverman break maintaining variables broadly into positive and negative reinforcement and then more specifically into avoidance of stimuli providing negative affectivity, escape from aversive social or evaluative situation, attention getting behavior, and positive tangible reinforcement.

Given the number of differing definitions of school refusal behaviors suggested over the years and taking into consideration data regarding differing functions related to topographically similar behaviors, the authors of this paper would like to endorse the use of the Kearney and Silverman definition of school refusal behaviors as a means to describe this class of behaviors. Kearney and Silverman (1996) describes school refusal behavior as, "child-motivated refusal to attend school or difficulties remaining in classes for an entire day." They go on to say:

> this definition includes youth aged 5–17 years who, to a substantial extent, (a) are completely absent from school, and/or (b) initially attend then leave school during school days, and/or (c) go to school following behavior problems such as morning temper tantrums, and/or (d) display unusual distress during school days that precipitates please for future nonattendance.
>
> (Kearney & Silverman, 1996, pp. 345)

This definition encompasses a number of historical classifications including delinquent truancy, school phobia, and anxiety-based absenteeism.

While research on functional profiles of students engaged in school refusal behaviors shows that many profiles do at times match prior definitions (i.e., that students motivated by negative reinforcement were more often reporting high levels of fear and anxiety than those in positive reinforcement groups (Kearney, 2002; Kearney & Albano, 2004) this model allows students who are engaging in school refusal behaviors for multiple reasons (mixed functions) to be included under one umbrella definition.

Anxiety Related School Refusal

A study by Weeks, Coplan, and Kingsbury (2009) investigated both what correlates with social anxiety in childhood and what the consequences may be for children who experience symptoms of social anxiety. Their sample included 178 children in second grade. They found that anxious students liked school less and avoided school more than their non-anxious counterparts. They also found that anxious students reported themselves as more lonely at school than same aged non-anxious students. Additionally, anxious students' teachers perceived them as weaker students academically than the non-anxious students. These findings suggest that anxious students who dislike school are likely to display more school refusal behavior than non-anxious students.

Assessment Tools

Because of the great heterogeneity related to school refusal behaviors and myriad of theoretical explanations for these behaviors, a number of assessment procedures have been utilized over the years to assess school refusal. As a means of covering multiple sources of assessment procedures, the current authors chose to report on a variety of assessments used to examine school refusal. These may be of varying benefit depending on the nature of school refusal. It is suggested that multiple methods are used when examining behavior, but that in all cases, assessments be used to inform intervention.

Diagnostic Interviews

Anxiety Disorders Interview Schedule for *DSM-IV*: Child and Parent Version (Silverman & Albano, 1996)

The ADIS is a semi-structured diagnostic interview that can be used to assess school refusal and related problems in youth ages 6–18 (Silverman & Albano, 1996). The Anxiety Disorders Interview Schedule for *DSM-IV*: Child and Parent Version (ADIS for *DSM-IV*:C/P) has both a child and a parent interview with questions in regard to school refusal behaviors that have occurred within the last year (King & Bernstein, 2001). The interview consists of six yes/no questions in relation to school refusal, including items, such as, "do you get very nervous or scared about having to go to school?" and, "do you miss or leave school early because you like it better home?." There are additional open-ended questions aimed at uncovering why school is anxiety-provoking and determining the duration of the school refusing behavior. The final part of the school refusal section includes 15 items common in a school setting (such as *speaking to other people* and *taking tests*) that are rated on a 0–8 scale for degree of fear for that item and for how much fear of that item interferes with the ability to attend school (Silverman & Albano, 1996). Silverman and Albano (1996) emphasize that significant scores on the school refusal behaviors section on the ADIS for *DSM-IV*:C/P require follow-up within *DSM-IV* diagnostic categories to better understand the nature of the problem.

In addition to the section on school refusal behaviors, the ADIS for *DSM-IV*:C/P includes sections for the assessment of each of the nine diagnostic categories of anxiety listed in the *DSM-IV*, sections for the diagnosis of mood disorders, and a section for the identification of externalizing disorders (Silverman & Albano, 1996). This large range of categories makes the ADIS for *DSM-IV:*C/P a useful tool to help determine the nature of school refusal behaviors and identify possible comorbid disorders (King & Bernstein, 2001; Silverman & Albano, 1996). The ADIS for *DSM-IV:*C/P has been shown to have good inter-rater reliability and test–retest reliability (for combined child and

parent interviews: $\kappa = 0.84$ for separation anxiety disorder, $\kappa = 0.92$ for social phobia, $\kappa = 0.81$ for specific phobia, and $\kappa = 0.80$ for generalized anxiety disorder; Silverman & Ollendick, 2005). Additionally, it has been shown to have concurrent validity with the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997; Silverman & Ollendick, 2005).

An example of use of the ADIS for *DSM-IV:*C/P in youth with school refusal behavior is a study by Kearney and Albano (2004), in which they used the interview to obtain *DSM-IV* diagnoses for 143 school-refusing children, aged 5–17 years. Of that sample, close to a third did not meet criteria for a *DSM-IV* diagnosis with the remaining two-thirds meeting diagnostic criteria for primarily anxiety disorders, mood disorders, or conduct disorders.

To further assess for the presence of anxiety disorders in youth with school refusal, it can be advantageous to utilize self-report measures (King & Bernstein, 2001).

Survey and Self-report

Revised Children's Manifest Anxiety Scale-Second Edition (Reynolds & Richmond, 2008)

The Revised Children's Manifest Anxiety Scale Second Edition (RCMAS-2) is an updated version of the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1985), the most common self-report measure for anxiety disorders in children (Silverman & Ollendick, 2005). It was normed with an ethically diverse sample of more than 2,300 children between 6 and 19 years, with separate norms for three age groups 6–8 years, 9–14 years, and 15–19 years. The RCMAS-2 consists of 49 yes/no items, intended to cover physiological anxiety, worry, social anxiety, and defensiveness. In addition to these scales the RCMAS-2 has a new cluster of items meant to assess performance anxiety. The RCMAS, which scales correlate highly with the RCMAS-2 had an internal consistency of above 0.80 and test–retest reliability ranging from 64 to 76 across total scale and subscales (Reynolds & Richmond, 1985; Silverman & Ollendick, 2005).

Multidimensional Anxiety Scale for Children (March et al., 1997)

The MASC is a 39-item scale intended for youth aged 8–19 years that assesses physical symptoms of anxiety, social anxiety, harm avoidance, and separation/panic (March et al., 1997; Silverman & Ollendick, 2005). The MASC has good internal consistency, ranging from 74 to 90 across total scale and subscales and test–retest reliability of 34–93 at an interval between 3 weeks and 3 months (March, Sullivan, & Parker, 1999; Silverman & Ollendick, 2005).

Self-report

Social Anxiety Scale for Children-Revised (La Greca & Stone, 1993)

The Social Anxiety Scale for Children-Revised (SASC-R) is a 22-item scale that assesses three subscales of social anxiety in children aged 7–13 years. When rating themselves on this scale, children are asked to respond to each item using a 4-point Likert type scale ranging from *not at all* to *all the time*. Raters respond to three distinct factor sets including fear of negative evaluation (eight items), social avoidance and distress to novelty (six items), and general social avoidance and distress (four items). Technical adequacy as measured by internal consistency is good (La Greca & Stone, 1993).

Fear Survey Schedule for Children-Revised (Ollendick, 1983)

The Fear Survey Schedule for Children-Revised is an 80-item measure where children aged 8–11 are asked to rate each item on a 3-point scale to identify how much fear they encounter when engaging in the behavior. Though this measure is not specific to school refusal behaviors, there are a number of items that are school oriented including giving an oral report, riding in the car or bus, being sent to the principal, meeting someone for the first time, being teased, failing a test, having to go to school, playing rough games during

recess, getting a report card, taking a test, and having to stay after school. In addition to being reliable and valid, reviews of the Fear Survey Schedule for Children (Scherer & Nakamura, 1968; Last, Francis, & Strauss, 1989) have independently suggested that the measure can be used to discriminate between children who refuse school because of separation anxiety disorders and those who are truly school phobic children.

Visual Analogue Scale for Anxiety-Revised (Bernstein & Garfinkel, 1992)

The Visual Analogue Scale for Anxiety-Revised is an 11-item self-report rating scale, aimed at quantifying an individual's anxiety on 11 potentially anxiety producing situations. The test was normed with children between the ages of 8.6 and 17.6 years. The 11 items were selected from 40 items based on their correlation with scores on the Revised Children's Manifest Anxiety Scale (RCMAS, Reynolds & Richmond, 1985) and the State-Trait Anxiety Inventory for Children (STATIC, Spielberger, 1973). Of the 11 items, 7 are school related and include being called on by the teacher, eating alone in the lunchroom, starting school in the fall, riding the school bus, thinking about going to school on Monday, speaking in front of class, and walking into the school building. The 11 items have an internal consistency of 80 and test–retest reliability of 0.87 (Bernstein & Garfinkel, 1992).

School Refusal Assessment Scale-Revised (Kearney, 2002)

The School Refusal Assessment Scale-Revised (SRAS-R) is a 24-item scale aimed at determining what function maintains school refusal behavior. The normative sample included children between the ages of 6 and 17. Unlike all of the previously mentioned assessments, the SRAS-R is specifically designed to examine school refusal behaviors and thus all 24 items are directly related to school-based behaviors. Each of the four conditions—avoidance of stimuli providing negative affectivity, escape from aversive social or evaluative situation, attention getting behavior, positive tangible reinforcement—are represented by six questions that are rated on a 7-point Likert-type scale ranging from *never* to *always*. At the completion, the means for each of the four conditions is ranked and the highest scoring condition is considered to be the primary functional consequence maintaining the school refusal behavior. There are both parent and child forms, for which all item have significant test–retest reliabilities at both 7 and 14 days (Kearney, 2002). Additional work has been done to examine the factor structure of the scales (Kearney, 2006). With the exception of three items, there was strong support for a four factor structure that maps on to the proposed four functions of school refusal behaviors.

Social Skills and Social Anxiety

Given that social anxiety and a lack of social skills could be related to both students with issues concerning truancy or students with anxiety based school refusal, one means of alleviating school refusal behaviors would be the assessment and treatment of social skill deficits. The DSM-IV describes Social Anxiety as fear of social situations and fear of being negatively evaluated by others (American Psychiatric Association, 2000). Researchers have theorized that a student has a greater chance of developing a social anxiety disorder if the disorder is present in the student's parents (Beidel & Turner, 1997), if the student's parents have a parenting style that is either critical/unaffectionate or overprotective (Rapee, 1997), or if the student is shy or demonstrates an inhibited temperament (Ollendick & Hirshfeld-Becker, 2002; Weeks et al., 2009). Additionally, Coplan, Arbeau, and Armer (2008) demonstrated a relationship between children's shyness and their mothers' overprotective parenting style and/or their mother being classified as neurotic. This relationship may suggest a social learning hypothesis of anxiety development whereby children learn anxiety-related behaviors from observing them in others (Wood, McLeod, Sigman, Hwang, & Chu, 2003; Weeks et al., 2009).

Kearney and Albano (2004) examined 143 youths with primary-school refusal behaviors who were absent a mean of 37.22% of school days and found that as many as 3.5% would

qualify for a primary diagnosis of Social Anxiety Disorder, 10.5% would qualify as having a generalized anxiety disorder, and 22.4% would qualify as having Separation Anxiety Disorder. With as many as 7.7% of examined students who would qualify as having either a primary or secondary diagnosis of Social Phobia, it is clear that additional social skills assessment and intervention may be necessary for a subset of students who are engaging in school refusal behaviors.

From a functional point of view, students with social anxiety problems would seemingly be engaging in school refusal behaviors to avoid negative social interactions either with peers or teachers (i.e., to receive negative reinforcement). Given school refusal's history in truancy-related literature, it can be difficult to realize how prevalent anxiety and negative reinforcement is for individuals engaged in school refusal behaviors but students who engage in negatively reinforced school refusal behaviors are wide spread. Research using the School Refusal Assessment Scale (Kearney & Silverman, 1993) has suggested that a number of students engaging in school refusal behaviors are doing so to avoid or escape negative situations in school with almost 44% of parents ratings on the SRAS-P suggesting school refusal behaviors were motivated by negative reinforcement (Kearney & Albano, 2004). Additional research suggests that as little as 60% of students have a singularly positively reinforced school refusal profile (Dube & Orpinas, 2009).

Given the prevalence of school refusers who have difficulty with social anxiety, additional school-based assessments of social skills/social anxiety can be useful in developing intervention.

An evidence-based assessment of social skills/social anxiety in children can be aided by using the Social Skills Improvement System-Rating Scales (SSIS-RS; Gresham & Elliott, 2008). The first stage, if possible, for assessment is screening entire schools in order to find students at risk for developing behavior problems related to social skills. Students should be screened at school 2–3 times/year to determine whether they are at risk for developing problems associated with social anxiety. These times can either be set by the school calendar (beginning, middle, and end of school year) or when a complaint either from the student (school refusal behavior), his parents (bullying), or the school (number of absences) may require a screening. Screening is important as children with internalizing behavior problems may "fly under the radar" and be "invisible" in the classroom (Merrell & Gueldner, 2010). The importance of finding these students cannot be understated, as unserved children are at higher risk for more severe internalizing problems, externalizing behavior problems, peer rejection, lack of employment opportunities, and problems associated with substance abuse (Compton, Burns, Egger, & Robertson, 2002; Reinherz et al., 2006; Sourander & Helstela, 2005; Vasa & Pine, 2006).

Two additional methods of screening are outlined here. Screening students can also be done by using the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997; 1999). The SCARED is a 38-item screening tool that assesses the student's severity of different symptoms of Separation Anxiety, Generalized Anxiety, Social Phobia, and School Phobia over the past 3 months. Technical adequacy of the SCARED as measured by internal consistency and test–retest reliability is good (Silverman & Ollendick, 2005).

A last screening method for screening social anxiety and internalizing problems includes the Student Internalizing Behavior Screener (SIBS; Cook, 2010). The SIBS is a screening tool that uses teacher ratings to identify whether students in grades 1–5 are at risk for developing internalizing behavior problems. A quick screening instrument, the SIBS consists of seven items; and it has adequate technical adequacy via internal consistency and test–retest measures, as well as correlates highly with the Internalizing scale of the Achenbach TRF (Cook, 2010).

Once students are identified as at risk, completing the SSIS-RS yields a measure of social skills functioning, which shows whether there is a comprehensive deficit in social skills. Examining the items in which the student is either a performance or acquisition deficit allows for appropriate intervention planning. Additionally, if the student scores above average or higher on one of

the subscales, hypotheses from the SRAS may be further supported. If the student scores high on the externalizing subscale, then it may aid in conforming the functional hypothesis that the student would be pursuing attention or a tangible reward outside of the school setting. On the other hand, if the student scores high on the internalizing subscale, there may be more evidence for the hypothesis that the student is avoiding general school-related stressors or escaping aversive social and/or evaluative situations in school (Kearney, 2007).

While this negatively reinforced school refusal may exist in combination with other functions of behavior that are secondary, for any real gains to be made, interventions targeting school-based anxiety and social skills deficits should be on the forefront of treatment. A tiered model of interventions and assessment for students with social skills deficits that could be leading to school refusal behaviors is discussed below.

Social Skills Anxiety Treatment by Tiers

Response to Intervention (RTI) is a decision-making framework used to match the current needs of students to an appropriate intervention. With the reauthorization of IDEA in 2004, local education agencies (LEAs) are allowed to use RTI to determine whether a child has a specific learning disability, and the framework is being used similarly for behavior with the emergence of School Wide Positive Behavior Intervention Supports (SWPBIS). Response to Intervention uses student's data (response) to empirically validated interventions to determine whether the current level of instruction is adequate for that student in order for him/her to progress with students in his/her class. An RTI framework allows for a continuum of supports across three tiers.

Tier 1 is a universal tier, in which all students receive a research-based intervention and are screened throughout the school year to determine if their progress is adequate. Related to social skill anxieties, such universal interventions could include class wide instruction to explain steps directly related to the performance of social skills as well as what to do when in difficult social situations (as would be experienced by students with social anxiety problems).

If screening data determines the student is not progressing satisfactorily in the universal program, the student receives a Tier 2 intervention. These evidence-based interventions are used to supplement the universal intervention, and the goals of these interventions are to get the student's level of performance back on par with the rest of his/her instructional level. Related to social skill anxieties, secondary interventions could include a smaller group where there is role playing specific problematic situations that the student would likely face when in the regular school setting. This intervention would supplement the universal program and its aim would be to get the student up to speed so that he/she can benefit directly from the universal program. Similar to academic interventions, when the student catches up with the universal program, the additional intervention would be unwarranted.

If the student is not progressing quickly enough in a Tier 2 intervention or is not making any gains, he/she is referred for a Tier 3 intervention. For academics, these interventions are intensive, individualized instruction aimed at getting the student back to grade level. For behavior, these interventions are based on function-based assessment and appropriate replacement behaviors are explicitly taught to the student and reinforced with function-based reinforcement. For students with social skill anxieties with peers, Tier 3 interventions could include an examination of what specific aspects of peer interaction are problematic and working to reduce anxiety through cognitive behavioral therapies. Additionally, a functional intervention that would allow for a brief escape from social situations after appropriate interaction occurs could be put into place. When the student engages in targeted behaviors at a more typical level, he/she would be moved back into a Tier 2 intervention until the universal intervention is sufficient for adequate functioning.

Social Skills Intervention System

In a tiered model of intervention, the least restrictive intervention is considered the most appropriate,

and individualized intervention, focused on functional relationships of behavior are only utilized when nonfunction interventions (universal, small groups) have proved ineffective. For example, if a student is making appropriate behavioral and social progress in the general education setting where only the placement of school-wide rules and brief universal lessons describing appropriate social behavior are in place, it would seem inappropriate to pull them out for additional instruction or to put an intensive behavioral intervention in place. For this reason, within a tiered model of social instruction students move from the least restrictive environment (universal program only) to more moderately intensive programs (small group instruction/nonfunction-based intervention) to intensive individualized interventions (direct instruction, functional interventions targeting replacement behaviors).

One tiered model of instruction that could be useful for teaching social skills to students engaging in school refusal behaviors because of social anxiety can be found in the The Social Skills Improvement System (SSIS; Elliott & Gresham, 2007, 2008). The SSIS was written in order for practitioners and administrators to have a method of screening and teaching social skills to students matched to their level of need. Instructional programming, with measures to continuously measure performance/response, is manualized in Tier 1 and Tier 2 (for acquisition deficits, see below). Guidelines for conducting Tier 2 interventions for performance deficits (see below) and Tier 3 FBA-RBT interventions are available in the program, but because these interventions are increasingly individualized, stringently manualized interventions are not included.

Universal Social Skills Training

The SSIS-Classroom Intervention Program (CIP; Elliott & Gresham, 2007) is the universal program of the SSIS. The CIP teaches the top ten social skills as rated by 8,000 (or 800?) teachers across the country over a 10-week period. Evidence-based methods of instruction are used by the student's general education teacher to teach social skills in the same method as he/she would teach reading or math. Teachers track student's response to this intervention by using the Performance Screening Guide (PSG) which allows the teacher to rank the student's prosocial behavior on a 4-point Likert scale. At the completion of the program, if the student's teacher rates his/her prosocial behavior as a 1 or 2, he/she progresses to Tier 2 of the program.

The Social Skills Improvement System-Rating Scales (SSIS-RS) assess students in social skills, problem behaviors, and academic competence. Ratings can be acquired from the student himself, his teachers, and his parents, allowing for a comprehensive assessment. The social skills domains assessed are communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. The problem behavior domains assessed are internalizing, externalizing, bullying, hyperactivity/inattention, and autism spectrum. The academic competence scale is on the teacher version and assesses the student's classroom performance in reading, math, motivation, parental support, and general cognitive functioning. The SSIS-RS is validated in test content, item-total correlations, inter-correlations, internal structure, and relations with other variables (Gresham & Elliott, 2008). Additionally, correlations with particular scales and subscales of the Behavioral Assessment Scale for Children-2 (BASC-2) and the Vineland Adaptive Behavior Scales, Second Edition are moderate to high (Gresham & Elliott, 2008; Gresham, Elliott, & Kettler, 2010).

The SSIS-RS ratings yield a standard score in the areas of social skills and problem behaviors; and additionally, the SSIS-RS allows for appropriate classification of the student's social skills deficit, which aids in both correctly identifying the problem and the appropriate intervention for that problem. Social skills deficits are typically distinguished between social skills acquisition deficits and social skills performance deficits (Gresham, 1981; Gresham et al., 2010).

Skill acquisition deficits are characterized as "can't do" problems. To elaborate, acquisition deficits stem from either the student's lack of knowledge of how to appropriately perform an appropriate skill or the student's inability to

choose the correct skill to emit in specific settings or situations (Gresham, 1981, 2002; Gresham et al., 2010). Therefore, the student was either never explicitly taught the appropriate skill or never reinforced for exhibiting the appropriate skill/behavior in a particular situation, and the skill has never been entrenched in the student's repertoire. Students with social anxiety regarding interactions with peers could have these difficulties from a lack of experience in engaging with peers (as could be seen in early grades) and would benefit from specific instruction in engaging with other students. Therefore, interventions for students with skill acquisition deficits require intervention strategies with similar evidence-based techniques for teaching any academic skill: direct instruction, modeling, practice, and performance feedback (Elliott & Gresham, 2008; Gresham et al., 2010).

Social skills performance deficits are then characterized as "won't do" problems. With a performance deficit, the student has the skill/behavior in his repertoire; but in the situation calling for this behavior, he chooses to use an alternative, inappropriate behavior (Gresham, 1981, 2002; Gresham et al., 2010). In other words, the student knows how to perform the appropriate skill, but is not due to a motivational/reinforcement issue. Students who have had prior experiences engaging with other students, but have gained a phobia specific to these interactions because of prior difficulties could be in this group. Despite knowing how to engage with other students, prior experiences have failed to be reinforcing. Interventions for students with skill performance deficits require altering the student's environment in a way that the student receives a more potent reinforcer at a higher rate than the reinforcement that is maintaining the inappropriate behavior (Gresham, 1981, 2002; Gresham et al., 2010).

The SSIS-RS allows for differentiation between these two classifications via the method in which the rater indicates the frequency and importance of each item. On the teacher and parent versions, frequency is indicated on a 4-point scale (never, seldom, often, and almost always) and importance is indicated on a 3-point scale (not important, important, and critical). The student version uses a 4-point scale for frequency (not true, a little true, a lot true, and very true) and the same 3-point scale for importance (Gresham & Elliott, 2008; Gresham et al., 2010). An item/behavior that could be classified as a skill acquisition deficit is defined as an item with a frequency score of never and an importance rating of either important or critical. Skill performance deficits are items that receive a frequency rating of seldom and an importance rating as critical (Gresham et al., 2010).

Individualized Interventions for Social Skills Anxiety

Failure to respond after receiving a Tier 2 intervention matched to skill deficit would progress the student to Tier 3. As stated earlier, the Tier 3 intervention involves replacement behavior training using reinforcers determined by Functional Behavior Assessment (FBA). A Functional Behavior Assessment is a multimethod assessment tool in which multiple personnel (a team) involved with the student on a day-to-day basis work together in order to determine the behavioral function maintaining the inappropriate behaviors.

The protocol for an FBA requires both direct methods of assessment (observations) and indirect methods of assessment (record review, functional assessment interviews with multiple personnel, direct behavior ratings). The team then makes hypotheses about the function of the student's behavior (attention, escape, access to tangibles) and uses reinforcers matched to that function to help build momentum for the new replacement behavior. Using the SSIS-RS, students who would qualify for this intervention would score 1 SD below the mean on Social Skills (<85) and 1 SD above the mean on Problem Behaviors (>115). The Problem Behaviors items on the SSIS-RS are considered to be "competing behaviors" that are receiving the reinforcement that the appropriate social skills should be attaining. Once a function-based intervention is in place, progress should be monitored using direct observation, direct behavior ratings, self-measurement, and other school archival data such as ODRs and conduct grades.

Conclusion

Kearney (2001) suggests that between 5 and 28% of children and adolescents engage in some type of school refusal behaviors, with as much as 44% of students engaging in these school refusal behaviors for negative reinforcement and as many as 7.7% of clinical samples of school refusers qualifying as having either a primary or secondary diagnosis of a Social Phobia (Kearney & Albano, 2004). Given this prevalence rate, assessment and intervention of social anxiety and concomitant social skills deficits are a necessity in schools today to help school refusers cope with and adapt to the school environment.

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Assessment of Selective Mutism and School Refusal Behavior

3

Christopher A. Kearney and Melissa Spear

Selective mutism and school refusal behavior are complex, emergent, and often ambiguous problems that can present frustrating challenges for clinicians and researchers. Selective mutism is a condition in which a child fails to speak in public situations where speaking is expected. Children with selective mutism often speak well in familiar situations such as home but not in public situations. Failure to speak must last at least 1 month. Selective mutism does not generally apply to youths who lack comfort or knowledge with the primary language spoken in public situations (American Psychiatric Association, 2000). The conceptualization of selective mutism remains unclear, but researchers often link the condition to social anxiety, mild oppositional behavior, and/or communication problems (Cohan et al., 2008; Kristensen, 2000; Sharp, Sherman, & Gross, 2007; Vecchio & Kearney, 2005; Yeganeh, Beidel, & Turner, 2006). Selective mutism can lead to peer rejection, incomplete verbal academic tasks or standardized tests, and/or inadequate language or social skills (Cohan, Price, & Stein, 2006; Cunningham, McHolm, & Boyle, 2006; Remschmidt, Poller, Herpertz-Dahlmann, Hennighausen, & Gutenbrunner, 2001; Steinhausen, Wachter, Laimbock, & Metzke, 2006).

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School refusal behavior refers to refusal to attend school and/or difficulties remaining in classes for an entire day (Kearney & Silverman, 1996). This may involve extended or periodic school absences, skipped classes, chronic tardiness, morning misbehaviors in an attempt to miss school, and substantial distress during school that precipitates pleas for future nonattendance (Kearney, 2001). School refusal behavior may be considered problematic when a child (1) has missed at least 25% of total school time for at least 2 weeks, (2) experiences severe difficulty attending classes for at least 2 weeks with significant interference in a youth's or family's daily routine, and/or (3) is absent for at least 10 days of school during any 15-week period while school is in session, with an absence defined as 25 % or more of school time missed (Kearney, 2008a). School refusal behavior encompasses historical terms such as truancy, anxiety-based school refusal, school phobia, and separation anxiety. Extended absenteeism is associated with many medical and psychiatric conditions and can lead to poor long-term outcomes such as school dropout and economic and occupational problems in adulthood (Kearney, 2008b).

Selective mutism and school refusal behavior can be comorbid in a child, but this is not typically the case. This chapter thus covers major assessment methods for each condition separately. For both conditions, however, a behavioral assessment approach that focuses on specific parameters and functions of the problematic behavior is emphasized. Assessment measures

D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_3,

common to both conditions, for example, include interviews, questionnaires, daily monitoring, and observations. Other assessment strategies specific to each condition are discussed as well.

Assessment of Selective Mutism

The general goal in assessing selective mutism is to evaluate the parameters and function of a child's failure or refusal to speak. This process can involve methods that are more time intensive or less time intensive. Recall that children with selective mutism often show characteristics of social anxiety, mild oppositional problems, and/or communication problems. Assessment for this population thus concentrates on these features. The following sections cover major assessment methods for children with selective mutism, including interviews, questionnaires and daily monitoring, behavioral observations, and formal testing and review of records.

Interview

Interviews with this population may seem inherently difficult given a child's nonverbal nature and the fact that a young child with selective mutism can be overwhelmed by this assessment process and become nonresponsive. However, many children with selective mutism will respond nonverbally to yes–no or otherwise simple questions posed about general issues such as school as well as specific issues such as how they communicate in public. In addition, interviews with parents, teachers, and relevant others are invaluable for deriving information about a child's frequency and audibility of speech in various situations (Dow, Sonies, Scheib, Moss, & Leonard, 1995).

Structured diagnostic interviews for selective mutism remain sparse, though the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions contains a specific section for selective mutism that mirrors DSM-IV criteria (Silverman & Albano, 1996). Another interview format is the Functional Diagnostic Protocol that covers conditions under which selective mutism occurs and what reinforcers maintain mutism over time (Schill, Kratochwill, & Gardner, 1996).

Interviews for cases of selective mutism may also be tailored in semi-structured fashion. A key first task is to determine whether a child truly meets criteria for selective mutism because children who are overly shy may be misdiagnosed with this mental disorder. The following questions may be helpful (Kearney, 2010). Answers that support a diagnosis of selective mutism are in parentheses.

- Does the child show a persistent failure to speak in public situations where speaking is expected? (Yes)
- Does the child speak well in other situations, especially at home? (Yes)
- Does the child's refusal to speak interfere significantly with her educational or occupational achievement or social communication? (Yes)
- Has the child's failure to speak lasted at least 1 month and not just during the first month of school? (Yes)
- Is the child's failure to speak due to lack of knowledge of, or comfort with, the spoken language required in a social situation? (No)
- Is the child's failure to speak better accounted for by a communication disorder? (No)
- Does the child's failure to speak occur exclusively during the course of a pervasive developmental disorder (e.g., autism), schizophrenia, or other psychotic disorder? (No)

Interviews should also cover specific settings in which a child fails to speak or is reluctant to speak. Table 3.1 includes a worksheet to assist this process. Many children with selective mutism have utmost difficulty speaking in school-based situations, so these situations should be described thoroughly. Special attention should be paid to whether a child speaks in less difficult school-based situations such as the playground or cafeteria compared to more difficult school-based situations such as group projects or reading aloud in a classroom.

An assessment of settings in which a child fails to speak must include a full understanding of the range of speaking behavior in each setting.

Table 3.1 Potential situations involving selective mutism or reluctance to speak

Does the child refuse/fail to speak or have great reluctance speaking in the following situations?		
	Mutism	Reluctance to speak
Home	Y/N	Y/N
Answering the door or telephone	_____	_____
Speaking to parents	_____	_____
Speaking to siblings	_____	_____
Speaking to visitors the child knows well	_____	_____
Speaking to visitors the child does not know well	_____	_____
Speaking to peers inside the home with parents present	_____	_____
Community/public	Y/N	Y/N
Speaking to parents or siblings in markets and similar places	_____	_____
Speaking to peers at social events or extracurricular activities	_____	_____
Speaking to clerks or waiters	_____	_____
School	Y/N	Y/N
Speaking to peers on the playground	_____	_____
Speaking to peers in hallways and related situations	_____	_____
Speaking to peers in the classroom	_____	_____
Speaking to peers at lunch/cafeteria	_____	_____
Speaking to peers on the school bus	_____	_____
Speaking to parents at school	_____	_____
Speaking to teachers on the playground	_____	_____
Speaking to teachers in the classroom	_____	_____
Speaking to other staff members at school	_____	_____
Speaking during academic activities	_____	_____
Speaking or reading before classmates	_____	_____
Other situations	Y/N	Y/N
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Adapted from Kearney (2010)

Many children with selective mutism show a patchy distribution of communication methods in various situations. A child may whisper to a friend on the playground, for example, but never speak in class. Another child may communicate only to parents when at school and only nonverbally. An exhaustive assessment of settings involving selective mutism, including the degree to which a child is willing to verbally or nonverbally communicate in each situation, helps establish a baseline of the frequency and audibility of speaking behavior that can serve as the starting point for intervention. Communication methods along a spectrum can include nonverbal means (e.g., pointing, gesturing, mouthing words), vocalizations (e.g., grunts, incomplete words), whispers, barely audible speech, and quiet expression of words.

Interviews should also cover the immediate circumstances surrounding failure to speak that may help explain why the behavior continues to occur. Specific interview questions may be helpful to ascertain the function of a child's selective mutism. These questions can involve whether a child's failure to speak is due to (1) a desire to decrease anxiety, (2) a desire to increase social or sensory (physical) feedback from others, (3) a desire to avoid aversive directives from others,

and/or (4) inefficient or underdeveloped speaking skills (Kearney, 2010).

The interview process should also cover contextual factors that can impact a child's failure to speak. Key contextual variables include recent traumatic events, difficult family transitions such as divorce, problematic family communications, intense parental shyness, school-based threats, and whether a non-English language is primarily spoken in the home. Child-based variables such as separation or social anxiety could affect selective mutism as well. A sample list of questions regarding these variables is in Table 3.2. Assessment should also include a full medical evaluation to exclude physical problems that may explain selective mutism.

Interviews should also cover how significant others respond to a child's failure to speak in public situations. This applies especially to parents and teachers but can include peers, siblings, extended family members, and others who interact regularly with the child. Interviews with significant others are especially important for discovering compensatory behaviors, or forms of communication with others in lieu of audible speech. Common examples include pointing, gesturing, whistling, nodding or shaking head, stomping feet, whispering in a parent's ear, pulling on clothing, and writing words in the air with one's fingers. Other compensatory behaviors include grunts, odd or high-pitched noises, or slurred or incomplete expressions. Significant others will often speak for a child, explain mutism as excessive shyness, order food for a child, permit avoidance of social interactions, deliberately withdraw a child from social situations, or decline to call on a child in class. Key questions thus include whether significant others complete tasks for a child when he fails to speak, rearrange settings to accommodate a child's mutism, allow whispers or other compensatory behaviors, or help a child communicate with others.

Table 3.2 Suggested questions regarding child variables that may impact selective mutism

Does the child seem generally anxious or nervous? Does the child have physical symptoms of anxiety such as trembling, sweating, or crying? Does the child report being scared or anxious in different situations?
Does the child seem socially anxious? Does the child commonly avoid situations such as birthday parties or soccer games that involve social interaction or some type of evaluation?
Has the child expressed concerns about speaking such as negative reactions from others?
Does the child have a history of separation anxiety from significant others such as parents? Does the child often cling to parents, cry when separation occurs or is anticipated, or refuse to attend school?
Does the child seem depressed? Does the child show sad mood, poor self-esteem, poor eating or sleeping habits, social withdrawal, or tendencies to self-harm?
Does the child show oppositional tendencies? Does the child often show defiance or noncompliance, argue with parents, or throw temper tantrums?
Does the child have a history of poor communication such as inarticulate speech, stuttering, or other expressive or receptive language problems?
What is the child's general level of intellectual functioning?
Can the child engage in basic adaptive self-care skills such as dressing, washing, eating, and using the toilet appropriately and independently?
Does the child show compensatory behaviors such as whispering, pointing, gesturing, high-pitched noises, grunts, incomplete words, or other nonverbal methods of communication?
Does the child have health problems that may specifically impact his ability to speak?

From Kearney (2010)

Questionnaires and Daily Monitoring

Questionnaires and worksheets have been designed specifically for selective mutism. The Selective Mutism Questionnaire (SMQ) is an instrument that assesses a child's willingness to speak to others in school, home/family, and public/social situations (Bergman, Keller, Piacentini, & Bergman, 2008). School items involve a child's willingness to speak to peers, teachers, and others at school. Home/family items involve a child's willingness to speak to family members when others are present or in unfamiliar situations, to extended family members and babysitters, and to people on the telephone. Public/social items involve a child's willingness to speak to unfamiliar peers or others outside of school. Parents rate each item as never, seldom, often, or always.

Table 3.3 Sample parent rating sheet for selective mutism

DIRECTIONS: Record the numbers of words your child spoke, whispered, or mouthed today in the following situations. Rate how loud your child's speech was on a 0-10 scale where 0= not at all audible and 10 = completely audible. Use any number from 0 to 10.

0 1 2 3 4 5 6 7 8 9 **10**
Not Audible **Moderately Audible** **Completely Audible**

IN PUBLIC/AT HOME/ON THE TELEPHONE

#Words mouthed **#Words whispered** **#Words spoken** **Audibility rating**

DIRECTIONS: Record the people that your child spoke, whispered, or mouthed to today in the following situations, by answering yes or no. Please circle YES or NO.

IN PUBLIC
Mouthed **family YES NO friend YES NO teacher YES NO other person YES NO**

Whispered **family YES NO friend YES NO teacher YES NO other person YES NO**

Spoken **family YES NO friend YES NO teacher YES NO other person YES NO**

TELEPHONE
Whispered **family member YES NO friend YES NO teacher YES NO**

Spoken **family member YES NO friend YES NO teacher YES NO**

AT HOME
Mouthed **family member YES NO friend YES NO other person YES NO**

Whispered **family member YES NO friend YES NO other person YES NO**

Spoken **family member YES NO friend YES NO other person YES NO**

Did your child mouth, whisper, or speakto someone that he/she does not normally speak to?
YES NO

If yes, please indicate who and describe the amount and audibility of words communicated

Adapted from Kearney (2010)

Other questions focus on degree of interference or distress associated with a child's mutism. These items are rated as not at all, slightly, moderately, or extremely. Lower scores on the SMQ reflect lower frequency of speaking behavior. The measure has strong psychometric properties (Letamendi et al., 2008). The School Speech Questionnaire (SSQ), a supplemental measure, is an 8-item instrument completed by the teacher that involves school-based speaking behavior in different situations. Other researchers have used the Rating Scale for Elective Mutism, a 45-item measure of clinical and potential contextual factors surrounding failure to speak (Facon, Sahiri, & Riviere, 2008).

Questionnaires are good measures of the severity of a child's selective mutism but do not supply information about a child's daily fluctuations in speech, audibility, or anxiety. In our work with youths with selective mutism, we utilize daily monitoring forms for children, parents, and teachers. Table 3.3 contains our parent form. Parents record number of words spoken, mouthed, and whispered that day across several

situations noted in the table, and other situations can be added as relevant. Parents also rate how audible a child's speech was for words produced that day, if any. The scale also requires parents to record to whom the child spoke that day. Forms such as these are useful for monitoring daily fluctuations and progress in a child's audibility and frequency of speech. Vecchio and Kearney (2009) found in a treatment outcome study that interrater reliability among child, parent, and teacher daily reports of number of words spoken was 86. Interrater reliability between children and parents was 92.

Other questionnaires may be relevant to cases of selective mutism. These include child self-report measures of internalizing problems such as general and social anxiety and depression (see later school refusal behavior section). Some children with selective mutism worry about negative consequences of speaking to others, so items related to worry should be given special consideration. Parent/teacher checklists for internalizing and externalizing behavior problems are also relevant in some cases where oppositional behavior is a key feature of a child's selective mutism (Fisak, Oliveros, & Ehrenreich, 2006). Daily monitoring of oppositional problems such as noncompliance to parent commands to speak is often essential as well.

Behavioral Observations

Behavioral observation is a time-intensive assessment strategy but one that can be quite useful for determining the parameters and function of a child's selective mutism. Behavioral observations of a child at home, in a public situation, and at school provide not only information about the depth of a child's failure to speak but also clues as to why the behavior continues to occur. Observations can also be done in a clinician's office to some extent as well. A child who physically withdraws when someone tries to speak to him may have social anxiety, whereas a child who tantrums when asked to speak may be avoiding aversive directives from others. Audio or video recordings from home may also be useful in this regard (Jackson, Allen, Boothe, Nava, & Coates, 2005).

Behavioral observations in a child's home are useful for gathering information about whether and how a child interacts with people she knows well and does not know well, whether other family members dominate conversations and give a child little room to speak, conflictive family communications, what language is spoken at home, communication problems a child may have, compensatory behaviors, and whether and how parents expect or command a child to speak (Toppelberg, Tabors, Coggins, Lum, & Burger, 2005). Observations at school can concentrate on peer–child and teacher–child interactions (or lack thereof), specific social or evaluative situations a child avoids, and the child's performance in academic, social, music/art, and athletic tasks (Viana, Beidel, & Rabian, 2009). Observations should also be made in multiple school settings (e.g., playground, classroom, lunch).

Formal Testing and Review of Records

Formal testing for children with selective mutism may be necessary if a clinician suspects that intellectual or communication problems overlap with failure to speak. Intellectual/achievement and speech/language assessment for youths with selective mutism is obviously a challenging task, but many measures contain nonverbal scales that allow for some assessment of a child's cognitive and language ability (Fung, Manassis, Kenny, & Fiksenbaum, 2002). Examples include performance subscales on standardized intelligence tests (e.g., for perceptual reasoning, processing speed, and memory) as well as tests that allow for nonverbal responses (e.g., Kaufman Assessment Battery for Children-II, Peabody Individual Achievement Test-Revised, Raven's Progressive Matrices, Test of Nonverbal Intelligence-3, Wide Range Achievement Test-Expanded).

Speech and language assessment may involve written narratives to evaluate writing skill, comprehension, syntax, and perception (McInnes, Fung, Manassis, Fiksenbaum, & Tannock, 2004). Nonverbal aspects of several tests of speech and

language ability can also be helpful, including those from the Children's Communication Checklist-2, Clinical Evaluation of Language Fundamentals-4, Lindamood Auditory Conceptualization Test-3, Peabody Picture Vocabulary Test-III, Preschool Language Scale-4, Test of Auditory Comprehension of Language-3, Token Test for Children-2, and Utah Test of Language Development-4. Clinicians are also encouraged to review a child's attendance, academic, and other school-based records to see whether selective mutism has resulted in additional problems. Some children with selective mutism have been administered standardized tests or placed in special education at school, so consultation with the school psychologist or with specialized teachers may be helpful (Dummit et al., 1997).

Comments on Transition from Assessment to Treatment

Assessment information is critical for determining which treatment direction should be taken regarding a case of selective mutism. Treatments for selective mutism are typically based on whether a child with selective mutism displays prominent symptoms of social anxiety, oppositional behavior, and/or communication problems. Detailed assessment information thus informs the development of exposure-based practice, parent-based contingency management, and speech and language training for this population. Vecchio and Kearney (2009), for example, utilized daily assessment information to inform the use of exposure-based practice and parent-based contingency management to successfully treat youths with selective mutism. Detailed assessment information is also crucial for understanding the scope, depth, and urgency of upcoming intervention.

Assessment of School Refusal Behavior

Recall that school refusal behavior refers to refusal to attend school and/or difficulties remaining in classes for an entire day. School refusal behavior may be manifested as nonattendance problems that range from school-based distress or morning misbehaviors to extended absences from school. The problem is particularly upsetting to parents who must miss work, arrange child care, face legal and financial ramifications, and address ancillary problems such as a child's school failure. The assessment of school refusal behavior is thus often a pressing issue. Like selective mutism, a behavioral assessment approach is emphasized for cases of school refusal behavior. Common assessment methods include interviews and consultations with school officials, questionnaires and daily monitoring, behavioral observations, and review of records.

Interview

Most structured diagnostic interviews do not have specific sections for school refusal behavior, though an exception is the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions mentioned earlier (Silverman & Albano, 1996). A school refusal behavior section of the interview assesses fearfulness about attending school, early departures from school, medication use, parental responses to absenteeism, and length and severity of absenteeism. The section can also be used to derive fear and interference ratings for various school-based situations such as teachers, peers, performance tasks, school bus travel, and large settings such as the cafeteria, among other stimuli. The interview additionally covers psychiatric conditions commonly comorbid with school refusal behavior such as anxiety, mood, and disruptive behavior disorders.

Interviews for cases of school refusal behavior are usually semi-structured to glean information not only about necessary topics such as attendance but also about specific forms and functions of absenteeism for a given child. Key questions for a semi-structured interview are in Table 3.4. These questions involve the specific nature of a child's absenteeism, including daily fluctuations, as well as information about four main functions or reasons for school refusal behavior: avoidance of school-based stimuli that provoke symptoms

Table 3.4 Suggested questions for a semi-structured interview for school refusal behavior

What are the child's specific forms of absenteeism, and how do these forms change daily?
How did the child's school refusal behavior develop over time?
What is the child's level of anxiety or misbehavior upon entering school or in the morning before school?
What specific school-related stimuli, if they can be identified, provoke the child's concern about going to school?
Is the child's refusal to attend school legitimate or understandable in some way?
What family disruption or conflict has occurred as a result of a child's school refusal behavior?
What is the child's academic status?
Have recent or traumatic home or school events occurred to influence a child's school refusal behavior?
Are symptoms of school refusal behavior evident on weekends and holidays?
Are there any nonschool-related situations where anxiety or attention-seeking behavior occurs?
What specific social and/or evaluative situations at school are avoided?
Is the child willing to attend school if a parent accompanied her?
What specific tangible rewards does the child pursue outside of school that cause him to miss school?
Is the child willing to attend school if incentives were provided for attendance? Is the child currently seeing a therapist?
Is the child on, or eligible for, a 504 plan or individualized education plan?
How much school attendance can the child tolerate (e.g., standing on the playground, sitting in the lobby, going to one class, attending a half day)?

Adapted from Kearney (2008c)

of anxiety and depression (negative affectivity), escape from aversive social and/or evaluative situations, pursuit of attention from significant others, and pursuit of tangible reinforcement outside of school (Kearney, 2007; Kearney & Silverman, 1996).

Interviews for cases of school refusal behavior should also include information about key contextual variables that impact attendance. School refusal behavior can be a fairly circumscribed problem or can be enveloped by many other child-, parent-, family-, peer-, school-, and community-based factors. A summary of these key contextual variables is in Table 3.5. Clinicians are encouraged to utilize this table as a checklist to help determine the breadth of treatment necessary for a given case.

Interviews with school officials such as guidance counselors, teachers, and school psychologists are also crucial for this population. Such interviews should cover course schedules, grades, required make-up work, procedures and timelines and obstacles for reintegrating a child to school, school policies regarding absenteeism (including referral to juvenile justice agencies), willingness to notify parents immediately of a child's absence, alternative school programs, and the child's school-based social behavior. Interviews with pediatricians, psychiatrists, and other medical personnel are sometimes necessary as well because of the high prevalence of comorbid anxiety and mood disorders, somatic complaints, and illnesses such as asthma in this population (Kearney, 2008b). Interviews with legal professionals such as probation officers may be required as well, as in cases involving referral to a truancy court (Sutphen, Ford, & Flaherty, 2010).

Questionnaires and Daily Monitoring of Behavior

As with selective mutism, various questionnaires may apply to cases of school refusal behavior because of the behavior's heterogeneity. Common questionnaires for school refusal behavior include child self-report measures of internalizing behavior problems such as general and social anxiety, worry, school-based fear, and depression. Examples include the Multidimensional Scale for Children, Screen for Child Anxiety-Related Disorders, Social Anxiety Scale for Children-Revised and Social Anxiety Scale for Adolescents, Social Phobia and Anxiety Inventory for Children, Fear Survey Schedule-Revised, and Children's Depression Inventory (Beidel, Turner, & Fink, 1996; Birmaher et al., 1999; La Greca, 1998; March, 1997; Ollendick, 1983).

Parent and teacher checklists are important for evaluating key externalizing behaviors in this population such as noncompliance, running away

Table 3.5 Key contextual variables surrounding school refusal behavior

Child factors
Extensive work hours outside of school
Externalizing symptoms/psychopathology
Grade retention
History of absenteeism
Internalizing symptoms/psychopathology
Learning-based reinforcers of absenteeism/functions
Low self-esteem and school commitment
Personality traits and attributional styles
Poor health or academic proficiency
Pregnancy
Problematic relationships with authority figures
Race and age
Trauma
Underdeveloped social and academic skills
Parent factors
Inadequate parenting skills
Low expectations of school performance/attendance
Maltreatment
Problematic parenting styles (permissive, authoritarian)
Poor communication with school officials
Poor involvement and supervision
Psychopathology
School dropout in parents and among relatives
School withdrawal
Single parent
Family factors
Enmeshment
Ethnic differences from school personnel
Homelessness
Intense conflict and chaos
Large family size
Poor access to educational aids
Poor cohesion and expressiveness
Poverty
Resistance to acculturation
Stressful family transitions (divorce, illness, unemployment, moving)
Transportation problems
Peer factors
Participation in gangs and gang-related activity
Poor participation in extracurricular activities
Pressure to conform to group demands for absenteeism or other delinquent acts
Proximity to deviant peers
Support for alluring activities outside of school such as drug use
Victimization from bullies or otherwise
School factors
Dangerousness/poor school climate
Frequent teacher absences
High systemic levels of grade retention
Highly punitive or legal means to address all cases of problematic absenteeism
Inadequate, irrelevant, or tedious curricula
Inadequate praise for student achievement and attendance
Inadequate responsiveness to diversity issues
Inconsistent or minimal consequences for absenteeism
Poor monitoring of attendance
Poor student–teacher relationships
School-based racism and discrimination
Community factors
Disorganized/unsafe neighborhood
Economic pull factors (e.g., plentiful, well-paying jobs requiring little formal education)
Geographical cultural and subcultural values
High gang-related activity
Intense interracial tension
Lack of social and educational support services
School district policies and legal statutes regarding absenteeism

Adapted from Kearney (2008a)

from home or school, and aggression (Kearney, 2003). Examples include the Child Behavior Checklist and Teacher's Report Form, Conners Ratings Scales (Parent and Teacher Versions-Revised), and Child Symptom Inventory-4 (Parent Checklist and Teacher Checklist) (Achenbach & Rescorla, 2001; Conners, 1997; Sprafkin, Gadow, Salisbury, Schneider, & Loney, 2002). Questionnaires such as these can quickly provide substantial information about a child's behavior problems. These measures, however, provide only global information about a child's misbehavior. Measures more specific to school refusal behavior, as well as daily monitoring of behavior, are typically necessary for this population.

Few measures have been specifically designed for school refusal behavior, though an exception is the School Refusal Assessment Scale-Revised (SRAS-R) (Kearney, 2002, 2006). The SRAS-R is a 24-item measure of the relative strength of each of four main functions of school refusal behavior mentioned earlier.

The SRAS-R is available in child and parent versions in English and Spanish. Six items are devoted to each function and each item is scored on a 0–6 scale from "never" to "always." Children and parents are asked to rate how often the child refuses school to avoid negative affectivity, to escape aversive social and/or evaluative situations, to pursue attention from significant others, and to pursue tangible reinforcement outside of school. Item means are derived for each function and averaged across informant (i.e., child and parent) reports.

The highest scoring function is considered to be the primary reason a child refuses school. Scores within 0.50 points of one another are considered equivalent. A profile of contributing functions for a specific case is then examined. Many children refuse school due to one function, but some refuse school for multiple functions. A child may initially refuse school to avoid anxiety-provoking stimuli, for example, and later refuse school as well to obtain tangible reinforcement at home (Kearney, 2001). A profile of scores allows clinicians to form a hypothesis about why a child continues to refuse school, but the scale should be utilized in conjunction with other measures for confirmation.

The assessment of school refusal behavior must also depend heavily on daily monitoring to detect frequent fluctuations in a child's attendance, distress, misbehavior, and level of avoidance. Many children with school refusal behavior display a fluid pattern of nonattendance that can change daily. A youth may miss school completely 1 day, arrive tardy to school the next day, and attend school the third day but skip two classes. Daily monitoring is more sensitive than questionnaires or other measures for understanding a child's particular pattern of school refusal behavior. Parents are a good resource for providing this information because they are privy to a child's attempts in the morning to refuse school. School officials are also useful for providing daily information about number of hours a child attended school, premature departures from school campus, tardiness, skipped classes, and misbehaviors designed to instigate removal from class or suspension from school.

Behavioral Observation

Behavioral observation for school refusal behavior can be valuable for obtaining information about form and function. Such observations may be formal or informal depending on time constraints. A sample protocol for formal observation is in Table 3.6 (Kearney & Albano, 2007). This protocol begins in the early morning at a child's home and requires the observation and recording of key school refusal behaviors such as verbal and physical resistance, distress, and nonattendance. The behaviors of others may be highly informative as well, in particular, how parents respond to a child's school refusal behavior. Pertinent examples include allowing a child to remain home from school, attending to misbehaviors, and negotiating school attendance with incentives.

Other behavioral observations may be conducted by school officials to provide additional information about a child's reasons for nonattendance. These observations may include parent–child interactions on the school playground prior to required classroom attendance, a child's performance during evaluative tasks at school, child–peer interactions, attention-seeking behavior such as calling parents repeatedly, when a child departs school early, transitions between classes, and how a child responds to offers from others to miss school. Such observations may help confirm the function of a child's school refusal behavior as initially indicated by interview and SRAS-R information.

Systematized behavioral observations such as these can not only be valuable but also require much time and effort and are subject to reactivity. Office-based observations are more practical and can be useful as well. For example, some youths are clearly anxious during assessment, some youths cling tightly to a parent and refuse to be interviewed, and some youths appear adamant

Table 3.6 Sample behavioral observation protocol for school refusal behavior

CHILD'S NAME:_____

DATE: _____

Instructions for the recorder (FOLLOW THESE INSTRUCTIONS STEP BY STEP):

Prior to the home visit, discuss the 0–10 rating scale with the child and parents. Describe in detail the constructs of negative affectivity (i.e., general negative mood including anxiety and depression) and noncompliance (i.e., refusal to comply with parental commands/requests). Distribute to each party a copy of the daily logbook form for review.

Schedule a time to meet with the family in their home setting on a school day. Determine the child's rising time (e.g., 6:30 a.m.) and schedule to arrive 15 minutes earlier. Using a stopwatch, record the amount of time the child resists activities that serve to prepare her for school attendance.

Specifically, record time in minutes taken for the following:

(1) Verbal/physical resistance to rise from bed at the prespecified time.

Verbal/physical resistance in this situation is defined as any verbalization, vocalization, or physical behavior that contradicts school attendance. In this situation, such behaviors might include (but are not limited to) verbal and physical noncompliance, clinging to bed, locking oneself in a bedroom, or refusal to move.

(2) Verbal/physical resistance to dressing, washing, and eating.

Verbal/physical resistance in this situation is defined as any verbalization, vocalization, or physical behavior that contradicts school attendance. In this situation, such behaviors might include (but are not limited to) verbal and physical noncompliance, clinging, screaming, crying, throwing objects, aggressive behavior, locking oneself in a room, running away, or refusal to move.

(3) Verbal/physical resistance to riding in a car/bus to school.

Verbal/physical resistance in this situation is defined as any verbalization, vocalization, or physical behavior that contradicts school attendance. In this situation, such behaviors might include (but are not limited to) verbal and physical noncompliance, locking oneself in the car, screaming, crying, aggressive behavior, running away, or refusal to move.

(4) Verbal/physical resistance to entering the school building.

Verbal/physical resistance in this situation is defined as any verbalization, vocalization, or physical behavior that contradicts school attendance. In this situation, such behaviors might include (but are not limited to) verbal and physical noncompliance, clinging, screaming, crying, aggressive behavior, running away, or refusal to move.

In addition, record the child's rating of negative affectivity on the 0–10 scale where 0 = none, 2 = mild, 4 = moderate, 6 = marked, 8 = severe, and 10 = extreme. Use any number 0–10. REMIND THE CHILD TO USE THE ENTIRE RANGE OF RATINGS.

Record this rating twice:

(1) In the middle of morning preparation activities.

(2) Upon entering the school building (if applicable).

In addition, record the parent's rating of child negative affectivity and noncompliance on the 0–10 scale where 0 = none, 2 = mild, 4 = moderate, 6 = marked, 8 = severe, and 10 = extreme. Use any number 0–10. REMIND THE PARENT TO USE THE ENTIRE RANGE OF RATINGS.

Record this rating twice:

(1) In the middle of morning preparation activities.

(2) Upon entering the school building (if applicable).

Contact the school attendance officer at the child's school to record any time missed that school day.

Adapted from Kearney and Albano (2007)

about maintaining the status quo, which suggests they are receiving substantial rewards for missing school. Behavioral observations are also useful for determining the extent to which a child can approach school and/or full-time attendance. This information could be derived via interview, but a behavioral approach test is particularly helpful for determining to what extent a child can remain in school during the day. For example, some children can attend most classes, some can attend only lunch, and some can stay only in the school library or lobby. This information is

helpful for establishing a baseline of school attendance that can be the initial starting point for treatment.

Reviewing Records

The assessment of school refusal behavior should include a review of attendance and academic records. Attendance records may provide information about instances of tardiness and partial and complete absences. Furthermore, attendance records are valuable for educating parents about the scope of a child's absenteeism and for resolving contradictory reports about how much school a child has actually missed. Regular contact with a school attendance officer is highly recommended so parents can be notified immediately regarding a child's unexcused absence (Kearney & Albano, 2007).

Records also provide important information about a child's grades and current academic status. This is especially important late in the school year if a child has missed substantial amounts of educational time, has accrued a significant amount of make-up work, or has failed to amass necessary academic credits. A clinician should assess the probability a child will fail the school year and whether trying to achieve full-time attendance is worthwhile. Knowing a child's academic status, which should also include conversations with relevant school officials, will help determine a good course of action for the remainder of the school year. A plan may be developed, for example, to modify class schedules or make-up work procedures to accumulate some academic credit, link the remainder of the school year to summer school, or pursue alternative educational settings such as laboratory, online, or vocational work.

Comments on Transition from Assessment to Treatment

An assessment that leads to a good understanding of the function of school refusal behavior has been shown to set the stage for successful treatment (Kearney & Silverman, 1999). Knowing the specific function allows a clinician to tailor treatment to the individual needs of a client, whether they are to reduce anxiety, reassert parental control, or reduce tangible incentives for absenteeism. School refusal behavior can be a complex issue, so a full assessment of contextual variables that surround a given case is necessary for understanding the breadth and length of treatment that will be required.

Final Comments

Selective mutism and school refusal behavior often represent variants of anxiety disorder in youth that can be particularly nettlesome for clinicians. A "nuts-and-bolts" and multidisciplinary approach to assessment that concentrates on a child's specific deficits and functions of behavior is thus imperative. Such an approach can help identify specific subtypes of selective mutism and school refusal behavior that are amenable to prescriptive treatment. Such an approach can also pinpoint operationalized targets of intervention such as number of words audibly spoken or percentage of school days attended.

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Neuropsychological Assessment of Obsessive–Compulsive Disorder

4

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Obsessive–compulsive disorder (OCD) is a complex, heterogeneous neuropsychiatric condition (Abramowitz, McKay, & Taylor, 2008). While the varied presentations of the disorder have been well documented and have led to diverse treatment methods (Sookman, Abramowitz, Calamari, Wilhelm, & McKay, 2005), there are a few unifying features that suggest a shared underlying neuropsychology. This has been the subject of considerable scrutiny. This chapter aims to highlight the major domains of functioning evaluated using neuropsychological assessments, as well as more recent findings from brain imaging investigations.

Neuropsychology of OCD

Research targeting the neuropsychological functioning of individuals with OCD has come with variability (Cox, 1997; Chamberlain, Blackwell, Fineberg, Robbins, & Sahakian, 2005; Greisberg & McKay, 2003). A possible explanation for the variability of findings in this area is the heterogeneity of OCD symptoms. It has recently been documented that OCD is characterized by subtypes, which are heterogeneous groups of symptoms consistently identified in the research (McKay et al., 2004) and that these subtypes may have differential responses to treatment (Abramowitz, Franklin, Schwartz, & Furr, 2003). Individuals presenting with different subtypes of OCD may have different neurocognitive deficits (i.e., OCD centered around contamination obsessions and compulsions compared to OCD centered around doubting and checking). Of particular note, hoarding is still considered part of the diagnosis of OCD, and therefore is part of the sample of many prior neurocognitive investigations of the disorder. However, recent evidence has shown that individuals with hoarding have considerably different neurocognitive profiles (see Pertusa et al., 2010 for a review). Despite these variable findings, much of the research examining the neuropsychology of OCD indicates that individuals with OCD may experience deficits in attention, executive functioning, and memory functioning (Cox, 1997; Chamberlain et al., 2005; Greisberg & McKay, 2003). Specific clinical symptoms of OCD have been associated with neuropsychological deficits in those suffering from the disorder (Greisberg & McKay, 2003). For example, individuals who compulsively doubt or check may have deficits in cognitive control (Christensen, Won Kim, Dysken, & Hoover, 1992). Compulsive doubting indicates difficulties with identifying and storing relevant information along with difficulties in expressing confidence in memory for information relevant to alleviating obsessions (Constans, Foa, Franklin, & Mathews, 1995). An example of this lack of memory confidence may be an individual who has

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_4, © Springer Science+Business Media New York 2013

difficulty storing the relevant information that they turned off the stove, and as a result, return minutes later to check that the stove is off (Table 4.1).

Difficulties in cognitive control are also apparent in many cases of OCD, as most individuals suffering from the disorder understand that their obsessions or compulsions are irrational or senseless (Greisberg & McKay, 2003). Although they recognize the irrationality of their symptoms, most individuals with the disorder still feel a strong urge to complete the behaviors associated with the symptoms. Given the difficulties in cognitive control, there have been suggestions that there are impairments in executive functioning among those suffering from OCD (Lezak, 1995).

In terms of neurobiological functioning, individuals suffering from OCD exhibit impaired basal ganglia activity and frontal lobe functioning (Flor-Henry, Yeudall, & Koles, 1979; Veale, Sahakian, Owen, & Marks, 1996). Prior research suggests increased OCD symptoms in individuals with basal ganglia lesions (Chacko, Corbin, & Harper, 2000; Wise & Rappaport, 1989). The frontal lobe, which comprises the dorsolateral prefrontal cortex (DLPFC), orbitofrontal cortex, and anterior cingulate (AC) gyrus, along with the basal ganglia comprise the *fronto-striatal circuit*. Areas of the frontal lobe and basal ganglia, specifically the orbitofrontal cortex, AC, and caudate nucleus, comprise the *lateral orbitofrontal loop*. Prior research indicates that OCD is related to abnormal functioning in this loop (Chamberlain et al., 2005; Freyer et al., 2011; Maltby, Tolin, Worhunsky, O'Keefe, & Kiehl, 2005; Whiteside, Port, & Abramowitz, 2004).

The following sections will review the pertinent literature addressing neurobiological and neuropsychological functioning in OCD. As stated above, these areas include attention, executive functioning, and memory functioning.

Attention and Executive Functioning

Defined broadly, executive functioning includes a number of processes focusing on flexibility and goal-directed behavior, and is largely thought to occur in the prefrontal cortex (Baddeley, 1986; Lezak, 1995). Aspects of executive functioning include attentional control, cognitive flexibility, and goal setting.

Christensen et al. (1992) examined executive functioning and OCD in a sample of 18 OCD participants matched for age, gender, and education with 18 control participants. In this study, participants completed the Wisconsin Card Sorting Test (WCST; Heaton, 1981), executive verbal and nonverbal subtests of the Wechsler Adult Intelligence Scale (WAIS-R; Wechsler, 1974), verbal fluency, tactual performance, and motor functioning tests. Results indicated that OCD participants performed worse than their matched controls on tests of verbal fluency, tactual performance, and WAIS-R Block Design. All of these tasks involve aspects of nonverbal memory (tactual performance, block design) and tasks where speed contributed to performance (verbal fluency, block design). A significant limitation of this study, along with many other studies examining executive functioning in OCD, is the lack of a psychiatric comparison group. Without these comparison groups, it is difficult to ascertain whether these executive functioning deficits are specific to OCD or if they extend to other areas of psychopathology as well.

Gambini, Abbruzzese, and Scarone (1993) further investigated OCD and executive functioning. Twenty-three OCD participants were matched for age with 27 controls. Participants completed tasks of voluntary saccadic eye movement (VSEM), smooth pursuit eye movement (SPEM), the WCST, and attention. Gambini et al. (1993) found significant differences on WCST total and perseverative error scores, with OCD participants performing poorer than controls. These findings are consistent with Christensen et al. (1992), showing deficits specific to nonverbal information in those diagnosed with OCD. Although participants were matched for age in this study, education levels significantly differed between the two groups, which may have affected the results of the study. However, research by Nelson, Early, and Haller (1993) also supports these findings of impaired nonverbal attention in those diagnosed with OCD.

Table 4.1 Executive functioning and attention in adults with OCD

Authors	Sample of OCD patients	Comparison group	Areas assessed	Major findings
Christensen et al. (1992)	$n=18$	Healthy controls ($n=18$)	Set-shifting (Wisconsin Card Sorting Test; WCST), verbal fluency, tactual performance, motor functioning	OCD subjects performed poorer than nonclinical participants on tasks involving speed of completion and nonverbal memory
Gambini et al. (1993)	$n=23$	Healthy controls ($n=27$)	Attention, voluntary saccadic eye movement (VSEM), smooth pursuit eye movement (SPEM), set-shifting (WCST)	OCD subjects committed more perseverative errors on set-shifting, showed impaired SPEM and slightly impaired VSEM
Abbruzzese et al. (1995)	$n=33$ (medicated with fluvoxamine); $n=14$ (untreated)	Healthy controls ($n=33$)	Set-shifting (WCST)	Untreated OCD group committed more total errors than medicated OCD group; medicated group did not significantly differ from nonclinical control group
Cohen et al. (1996)	$n=65$	Healthy controls ($n=32$); social phobia group ($n=17$)	Visuospatial ability, attention, executive functioning, short-term memory	OCD group performed poorer on visuospatial tasks; social phobia group showed deficits in executive functioning compared to OCD and control group
Purcell et al. (1998)	$n=30$	Healthy controls ($n=30$); depression group ($n=30$); panic disorder group ($n=20$)	Executive functioning (initiation tasks and speed of completion)	OCD group exhibited poorer performance on initiation and speed tasks, but did not differ in other areas of executive functioning
Cavedini et al. (1998)	$n=28$	Depression group ($n=29$) (no healthy control group)	Verbal fluency, set-shifting (WCST), sorting	OCD patients made more perseverative errors; depressed patients performed poorer on tasks of verbal fluency and sorting
Hartston and Swerdlow (1999)	$n=76$	Healthy controls ($n=62$)	Visuospatial priming (VSP), Stroop task (cognitive flexibility, processing speed)	OCD group showed "facilitation effect" in which they responded faster to stimuli when stimuli appeared in same area as distractor on VSP; OCD patients exhibited greater interference on Stroop task; OCD subjects with aggressive obsessions, tics, "just right" obsessions, and checking showed greater "facilitation effect" on VSP
Boldrini et al. (2005)	$n=25$	Healthy controls ($n=15$); panic disorder with agoraphobia group ($n=15$)	Set shifting (WCST)	OCD group showed deficits in learning from negative feedback to shift sets

Abbruzzese, Ferri, and Scarone (1995) found deficits in OCD patients on the WCST. They examined a sample of 33 participants diagnosed with OCD matched for age, sex, and education with an unmedicated group of 14 individuals with OCD as well as with a non-OCD control group. Treated participants were all receiving fluvoxamine. Results indicated that the non-medicated group (after controlling for demographic information) performed poorer than the medicated OCD group on the WCST, committing more total errors and a lower percentage of conceptual level responses. Abbruzzese et al. (1995) did not find significant differences on the WCST between the medicated group and the non-OCD control group. The results suggest that, although medication does not alter functioning of the prefrontal cortex, better performance on tasks of executive functioning may be attributed at least partially to reduced symptoms of OCD (Greisberg & McKay, 2003).

As mentioned before, a notable limitation in the studies discussed to this point is the lack of a psychiatric comparison group. Cohen et al. (1996) attempted to address this gap by comparing executive functioning in OCD patients to patients suffering from another anxiety disorder. This study included 65 participants diagnosed with OCD, 17 participants diagnosed with social phobia, and 32 nonpsychiatric controls. Visuospatial abilities were examined using the WAIS-R Block Design, the Benton Visual Retention Test (BVRT; Benton, 1974), and the Matching Familiar Figures Test (MFFT). Executive functioning was measured using the Trails A and B of the Trail-Making Tasks (TMT; Reitan & Wolfson, 1985), and attention and memory were examined with the WAIS-R Digit Span subtest. Participants in the OCD group performed poorer on tasks of visuospatial abilities than the normal control group but did not perform poorer on tasks of executive functioning.

In another study investigating executive functioning in OCD and other anxiety groups, 30 participants diagnosed with OCD were compared to 30 healthy controls, 20 participants diagnosed with depression, and 30 participants diagnosed with panic disorder (Purcell, Maruff, Kyrios, & Pantelis, 1998). Participants in the control group were matched with the clinical groups according to age, sex, handedness, education, and premorbid intellectual functioning. Using the Cambridge Neuropsychological Test Automated Battery (CANTAB; Robbins, James, Owen, Sahakian, McInnes, & Rabbit, 1994), Purcell et al. (1998) found that, relative to the other three groups, the OCD group showed significantly lower performance on executive functioning tasks examining initiation of tasks and speed of completion. Poorer performance on speed tests has been found in previous studies with OCD patients (Christensen et al., 1992). In other areas of executive functioning, OCD participants did not differ from the other groups.

Cavedini, Ferri, Scarone, and Bellodi (1998) further examined differences in executive functioning in OCD patients and other psychiatric groups. In this study, they compared a sample of 28 OCD participants with a sample of 29 individuals diagnosed with major depression. A sorting test, a verbal fluency test, the WCST, and the Object Alternation Task (OAT; Pribram & Mishkin, 1956) were used to measure executive functioning. While depressed participants performed poorer on tests of verbal fluency and sorting, OCD participants made more perseverative errors on the OAT. According to this study, executive functioning may be affected in both OCD and depressed individuals, although the particular deficits in executive functioning may differ. On a related note, Moritz et al. (2001) suggests that depressive symptoms in those suffering from OCD may be associated with additional worsening of executive functioning, whereas deficits in OCD may be the result of fundamental features of the disorder.

Another possible contributor to the variation in findings from the studies discussed thus far is the lack of examination of specific OCD subtypes. The studies mentioned have targeted executive functioning in OCD as a whole, but they have not researched differences in executive functioning in subtypes of OCD. Because of the heterogeneity of OCD symptoms, it is possible

that different symptomatology may relate to different presentations of executive dysfunction. Hartston and Swerdlow (1999) conducted a study in which differences in OCD subtypes were examined between an OCD group ($n=76$) and a healthy control group ($n=62$). Participants were matched for gender, age, education, marital status, handedness, and employment status. Tasks for executive functioning included a visuospatial priming (VSP) task and a Stroop test. The OCD group performed better than the control group in the VSP task when they were cued to respond to the location of a stimulus in a visual field. In other words, when a stimulus repeatedly occurred in one area, participants in the OCD group were able to respond faster to the stimulus than the control group. This is known as a "facilitation effect." OCD participants also had more interference errors on the Stroop test compared to the healthy control group. In terms of OCD subtypes, participants with aggressive obsessions, "not just right" obsessions, and checking compulsions, all benefitted greater from the "facilitation effect" in the VSP task.

More recent research in the area of executive functioning and OCD has focused specifically on the task of "set-shifting." Set-shifting is a type of cognitive flexibility that allows individuals to shift their attention from one stimulus to another based on continuously changing reinforcement contingencies (Monchi, Petrides, Petre, Worsley, & Dagher, 2001). The WCST is often used to test set-shifting. Boldrini et al. (2005) investigated set-shifting in a sample of 25 OCD participants, 15 participants with panic disorder and agoraphobia (PD/A), and 15 healthy controls. Participants did not differ in age or education level, and the investigators controlled for comorbid depression. On the WCST, the OCD group showed deficits in learning from negative feedback to shift sets compared to both the healthy control group and the PD/A group. These results are supported by Bohne et al. (2005), who also found difficulties in learning from feedback on the WCST in an OCD group. While some past research on set-shifting in OCD support the findings from these studies (Lucey et al., 1997; Veale et al., 1996), others contradict them (Abbruzzese, Ferri & Scarone, 1995; Kuelz, Hohagen, & Voderholzer, 2004).

fMRI Studies of Executive Functioning and OCD

Recent research examining executive functioning and OCD has also utilized functional magnetic resonance imaging (fMRI) technology to study brain activity during these tasks. For example, Nakao et al. (2005) examined brain changes in OCD patients during a Stroop task using fMRI. Ten OCD patients were divided into a medication treatment group ($n=4$) and a CBT group ($n=6$). Nakao and colleagues found increased task-related activation in areas of the parietal cortex and cerebellum in both groups following 12 weeks of treatment. This increased activation coincided with decreased symptoms found on the Yale Brown Obsessive–Compulsive Scale (YBOCS; Goodman et al., 1989). These fMRI findings support previous research that also indicates a relationship between improved symptoms and improved executive functioning tasks (Abbruzzese et al., 1995). In another fMRI study using the Stroop task (Schlösser et al., 2010), OCD patients ($n=21$) were matched with healthy controls ($n=21$) for age and education. Both groups showed activation in the dorsal anterior cingulate (AC), the left ventrolateral prefrontal cortex (VLPFC), and left dorsolateral prefrontal cortex (DLPFC), although the OCD group showed significantly more activation in the dorsal AC and right DLPFC than controls (Table 4.2).

Fitzgerald et al. (2005) compared eight OCD patients to seven nonclinical controls in an fMRI study using tasks that elicited errors. They looked particularly at AC activation, given the role of AC abnormalities often found in OCD patients. The investigators found that while both the OCD group and the healthy control group showed dorsal AC activation during these error tasks, the OCD group showed significantly more activation in the rostral AC, indicating that error processing might occur in different areas in OCD patients relative to healthy controls. As in prior studies

Table 4.2 fMRI studies of executive functioning in adults with OCD

Authors	Sample	Comparison group	Areas assessed	Major findings
Nakao et al. (2005)	$n=4$ (medicated with fluvoxamine); $n=6$ (CBT treatment)	No healthy control group	Stroop task following symptom provocation	Stroop task-related activation in parietal cortex increased as symptoms decreased; executive functioning following symptom provocation improved in both groups as symptom severity decreased
Schlösser et al. (2010)	$n=21$	Healthy controls ($n=21$)	Stroop task	OCD group showed significantly more activation in dorsal anterior cingulate (AC) and right dorsolateral prefrontal cortex (DLPFC)
Fitzgerald et al. (2005)	$n=8$	Healthy controls ($n=7$)	Interference tasks that elicit errors	Both groups exhibited dorsal AC activation, but OCD group showed significantly greater activation of rostral AC during interference tasks
Roth et al. (2007)	$n=12$	Healthy controls ($n=14$)	Go/No-Go Task (recognition, response inhibition)	Healthy controls showed activation in right inferior frontal gyrus, while OCD group showed bilateral activation in this area; symptom severity negatively correlated with AC and right orbitofrontal cortex activation

reviewed, where greater symptom severity was associated with poorer neurocognitive functioning, there was a positive correlation between symptom severity and activity in the rostral AC.

In another fMRI study, Roth et al. (2007) investigated areas of brain activation in inhibition control. They compared 12 OCD patients and 14 healthy controls on a "go/no go" task. During this task, healthy subjects showed right hemisphere activation in the inferior frontal gyrus, while OCD patients showed more bilateral activation. OCD patients also showed less activation compared to controls in the right hemisphere, including the right inferior frontal gyrus and right medial frontal gyrus. Among OCD patients, symptom severity was negatively correlated with AC and right orbitofrontal cortex activation and positively correlated with thalamic and posterior cortical activity. These findings, along with findings in other fMRI studies (Fitzgerald et al., 2005; Schlösser et al., 2010), are consistent with neurobiological models of OCD that indicate abnormal activity in the fronto-striatal circuit.

In summary, much of the research examining executive functioning and OCD suggests that individuals with OCD show more interference effects (i.e., the Stroop task) than healthy controls or other psychiatric groups, along with deficits in "set-shifting" organizational strategies, especially on tasks such as the WCST (Abbruzzese et al., 1995; Cavedini et al., 1998; Gambini et al., 1993). It also appears that OCD patients may struggle with tasks where speed impacts performance (Christensen et al., 1992; Purcell et al., 1998). In terms of neuroimaging findings, OCD patients exhibit abnormal functioning in areas involved in the fronto-striatal circuit. Most commonly found among these studies is abnormal activity in the AC. Many of these studies also highlight positive correlations between abnormal functioning and symptom severity. Further research in the area is warranted, especially examining differences in executive functioning among OCD subtypes along with the effect of depressive symptoms on OCD and executive functioning (Moritz et al., 2001). Greisberg and McKay (2003) also suggest future research to investigate whether these cognitive deficits improve with traditional psychosocial therapy or medication.

Memory Functioning

Memory functioning has typically been assessed in comprehensive neuropsychological studies of OCD. It has been hypothesized that memory functioning is impaired in OCD given the pervasive doubting associated with the condition. This could be attributed to real deficits in memory. For example, Christensen et al. (1992) found that OCD participants performed significantly worse on tasks of delayed recall on the Wechsler Memory Scale (WMS; Wechsler, 1945) (Table 4.3).

Primary Memory Assessment

In a study examining OCD subtypes and memory functioning, Radomsky and Rachman (1999) investigated increased memory in OCD patients with contamination fears. Participants were shown 50 items, half of which were "contaminated" and half of which were not. The OCD group showed greater memory than a control group or "other anxiety" group for contaminated items. Because these "contaminated" items are emotionally salient for individuals with contamination-based OCD, it follows that they would be more likely to recall these items. Tallis, Pratt, and Jamani (1999) extended research on OCD subtypes and memory, predicting that OCD patients with doubting and checking symptoms would perform worse on memory tasks than OCD patients without these symptoms. They found that OCD patients performed worse than controls on tasks of immediate and delayed recall and recognition, but they did not find that these deficits were specific to those with doubting or checking symptoms.

Similar to Tallis et al. (1999), Savage et al. (1999) also found that OCD participants ($n = 20$) showed poorer immediate recall than healthy controls ($n = 20$). The Rey Osterrieth Complex Figure Test (RCFT; Rey, 1941) was used to test

Table 4.3 Memory functioning of adults with OCD

Authors	Sample of OCD participants	Comparison group	Areas assessed	Major findings
Radomsky and Rachman (1999)	$n = 10$ (contamination fears)	Healthy controls ($n = 20$); other anxiety ($n = 10$)	Recall of either "contaminated" or "uncontaminated" items	OCD group showed greater recall for "contaminated" items than control and "other anxiety" group
Tallis et al. (1999)	$n = 12$ (checking and doubting symptoms)	Healthy controls ($n = 12$)	Immediate recall, delayed recall, recognition	OCD group performed poorer on tasks of immediate and delayed recall and recognition; deficits not specific to those with doubting/checking symptoms
Savage et al. (1999)	$n = 20$	Healthy controls ($n = 20$)	Immediate recall	OCD group performed worse on tasks of immediate recall than healthy controls
Boone et al. (1991)	$n = 20$	Healthy controls ($n = 16$)	Visual memory, attention, delayed recall	OCD group performed poorer on tasks of visual memory and visuospatial tasks, along with delayed recall
Exner et al. (2009)	$n = 19$	Healthy controls ($n = 19$)	Working memory, episodic memory, semantic memory	OCD group showed deficits in visuospatial episodic memory and working memory; significant negative relationship in both groups indicating poorer episodic memory with higher levels of rumination
Kim et al. (2002)	$n = 39$	Healthy controls ($n = 31$)	Immediate and delayed recall	OCD group performed poorer on tasks of immediate and delayed recall, and pharmacological treatment did not improve these domains
Hermans et al. (2003)	$n = 17$	Healthy controls ($n = 17$)	Memory confidence	OCD group displayed less confidence in memory for their actions, less confidence for whether their actions were real or imagined, and less confidence in ability to keep attention focused
Tolin et al. (2003)	$n = 55$	Healthy controls ($n = 14$)	Memory confidence	OCD group higher in levels of uncertainty intolerance (UI), but did not show deficits in actual memory; higher levels of UI found in OCD participants high in checking compulsions

memory functioning. The results indicated that organizational strategies significantly predicted immediate recall. Because organizational strategies require cognitive flexibility and are largely a skill of executive functioning, this study shows that executive dysfunction may contribute to memory deficits in those with OCD (Greisberg & McKay, 2003). Greisberg and McKay (2003) assert that the studies mentioned above regarding memory functioning in OCD indicate that difficulties with memory increase with tasks that are generally less structured or defined, as these tasks require greater organizational skills. This pattern may help explain doubting symptoms in OCD. Ultimately, poor performance on memory tasks in OCD patients may not directly relate to memory deficits, but may be explained by deficits in organizational strategies that are largely part of executive functioning.

In addition to immediate and delayed recall tasks, a large portion of research in memory functioning and OCD has targeted visual memory in OCD. The majority of studies in this area suggest that individuals diagnosed with OCD tend to show impairments in visual memory (Airaksinen, Larsson, & Forsell, 2005; Aronowitz et al., 1994; Boone, Ananth, Philpott, Kaur, & Djenderedjian, 1991; Christensen et al., 1992; Penades, Catalan, Andres, Salamero, & Gasto, 2005; Purcell et al., 1998; Roh et al., 2005; Savage et al., 1999; Zitterl et al., 2001). For example, Boone et al. (1991) compared an OCD group ($n = 20$) and a control group ($n = 16$) using measures of intelligence, frontal lobe tasks, memory and attention, and visuospatial skills. They found that the OCD group performed worse on visual memory and visuospatial tasks, along with delayed recall on the RCFT. Zitterl et al. (2001) conclusions support these results, as they also found impairments in visual memory and visuospatial skills in an OCD group.

Exner, Martin, and Rief (2009) provided a more recent example further supporting visuospatial deficits in those with OCD. They examined working memory, episodic memory, and semantic memory using subtests of the WAIS-R and WMS-R. While no deficits for working memory tasks were found in the OCD group, the OCD group did perform significantly poorer on tasks of visuospatial episodic memory than did healthy controls. OCD participants also showed deficits in tasks of semantic memory. The Padua Inventory (PI-R; van Oppen & Emmelkamp, 2000) revealed that individuals scoring high on the "rumination" subscale performed poorer on tasks of episodic memory. This was true for both OCD patients and members of the healthy control group. Given that individuals high in rumination tend to focus on internal mental processes and endorse less mental control, it follows that those who ruminate may have more difficulty focusing attention on tasks of memory.

Recent research also indicates that pharmacological treatment for OCD does not lead to improved visual memory functioning. Kim, Park, Shin, and Kwon (2002) found significant differences for immediate and delayed recall in an OCD group ($n = 39$) compared to a control group ($n = 31$), and medication did not improve these domains of memory. The findings of Mataix-Cols, Alonso, Pifarre, Menchon, and Vallejo (2002) and Roh et al. (2005) support these results. These last results, however, diverge from aforementioned research that showed improvement in executive functioning with psychiatric medication (Abbruzzese et al., 1995; Nakao et al., 2005).

A notable within-group difference related to visual memory in OCD is the possibility of differences with early-onset and late-onset OCD. Research suggests that late-onset OCD is related to lower functioning in verbal and visual memory, while early-onset OCD is associated with slight difficulties with memory for tasks such as remembering prose (Roth, Milovan, Baribeau, & O'Connor, 2005).

Memory Confidence

Another recent trend in memory and OCD research involves the concept of memory confidence. Constans et al. (1995) suggest that compulsive doubting may be partially attributed to difficulties with encoding and retrieving relevant information. It is also possible that individuals

with OCD experience decreased confidence in the accuracy of their memory, leading to compulsive doubting or checking. Several studies have highlighted decreased memory confidence in individuals with OCD, especially those with doubting or checking symptoms (Hermans, Martens, De Cort, Pieters, & Eelen, 2003; Tolin et al., 2003; Tuna, Tekcan, & Topcuoglu, 2005).

Hermans et al. (2003) found that an OCD group ($n = 17$) displayed less confidence in their cognitive abilities and tended to monitor their thoughts more than a control group ($n = 17$). All participants in the OCD group endorsed repetitive behavior, with the majority of the participants ($n = 11$) endorsing checking compulsions. Hermans et al. (2003) also found that the OCD group displayed less confidence in their memory for their actions, less confidence in their memory regarding whether their actions were real or imagined, and less confidence in their ability to keep their attention focused. The investigators did not find significant differences in memory confidence for "high" checkers compared to "low" checkers in the OCD group.

Tolin et al. (2003) also found lower levels of memory confidence in OCD patients. Unlike Hermans et al. (2003), they found lower levels of memory confidence in OCD patients with checking behaviors compared to OCD patients without these behaviors. Tolin et al. (2003) compared a sample of 55 OCD participants to 14 healthy controls. They divided the OCD group into checkers ($n = 43$) and non-checkers ($n = 12$) based on whether participants endorsed OC symptoms of checking. The results of the study indicated that OCD participants who endorsed checking compulsions scored higher on measures of uncertainty intolerance (UI) compared to both the healthy control group and to OCD participants that did not endorse checking compulsions. Although OCD participants with checking symptoms reported higher levels of UI, they did not exhibit any impairment in memory. Tolin et al. (2003) also found that OCD participants were more likely to report higher levels of UI when trying to recall information that may be appraised as threatening (i.e., information that is relevant to their symptoms). This supports findings from Radomsky and Rachman (1999) that indicate environmental stimuli that are relevant to an individual's OCD symptoms may impact performance. Other research examining checking and memory confidence indicates that repeated checking behaviors may increase doubting, even though the motivation for those who check is to increase certainty (Rachman, 2002; Radomsky, Gilchrist, & Dussault, 2006; Van den Houte & Kindt, 2003). This process of increased doubting through checking may relate to deficits found in organizational skills as discussed above. Greisberg and McKay (2003) suggest that doubting begins as the organizational process breaks down, and as doubting increases, individuals may learn to compulsively check to make up for these organizational deficits.

The research reviewed on memory functioning thus far highlights that those with OCD may not have actual memory impairments, but may have impairments in other domains that indirectly affect memory. Additionally, it appears that individuals with OCD have difficulties with tasks of visuospatial memory. Research also supports low memory confidence in individuals with OCD. Perhaps future research in memory confidence and OCD might include studies examining effects of therapy or medication on reduced checking, considering that repeated checking behaviors appear to lead to decreased confidence in memory (Rachman, 2002; Radomsky et al., 2006; van den Houte & Kindt, 2003). More recent research investigating memory functioning and OCD has focused on neurological activity during working memory tasks. Finally, while there appear to be indirect problems in memory functioning due to dysfunction in other brain areas, individuals with OCD also have lower confidence in their recall of events, particularly those with environmental significance.

Neuroimaging of Working Memory in OCD

Working memory allows us to temporarily store information in order to complete a task. Baddeley and Hitch (1974) proposed a three-part theory

for working memory. In this theory, working memory includes a "central executive" component, a "visuospatial sketchpad," and a "phonological loop." The "central executive" is responsible for attending to relevant information and ignoring irrelevant information, along with determining how to respond to this information. The "visuospatial sketchpad" is used for visual information, while verbal and auditory information is processed via the "phonological loop." While the left dorsolateral prefrontal cortex (DLPFC) is associated with verbal working memory, the right DLPFC (rDLPFC) is one of the areas responsible for visuospatial working memory (Table 4.4).

Using a PET scan, Shin et al. (2006) compared the neurophysiology of visual working memory in OCD patients ($n = 12$) to nonclinical controls ($n = 12$) matched for age and sex. The OCD group committed more errors than did the healthy control group on the working memory task. The results of the PET scan also indicated that during this task, different areas of the brain were recruited for OCD patients than for healthy controls. Healthy controls primarily showed activation in the rDLPFC and right orbitofrontal cortex, areas that are largely responsible for response inhibition in tasks of executive functioning or working memory (Shin et al., 2006). In contrast, OCD patients showed activation in the right caudate and right superior parietal cortex during visual working memory tasks. The lack of activation in the rDLPFC in OCD patients during visual working memory tasks is telling, given the general importance of this area in tasks of executive functioning and visual working memory. Shin et al. (2006) also found increased activation in the anterior cingulate (AC) during working memory tasks in OCD patients after symptom provocation. Because the AC is important for anxiety control, Shin et al. (2006) posited that the AC might operate to control anxiety in OCD patients during working memory tasks by focusing attention on solving a problem at hand.

van der Wee et al. (2007) continued to investigate working memory in OCD patients in an fMRI study. The investigators examined spatial working memory performance in a sample of 14 OCD patients before and after psychopharmacological treatment. Those with reduced symptomatology following medical treatment showed improvements in working memory tasks, suggesting that working memory performance may be inversely related to symptom severity. Interestingly, treatment responders showed activation of the same brain areas as those who did not respond to medication. Both treatment responders and non-responders showed activation in the medial frontal lobe and the AC, along with bilateral activation in the DLPFC and parietal cortex. According to the theory of working memory, bilateral activation in the DLPFC in OCD patients during visual working memory tasks would indicate abnormal functioning, given the responsibility of the rDLPFC in the "visuospatial sketchpad." Perhaps the bilateral activation of the DLPFC in OCD patients suggests a tendency to compensate for deficits in the rDLPFC. Before receiving treatment, all participants showed excessive activation in the medial frontal lobe, which is consistent with previous findings of working memory deficits in those with OCD (Van der Wee et al., 2003). Activation of the AC is consistent with results from Shin et al. (2006); however, DLPFC activation in OCD patients is inconsistent. The lack of a healthy control group in Van der Wee et al. (2003) makes it difficult to ascertain how OCD patients, regardless of treatment response, differ in brain activity to healthy controls during visuospatial working memory tasks. In spite of this limitation, the findings of Van der Wee et al. (2003) are useful for highlighting the potential effects of OC symptom reduction on working memory ability.

In another fMRI study, Henseler et al. (2007) compared both visual and verbal working memory in OCD patients ($n = 11$) and healthy controls ($n = 11$) that were matched for age, sex, and education. There were no significant differences in performance on working memory tasks between the OCD group and healthy control group. While the results indicated that similar areas of the brain were activated during working memory tasks, the OCD group showed hyperactivity in these areas. Specifically, during verbal

Table 4.4 Neuroimaging of working memory (WM) in OCD

Authors	Sample of OCD participants	Comparison groups	Areas assessed	Major findings
Shin et al. (2008)	$n=12$	Healthy controls ($n=12$)	PET scan; visual WM	OCD group committed more errors on visual WM tasks; healthy controls showed activation in rDLPFC, whereas OCD group showed activation in right caudate and right superior parietal cortex
van der Wee et al. (2007)	$n=14$	No comparison group (OCD patients were assessed before and after receiving psychopharmacological treatment)	fMRI; spatial working memory	Improved symptomatology following treatment associated with improved performance on WM tasks; treatment responders and nonresponders both showed activation in medial frontal lobe, AC, bilateral DLPFC, and parietal cortex
Henseler et al. (2007)	$n=11$	Healthy controls ($n=11$)	fMRI; visual and verbal WM	No significant differences in performance on WM tasks or in areas of brain activation; while there was no difference in areas of activation, OCD group showed hyperactivity in these areas
Nakao et al. (2009)	$n=40$	Healthy controls ($n=25$)	fMRI; Differences in WM based on symptom severity and OCD subtypes	Severe OCD participants showed hyperactivity in bilateral parietal cortices and bilateral orbitofrontal cortices compared to mild or moderate OCD participants; checking subtype showed abnormal activity in postcentral gyrus and thalamus compared to washing and contamination subtype

working memory tasks, OCD patients showed hyperactivity in the left inferior frontal cortex, the intraparietal cortex, the middle part of the left inferior frontal sulcus, and the left inferior frontal junction (IFJ). Henseler et al. (2007) cite that these areas of the brain are important for phonological information storage and articulatory rehearsal in healthy individuals, and posit that these findings suggest OCD patients may require significantly more brain activity in these areas to achieve the same results on working memory tasks. For visuospatial working memory tasks, OCD patients showed no differences in brain activity from healthy controls except for hyperactivity in the left IFJ. This diverges from the findings of fMRI studies mentioned above, which indicated that deficits are present in areas responsible for visuospatial working memory in OCD (Shin et al., 2006; van der Wee et al., 2007). Additionally, symptom severity was positively correlated with hyperactivity in left frontal and parietal cortices during articulatory tasks, the left IFJ during verbal tasks without articulatory rehearsal, and the right IFJ during visuospatial tasks. Most of the OCD group were medicated at the time of the study ($n=8$ taking a selective serotonin reuptake inhibitor (SSRI), $n=1$ taking a tricyclic antidepressant, $n=2$ taking no medication) and thus, study replications may benefit from more homogenous OCD groups in terms of treatment history. As mentioned with previous studies of executive functioning and OCD, examining different OCD subtypes and working memory would also be a welcome addition to the current research.

Nakao et al. (2009) also found deficits in visuospatial working memory in OCD patients ($n=40$) compared to healthy controls ($n=25$). Additionally, this study attempted to address differences in working memory in subtypes of OCD along with differences in symptom severity. Overall, OCD patients showed hyperactivity in the rDLPFC, left superior temporal gyrus, left insula, and cuneus. In terms of symptom severity, fMRI results indicated that those with severe symptoms showed greater activation of bilateral parietal cortices and bilateral orbitofrontal cortices. Those patients with mild or moderate obsessive–compulsive symptoms did not show greater activation in these areas relative to healthy controls, which is consistent with prior research (Henseler et al., 2007; Shin et al., 2006; Van der Wee et al., 2007; Zhang et al., 2008). Furthermore, while performing working memory tasks, OCD patients with predominant checking symptoms showed abnormal activity in areas of the postcentral gyrus and thalamus relative to OCD patients with primary washing/contamination fears. This finding supports prior research that highlights different brain activity for different subtypes of OCD. For example, Rauch, Whalen, Dougherty, and Jenike (1998) used a PET scan to determine that checking rituals are associated with increased blood flow to the striatum, while washing rituals are linked to increased blood flow to the AC and orbitofrontal cortex. Further, prior research shows that, in general, mild to moderate symptom severity is associated with slightly higher, but not significantly, activation when compared to healthy controls participants.

Overall, it appears that the majority of neuroimaging research on working memory and OCD indicate deficits in visuospatial working memory. Research also suggests that symptom severity is positively correlated to deficits in working memory performance. The findings in terms of neurological activity for OCD patients and working memory seem to vary. While some studies suggest hyperactivity in OCD patients in areas such as the anterior cingulate (Shin et al., 2006; van der Wee et al., 2007; Zhang et al., 2008) and DLPFC (van der Wee et al., 2007; Nakao et al., 2009), other findings indicate a lack of activity in the DLPFC (Shin et al., 2006). Overall, abnormal neural activity is apparent in individuals with OCD during working memory tasks. As noted with studies targeting executive functioning or other memory functioning in OCD, studies with larger sample sizes would be useful for extending research in this area, along with studies that account for other comorbid psychiatric illnesses such as depression. Additionally, given the findings of Nakao et al. (2009), further research is warranted comparing subtypes of OCD and working memory.

OCD in Youth

While neuropsychological findings in children and adolescents with OCD are limited, they tend to coalesce with those of adults with the disorder. Below, we review results with regard to neuroimaging, neurocognition, diagnosis prediction, treatment (cognitive-behavioral therapy) prediction, and post-treatment profiles. It is noteworthy that age cut-offs are not uniform across studies (with some including individuals up to age 19 years); however, it may be argued that even the highest cut-off is sufficient—i.e., that remaining neurological development still separates the oldest "pediatric" participants from their adult counterparts. Certainly, more research investigating age ranges within childhood and adolescence is warranted.

With regard to neuroimaging of pediatric OCD, two noteworthy studies have utilized modified versions of the Tower of London task to accommodate fMRI investigation. In both studies, participants with OCD exhibited significantly slower responses than healthy controls (Huyser, Veltman, Wolters, de Haan, & Boerr, 2010; Rauch & Britton, 2010); accuracy of responses did not differ between groups (Huyser et al., 2010). Neurologically, those with OCD versus their healthy counterparts evidenced significantly less activation of the dorsolateral prefrontal cortex and parietal cortex, and significantly more recruitment of the ventrolateral and medial prefrontal cortex, insuloa, and anterior cingulate (Huyser et al., 2010; Rauch & Britton, 2010). As task load increased, these group differences were magnified (Rauch & Britton, 2010). Thus, findings with pediatric OCD point to shared dysfunction of the frontal–striatal–thalamic circuitry with adult OCD.

Numerous studies have found support for such dysfunction via selective neurocognitive testing of executive functioning, attention, memory, and visuomotor abilities. Spatial attention appears consistently as a deficit in pediatric OCD (Chang, McCracken, & Piacentini, 2007; Taner, Erdogan Bakar, & Oner, 2011), even when comparison groups are comprised of individuals with other psychiatric conditions (ADHD, tic disorders, depressive disorders; Shin et al., 2008). This distinction is only exacerbated when time constraints are put in place (Shin et al., 2008), as youth with OCD tend to perform relatively slowly (e.g., Andres et al., 2008; Shin et al., 2008; Taner et al., 2011). Whereas previously mentioned research involving fMRI did not find lowered quality of responses among those with OCD, neurocognitive investigations involving the WISC-R and Stroop tests do suggest a greater prevalence of errors among those with OCD as compared to healthy counterparts (Shin et al., 2008; Taner et al., 2011). This distinction is maintained after covarying for full scale IQ (Taner et al., 2011). Like their adult counterparts, youth with OCD exhibit difficulty with mental set-shifting (Shin et al., 2008; Taner et al., 2011) in part, evidenced by higher scores of perseverative responses and/or difficulties with task-required inhibition (e.g., Taner et al., 2011; Zandt, Prior, & Kyrios, 2009). Finally, while youth with OCD do not exhibit deficits in verbal fluency (Shin et al., 2008; Taner et al., 2011), there is some evidence of significantly lowered verbal comprehension when compared to healthy controls (Taner et al., 2011).

In an intriguing divergence from other protocols, one research team has studied OCD longitudinally in New Zealand (Grisham, Anderson, Poulton, Moffitt, & Andrews, 2009). Specifically, Grisham et al. (2009) collected neuropsychological data from participants aged 13 years and investigated between-group differences for those with and without OCD at age 32 years. Assessments were also done at ages 3, 5, 7, 9, 11, 15, 18, 21, and 26 years. At age 18, no between-group differences were found with regard to neuropsychological functioning at Grisham et al. (2009) found a relationship between neuropsychological performance at age 13 years and OCD diagnosis at age 32 years; whereas verbal fluency, verbal comprehension, and verbal memory did not differ between groups, those deemed to have OCD at 32 years exhibited poorer performance on measures of visuospatial and visuomotor ability.

With regard to cognitive-behavioral treatment, Flessner et al. (2010) found that performance on the Rey–Osterrieth Complex Figure was predictive

of final outcome such that poorer scores were predictive of poorer treatment outcome. Studies of cognitive-behavioral treatment for pediatric OCD have diverged from adult findings (Kircanski & Piacentini, 2011) consistently found a normalization of cognitive profile from pre- to post-treatment. For instance, aforementioned group differences in brain activity during a Tower of London task are no longer present following CBT (Huyser et al., 2010; Rauch & Britton, 2010), and distinctions in planning ability are no longer noted (Andres et al., 2008; Huyser et al., 2010). Together, these findings suggest that, while the presentation is similar in adults and children with OCD, cognitive dysfunctions in pediatric OCD may lack the stability of those in adult OCD. Children may be more amenable to therapeutic change and, accordingly, are better described as a state (versus trait) feature of OCD presentation in youth (Huyser et al., 2010).

Summary

Neuropsychological research for OCD indicates deficits in areas of executive functioning, memory functioning, and working memory. Neurobiologically, these deficits occur in the fronto-striatal circuit, which includes areas of the frontal lobe and basal ganglia. It is possible that these cognitive deficits partially explain doubting and checking symptoms in OCD. Executive functioning studies on OCD suggest that patients show difficulties with interference tasks, such as the Stroop task and the WCST. Some research also suggests deficits when speed is an important component for performance. Neuroimaging studies for executive functioning and OCD generally indicate abnormal functioning in the AC. Many of these studies also show a negative correlation between working memory functioning and symptom severity.

In terms of memory functioning, it appears that OCD patients perform poorer on recall tasks, but this may be a product of poor organizational strategies in OCD patients as opposed to actual deficits in memory functioning. OCD patients also appear to perform more poorly on tasks of visuospatial memory and have lower memory confidence than do those without the diagnosis. In effect, this leads to a pernicious cycle: greater checking leads to lower memory confidence; lower memory confidence in turn leads to greater doubting. Greater doubting leads back to checking. All of this starts with a basic breakdown in organizational strategies necessary for efficient memory development. Neuroimaging findings with regard to working memory come with some variability, but generally suggest abnormal functioning in OCD patients. As with executive functioning, abnormal activity in the AC is evidenced during working memory tasks.

In general, the neuropsychological profile of OCD in youth parallels findings found in adults. Perhaps the most noteworthy distinction is that neurocognitive deficits in youth appear to be more amenable to therapeutic change. However, this also highlights the importance of intervention at an early age. Basic research on the maintenance of fear suggests that memory for anxiety provoking stimuli are consolidated, as a mechanism of amygdala activation and its associated fear networks, as time progresses with these fear structured unchanged (Debiec & LeDoux, 2009). Given the behavioral manifestations of OCD, prolonged maintenance of the condition has implications further for the specific neural circuitry implicated in the disorder (described in Abramowitz, Taylor, & McKay, 2009). Specifically, untreated symptoms are likely to strengthen these connections that result in repetitive behaviors and solidify the associated neural connections.

Many limitations were apparent in the literature examined within this chapter and may have contributed to variability in results. A primary concern was small sample size. Additionally, many studies lacked comparative groups with other psychiatric diagnoses. As well, because of the heterogeneity of OCD symptoms, lack of adequate separation of subtypes may have confounded findings. Lastly, given the known role of depression in exacerbating memory and executive functioning performance, consideration of this potential comorbidity (and others) would be warranted.

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Assessment of Tics and Comorbid Obsessive–Compulsive Symptoms

5

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Obsessive–compulsive disorder (OCD) is frequently associated with tic disorders including Tourette syndrome (TS), chronic tic disorder, and transient tic disorder (American Psychiatric Association, 2000). The overlap between conditions is substantial, with 20–38% of children with OCD reporting comorbid tics, and 20–60% of youth with tic disorders meeting diagnostic criteria for OCD (Goodman, Storch, Geffken, & Murphy, 2006; Pauls, Alsobrook, Goodman, Rasmussen, & Leckman, 1995; Swedo, Rapoport, Leonard, Lenane, & Cheslow, 1989). Likewise, 21% of adults with OCD report clinical or subclinical tic disorder symptoms at some point across the lifespan (Richter, Summerfeldt, Antony, & Swinson, 2003), and approximately one-third to one-half of adults with TS will experience OCD or subclinical obsessive–compulsive symptoms in their lifetime (Bloch et al., 2006; Leckman, Pauls, & Cohen, 1995). A primary source of these high rates of comorbidity appears to be shared genetic underpinnings between OCD and tic disorders, and these disorders also have common epidemiological and phenomenological characteristics (Grados et al., 2001; Pauls et al., 1995; Pauls, Towbin, Leckman, Zahner, & Cohen, 1986). For example, both disorders are characterized by repetitive behaviors, a typical onset between childhood and young adulthood, and a fluctuating and shifting symptom course (Steingard & Dillon-Stout, 1992). Regardless of source, the frequent co-occurrence of OCD and tic disorders coupled with the high rates of distress and impairment associated with each condition underscores the importance of systematic and thorough assessment of tics and related features in any individual presenting with signs of OCD.

Whereas establishing the presence or absence of a tic disorder in patients with OCD is often relatively straightforward, differentiating comorbid tics and compulsions can prove more challenging. This chapter begins with an overview of tic disorder nosology, clinical features, and phenomenology. This is followed by a more in-depth discussion of empirically supported assessment methods for tic disorders and a brief review of assessment methods for OCD (see Chap. 4, for a more complete discussion). The chapter then proceeds to differential diagnosis and strategies for distinguishing between tics and comorbid obsessive–compulsive symptoms.

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_5,

Overview of Tic Disorders

DSM-IV-TR Nosology

Clinical interviews and observations are the primary tool for establishing a tic disorder diagnosis, as there is no specific medical test presently available for tics. Current DSM-IV-TR nosology includes four diagnostic categories across the tic disorder spectrum: Tourette's disorder (DSM-IV-TR term for TS), chronic motor or vocal tic disorder, transient tic disorder, and tic disorder not otherwise specified (American Psychiatric Association, 2000). TS is generally considered to be the most severe diagnosis and is characterized by at least a 12-month history of frequent tics, including multiple motor tics and at least one vocal tic, although they need not occur simultaneously. The tics must not be attributable to other factors such as a stereotypical movement disorder, a general medical condition, a known central nervous system disease (e.g., Huntington's chorea), or substance intoxication. Chronic motor or vocal tics involve at least 12 months of frequent motor or vocal tics, respectively. Transient tic disorder, considered less severe, is characterized by mild tics that are present for at least 4 weeks but less than 12 months. Tics must begin prior to age 18 in order to meet criteria for each of these diagnoses. Finally, tic disorder not otherwise specified captures other clinically significant tic symptoms that do not meet criteria for one of the aforementioned diagnoses (e.g., insufficient duration of symptoms).

Clinical Features, Course, and Prognosis

Tics are defined as "sudden, rapid, recurrent, nonrhythmic, and stereotyped" motor movements or vocalizations (American Psychiatric Association, 2000, p. 108), which draw on one or more muscle groups, mimic the experience of normal behavior, and are experienced as outside volitional control (Leckman, King, & Cohen, 1999). Within this relatively broad definition, tics may be categorized along various dimensions including type (motor or vocal), complexity (number of muscle groups involved), and degree of interference in functioning (none to severe). For example, simple motor tics involve isolated muscle groups in single anatomical locations and manifest as quick and meaningless muscle movements, such as eye blinking, nose twitching, facial grimacing, head jerking, and shoulder shrugging. Complex motor tics involve multiple muscle groups and manifest as slower and more purposeful movements, such as hand gestures, touching objects, touching self, bending, jumping, leg kicking, and hopping. Simple vocal tics comprise relatively quick and inarticulate sounds such as sniffing, coughing, grunting, and throat clearing. Finally, complex vocal tics comprise more intelligible vocalizations such as syllables, words, phrases, animal sounds, repetitions of others' or own words, and speech atypicalities (Piacentini, Pearlman, & Peris, 2007). There is great inter-individual variability in tic symptom topography, as well as the degree of interference or impairment in functioning caused by tics (Kircanski, Woods, Chang, Ricketts, & Piacentini, 2010). Within individuals, symptom fluctuation is also typical (Coffey, Biederman, Geller, et al., 2000), and symptom exacerbation is often observed in response to physiological stressors (e.g., illness) and psychosocial stressors (e.g., peer and family conflicts) (Piacentini et al., 2007).

Transient tics are common in very young children, affecting around 12–18% of 5–7-year olds, while the prevalence of TS in the community is estimated at 0.6%, and the prevalence of chronic tic disorder is approximately 1–2% (Scahill, Sukhodolsky, Williams, & Leckman, 2005). The gender distribution of TS follows a 3:1 male to female ratio (Singer, 1994; Zohar et al., 1992), and tics appear to be more common among European Americans than African Americans or Latinos (Freeman et al., 2000; Zohar et al., 1992). In addition to co-occurring most frequently with OCD, tic disorders are also often comorbid with non-OCD anxiety disorders (Coffey, Biederman, Smoller, et al., 2000) and attention-deficit/hyperactivity disorder (ADHD) (Zohar et al., 1992).

Tics typically emerge in early childhood, often beginning with simple movements of the head and face (Leckman, 2003; Leckman, Bloch, Scahill, & King, 2006). The average age

of onset of tics (ages 5–7; Leckman, Bloch, King, & Scahill, 2006 precedes the typical age of onset of obsessive–compulsive symptoms (ages 8–11; Hanna, 1995; Piacentini, Bergman, Keller, & McCracken, 2003; Rapoport, Swedo, & Leonard, 1992) and the median age of onset of OCD (age 19; Kessler, Berglund, Demler, Jin, & Walters, 2005). The developmental course of tics may involve a rostral-to-caudal progression of increasingly complex motor tics (Leckman, Zhang, & Vitale, 1998). Tics typically peak in middle childhood and may markedly reduce or disappear in adulthood (Leckman, 2003; Leckman, Bloch, Scahill, et al., 2006). Studies demonstrate that approximately 25% of children diagnosed with TS will experience moderate to severe tics into young adulthood (Leckman et al., 1998).

Phenomenology

Many individuals describe an urge or sensation immediately before the occurrence of a tic, referred to in the literature as a premonitory urge (Banaschewski, Woerner, & Rothenberger, 2003; Leckman, Walker, & Cohen, 1993). Performance of a tic may serve to satiate or at least temporarily quiet this premonitory urge (Bliss, 1980; Himle, Woods, Conolea, Bauer, & Rice, 2007; Leckman et al., 1993). Conversely, attempts to resist performance of a tic may intensify the premonitory urge. The relationship between premonitory urge and tic has been likened to that between obsessions and compulsions in OCD (e.g., Shapiro & Shapiro, 1992), and in some cases, differentiating a tic urge from an OCD-related obsession can be quite difficult. The presence of premonitory sensations distinguishes tic disorders from other movement disorders such as Parkinson's disease, Huntington's chorea, and hemiballismus (Scahill, Leckman, & Marek, 1995). Importantly, however, there are developmental differences in the ability to report on tic behavior, and younger children may be less able to perceive or describe sensory or volitional aspects of their tic experiences (Banaschewski et al., 2003; Woods, Piacentini, Himle, & Chang, 2005).

Assessment of Tic Disorders

A comprehensive assessment of tic disorders should involve evaluation of multiple domains: diagnosis of both tic and potential differential disorders, tic symptom profile, functional impact, and treatment history. The assessment of tics can be complicated by their multifaceted and fluctuating nature, and as such, numerous measures have been developed to aid in the evaluation process.

Clinical Interviews

In addition to establishing a diagnosis, a clinical interview with the patient and collaterals (e.g., spouse, parent, and teacher) is one of the most valuable strategies for assessing various features of tic disorders. A thorough clinical interview should begin with gathering of general information regarding age of onset, course of symptoms, and family history of tic disorders. Additionally, information regarding the topography, frequency, intensity, and stability of initial tics is useful.

Yale Global Tic Severity Scale (Leckman et al., 1989)

The Yale Global Tic Severity Scale (YGTSS) is perhaps the most widely used semi-structured clinical interview for tics and can be administered in approximately 15–30 min. The YGTSS is also flexible in its ability to gather comprehensive, concurrent data across the spectrum of tic disorder diagnoses. The first part of the measure is the tic symptom checklist which includes 46 tic disorder symptoms, including 12 simple motor tics (e.g., eye blinking), 19 complex motor tics (e.g., facial expressions), 7 simple vocal tics (e.g., coughing), and 8 complex vocal tics (e.g., words), with 4 of these items designated on the instrument as "other" symptoms. Next, the actual tic severity scale is comprised of ten items assessing tic number, frequency, intensity (noticeability), complexity (purposefulness), and interference with intended actions separately for the motor and vocal tics identified using the tic symptom checklist. Each of these items is scored on a 5-point Likert scale to

yield parallel Motor and Vocal Tic Severity scores ranging from 0 to 25 and which can be summed to yield a Total Tic Score ranging from 0 to 50. Last, an overall tic-related impairment scale is scored from 0 (no impairment) to 50 (severe impairment causing severe disability and distress).

Factor analyses of the YGTSS Total Tic score items have demonstrated good convergent and discriminant validity and inter-rater reliability in mixed child/adult samples (Leckman et al., 1989) and in child/adolescent samples (Storch et al., 2005; 2007; Walkup, Rosenberg, Brown, & Singer, 1992). Several studies have also demonstrated associations between total tic score items and other clinical characteristics, including positive correlations between YGTSS tic severity and school impairment, thought problems, aggressive behavior, delinquent behavior, and lower social competence (Zhu, Leung, Liu, Zhou, & Su, 2006) between YGTSS tic complexity and lower functional competence even when controlling for psychiatric comorbidity (Himle et al., 2007), and in children ages 10 and older, but not younger, between YGTSS tic severity, complexity, number, and interference and experience of premonitory urges (Woods et al., 2005). A YGTSS Total Tic score of 15 or greater is typically used to indicate clinically significant tic disorder, although mean pre-treatment scores from published clinical trials typically range from approximately 20 to 28 points (Leckman et al., 1989; Piacentini et al., 2010; Scahill, Leckman, Schultz, Katsovich, & Peterson, 2003).

Self-report Inventories

Several available self-report inventories of tics are easy to administer and can provide useful snapshots of tic number and frequency. These measures are generally less informative with regard to tic duration and impairment and interference from tic symptoms.

Yale Tourette Syndrome Symptom List-Revised (Cohen, Detlor, Young, & Shaywitz, 1980)

The Yale Tourette Syndrome Symptom List-Revise (TSSL-R) assesses multiple motor and vocal tics, separated into simple and complex, which the patient rates as present or absent on each day over the previous week. For each tic that occurred, the patient rates the severity of that tic on a 6-point rating scale for each day. As the psychometric properties of the TSSL-R have not been adequately evaluated, this measure should serve as an adjunct to the clinical interview and should be interpreted cautiously (Kompoliti & Goetz, 1997).

Hopkins Motor/Vocal Tic Scale (Walkup et al., 1992)

The Hopkins Motor/Vocal Tic Scale (HMVTS) assesses the severity of motor and vocal tics over the previous week using a 5-point rating scale. The last item on the scale is a global rating of current severity across tic symptoms. This scale should be completed separately by the patient/parent and clinician. The HMVTS has been shown to correlate highly with the total motor and total vocal tic subscales of the YGTSS, although more rigorous analyses of its psychometric properties have not been conducted (Walkup et al., 1992).

Parent Tic Questionnaire (Chang, Himle, Tucker, Woods, & Piacentini, 2009)

The Parent Tic Questionnaire (PTQ) comprises 14 motor tics and 14 vocal tics, which the parent rates as present or absent along with their frequency, intensity, and controllability for the child patient. The PTQ is scored by calculating and summing weighted scores for each tic, with the weights being a product of tic presence/absence (1/0), frequency (1–4 Likert scale), and intensity (0–8 Likert scale). Weights for each tic thus range from 0 (absent) to 32 (maximum frequency and intensity). Motor and vocal tic subscale scores are computed by summing the weighted scores within each category. An overall tic score is computed by summing the motor and vocal tic subscale scores. Initial analyses of the PTQ's psychometric properties have indicated strong correlations between PTQ scores and YGTSS subscale scores (r=0.59–8.83 for presence/absence, r=0.30–0.58 for frequency, and r=0.58–0.79 for intensity) (Chang et al., 2009). The PTQ has also shown high test–retest reliability over 1- and 2-week intervals (r=0.71–0.89) and sensitivity to treatment-related change (Piacentini

et al., 2010). An adult version, the Adult Tic Questionnaire (ATQ), is a recently developed self-report measure of tic severity that parallels the PTQ in format and content. Psychometric studies of the ATQ are currently underway.

Premonitory Urge for Tics Scale (Woods et al., 2005)

The Premonitory Urge for Tics Scale (PUTS) is a child self-report measure of the severity of premonitory urge experiences. The PUTS contains nine items that are rated on a 5-point scale anchored by "not at all true" and "very true" and summed to yield a total score. Premonitory urge descriptions on the PUTS include primarily sensory experiences, although they also include the experience that something is not "just right" and that something is not complete, before performing a tic. Therefore, as will be described below, the clinician must distinguish these premonitory urge experiences from obsessions associated with OCD. During an assessment of premonitory urges, it can be helpful to obtain information about the location and intensity of these experiences using depictions of the human figure (both dorsal and ventral views) (Leckman et al., 1993). The PUTS has evidenced good internal consistency and good test–retest reliability at 1- and 2-week intervals (r=0.79–0.86). The PUTS total score has also been shown to correlate with YGTSS total tic score (r=0.31) and YGTSS subscales of number (r=0.35), complexity (r=0.49), and interference (r=0.36). Given the difficulties younger children may have in the perception or articulation of premonitory urges, the PUTS appears most appropriate for use with patients ages 10 and older. The use of the PUTS with adult patients is less widespread and has yet to be validated (Thomalla et al., 2009), although adults may be more adept at describing premonitory sensations during the clinical interview. Further exploration of psychometric properties of the PUTS for adult samples is needed.

Direct Observations

It is often helpful to include a measure of tic symptoms that, unlike clinical interviews and self-report inventories, is not reliant upon patient report. Direct observation procedures allow the clinician to obtain a more objective measure of tic expression. Recent research has shown that brief (e.g., 5-min) clinic-based observations can be stable and as informative as home-based observations (Himle et al., 2006). However, as tics are believed to be temporarily suppressible, and the expression of tics in a laboratory or clinical setting may not fully capture patients' tic experiences in daily life, observational procedures should be regarded as a supplement to rather than a replacement of more traditional assessment procedures.

Frequency Measures

Direct observation typically involves video recording of the patient while sitting in an observation or therapy room. The most common observational scoring procedures involve either counting each tic occurrence over a given time interval (e.g., frequency count; Chappell et al., 1994) or counting the number of set-length time intervals during which a tic was observed (e.g., partial interval [PI] scoring; Woods, Miltenberger, & Lumley, 1996). The frequency count method may be useful for less frequent tics, whereas the PI method may be useful for more frequent tics. Regardless of scoring method used, the procedure typically begins with operationally defining each tic to be scored. PI scoring entails the clinician separating an observation period into smaller intervals (e.g., thirty 10-s intervals for a 5-min observation period) and then noting whether tics were present or absent during each interval. The percent of intervals in which tics were present comprises the tic score. Both the frequency count and PI methods appear to provide incremental data above and beyond the clinical interview and self-report and have been demonstrated to be temporally stable and sensitive to change (e.g., Himle et al., 2006).

Rush Videotape-Based Tic Rating Scale (Goetz, Tanner, Wilson, & Shannon, 1987) and Modified Rush Videotape-Based Tic Rating Scale (Goetz, Pappert, Louis, Raman, & Leurgans, 1999)

The Rush observational protocol involves overt video recording of the patient from a full-body perspective and a head/shoulders perspective. Using the original Rush scoring system, the

videotape is subsequently scored for distribution of motor tics, frequency, and severity. The assessment of tic distribution includes 11 areas of the body (eyes, nose, mouth, neck, shoulders, arms, hands, trunk, pelvis, legs, and feet). Frequency is measured using discrete trial recording, and severity is scored using a 6-point rating scale for motor tics, vocal tics, and the most severe tic. Using the modified Rush scoring system, tics are subsequently rated on five 5-point scales of location (motor tics only), frequency, and severity (motor tics and vocal tics). The clinician sums these ratings to arrive at a global tic severity score. The modified scoring system allows for comparisons across tic domains, which enhances its utility as a measure of change in tic symptoms (Goetz et al., 1999). The relative complexity of the Rush and Modified Rush procedures may serve to limit their utility in most clinical settings.

Review of OCD and Its Assessment

This section briefly reviews diagnosis, phenomenology, and assessment of OCD. Please see Chap. 4 for a full discussion of OCD and its assessment.

Diagnosis

OCD is characterized by obsessions and/or compulsions that are distressing, time consuming (take more than 1 h/day), or cause clinically significant impairment (American Psychiatric Association, 2000). Obsessions are recurrent, persistent, and distressing thoughts, images, or impulses. Compulsions are repetitive behaviors or mental acts performed in response to obsessions in order reduce distress or avoid perceived harm. The majority of adolescent and adult patients view their symptoms as excessive, although this insight may not be present in younger patients.

Clinical Features, Course, and Prognosis

As with tics, the topography of OCD symptoms is quite diverse. Common obsessions involve excessive concern about germs, contamination, and illness (Moore et al., 2007), fears harm to self or others, preoccupations with symmetry, moral and religious obsessions, intrusive sexual thoughts, and superstitious obsessions (Geller et al., 2001; Swedo et al., 1989). Common compulsions involve excessive and/or ritualized washing, checking, counting, touching, ordering, arranging, confessing, seeking reassurance, and mental rituals such as praying (American Psychiatric Association, 2000; Piacentini & Langley, 2004). Compulsions may be performed to alleviate anxiety, discomfort, disgust, or the sense that something is not "just right" (Leckman, Walker, Goodman, Pauls, & Cohen, 1994). As noted later in this discussion, the internal, sensory quality of the "just right" triggers may appear similar in nature to the premonitory urge for tics, a feature that requires careful differential diagnosis.

Although typical age of onset of OCD is from 8 to 11 years (Hanna, 1995; Piacentini et al., 2003; Rapoport et al., 1992), onset can occur as young as 2–3 years (Garcia et al., 2009; Freeman et al., 2003; Freeman, Garcia, & Coyne, 2008). Gender distribution tends to follow a 3:2 male to female ratio until adolescence when the distribution levels out (Swedo et al., 1989). OCD tends to be chronic, with 40% of children and adolescents meeting diagnostic criteria up to 15 years after initial identification and 20% exhibiting subclinical symptoms (Leonard et al., 1993; Stewart et al., 2004).

Assessment

Yale-Brown Obsessive–Compulsive Scale (Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989; Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989)

The Yale-Brown Obsessive–Compulsive Scale (Y-BOCS) is a semi-structured clinical interview that has shown good reliability and validity in adult clinical samples and has demonstrated utility in assessing OCD severity and change over time. The interview contains separate

sections for obsessions and compulsions, and within each section, includes a symptom checklist along with rating scales corresponding to symptom frequency/duration, interference, distress, resistance, and control. Obsessions and compulsions receive separate scores from 0 to 20, for a total Y-BOCS score ranging from 0 to 40.

Children's Yale-Brown Obsessive–Compulsive Scale (Scahill et al., 1997)

The Children's Yale-Brown Obsessive–Compulsive Scale (C-YBOCS) for use with children and adolescents is parallel to the Y-BOCS for adults. Also similar to the Y-BOCS, the CY-BOCS has demonstrated good reliability, validity, and utility in assessing system severity and change (Scahill et al., 1997). Storch et al. (2004) found moderate correlations between CY-BOCS scores and measures of depression, aggressive behavior, and attention deficit hyperactivity disorder, but not clinician ratings of tics or self-reports of general anxiety.

Comorbid Tic Disorders and OCD

Establishing Comorbidity

Differential diagnosis between tic disorder and OCD should begin with assessment methods and measures, such as those described above, which are sufficient to detect the presence or absence of each condition. In addition to a comprehensive assessment, particular attention to aspects of symptom presentation can be useful in establishing the presence versus absence of each disorder. As noted above, complex and seemingly ritualistic tics typically emerge later in the course of tic disorders, following the onset of simple tics, and are rarely the only tics present for a given patient. If, following a comprehensive assessment, these types of behaviors appear to be the only discernible symptoms, the clinician may question the presence of a tic disorder and whether these behaviors are better conceptualized as compulsions (Woods et al., 2008). Likewise, subjective anxiety and threat-related cognitive content are likely to accompany at least some obsessive–compulsive symptoms. If a patient exhibits only brief and purposeless repetitive behaviors in the absence of any cognitive or affective precursors, the clinician may consider whether tic disorder may be a more appropriate diagnosis.

Once both tic disorder and OCD diagnoses have been established, the consideration of specific symptoms with regard to each disorder should proceed thoughtfully. As behavioral treatments for these disorders (e.g., exposure therapy, habit-reversal training) may be considered to rely on similar principles (e.g., extinction, reduction of reinforcement for problematic behavior) (Piacentini & Chang, 2006), some have suggested that distinguishing between the two conditions is not always necessary (Mansueto & Keuler, 2005). In fact as noted above, the functional relationship of negative reinforcement between premonitory sensations and tics may be similar to that between obsessions and compulsions (Evers & van de Wetering, 1994; Shapiro & Shapiro, 1982). However, careful assessment not only aids clinician and patient understanding of these phenomena, but it also has important treatment implications. Differing pharmacological interventions are recommended for tic disorders versus OCD (Goodman et al., 2006), and some behavioral interventions would likely differ for tics and certain OCD symptoms (e.g., aggressive obsessions). The sections below discuss symptom topography in patients with comorbid tics and OCD, the gray areas that exist between these conditions, and useful strategies for differentiating between them.

Symptom Topography

Children (Scahill et al., 2003) and adults (Leckman, 2002) with comorbid TS and OCD tend to present with different symptom profiles than patients with OCD alone (reviewed in Scahill, Sukhodolsky, & King, 2007). In fact, symptom topography in patients with both diagnoses often involves repetitive behaviors that can be difficult to assign to one disorder versus the other (reviewed in Lewin & Piacentini, 2010). For example, Holzer et al. (1994) found that the

most common compulsions in adult patients with comorbid tic disorder and OCD were repetitive counting, ordering and arranging, symmetry/evening-up, blinking/staring rituals, and touching/tapping/rubbing. Adults with comorbid tics and OCD have also been reported to exhibit greater rates of checking, hair-pulling, hoarding, a need to know/remember, fear of saying inappropriate things, and violent images/impulses, than those with OCD alone (Eapen, Robertson, Alsobrook, & Pauls, 1997; Leckman et al., 1994). A highly replicated finding is that those with comorbid tics and OCD tend to report fewer contamination obsessions and washing compulsions than those with OCD alone (Eapen et al., 1997; Hanna et al., 2002; Leckman et al., 1994; Lewin, Chang, McCracken, McQueen, & Piacentini, 2010; Sheppard, Bradshaw, Purcell, & Pantelis, 1999; Storch et al., 2007). These findings of unique symptom patterns in patients with both disorders have engendered the terms "tic-related OCD" and "Tourettic OCD" to describe these symptom profiles (Buhlman, Deckersbach, Cook, & Wilhelm, 2007; Mansueto & Keuler, 2005).

One potentially useful self-report measure of the presence and frequency of tics and obsessive–compulsive symptoms in patients with both disorders is the MOVES (Gaffney, Sieg, & Hellings, 1994). The MOVES includes items corresponding to motor tics, vocal tics, obsessions, and compulsions, and the subscale scores can be combined to achieve a separate tic scale and an obsessive–compulsive scale. The MOVES can thus provide a snapshot comparison of co-occurring tics and obsessive–compulsive symptoms as reported by the patient, although thorough psychometric studies of the measures have yet to be conducted.

Premonitory Urges Versus Obsessions

Assessment of premonitory urges and obsessions may shed light on the most appropriate designation for particular symptoms, in that premonitory urges and obsessions can often be differentiated on the basis of their sensory, affective, and cognitive qualities. Premonitory urges, as described above, are frequently characterized by physical or sensory discomfort in particular locations of the body (Banaschewski et al., 2003; Leckman et al., 1993), although this is not always the case, particularly in children under the age of 10 (Banaschewski et al., 2003; Woods et al., 2005). Obsessions are more rarely associated with sensory phenomena in specific bodily locations (Lewin & Piacentini, 2010). Additionally, whereas obsessions are typically associated with feelings of anxiety or distress (American Psychiatric Association, 2000; Woods et al., 2008), premonitory urges are less likely to directly produce anxiety (Woods et al., 2008). Additionally, premonitory urges are generally experienced as simple urges without accompanying rationales for the behaviors (Buhlman et al., 2007). In this manner, complex tics may be experienced as less egodystonic than compulsions (Woods et al., 2008).

Tics Versus Compulsions

Presentation

In patients with comorbid tic disorder and OCD, certain behavioral symptoms can be more easily differentiated than others. For example, simple motor and vocal tics (e.g., eye blinking, head jerks, sniffing, throat clearing) can usually be correctly identified based on their quick duration, simplicity of movement, lack of purposefulness, and perceived involuntariness (Lewin & Piacentini, 2010; Mansueto & Keuler, 2005). However, other symptoms may be more difficult to differentiate, and it is important to note that the clinical interviews and self-report inventories for tic disorders and OCD described above have areas of overlap. For example, virtually all tic symptom measures (e.g., YGTSS, PTQ, ATQ) include an eye blinking item, and the Y-BOCS and CY-BOCS include an item corresponding to rituals involving blinking or staring, which is designated on the measures as a symptom that may or may not be an OCD phenomenon. Similarly, touching/tapping/rubbing rituals in OCD can appear similar to motor tics of the hands, arms, and legs. Other repetitive behaviors

can also be difficult to classify, as they may represent about of repeated motor tics, a complex motor tic, or repeating rituals in OCD.

Voluntariness

Tics and compulsions can sometimes be differentiated on the basis of voluntariness, with tics generally experienced as less voluntary than compulsions. A useful analogy that the clinician may use with the patient involves a tic being conceptualized as a sneeze (involuntary and must be performed) and a compulsion being conceptualized as an itch (compelling and distressing, but not involuntary). However, this distinction is complicated by the fact that many patients report experiencing their tics as voluntary responses to premonitory urges at some points during the illness (Leckman et al., 1993; Woods et al., 2005).

Function

Given the overlap in observable qualities of certain tics and compulsions, an evaluation of the function served by these behaviors can frequently be useful. First, following from the anxiety and distress that typically accompanies obsessions, these affective arousal states are typically reduced upon performance of compulsions (American Psychiatric Association, 2000; Lewin & Piacentini, 2010). Performance of tics, on the other hand, typically serves to relieve sensory urges or physical tension, sometimes in specific locations of the body (Lewin & Piacentini, 2010; Woods et al., 2008). Therefore, a useful assessment question is whether withholding of the symptom results in anxiety versus sensory discomfort. Second, as obsessions tend to be associated with greater cognitive content and specific fears than premonitory urges, a useful line of questioning involves whether any feared events may occur if the patient were to withhold the symptom (Woods et al., 2008). Notably, only 1.7% of compulsions in adult patients with OCD has been found to occur in the absence of obsessions (Foa et al., 1995), although this may be more common in children. Lewin and Piacentini (2010) recommend that the clinician inquire about the consequences of withholding the symptoms and review the patient's responses for specific content. Responses such as "something bad might happen," "I'd feel stressed," and "I never could do that" may be more indicative of obsessive–compulsive phenomenology, whereas "I can't hold it in," "the urge would just get stronger," and "probably nothing" would be more indicative of tic disorder phenomenology.

For some patients, both tics and compulsions may be preceded by subjective discomfort, the sense that something is "not right" (and needs to be "just right"), and/or that something is incomplete (and needs to be completed). Indeed, patients with TS often state that a sensory-perceptual sense that something is not "just right" precedes their behavior (Miguel et al., 1995, 2000; Miguel, do Rosario-Campos, Shavitt, Hounie, & Mercadante, 2001). For these symptoms, classification using one of the other assessment methods above is suggested, as well as consideration of patient age and ability to accurately perceive or articulate their internal experiences (Banaschewski et al., 2003; Woods et al., 2005).

Assessment of Anxiety Disorders

Adult patients with comorbid TS and OCD appear to have higher rates of affective, anxiety, and substance use disorders than patients with either disorder alone (Coffey et al., 1998; Miguel et al., 2001). Anxiety disorders are more common in youth with TS than the population at large (Coffey, Biederman, Smoller, et al., 2000) and youth with TS on average meet criteria for two psychiatric diagnoses (Freeman et al., 2000). As with other stressors, anxiety can exacerbate tic expression (Coffey, Biederman, Geller, et al., 2000; King & Scahill, 2001). In addition, it may be associated with muscle tension that may need to be carefully parsed from premonitory urges associated with tics or sensory issues related to OCD. For these reasons, assessment of non-OCD anxiety disorders should be included routinely in the clinical interview and supplemented by self-report inventories, in order to obtain a more thorough differential diagnosis and evaluation of interactions among symptoms (see this volume for a full discussion of assessment strategies for anxiety disorders).

Summary

Significant gains have been made in the understanding, assessment, and treatment of tic disorders over the past few decades, and research in this area is growing. A variety of tools have been developed to aid in the assessment of tic disorders through the clinical interview, symptom inventories, and direct observation. Comprehensive assessment of tic disorders involves not only establishing the diagnosis but also evaluating important aspects of the symptom profile (e.g., topography, frequency, complexity, interference, premonitory urges). In the context of the high proportion of patients with tic disorders and comorbid OCD, differential diagnosis should proceed carefully with consideration of common distinctions between obsessions and premonitory urges and between compulsions and tics. Even with the key distinctions in mind, however, distinguishing these symptoms from one another can be quite challenging to even the most experienced clinicians. Other potential comorbidities, including non-OCD anxiety disorders, should be considered. As an informant of clinical intervention, assessment should always evaluate relative impairment from each set of symptoms and direct treatment accordingly.

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Intelligence Testing and Treatment Planning with Children

6

Robert D. Friedberg and Amanda M. Pearl

Introduction

Intelligence testing and treatment planning are common and familiar tasks to professional psychologists. Braaten and Norman (2006) asserted that intelligence tests are among the most extensively researched and valuable measures for evaluating cognitive abilities. Bringing these two clinical responsibilities together in a seamless fashion to meet the needs of anxious children represents a natural synthesis. Intelligence test results can guide the type and sequencing of psychotherapeutic interventions. Moreover, these findings shed light on the way anxious children process therapeutic procedures.

Braaten and Norman (2006) wrote that intelligence reflects a person's problem-solving abilities such as adaptation to new tasks, vocabulary, decision making, verbal reasoning, and nonverbal cognitive processing. Weis (2008) defined intelligence as "a broad construct that is related to people's abilities to adapt to their environments to solve problems and to use information accurately and efficiently" (p. 75). Sternberg (1997) added that intelligence not only includes but also transcends adaptation. Intelligence facilitates flexibility in response to challenge and active selection of people's environments. According to Sternberg, intelligent behavior propels decisions about what aspects of environments someone accepts or rejects.

Intelligence can be further unpacked into more specific conceptual components. Fluid and crystallized abilities are constructs developed by Catell (1941). Fluid intelligence refers to the ability to reason in novel situations where previously acquired information is not relevant. Wasserman and Tulsky (2005) defined fluid ability as the capacity to apply and adapt various cognitive skills to changing demands. Crystallized intelligence represents acquired facts, words, quantitative and language comprehension skills that are culturally valued.

Simultaneous and sequential processing are additional constructs revealed through IQ testing that have relevance for treatment planning with anxious children. Sequential processing involves solving problems from a serial order perspective (e.g., this leads to that). Consequently, data points for information processing are linearly arranged and interdependent (Lichtenberg, Broadbooks, & Kaufman 2000). Simultaneous processing involves synthesizing information all at once to solve problems using spatial, analytic, and organizational skills.

Treatment planning is a common, yet complex clinical practice (Hunsley & Mash, 2010). Treatment planning identifies target goals and

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_6,

guides the selection, sequence, and timing of interventions (Friedberg & McClure, 2002). Essentially, Woody, Detweiler-Bedell, Teachman, and O'Hearn (2004) referred to treatment plans as therapy maps of priorities and interventions. Treatment plans also include hypotheses about the amount and pace of change. Berman called treatment plans action plans for therapy. Indeed, these action plans are collaboratively developed with children and their families. Collaboration helps insure that clients are invested in the plan and facilitates motivation for treatment (Hunsley & Mash, 2010). Berman also noted that clients who see written plans as credible and relevant are more hopeful about therapy.

This chapter helps clinicians apply IQ test findings to treatment plans for anxious children. We begin by briefly describing the Wechsler Intelligence Scale for Children-IV (WISC-IV; Wechsler, 2004) and the Kaufman family of intelligence tests for children and adolescents (Kaufman & Kaufman 2004a, 2004b). A review of the literature regarding intelligence test results and anxious symptoms follows. Finally, the chapter concludes with recommendations based on intelligence test data for CBT with anxious children.

Brief Description of Common Intelligence Measures

Wechsler Intelligence Scale for Children-IV

The Wechsler Intelligence Scale for Children-IV (WISC-IV; Wechsler, 2004) measures intelligence in children aged 6–16 years and 11 months. Scores are obtained for a full-scale IQ, performance IQ, and verbal IQ. The WISC-IV yields four factors [Verbal Comprehension (VC), Perceptual Reasoning (PR), Working Memory (WM), and Processing Speed (PS)]. Administration time generally takes between 50 and 70 min (Wechsler, 2004). The composite scales have internal consistency reliability coefficients ranging from 0.88 (Processing Speed) to 0.97 (Full Scale; WISC-IV Technical Report). Similarly, stability of WISC-IV scores over time has been demonstrated (WISC-IV Technical Report). Confirmatory factor analyses supported a four factor model contributing validation for the four subscales across all ages. Finally, validity of the WISC-IV was demonstrated by significant relationships with additional versions of Wechsler Intelligence Scales, Children's Memory Scale (CMS; Cohen, 1997), Gifted Rating Scale (GRS; Pfeiffer & Jarosewich, 2003), and Adaptive Behavior Assessment System-Second Edition (ABAS-II; Harrison & Oakland, 2003).

The Verbal Comprehension Index (VCI) assesses verbal concept formation, verbal reasoning, acquired knowledge, and attention to verbal stimuli (Zhu & Weiss, 2005). The Perceptual Reasoning Index measures fluid reasoning, spatial processing, attention to detail, and visual motor integration. Zhu and Weiss (2005) asserted that the PRI is independent of processing speed. Processing speed represents the speed at which children can process simple visual information without making errors (Braaten & Norman, 2006). Zhu and Weiss (2005) noted that deficits in processing speed reflect young people's difficulties in understanding new information presented. If they find consuming novel stimulation arduous, they are left with fewer available resources. Working memory assesses mental storage capacity and the ability to manipulate these stored concepts in memory (Zhu & Weiss, 2005). The VCI assesses executive functioning and crystallized intelligence, whereas the PRI, WM, and PSI emphasize more fluid processes necessary for higher order learning (Williams, Weiss, & Rolfhus, 2003a, 2003b).

Kaufman Scales

Kaufman Assessment Battery for Children-II

The Kaufman Assessment Battery for Children-II (KABC-II; Kaufman & Kaufman, 2004a) assesses intelligence in children ages 3–18 years, 11 months. It yields four factors (Sequential Processing, Simultaneous Processing, Mental Processing Composite, and Achievement) over 16 subtests. However, a maximum of 13 subtests are administered to any individual child. The Mental Processing

Composite is an index of general intelligence (Lichtenberg et al., 2000). The KABC-II takes approximately 30–70 min to complete (Kaufman, Kaufman, Kaufman-Singer, & Kuafman 2005). The KABC-II has demonstrated good reliability (Reynolds, Keith, Fine, Fisher, & Low, 2007). Specifically, in regard to internal consistency, the median reliability coefficient ranges from 0.69 to 0.93. In terms of test–retest reliability, the reliability coefficient ranged from 0.72 to 0.94. In both cases, stability of the reliability coefficients increased with age. In regard to validity, the KABC-II factors for the core subtests, as well as the general intelligence factor, have been supported through confirmatory factor analyses across multiple ages (Kaufman & Kaufman 2004a, 2004b).

Kaufman Adolescent and Adult Intelligence Test

The Kaufman Adolescent and Adult Intelligence Test (KAIT; Kaufman & Kaufman, 1993) assesses intelligence in individuals aged 11–85 years old. The core battery contains six subtests and yields two scores (Fluid and Crystallized Intelligence; Kaufman et al., 2005). The Expanded Battery includes ten subtests. In reliability assessments, test–retest reliability coefficients for general, fluid, and crystallized cognitive functioning ranged from 0.87 to 0.97 (Kaufman & Kaufman, 1993). Confirmatory factor analyses support the hypothesized theoretical factor structure across ages. Finally, there is empirical support for convergent validity with related tests, specifically in regard to crystallized intelligence.

Kaufman Brief Intelligence Test-Second Edition

The Kaufman Brief Intelligence Test-Second Edition (K-BIT-2; Kaufman & Kaufman, 2004b) takes approximately 15–30 min to administer and measures crystallized and fluid abilities in individuals aged 4–90 years old. The KBIT-2 is recommended for use as a screener for intellectual abilities and other situations that do not require a full-scale cognitive ability assessment (Bain & Jaspers, 2010). The K-BIT-2 includes three subtests, two verbal subtests and one nonverbal subtest, as well as an IQ composite score. The two verbal subtests tap word knowledge, language development, verbal concept formation, fund of information, and crystallized intelligence, whereas the nonverbal subtests assess nonverbal reasoning, ability to solve visual analogies, simultaneous processing, and fluid thinking (Bain & Jaspers, 2010; Lichtenberg et al., 2000). The K-BIT-2 reflects a culturally fair estimate of intellectual functioning and possesses good psychometrics. Kaufman and Kaufman (2004b) report extensive support for the reliability of the K-BIT-2, including split-half reliability coefficients at 0.78 (for the 4–5-year-old age group) and higher, as well as test–retest reliability coefficients ranging from 0.77 to 0.93 across all age groups. Convergent validity of the K-BIT-2 with the Wechsler Abbreviated Scale of Intelligence (WASI; The Psychological Corporation, 1999) indicated correlation coefficients ranging from 0.62 (nonverbal) to 0.90 (IQ Composite/Full-Scale IQ; Bain & Jaspers, 2010).

Intelligence Test Results and Anxiety

Performance anxiety or performance pressure occurs when anxious responding is specific to the anticipation of or having to perform in a situation which an individual deems important and the individual fears a subsequent potential negative evaluation (Baumeister, 1984; Hopko, Hunt, & Armento, 2005). Performance anxiety has been found to negatively impact an individual's scores within many domains of intellectual/cognitive functioning that include mathematical ability (Ashcraft & Kirk, 2001; Hopko et al., 2003), working memory tasks (Eysenck, 1985; Fox, 1994), prospective memory tasks (Harris & Cumming, 2003), and general performance on neuropsychological tests (Browndyke et al., 2002; Hopko, Hunt, et al., 2005). During the experience of performance anxiety, intrusive thoughts (e.g., worries) have been found to impact performance on intelligence tests in several ways including a reduction in attentional resources, as well as the storage and processing capacity of working memory often resulting in performance decrements (Ashcraft & Kirk, 2001; Beilock, Kulp, Holt, & Carr, 2004; Schmader & Johns, 2003).

In general, several theories suggest that performance anxiety interrupts and consumes automatic or implicit processing, as well as working memory resources ordinarily allocated to efficient and errorless task completion (Baumeister, 1984; Beilock et al., 2004; Beilock & Carr, 2001; Lewis & Linder, 1997; Masters, 1992). Eysenck (1992, 1997) noted that cognitive interference, as opposed to physiological arousal, in performance anxiety may be the more salient factor in understanding performance decrements (Eysenck & Calvo, 1992). In other words, if anxious thoughts are attended to during the task as opposed to the task itself, that portion of the individual's working memory is not available for task-relevant actions. Research has found that this decrease in attentional and working memory capacity due to anxiety and its related cognitive interference resulted in suboptimal performance in verbal comprehension, logical reasoning, and mathematical computation on intelligence tests (Ashcraft & Kirk, 2001; Sorg & Whitney, 1992; Tohill & Holyoak, 2000).

Variable performance on intelligence tests may be related to many factors, one of which is anxiety-related responding (Sattler, 1992; Sternberg & Grigorenko, 1997). While there are multiple intelligence tests that exist, including the ones cites in this chapter, the Wechsler intelligence tests have by far been the most extensively researched in regard to differential profiles resulting from mental disorder diagnoses, including anxiety. Even so, there is great potential clinical utility for the Kaufman scales and therefore it is likely that the findings in regard to anxiety for the Kaufman scales may parallel those of the Wechsler scales. The literature overall has found the exact effect of anxiety on intelligence test performance is unclear. Several researchers have found no evidence of anxiety-specific profiles or evidence of interference with performance on intelligence assessments. For example, Naglieri, Goldstein, Iseman, and Schwebach (2003) found that anxious children did not exhibit significant performance deficits on the WISC-III compared with a matched clinical sample and a sample of children with Attention-Deficit/Hyperactivity Disorder (Wechsler, 1991). Similar results were found in children with neurobiological disorders—only those diagnosed with autism, ADHD, learning disabilities, and brain injuries displayed distinct profiles on intelligence tests, while those diagnosed with anxiety did not (Mayes & Calhoun, 2004; Calhoun & Mayes, 2005). Finally, Zimet, Zimet, Farley, and Adler (1994) found no significant differences on WISC-R summary scores between children diagnosed with anxiety and other psychological disorders, although they did find that children diagnosed with anxiety disorders were found to have a lower IQ scores.

On the other hand, several empirical examinations have identified various negative outcomes related to anxiety and performance on intelligence tests (Durham, Locke, Poon, & McLeod, 2000; Eysenck & Calvo, 1992; Hopko, Crittendon, Grant, & Wilson, 2005; Kellogg, Hopko, & Ashcraft 1999; Lezak, 1995; Fox, Russo, Bowles, & Dutton, 2001; Purcell, Maruff, Kyrios, & Pantelis, 1998). As early as 1974, Newmark, Wheeler, Newmark, and Stabler demonstrated that when examining overall performance on intelligence tests, children reported significantly higher state anxiety following the administration of the WISC. When more specific areas of intelligence (e.g., verbal, performance, working memory, processing speed) are examined individually, some areas appear to be more affected by anxiety than others. These vulnerable areas are described below.

Nonverbal Intelligence/Perceptual Reasoning

In regards to nonverbal intelligence or perceptual reasoning, Hopko, Crittendon, et al. (2005) found adults were more vulnerable to the effects of anxiety on perceptual reasoning subtests (e.g., block design) as compared to the verbal subtests. Additionally, heart rate activity was highest during the block design subtest. When children diagnosed with Obsessive–Compulsive disorder (OCD) were compared to other psychiatric groups, deficits on timed, perceptual organizational tasks, the children diagnosed with OCD were found to demonstrate scores higher in verbal ability (Shin et al., 2008). Lezak (1995) found the block design

subtest on the WISC-R to be the most sensitive subtest to anxiety-related responding. These results suggest that the combination of complex visual-motor analysis and synthesis, complex perceptual–organizational processes, and time pressure may be influenced substantially by performance anxiety (Barlow, 2002; Durham et al., 2000; Eysenck & Calvo, 1992; Kellogg et al., 1999). Similar research has posited that visual-spatial tasks are particularly vulnerable to the effects of anxiety as a result of a narrowing of attention and decreased processing efficiency (Avila, 1995; Fox et al., 2001; Purcell et al., 1998).

Working Memory

In the area of working memory, formerly known as freedom from distractibility, test anxiety has been found to impact performance on the two core subtests of the WISC (Hopko, Hunt, et al., 2005; Parish, Buntman, & Buntman, 1976). Although there is no universally agreed upon definition of working memory capacity (WMC) it has frequently been operationalized in research as the number of items that can be recalled during a complex working memory task (Barrett, Tugade, & Engle, 2004; Gimmig, Huguet, Caverni, & Cury, 2006). WMC reflects individual differences in the amount of goal-directed attention that is available for temporarily keeping information of interest activated while inhibiting irrelevant thoughts and preventing distraction (Barrett et al., 2004). As noted earlier, cognitive interference in the form of worry is likely to be a significant factor influencing performance on intelligence tests (Eysenck, 1992; 1997; Eysenck & Calvo, 1992).

Interpersonal variation in WMC is predictive, if not indicative, of variations in fluid intelligence (Engle, Tuholski, Laughlin, & Conway, 1999). The higher WMC that an individual has, the better that person is in blocking out task-irrelevant information (Rosen & Engle, 1998). Similarly, individuals who report chronic levels of stress, high trait anxiety, and/or significant life stress have been found to have lower levels of WMC and perform worse than others on measures of working memory (Derakshan & Eysenck, 1998; Eysenck & Calvo, 1992; Klein & Boals, 2001; Sorg & Whitney, 1992). Klein and Boals (2001) proposed that significant life stress reduces WMC as people under stress constantly suppress unwanted negative thoughts and feelings that intrude during other tasks.

Verbal Intelligence/Processing Speed

In regards to verbal subtests, several researchers have found that anxiety is not associated with differential performance on any of the Wechsler verbal subtests (i.e., comprehension, information, similarities, vocabulary, arithmetic; Boor & Schill, 1968; Callens & Meltzer, 1969; Mishra, 1982; Schultz, Hoyer, & Kaye, 1980). Also, the reduction of test anxiety prior to the administration of the WISC did not subsequently improve individual scores on the vocabulary subtest, although it did improve children's performance on the digit span subtest (Parish et al., 1976). In regard to processing speed, children identified as extroverted performed significantly better on the coding subtest compared to children identified as introverted (Tapasak, Roodin, & Vaught, 1978). Finally, Hopko, Crittendon, et al. (2005) found that in addition to elevated heart rate activity on the block design subtest of the WAIS, this was also found during the coding subtest.

Although there is a significant amount of research that has been conducted regarding the effects of anxiety on intelligence testing, results are discrepant. Therefore, one cannot identify a specific "anxiety profile" which children with a diagnosis of an anxiety disorder reliably produce on intelligence tests. Overall, children presenting with anxiety specifically regarding testing are likely to be significantly impacted. Although there is likely a pervasive effect on all scores, it is largely the case that an effect will be particularly seen on scores on timed tests of visual-motor and/or visual-spatial reasoning (e.g., block design), on working memory subtests (e.g., digit span, letter–number sequencing), and on processing speed subtests (e.g., coding). Individual examiners should continue to take into consideration an individual's scores on subtests most likely to be affected by anxiety when conceptualizing a testing case.

Clinical Recommendations

In this section, we discuss various ways intelligence test findings may guide treatment planning for anxious children. Since Cognitive Behavioral Therapy (CBT) Spectrum approaches are the most widely used and studied methods for treating childhood anxiety disorders, we focus on CBT treatment planning. The degree to which the treatment relies on cognitive or behavioral methods is considered. Basing decisions about the level of parental involvement in treatment on intellectual functioning is addressed. Further, matching treatment methods to abstract reasoning and logical/sequential thinking skills is explained. Making the optimal use of children's visual/spatial abilities is presented. Finally, tailoring treatment to children's processing speed and working memory capabilities is illustrated.

Dosing the Behavioral and Cognitive Components of Treatment

Treatment planning based on IQ results raises dimensional rather than categorical clinical issues (Willner, 2006). O'Connor and Creswell (2005) wrote, "…standardized test assess only very broad intellectual abilities and may not be sensitive to the kinds of cognitive processes tapped by CBT" (p. 41). Quakely, Coker, Palmer, and Reynolds (2003) found school age children were able to engage in the meta-cognitive processes necessary for CBT and WISC verbal IQ was significant factor only for younger children. Verduyn (2000) noted that children who possess skills associated with concrete operations are appropriate for CBT. Consequently, the dose of behavioral and cognitive interventions needs to be titrated.

CBT is sufficiently flexible to meet the needs of people with intellectual disabilities (Willner, 2006). The key in treatment planning is matching children's abilities to the demands of therapeutic tasks. If the demands exceed the response capacities, treatment will fall flat. In general, the algorithm suggests that the lower children's cognitive capacities, the more psychotherapy relies on behavioral intervention and very simple cognitive procedures requiring less meta-cognitive processing (Willner, 2006).

For instance, behavioral strategies such as contingency contracting, relaxation, and exposure may be readily applied for children with more limited intellectual functioning. Additionally, reliance on modeling and participant modeling practices are efficacious in instances where verbal reasoning is impaired (Davis, Kurtz, Gardner, & Carman 2007). In fact, therapist modeling cognitive coping statements may reduce negative vocalizations in anxious intellectually compromised individuals (Suveg, Comer, Furr, & Kendall, 2006).

Decisions About Level of Parental Involvement

Involving parents in treatment with anxious children with intellectual impairments should be part of the treatment plan. Moreover, integrating parents into the treatment plan is consistent with the transfer of control model (Silverman & Kurtines, 1996). The transfer of control model advocates that the transmission of coping skills and methods progresses from therapist to parent to child. Age is a factor to consider when involving parents in children's treatment. A general rubric is that the younger the child, the more parents should be involved in treatment. Parents tend to be more emotionally salient to school age children than to adolescents. For example, therapists might teach parents a variety of coping methods. Parents can model coping skills, teach problem solving, and encourage behavioral experimentation (Suveg, Roblek et al., 2006). Parents may also be used as consultants and augment sessions with children (Ginsburg & Kingery, 2007; Ginsburg, Siqueland, Masia-Warner, & Hedtke, 2004). At times, parents could act as "translators" for their children. If a child is experiencing difficulty in understanding the therapy or therapist, parents could explain the procedure to the child. Finally, parents can promote efforts at therapy homework assignments and remind them of therapy interventions.

Intellectually compromised adolescents may also still require considerable parental involvement in their therapy. However, while their information processing deficits make parental involvement valuable, their emerging independence and reliance on peer group support rather than parental support compromises treatment planning. Titrating the level of parental involvement becomes pivotal. Therapists may likely need to selectively include parents in their adolescent's treatment. For instance, they may help with remembering coping cards or planning experiments and exposures rather than being in session for the entire time during Socratic processing.

Level of Abstract/Concrete Thinking

For children lower on the abstract thinking dimension, care should be delivered to concretizing concepts (Piacentini & Bergman, 2001). Shirk (2001) referred to this as helping children "scaffold" their cognitive skills. Numerous authors recommended cartoons, graphics, and other visual aids (Kingery et al., 2006; Piacentini & Bergman, 2001). There are a variety of workbooks and other clinical materials that offer this scaffolding to children and adolescents. These resources are briefly described in Table 6.1.

Table 6.1 Scaffolding resources for CBT

Resource	Type
Think good, feel good (Stallard 2002a, 2002b)	Workbook
Coping cat (Kendall, 1992)	Workbook
Therapeutic exercises for children (Friedberg, Friedberg, & Friedberg, 2001)	Workbook
What to do when your brain gets stuck (Huebner, 2007)	Workbook
What to do when you worry too much (Huebner, 2006)	Workbook
Camp-Cope-A-Lot (Kendall & Khanna, 2008)	Interactive computer and DVD
Thinking and feeling (Vernon, 1989)	Exercises and activities
What when works for children and adolescents (Vernon, 2002)	Exercises and activities
Passport program (Vernon, 1998)	Exercises and activities
Up and down the worry hill (Wagner, 2000)	Storybook
Nobody's perfect (Flanagan 2008)	Storybook
The anxiety management game (Berg, 1990)	Board game

Children who are very concrete in their approach are likely to require modifications to relaxation procedures. Fortunately, excellent relaxation scripts are available (Geddie, 1992; Kendall et al., 1992; Koeppen, 1974; Ollendick & Cerny, 1981). Behavioral referents such as holding an actual lemon and squeezing it helps teach muscle tension. Using familiar experiences such as biting down on jaw breaker candy illustrates the tension/relaxation process (Ollendick & Cerny, 1981; Kendall et al., 1992).

Adding visual components to a self-instructional procedure is a good strategy for children with limited abstract reasoning. For instance, Friedberg, McClure, and Garcia (2009) recommended the use of a Thought Crown technique to visualize the cognitive restructuring process. More specifically, the therapist and child make a paper crown, write down thoughts on thought bubble-shaped post-it notes, and then attach them to the front of the crown so it looks like the thought is literally popping into the child's mind. Further, Kendall, Gosch, Furr, and Sood (2008) described the innovative practice of making coping key chains where coping statements on laminated cards are linked in a key ring.

Self-instruction can be reduced down to simple, pithy phrases. For example, Myles (2003) used the self-instruction, "Walk, Don't Talk" to help children manage anger provoking situations. Kendall et al. (2008) facilitated simple self-instructions such as "Take a deep breath" and "Just do it." Finally, simple metaphors are excellent ways to teach children complex cognitive materials (Ginsburg & Kingery, 2007; Grave & Blissett, 2004). For instance, Ginsburg and Kingery (2007) used the example of once not liking broccoli but liking it now as an example of changing one's mind (e.g., cognitive restructuring).

Rational analysis techniques can be graduated to suit children's limitations. Friedberg et al. (2009) asserted that rational analysis games

provide concrete referents and direct experience countering maladaptive thoughts. Workbook exercises which guide children through the Socratic Method also break down the complex skill into understandable components.

Emphasizing experiential techniques over written materials is a good strategy for children with limited abstract abilities (Friedberg et al., 2009; Gosch, Flannery-Schroeder, Mauro, & Compton, 2006; Kingery et al., 2006; Piacentini & Bergman, 2001; Shelby & Berk, 2009). Experiential learning involves gaining from here and now experiences (Friedberg, 2009). Experiential procedures are "hands-on" activities where children learn by doing. Making use of children's interests is well advised. For instance, Stallard (2009) suggested using drawing, poetry, song writing, and computer interests in CBT with children and adolescents. Kendall and Beidas (2007) offered the innovative idea of bowling down fear pins. However, Shelby and Berk (2009) emphasized that the experiential exercises should include inherently embedded CBT concepts, so verbal explanations are not necessary. In this way, the experiential task promotes children's learning skills through their own experiences rather than by others' verbal instructions.

Logical Skills/Sequential Reasoning Not Well Developed

Fluid reasoning is involved in inductive and deductive thinking. When IQ results demonstrate that children's inductive and deductive reasoning abilities are limited, cognitive interventions emphasizing complex rational analysis are not indicated (Donoghue, Stallard, & Kucia, 2010). Indeed, the Kaufman scales readily reveal strength and weaknesses in sequential reasoning. For example, continua, decatastrophizing, logical Socratic methods, and complex tests of evidence need to be judiciously applied. Traditional rational analysis techniques make heavy demands on cognitive processing. As noted:

> These cognitive behavioural techniques require that the individual has the ability to not only experience complex negative cognitions but also reflect on them and to engage them in highly complex reasoning processes in which hypotheses are evaluated and alternative solutions to problems are generated. (p. 310)

Relying on self-instruction augmented by rehearsal rather than rational analysis is a productive alternative (Dagnan & Jahoda, 2006; Willner, 2006).

If therapists elect to apply rational analysis, these methods need to be simplified and reduced to their core elements. Cognitive restructuring is more likely to be effective if delivered via modeling approaches than through complex Socratic dialogues (Shirk & Russell, 1996). Stories and other narrative forms may aid the compromised reasoning processes of children (Grave & Blissett, 2004).

Degree of Verbal Reasoning and Visual Spatial Ability

Using child-friendly language is a must for most children but is especially crucial for a patient with language deficits (Moree & Davis, 2010; Stallard 2002a, 2002b). Shelby and Berk (2009) offered several scaffolding recommendations in these cases. For instance, index cards containing photographs or drawings instead of words could be used for less verbal children. Providing lists of emotions and coping thoughts for children with less developed verbal/language skills are good strategies (Moree & Davis, 2010). Writing material on a white board is a valuable practice (Sauter, Heyne, & Westenberg, 2009). Videotapes and pictures are methods that may resonate with children who tend to be more visually oriented (Holmbeck, Devine, & Bruno, 2010). Kendall et al. (2008) recommended the use of photographs as visual reminders of children's brave approach behaviors.

Children who have well-developed visual spatial abilities may be more suited to approaches using imaginal stimuli (e.g., systematic desensitization, imagery; Ollendick & Vasey, 1999). For children whose visual-spatial abilities are not so well developed, Ollendick (1979) recommended using counter conditioning agents such as play, food, and music in lieu of deep muscle relaxation and presenting the anxiety producing scenes in vivo during systematic desensitization.

Table 6.2 Summary of clinical issues and recommendations

Clinical issue	Recommendation
Overall Low Intellectual Functioning	Rely on contingency contracting, relaxation, experiment/exposure, therapist modeling of coping statements
Low Level of Abstract Reasoning	Apply scaffolding methods such as cartoons, graphics, and other visual components
	Emphasize experiential tasks
	Break down self-instruction into pithy phrases
	Use workbooks
Underdeveloped logical skills and sequential reasoning	Emphasize self-instruction over rational analysis
	Model Rational Analysis
	Use creative methods such as storytelling to implement rational analysis
Low degree of verbal reasoning	Speak in child friendly language
	Rely on pictures, video, photographs, or other nonverbal graphics
	Summarize frequently
Low visual spatial abilities	De-emphasize imagery
	Rely on in vivo and concrete referents
Impaired Processing Speed and Working Memory	Make coping skills memorable and accessible
	Introduce mnemonics
	Encourage multiple rehearsals

When concerned about anxious children's receptive language, several scaffolding procedures are indicated. Donoghue et al. (2010) recommended the liberal use of verbal summaries by children to communicate their understanding and written log books to record key points in session. Suveg, Roblek et al. (2006) described the very creative the use of dance ("nervous dance") in CBT with a cognitively delayed anxious child.

Tailoring Treatment Plans to Children's Processing Speed and Working Memory

Zhu and Weiss (2005) noted that processing speed is correlated with working memory, fluid reasoning, and learning. More specifically, they concluded that efficient and rapid processing speed decreases demand on working memory and therefore enhances reasoning capacities. Anxiety in children may result in "cognitive dulling" (Davis, Ollendick, & Nebel-Schwalm, 2008, p. 50). Davis et al. (2008) noted that intrusive worries may result in constant and pervasive stress which zaps children's available mental resources. Therefore, tailoring treatment plans to these abilities is recommended.

For children whose working memory and processing speed is impaired, coping skills need to be highly accessible, simple, and memorable. Highly distractible and easily frustrated children may require shorter sessions (Donoghue et al., 2010). Liberal use of handouts and mnemonic devices are indicated to prompt children's acquisition of skills (Sauter et al., 2009). For example, one young patient (age 14) with impaired working memory found the mnemonic cue, "Think in 3 C's. I am confusing convenience with catastrophe" a helpful self-instruction. Writing mnemonic coping thoughts (e.g., "Difficulty is not the same as disaster") on colorful adhesive labels and sticking them to notebooks or inside lockers may resonate with children. Multiple rehearsals of coping thoughts and problem-solving strategies are also helpful. The use of technology for prompts (e.g., text messages from parents with coping thoughts or encouragement for exposures, tape recordings) can also augment treatment. Finally, photographs and videotapes are other commonly used strategies (Kendall et al., 1992). Table 6.2 summarizes the clinical issues and recommendation discussed above in this section.

Conclusion

Considering the relationship between intellectual functioning and anxiety disorders yields several implications for research and practice. Intellectual functioning is not only central to children's academic functioning but also mediates and moderates response to psychotherapy. Fluid intellectual abilities shape problem solving and logical analysis which are fundamental to cognitive behavioral spectrum approaches to psychotherapy. Investigating whether children with more developed fluid abilities profit from more rational analysis-based procedures than children with poorer fluid abilities is an intriguing research question.

The extant literature on anxiety and IQ testing is dominated by research on the Wechsler scales. Broadening this "WISC-centric" world is a compelling research frontier. Conducting more research on anxious children's abilities as measured by the Kaufman scales is an interesting future direction. For instance, studying whether patients who have better sequential processing do better with logical analysis methods than youth with less well-developed sequential abilities provides an additional set of research questions.

Integrating children's intellectual functioning during treatment planning represents a comprehensive clinical strategy. While success in CBT does not absolutely depend on intellectual capacity, it nonetheless influences the way treatment methods are processed. Addressing children and adolescents' intellectual abilities propels an individualized appreciation of techniques and procedures. Adapting psychotherapy to specific circumstances obviates a one-size-fits-all mentality.

In conclusion, assimilating intelligence test findings into clinical practice is quite congenial with the CBT philosophy and model. Data from these evaluations facilitate necessary accommodations in manual or modular-based approaches. Clearly, anxious children and adolescents benefit from this tailored approach to psychotherapy.

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Part II

Complexities in Assessment of Personality and Behavioral Disturbance Associated with Anxiety Conditions

Assessment of Substance Abuse and Dependence in Anxiety Disorders

7

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Although there has been a long-standing recognition that anxiety psychopathology and substance use disorders often cooccur, scientific attention devoted to understanding the underlying nature of these relations has been limited (Zvolensky, Buckner, Norton, & Smits, 2011). This gap in knowledge is unfortunate, as there are (a) high prevalence rates of anxiety and substance use disorders among treatment-seeking as well as the general population; and (b) relations between these conditions are important to their onset, maintenance, and course. The present chapter summarizes key aspects of this literature with the express purpose of helping to provide an understanding of the assessment of substance use and its disorders in the context of anxiety psychopathology. To achieve this aim, we first present the overarching context, conceptual perspectives, clinical features, and developmental processes relevant to the study and treatment of substance use disorders. Second, we present a general theoretical model for better understanding anxiety–substance use relations from an assessment persepctive. Third, we highlight the prevalence of some the most commonly used substances—tobacco, alcohol, and marijuana—and their co-occurrence as well as interplay with panic psychopathology to illustrate the importance of assessment of substance use and its disorders in the context of anxiety psychopathology. Finally, we present key aspects of the assessment approach directly relevant from a conceptual perspective to persons with cooccurring anxiety–substance use disorders.

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Substance Use and Its Disorders: Context, Conceptualization, Clinical Features, and Developmental Processes

Context

Most people have tried, or know someone that has tried, tobacco, alcohol, or another type of drug at some point in their lives. Any single or limited occasion of such use may represent a one-time event. Yet, for a substantial subset of users, substance use behavior can become more frequent, contribute to negative personal consequences, and ultimately, develop into persistent abuse. Substance use disorders are a major public health issue both in the USA and in all other regions of the world. Indeed, estimates indicate that the annual financial costs to society of illicit drug abuse and dependence in the USA are approximately $181 billion, and when combined with alcohol and tobacco costs, these costs exceed $500 billion (National Institute on Drug Abuse [NIDA], 2004).

D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_7,

Interestingly, substance use disorders have often been neglected from an assessment and treatment perspective in the context of many mental health communities. Although there are likely a variety of reasons for such neglect, two factors have consistently played a role. First, some clinicians have tended to perceive substance use problems as being primarily related to certain social conditions (e.g., low socioeconomic status) or individual characteristics (e.g., moral weakness, criminal tendencies). Such perspectives often lead to the faulty conclusion that people with substance use disorders should be able to stop using drugs or alcohol if they "really wanted to." Second, structural and cultural divisions between mental health care and the addiction treatment communities have contributed to a lack of awareness about the importance of substance use and its disorders among certain health professionals. For example, Zvolensky, Baker, et al. (2005) found that among mental health professionals who specialize in the treatment of anxiety disorders, (a) less than 30% of these persons assess for drug use and (b) perceive themselves as "definitely unprepared" to deliver substance use treatment. For the above reasons, it is perhaps not surprising that although evidence-based substance use treatment can often have a positive effect on substance use disorders, the vast majority of persons never access such care (McLellan, Lewis, O'Brien, & Kleber, 2000).

Conceptualizations

Definitions of substance use disorders have evolved, particularly over the last two decades. Today, substance use disorders have achieved a certain degree of cross-national recognition. These perspectives generally identify common clinical features across different types of substance use disorders. That is, the dominant symptoms and "classic signs" of impairment are related to problematic substance use behavior. These characteristics include the following: (1) impaired psychological functioning that focuses on substance use (e.g., craving for drugs); (2) frequent drug use behavior that occurs despite negative consequences related to it; (3) the development of tolerance; and (4) withdrawal symptoms upon discontinuation of use.

The Diagnosis and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association [APA], 1994) employs three separate labels of severity: use, abuse, and dependence. Substance use reflects nonproblematic consumption of drugs or alcohol. Substance abuse denotes use when there is evidence of limited negative consequences. Finally, substance dependence refers to a more severe form of use, whereby there is a clear pattern of "loss of control" of drug use behavior as well as evidence of clinical features of tolerance and withdrawal. Although the DSM perspective on substance use is the most commonly employed approach, many have questioned whether it adequately captures the intricate nature of substance use problems (Shaffer & Neuhaus, 1985). For this reason, some have suggested that a classification of severity is necessary for making judgments about how best to manage and understand a specific substance use disorder (Shaffer & Neuhaus, 1985).

Clinical Features

One classic aspect of substance use behavior pertains to its effects on the brain. This effect of substance use typically is referred to as drug-induced euphoria. One of the more recent and influential findings, across substances, is that substance-induced euphoria effects are systematically related to brain regions that are typically involved in naturally occurring reward-oriented activities such as satisfying cravings for food, drink, and sexual activity (Dackis & O'Brien, 2005). These neural reward circuits may become negatively impacted by chronic or even time limited persistent drug use (e.g., excessive binge drinking during college years; Dackis & O'Brien, 2005). This account converges with clinical reports that document craving, loss of control, and an impaired ability to regulate short- and long-term consequences among persons with substance use disorders (APA, 1994).

The clinical manifestation of tolerance is another hallmark characteristic of substance use disorders. Tolerance reflects the process whereby there is an escalation in drug dose needed to achieve a specific drug-induced effect. It is now generally recognized that tolerance can exist prior to an extended history of excessive substance use (Benowitz, 1998). Research also suggests that tolerance effects for certain aspects of drug use can affect people in markedly different ways. For instance, some cigarette smokers show evidence of tolerance effects to nicotine after years of abstinence (Perkins et al., 1994), whereas for others, abstinence from nicotine for even a few hours restores nicotine effects (Benowitz, 1998).

A related process is sensitization or "reverse tolerance," which reflects an increase in drug responses after repeated administration. Tolerance and sensitization can develop more slowly or rapidly for different types of drugs and for different people (Dackis & O'Brien, 2005). These differences in tolerance or sensitization are not solely a function of drug type (e.g., alcohol versus marijuana). In fact, there are a wide variety of individual difference factors related to tolerance and sensitization levels for given substances, with genetic sources often accounting for substantial variability (Dackis & O'Brien, 2005). Thus, both the substance being used and the person using the substance influence the nature of tolerance and sensitization processes, presumably in a synergistic and dynamic manner.

Withdrawal symptoms related to drug discontinuation (stopping the use of a substance) are another cardinal feature of substance use disorders. Withdrawal symptoms generally occur after repeated drug-related activity rather than a single or few occurrences. The onset, duration, and severity of withdrawal symptoms can vary by the type of substance used and across individuals. Despite such symptom-based heterogeneity, there is a growing appreciation that one common aspect of withdrawal that cuts across all substance use disorders is the presence of negative affect (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). Additionally, it is evident that substance use can effectively alleviate the withdrawal syndrome emerging from drug abstinence, a finding that is evident in human and nonhuman animal literatures (Cheeta, Irvine, Kenny, & File, 2001).

Withdrawal symptoms are often conceptualized as a "compensatory reaction." In this sense, withdrawal symptoms are believed to maintain explanatory "motivational significance" value. That is, they prompt the person to use the substance (again) to alleviate aversive subjective experiences. This withdrawal state is functionally important and often related to the "return" of drug use among those trying to quit. For instance, withdrawal symptoms reflecting increased levels of negative affect often are a robust predictor of relapse (Piasecki, Kenford, Smith, & Fiore, 1997). Withdrawal symptoms may be especially relevant to understanding relapse for emotional vulnerable populations such as those with anxiety vulnerabilities or psychopathology (Vujanovic & Zvolensky, 2009).

Notably, withdrawal symptoms often lack a pharmacological basis. Many users report withdrawal symptoms well beyond the time that the drug can possibly have a direct effect on the body. This observation is coupled with the recognition that many users, particularly those with preexisting psychological vulnerability such as anxiety or depressive symptoms, use drugs to manage their mood states (Zvolensky & Bernstein, 2005). Baker, Japuntich, Hogle, McCarthy, and Curtin (2006) have suggested that prolonged symptom dysregulation following drug discontinuation may be due to the fact that users not only stop using a drug (e.g., alcohol) but also stop their drug-using routine. Evidence in favor of this multidimensional view of withdrawal includes such findings as heroin withdrawal being diminished by injections of saline (Butschky, Bailey, Henningfield, & Pickworth, 1995).

Another process pertains to initial and maintaining motivations for substance use. This work builds from the motivational study of alcohol (Cooper, Frone, Russell, & Mudar, 1995) and tobacco use (Piper et al., 2004). Such an approach recognizes that there are a number of distinct motives for using drugs that can vary both between and within individuals (Cooper, Frone, Russell, & Mudar, 1995). Theoretically, distinct

motives may be related to particular problems (Cooper, Frone, Russell, & Mudar, 1995). For instance, specific motives may play unique roles in various aspects of use (e.g., addictive use, withdrawal symptoms, craving) or problems related to use (e.g., psychological disturbances).

Developmental Processes

Despite variation across substances, there are characteristic age-related patterns of substance use, including onset during adolescence and peak rates of use in emerging adulthood (ages 18–25). Declines in substance use typically begin in the mid-20s (Rohde & Andrews, 2006). However, these patterns represent normative age-related patterns, and multiple trajectories best capture developmental heterogeneity (Chassin, Presson, Pitts, & Sherman, 2000). Indeed, there is a large degree of heterogeneity across people for the same substance disorder (e.g., some people might show a steady, incremental progression in the severity of their substance use behavior whereas others may stabilize in their severity and impairment for an extensive time period; Windle, Mun, & Windle, 2005). A variety of factors have been linked to such developmental trajectories, including social context (e.g., leaving home, increasing personal independence), maturational processes (e.g., puberty), and neurobiology of brain development (Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 1997; Gardner & Steinberg, 2005; Lanza & Collins, 2002).

With the above heterogeneity in mind, it is nonetheless clear that there are distinct "meta" developmental stages of substance use. One of the most popular approaches has been the work derived from Flay (1993). This perspective posits that individuals follow a generally well-specified sequence of substance use behavior that includes the following stages: initiation, maintenance, and relapse (Flay, 1993). The initiation stage reflects trying substance use on the initial few trials and further experimentation (irregular use). The maintenance stage includes regular use (ranging from weekly to daily use); it is in this stage that individuals are most apt to develop dependence. In general, substance-dependent individuals will be more apt to use more frequently or greater amounts than those classified as nondependent, yet importantly, "regular substance use" does not necessarily indicate dependence (Pomerleau, Carton, Lutzke, Flessland, & Pomerleau, 1994). In the relapse stage, individuals who have attempted to stop substance use return to their substance use behavior after a period of abstinence. It is important to consider these developmental stages from the onset because the nature of an observed substance use-anxiety psychopathology association may be qualified by the developmental level of substance use. For example, panic attacks may be more likely during smoking quit attempts made during the maintenance versus initiation stage of smoking (Zvolensky & Bernstein, 2005).

Key Tenets for Assessment Activities Focused on Anxiety Psychopathology–Substance Use Disorders

One limitation to the research on substance use disorders and anxiety psychopathology is that the vast majority of it has not been theoretically driven, and has not taken into consideration, from an integrative perspective, the variety of other types of factors likely involved in documented associations. We therefore briefly outline a general model that can be used as a heuristic for orienting assessment activities aimed at understanding the potentially complex issues at play (Zvolensky, Bernstein, Marshall, & Feldner, 2006; see Fig. 7.1). This conceptual model has four basic premises.

First, the model posits that the associations that exist between substance use behavior and anxiety psychopathology are reciprocal and dynamic. That is, each of these variables can affect the etiology, maintenance, and course of the other. Thus assessment activities need to consider both the anxiety and substance use variables of interest and do so in a manner over time.

Second, this model posits that moderators (variables that influence the association between substance use behavior and anxiety psychopathology) and mediators (variables that account

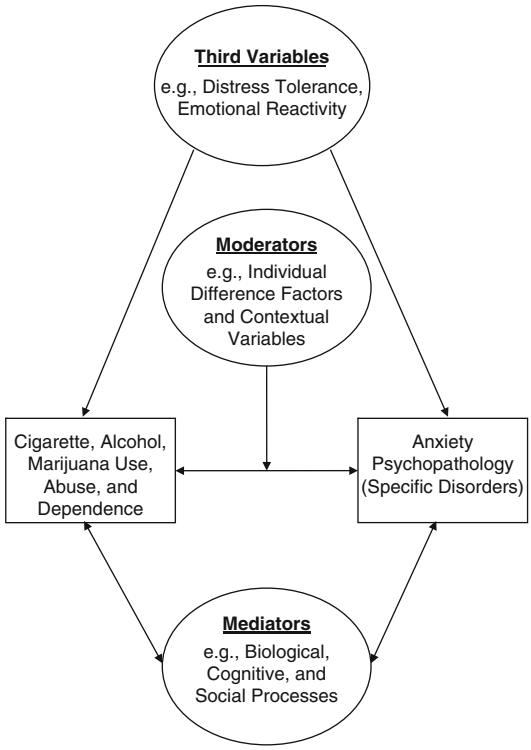

Fig. 7.1 Heuristic Model for Assessment

for the relations between substance use behavior and anxiety psychopathology) qualify and explicate the nature of the observed co-occurrence. In general, a moderator alters the strength or direction of the relation between a predictor and outcome. Thus, it is useful to conceptualize moderators as individual or environmental characteristics that, in the presence of a predictor variable, increase or decrease the risk of a certain outcome (e.g., promoting greater panic attacks or greater risk of relapse). In contrast, a mediator is the mechanism through which the initial variable (e.g., smoking) affects the outcome variable (e.g., panic attacks); in other words, the mediator is the intervening or explanatory process (e.g., nicotine withdrawal or physical health problems) linking the initial and outcome variables. Overall, assessment activities need to include within reason the range of possible or likely moderators or mediators involved in a particular co-occurrence of substance use and anxiety psychopathology.

A third major tenet is that there is explanatory specificity between differential substance use behaviors, moderators, mediators, and various forms of anxiety psychopathology. That is, a specific type of drug (e.g., marijuana) and use pattern (e.g., dependence) is linked to a particular type of problem (e.g., panic attacks) via a specified mediating process (e.g., impaired control over cognitive processes) in the context of certain moderating variables (e.g., high trait anxiety). The core idea being that the underlying mechanism between substance use-anxiety psychopathology may be distinctly different from that explaining other types of substance use. Thus, assessment instruments need to be titrated to the presenting set of factors related to substance use-anxiety psychopathology relations.

The final key element is that a third, common or shared, variable may potentiate the development of both anxiety psychopathology and substance use problems. Thus, assessment tactics need to cover a relatively broad array of factors that could be linked to the co-occurring problems (e.g., social contexts, genetic history).

Prevalence, Co-occurrence, and Interplay: Panic Psychopathology and Tobacco, Alcohol, and Marijuana

In this section, we outline the prevalence of some of the most commonly used substances—tobacco, alcohol, and marijuana—and their co-occurrence and interplay with panic psychopathology. This section is intended to showcase the relations with only one form of anxiety psychopathology due to the potential complexities involved (see Heuristic Model for Assessment, above). Overall, this section of the chapter is intended to illustrate why it is important to assess for substance use in the context of anxiety psychopathology.

Tobacco

Tobacco use continues to be a leading preventable cause of death and disability in the USA. Early patterns of use in adolescence and early adulthood

often develop into chronic forms of nicotine addiction for approximately one in three users (Colby, Tiffany, Shiffman, & Niaura, 2000). Despite a reduction in smoking prevalence over the past 25 years, approximately 45–48 million (approximately 22–25%) adults in the USA currently smoke (Centers for Disease Control and Prevention [CDC], 1996). Though nearly 70% of these smokers are motivated to quit (CDC, 2002), approximately 90–95% of smokers who try to quit smoking on their own (Cohen et al., 1989), and 60–80% of smokers who attend treatment programs, relapse (CDC, 2002).

Cigarette smoking is more prevalent among individuals with panic psychopathology, as well as other certain types of anxiety disorders, than it is among individuals without panic psychopathology or other types of psychological disorders. This work has predominately focused on individuals seeking treatment for anxiety disorders (McCabe et al., 2004), but has more recently expanded to include representative samples of the general population (Goodwin, Zvolensky, & Keyes, 2008). Current rates of daily smoking among those diagnosed with panic disorder have been as high as 56% and have not meaningfully varied when lifetime histories of smoking are examined (Zvolensky, Feldner, Leen-Feldner, & McLeish, 2005). Rates of current daily smoking among those with panic disorder are typically greater than those found among individuals without psychiatric problems and other anxiety disorders, with the exception of posttraumatic stress disorder. For example, McCabe et al. (2004) reported that 40% of treatment-seeking individuals with panic disorder were current smokers compared with 19% of those with social anxiety disorder and 22% of persons with obsessive–compulsive disorder, who also were seeking treatment for their anxiety problems at the same clinic.

Studies have found that smoking, compared to nonsmoking, among young adults or adolescents is related to an increased risk for panic attacks, panic disorder, and agoraphobia (Breslau & Klein, 1999; Breslau, Novak, & Kessler, 2004; Isensee, Wittchen, Stein, Hofler, & Lieb 2003). For example, Johnson et al. (2000) found adolescents who smoked 20 or more cigarettes per day were at significantly greater risk for panic disorder and agoraphobia as young adults. Studies also have suggested that smoking among those with nonclinical panic attacks (Zvolensky, Forsyth, Fuse, Feldner, & Leen-Feldner 2002) and panic disorder with and without agoraphobia (Zvolensky et al., 2004; Zvolensky, Schmidt, & McCreary, 2003) compared to nonsmokers with these same problems is related to more severe panic symptoms and life impairment. These smoking-panic effects are moderated by individual differences in affect-relevant vulnerability variables (McLeish, Zvolensky, Bonn-Miller, & Bernstein, 2006). For example, Zvolensky, Kotov, Antipova, and Schmidt (2003) found that high levels of anxiety sensitivity moderated the relation between smoking rate and agoraphobic avoidance, such that higher levels of anxiety sensitivity and smoking rates were associated with the greatest levels of panic symptoms.

There also is evidence that panic psychopathology may play a formative role in the maintenance of smoking. This work is derived from integrative conceptual models that suggest that smokers with panic psychopathology may have a particularly difficult time quitting smoking by virtue of their emotional reactivity to aversive interoceptive cues that routinely occur during smoking abstinence, as well their tendency to smoke as a way of avoiding or regulating negative affect (Zvolensky & Bernstein, 2005; Zvolensky, Schmidt, & Stewart, 2003). In fact, some work suggests that daily smokers with a history of panic attacks report significantly more intense anxiety-related withdrawal symptoms (e.g., anxiety, restlessness) compared to smokers without such a history, but not other tobacco withdrawal symptoms (Zvolensky, Lejuez, Kahler, & Brown, 2003). Other studies are consistent with these findings (Zvolensky, Feldner, Eifert, & Brown, 2001).

Alcohol

Alcohol use disorders are among the most prevalent mental disorders in the USA. Indeed, the National Institute on Alcohol Abuse and Alcoholism's (NIAAA) 2001–2002 National

Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Grant et al., 2003) indicated that the 12-month prevalence of DSM-IV alcohol abuse and dependence is approximately 8% in the general population (Grant et al., 2006). Such problems are associated with impairment across numerous life spheres. For instance, chronic heavy drinking is an etiological factor for certain cancers, liver cirrhosis, immune system disorders, and brain damage (Grant et al., 2003). Alcohol use problems co-occur with panic psychopathology at rates that exceed those found among individuals without psychopathology and many other psychological disorders (Kushner, Sher, & Beitman, 1990). Studies have suggested that individuals seeking treatment for alcohol use problems and dependence often meet diagnostic criteria for panic attacks, panic disorder, and agoraphobia. Tómasson and Vaglum (1996), for example, reported that over 30% of individuals seeking treatment for alcohol use problems met diagnostic criteria for panic disorder with or without agoraphobia. Other investigations have examined rates of alcohol use problems among individuals seeking treatment for panic psychopathology. In a classic study in this area, Otto, Pollack, Sachs, O'Neil, and Rosenbaum (1982) found that approximately 25% of persons seeking treatment for panic disorder had a history of alcohol dependence. Importantly, these co-occurrence rates among treatment-seeking populations are consistent with those observed in epidemiological studies. For example, Regier, Narrow, and Rae (1990) reported that in the Epidemiological Catchment Area survey, panic disorder was associated with an elevated risk for alcohol dependence, even relative to other anxiety disorders.

Bidirectional associations may exist between alcohol problems and panic psychopathology. Here, perhaps one of the most influential perspectives has been that panic psychopathology may promote maladaptive alcohol use via its use as a coping strategy for dampening aversive internal states and panic attacks (Kushner et al., 1990). There is empirical evidence consistent with this perspective. For example, research suggests that panic attacks and panic disorder predict the future onset of alcohol abuse (Zimmerman et al., 2003). Other work suggests that acute alcohol administration does, in fact, dampen anxiety reactions in controlled, laboratory studies, especially among panic-vulnerable individuals (Kushner et al., 1996; MacDonald, Baker, Stewart, & Skinner, 2000). Thus, it is plausible that individuals with panic psychopathology or even pre-morbid risk factors for such problems may learn to use alcohol to cope with distressing anxiety or related negative mood symptoms. The significance of such data for understanding relapse problems among individuals with co-occuring alcohol-panic psychopathology has not been extensively studied. Moreover, there is little understanding thus far of the factors that may mediate or moderate panic-to-alcohol problem associations.

Problematic alcohol use also may contribute to the maintenance of panic psychopathology. For instance, problems resulting from heavy alcohol use, such as withdrawal or physical dysregulation related to intoxication, may induce acute anxiety states and perpetuate panic psychopathology (Kushner, Sher, & Erikson, 1999). Emerging data are consistent with this perspective. Rassovsky et al. (2004), for example, conducted a study comparing recently detoxified alcohol-dependent individuals to nonalcoholic social drinkers during a biological challenge. Results indicated that individuals in the alcohol-dependent group displayed a greater anxiety response to the challenge than the control group, suggesting that withdrawal symptoms may indeed play a role in the induction of panic (Rassovsky et al., 2004). Such findings highlight the potential clinical significance of problematic alcohol use in exacerbating preexisting panic states.

Marijuana

Marijuana has been the most widely used illicit substance in the USA for 30 consecutive years (Johnston, O'Malley, & Bachman 2003), with approximately 25 million people in the USA (8.6% of the population) having used marijuana in the past year (Johnston, O'Malley, Bachman, & Schulenberg, 2004). An estimated 10% of persons who have ever used marijuana will become daily

users (Johnston, O'Malley, & Bachman 1995). Lifetime marijuana dependence is estimated at 4% of the general population, a rate that is the highest of any illicit drug (Anthony, Warner, & Kessler, 1994). These rates of marijuana use, abuse, and dependence in the USA represent a significant public health concern, as there are a number of negative consequences associated with certain patterns of use of the substance (e.g., increased risk of severe medical disease; Bloom, Kaltenborn, Paoletti, Camilli, & Lebowitz, 1987).

Interest in marijuana use and panic attacks was initially stimulated by clinical observations that using marijuana may elicit acute episodes of elevated anxiety (Hollister, 1998). For example, many clinical reports have documented that marijuana use in certain contexts (e.g., novel situations) can trigger an acute fear response (Thomas, 1996). In one study, Hathaway (2003) found that among adult weekly users of marijuana ($n=140$), approximately 40% reported having had at least one panic attack related to such use. Studies addressing marijuana–panic psychopathology associations using representative sampling tactics are now emerging. For example, Zvolensky et al. (2006) found, among a representative sample of adults, that a lifetime history of marijuana dependence was significantly related to an increased risk of meeting lifetime diagnostic criteria for panic attacks. More recently, Zvolensky, Cougle, Johnson, Bonn-Miller, and Bernstein (2010) examined the prevalence rates between marijuana and panic psychopathology among a representative sample of adults in the USA. Results indicated that lifetime history of comorbid marijuana use and panic attacks or panic disorder were approximately 36.8% and 8.5%, respectively; these rates were significantly higher than the 22.0% and 4.4% evident for those with no history of marijuana use and evident when adjusting for a large number of sociodemographic factors and lifetime alcohol as well as drug abuse/dependence (Zvolensky et al., 2010).

Zvolensky et al. (2006) examined a representative sample from the general adult population ($n=4,745$; 52% female). After controlling for polysubstance use, alcohol abuse, and demographic variables, lifetime history of marijuana dependence, but not use or abuse, was significantly related to an increased risk of panic attacks. Additionally, among participants reporting a lifetime history of both panic attacks and marijuana use, the age of onset of panic attacks ($M=19.0$ years) was significantly earlier than for individuals with a lifetime panic attack history but no marijuana use ($M=27.6$ years). This work is indirectly supported by other investigations showing that daily or weekly users of marijuana report greater levels of panic-relevant anxious arousal (i.e., symptoms of somatic tension and arousal such as feeling dizzy) compared to nonusers (Bonn-Miller, Zvolensky, Leen-Feldner, Feldner, & Yartz 2005). In another investigation, adolescent marijuana use and dependence were significantly prospectively associated with increased odds for the development of panic attacks and panic disorder in adulthood (Zvolensky et al., 2008). However, the marijuana use and dependence effects in relation to the onset of panic psychopathology (both panic attacks and panic disorder) were not evident after controlling for daily cigarette smoking (Zvolensky et al., 2008). Most recently, Zvolensky et al. (2010) examined the relations between marijuana use and panic attacks and panic disorder using a large representative survey of adults ($n=5,672$; 53% female; $M_{age}=45.05$, $SD=17.9$). After adjusting for sociodemographic variables (age, marital status, income, education, race, and sex) and the presence of a lifetime substance use disorder, lifetime marijuana use was significantly associated with increased odds of a lifetime panic attack history. Lifetime marijuana use also was significantly associated with an increased risk of current (past year) panic attacks; however, this relation was not significant when controlling for nicotine dependence. Lifetime marijuana use was significantly associated with an increased odd of a lifetime diagnosis of panic disorder as well as a current (past year) diagnosis of panic disorder. These results appear to suggest that although there are often consistent statistically significant relations between these problems, there may be distinct and bidirectional pathways between marijuana use and panic psychopathology.

Notably, there are currently no studies examining the role of panic psychopathology in relapse among individuals attempting to stop using marijuana. Based upon panic-tobacco relapse work (Zvolensky & Bernstein, 2005), one would expect that panic-related factors may play a functional role in problems discontinuing marijuana use as well as shaping the nature of the "quit experience."

Summary

Empirical work suggests that substance use is common among persons with panic psychopathology, and clinically relevant bidirectional associations are evident between panic psychopathology and various forms of tobacco, alcohol, and marijuana use and misuse. Therefore, assessment strategies aimed at understanding and addressing the co-occurrence of anxiety and substance use are theoretically and clinically important.

Assessment Approach: Conceptual Considerations

The assessment approach for co-occuring anxiety–substance use disorders is necessarily highly complex, and there is no single "strategy" that will work in all instances for all types of persons. There also is no standard model that can work for all cases. Yet, consideration of a number of basic issues, including level of analysis, method of assessment, nature of inferences drawn, and quality of the data obtained, provide a conceptual basis for understanding how and why certain assessment activities are employed for any given person or situation.

Level of Analysis

There can be many purposes for the assessment of substance use disorders in the context of anxiety psychopathology (e.g., treatment planning, determination of readiness to enter occupation, early intervention). In most instances, the procedures employed to execute assessment activities are highly influenced by the underlying conceptual framework (Kazdin, 1982). For example, the level of analysis for assessment of substance use in the context of anxiety psychopathology is largely influenced by the conceptualization of the problem behavior in question. In most cases, assessment activities for anxiety psychopathology-substance use disorder co-occurrence focus on symptom presentation (e.g., number of days missed per week due to substance use), psychopathology phenotype (e.g., alcohol abuse versus dependence), or the operative system components (cognitive, behavioral, physiocal, and context). The level of analysis employed will directly affect the extent to which specific aspects of problematic behavior are assessed.

Assessment at the symptom level focuses on individual behavior (e.g., number of drinks per drinking episode); it is a unidimensional approach. Assessment at the phenotypic level focuses on the symptoms that covary, and therefore, is multidimensional (e.g., facets of distinct elements of drinking behavior); this approach encompasses more elements of the individuals' substance use behavior (e.g., frequency, amount, consequences). Assessment at the system level tends to be more inclusive, assuming various systems involved affect one another in a direct fashion; for example, substance use behavior affects anxiety and related mood states and vice versa (Drasgow & Kanfer, 1985). Although more inclusive theoretically, the challenge to using the system level approach historically has been in the titration of the accuracy operative conceptual model in terms of the pragmatic aspects of the assessment processes (e.g., isolating the appropriate level to assess problem behavior relative to existing scientific information about it).

Methods

All levels of analysis for the assessment of substance use in the context of anxiety psychopathology involve the measurement of responses across cognitive, behavioral, and physiologic systems. The measurement of specific systems

varies both by content area (e.g., alcohol versus tobacco versus marijuana) and the particular systems theoretically involved in substance use behavior. Therefore, there is great variability across distinct types of substance use behavior despite recognition of some of their overarching commonalities (see "Substance Use and Its Disorders: Context, Conceptualization, Clinical Features, and Developmental Processes" section). The classic work by Cone (1977) provides a model for understanding the assessment of substance use and its disorders in the context of anxiety psychopathology. Cone (1977) identified that assessment tactics vary along dimensions—content, directness, and generalizability. Content reflects the nature of the responses being assessed (cognitive, behavioral, and physiologic). Directness pertains to immediacy of the assessment of responses in the time and context in which they occur (e.g., measuring alcohol use during periods of actual use versus retrospective report of alcohol use behavior). Common forms of indirect methods of assessment included interviews, questionnaires, and ratings by self or others. Common forms of direct assessment include monitoring behavior in real-world settings (e.g., time sampling approaches), role playing, and various forms of analogue behavior (e.g., measuring emotional responses to drug cues in the laboratory). Generalizability refers to consistency of the responses being measured across a particular domain. There are distinct domains of generalizability often relevant to substance use and other types of problem behavior (e.g., time, setting, method; Cone, 1977).

Contingent upon the goals of the assessment, there will be natural variation in the method and content targeted for measurement. There are also likely differences in method and content during assessment as a function of the training and background of the assessor. For example, behaviorally oriented clinicians may tend to favor the behavioral and cognitive systems and frequently employ direct and indirect forms of assessment, whereas a pharmacologist may tend to focus on physiologic aspects of behavior and direct forms of measurement. There is no "universal" or "correct" model that will be sufficient to meet the assessment objectives for all types of substance use behavior in isolation or in the context of anxiety psychopathology. In short, the methods employed to assess the content areas of primary interest will vary directly as a function of the assessment goals themselves. Additionally, pragmatic considerations can greatly affect the choice of method employed in the assessment process. For example, it may not be possible or even useful to biochemically monitor levels of a drug over time for a particular person. Thus, there is often a real-world "compromise" that happens during assessment activities for substance use behavior, especially in complex cases such as those involving co-occurring anxiety disorders. Moreover, goals for assessment will often vary over time. As a result, the utilization of specific methods and areas of content can vary among the same individual. For instance, if a clinician is assessing for possible substance use behavior among a returning veteran with posttraumatic stress disorder, the initial interview may prioritize molar aspects of substance use behavior and history (e.g., when did the substance behavior start in relation to the traumatic event). Yet, later this same clinician may prioritize monitoring of substance use behavior in real-world situations using a fine-grained analysis (e.g., time sampling monitoring of the context in which substance use occurs, amounts used, consequences for such use) and cross-validate such responses from the reports of persons involved in the client's life (e.g., spouse).

Drawing Inferences

The data derived from the assessment process can be interpreted in distinct ways. The challenge often inherent to complex cases involving dual or multidiagnosis (e.g., substance use disorder–anxiety disorder) is isolating the best possible information for maximum explanatory value. There are three commonly employed forms of inference: person-referenced, criterion-referenced, and norm-referenced approaches (Kazdin, 1977).

Person-referenced approaches focus on the individual and compare measured responses to the same person (e.g., number of times of marijuana use

per week). The referent is the person themselves and their own behavior in a particular epoch. Criterion-referenced approaches focus on responses of the individual in the context of a specified standard. Although criterion-referenced approaches often provide a specific benchmark upon which to evaluate a response, the challenge for dually diagnosed persons has often been in isolating objective indices of "adaptive" responding. Norm-referenced approaches compare the observed responses to normative group. For example, a therapist may compare the degree and type of negative consequences experienced by a person with generalized anxiety disorder who is abusing alcohol to the typical degree of alcohol use among persons with this same anxiety disorder diagnosis. In reality, drawing inferences about substance use behavior among anxiety disordered persons may need to involve more than one type of inference modality; again, this matter largely depends on the assessment goal and the pragmatic realities operative at the time of the assessment.

Determining Assessment Value

With the consideration of the types of inference modalities described above, it is important to note that the quality of the data derived from any given assessment activity for anxiety–substance use relations can be interpreted from distinct conceptual models. Just as the goals of the assessment often affect the types of content and methods used, the modes of evaluating the quality of data derived from any given assessment activity vary greatly. These approaches differ in the assumptions underlying psychopathology, measurement processes, and interpretation guidelines. Thus, the utilization of any given model for any given instance of substance use–anxiety comorbidity may depend on any number of factors (e.g., familiarity with a particular model, agreement and understanding of underlying assumptions).

Arguably the most commonly employed model in anxiety–substance use disorder comorbidity research and practice is the "classic" psychometric model (Guion, 1980). The basic premise of the psychometric model is that there is measurement error. The goal therefore is to develop and utilize instruments that maximize accuracy and minimize error. This approach emphasizes the validity and reliability of a particular tool in capturing the response set of interest. The psychometric model has driven many of the assessment approaches used in better understanding substance use–anxiety disorder comorbidity. The generalizability model focuses on determining the nature of variability in regard to the setting or context in which it was obtained (Cone, 1977). In short, variability is understood in relation to the contextual conditions (e.g., time of assessment, setting). To the extent there are large differences in context for any given assessment (e.g., responding to drug cues when in an anxious versus non-anxious state); interpretation of those data is made in concert with the situation in which it was obtained. The accuracy model posits that the usefulness of a given assessment tool centers on how well it captures the behavior in question (Cone, 1981). Although seemingly simple, it is often not a pragmatically feasible approach for anxiety–substance use comorbidity, as there are so many instances wherein there exists a "standard" to which evaluate "accuracy." A final model relevant to anxiety–substance use comorbidity, especially in therapeutic activities, is the treatment validity model (Nelson & Hayes, 1979). The main focus on this model is determining the degree to which a given assessment activity facilitates the delivery of an intervention in an efficacious manner. In short, it is a pragmatic model, one that tends to seek out and employ assessment tactics that best inform the application of an intervention. The evaluation of the strength of the treatment model centers on the quality of the methodology employed in a given instance of intervention (i.e., the integrity of the experimental design).

Summary

Anxiety psychopathology and substance use represent some of the most prevalent and costly health problems in the world. Moreover, empirical work suggests that clinically relevant

bidirectional associations are evident between anxiety psychopathology and various forms of substance use and its disorders, and that individual difference variables, contextual variables, and certain biological, cognitive, and social processes affect these relations.

As a result, assessment strategies aimed at understanding the co-occurrence of anxiety and substance use are theoretically and clinically important. Because no single strategy will be effective in all instances for all types of persons, it is important to consider a number of basic issues, including level of analysis, method of assessment, nature of inferences drawn, and quality of the data obtained, when determining what type of assessment activities should be employed. This approach will allow for a better understanding of co-occuring anxiety–substance use disorders and how to treat them.

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8 Functional Assessment of Comorbid and Secondary Disorders: Identifying Conditions for Primary Treatment

Melanie J. Wadkins

Anxiety disorders are among the most prevalent psychiatric diagnoses in adults and children (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Curry, March, & Hervey, 2004; Kessler, Chiu, Demler, & Walters, 2005; Merikangas et al., 2010). Thus, it is common for clinicians to encounter many individuals seeking treatment for anxiety. Given the nature of anxiety, those with an anxiety disorder tend to present their anxious symptoms as the primary, or perhaps only, complaint when they make the decision to seek treatment. This tendency holds even when there may be other factors negatively impacting their day-to-day functioning. Furthermore, there are several other diagnoses that tend to co-occur with anxiety disorders, including a second anxiety disorder, depression, Attention-Deficit Hyperactivity Disorder (ADHD), or substance use disorder.

The inclination to focus on anxiety as the primary treatment target is likely due to the prominent physiological reaction that accompanies anxiety response. As a result, it can be difficult to see other associated emotional or behavioral problems as more or equally important than reducing anxiety response and/or their associated somatic components. Because anxiety disorders are so frequently encountered and they often include physiological distress that is difficult to tolerate, it becomes the task of the provider to conduct a thorough assessment to ensure that all relevant treatment targets have been identified. Individuals may not be aware of other psychiatric disorders that are present, or they may not be motivated to address those disorders because the anxiety symptoms are more intolerable and disabling.

This chapter discusses disorders that frequently co-occur with anxiety disorders. It also outlines approaches to functional assessment of these conditions in the context of anxiety. The chapter concludes by presenting the evidence that treatment of these comorbid disorders may warrant priority in the treatment plan in order for anxiety to be effectively and efficiently treated.

Disorders That Frequently Co-occur with Anxiety Disorders

Anxiety disorders often co-occur with other psychiatric diagnoses across the lifespan. The comorbid diagnoses may be homotypic (i.e., another anxiety disorder) or heterotypic (i.e., another psychiatric disorder). This section covers the rates of comorbidity for the most frequently occurring diagnoses among youth and adults. Although the age groups are addressed separately, there is overlap. Specifically, homotypic and mood disorder comorbidity are discussed for both young people and adults. Additionally, comorbidity with disruptive behavior disorders

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_8,

and Pervasive Developmental Disorders (PDD) are addressed for youth. Substance use disorder comorbidity is reviewed for adults, but it is important to bear in mind that problematic substance use in the context of anxiety may also occur in adolescents.

Children and Adolescents

Psychiatric comorbidity is common among youth. Data from the Great Smoky Mountains Study indicate that approximately one-quarter of all youth with a psychiatric diagnosis have two or more diagnoses (Costello et al., 2003). Brady and Kendall (1992) reported a 16% comorbidity rate in a community sample of children and adolescents who were not seeking treatment. The comorbidity rates ranged from 28 to 62% in clinical samples of youth who were seeking treatment. Children and adolescents diagnosed with anxiety disorders are no exception. Generally speaking, childhood disorders can be broadly classified as either internalizing (i.e., mood disorders) or externalizing (i.e., disruptive behavior disorders) (Krueger & Piasecki, 2002). Among youth, both classes of disorders frequently co-occur with anxiety.

Homotypic Comorbidity

In a representative sample of American teens, Burstein, Swanson, He, and Merikangas (2010) found that just less than one-third of youth with an anxiety disorder have more than one anxiety diagnosis. Esbjørn, Hoeyer, Dyrborg, Leth, and Kendall (2010) recently investigated the patterns of comorbidity among a large national sample of children and adolescents admitted for treatment in Denmark over a 3-year period. They found a 5.7% prevalence rate of anxiety disorders, and furthermore, they found that 2.8% of these anxious youth had more than one anxiety diagnosis.

In a similar study, Hammerness et al. (2008) examined the diagnoses that co-occurred with anxiety disorders among a large sample of children referred for treatment at a clinic in the United States over the course of more than a decade. Among youth with an anxiety disorder, they found that 46% of youth had one anxiety disorder, while 28% had two anxiety diagnoses. Nearly half the anxious sample had a diagnosis of separation anxiety disorder (SAD; 49%) or overanxious disorder (47%). In terms of comorbidity, Hammerness and colleagues found that having any anxiety disorder significantly increased the risk for having an additional anxiety disorder, but the risk was found to be greatest for panic disorder (PD) and agoraphobia.

There is some evidence that different anxiety disorders may be more closely associated with different comorbid diagnoses. Accordingly, the clinician can use this knowledge of these patterns to guide thorough assessment for comorbid conditions. Verduin and Kendall (2003) found that youth with a primary diagnosis of SAD or Generalized Anxiety Disorder (GAD) were also more likely to have a comorbid Specific Phobia (SP) than youth with a Social Phobia (SoP) diagnosis.

Kim et al. (2010) found high rates of homotypic comorbidity with SP among a sample of Korean school children aged 6–17 years. These researchers also found a 1-year prevalence rate of 7.9% for SP. Most respondents reported animal phobias (49.2%), followed by nature–environment type (32.4%), blood–injury–injection (BII) type (18.4%), and situation phobias (0.2%). Among these youth who were diagnosed with a SP, 28.1% had at least one comorbid psychiatric diagnosis, and compared to controls, those with a SP had significantly higher rates of comorbid anxiety disorders. The results also indicated a different pattern of comorbidity for the different subtypes. Individuals with animal phobia and nature–environment phobia were found to be significantly more likely to have an additional anxiety disorder diagnosis.

Mood Disorders

There is an extensive body of literature that establishes high rates of comorbidity between depression and anxiety disorders among youth (Clark & Watson, 1991). Esbjørn et al. (2010) found a large proportion of anxious youth had a heterotypic comorbidity (42.9%), but the anxiety diagnosis was the primary condition for treatment of most of the children in the sample (73.6%). Mood

disorders were found be among the most frequently co-occurring diagnoses, particularly in the case of comorbidity with social phobia and specific phobias. Hammerness and colleagues compared youth with an anxiety disorder (excluding Obsessive–Compulsive Disorder [OCD]) with youth diagnosed with a disruptive behavior disorder (i.e., ADHD, Oppositional Defiant Disorder [ODD], or Conduct Disorder [CD]). Compared to children with a disruptive behavior disorder, children with an anxiety disorder had significantly higher rates of major depression (63% vs. 36%) and bipolar disorder (24% vs. 12%). Verduin and Kendall (2003) found that comorbid mood disorders were more common among children with GAD as compared to children with SAD.

Externalizing Disorders

Externalizing disorders also frequently co-occur with anxiety disorders. Angold, Costello, and Erkanli (1999) found that the presence of comorbid ADHD ranged from 0 to 16.7%. Comorbid ODD or CD was reported in 7.9–33.3% of youth with anxiety disorders. Esbjørn et al. (2010) also found that ADHD was among the most common comorbidity, particularly among youth diagnosed with GAD or other anxiety (i.e., not SAD, GAD, SoP, or SP, which were the other anxiety disorders studied, nor OCD or Posttraumatic Stress Disorder [PTSD], which were not included in this study). Verduin and Kendall (2003) also found high rates of comorbid anxiety and externalizing disorders in their sample. They reported that 17.6% of their sample met criteria for comorbid ADHD and 9.5% for comorbid ODD. However, they did not find a significant difference in rates of externalizing diagnoses for the different anxiety diagnoses. Kim et al. (2010) found that youth with SP had significantly higher rates of ADHD and ODD compared to controls. Specifically, animal phobia was significantly associated with ODD, and BII phobia was significantly associated with ADHD.

Pervasive Developmental Disorders

There is some evidence that there is high comorbidity between PDD, including autistic disorder, Asperger's disorder, and PDD not otherwise specified (PDD-NOS), and anxiety disorders. Children with an anxiety disorder have been found to have a significantly higher amount of comorbid PDD compared to children with an externalizing disorder diagnosis (5% vs. 2%; Hammerness et al., 2008). Esbjørn et al. (2010) also found that PDD was commonly comorbid among youth with anxiety in their sample, but, in almost all cases, it was found to be an additional secondary diagnosis. There is evidence that among youth diagnosed with PDD-NOS, a majority may also meet diagnostic criteria for an anxiety disorder with the highest rates of comorbidity found for specific phobias (de Bruin, Ferdinand, Meester, de Nijs, & Verheij, 2007; Muris, Steerneman, Merckelbach, Holdrinet, & Meesters, 1998).

Davis et al. (2011) found that among children with PDD, anxiety increased as social skills deficits increased. This indicates that anxiety may arise as a result of avoidance of social situations and people with whom social interaction is expected. Thus, comorbid anxiety is particularly debilitating because of its additional negative effects on performance in school, as well as functioning in social settings and the home. Sze and Wood (2007) referred to comorbid anxiety in the context of PDD as "an additional barrier to children's overall adjustment" (p. 134).

Adults

As is the case among youth, many adults with anxiety disorders also experience comorbid mental disorders. Among individuals who participated in the National Comorbidity Study (NCS), 19.3% endorsed having any anxiety disorder within the past 12 months (Kessler et al., 1997). Merely 21.5% of these participants did not have any additional diagnoses during their lifetime (i.e., pure anxiety disorder). About the same number of individuals (19.9%) did not report any additional diagnoses during the 12-month period. Yet, they did endorse having a mental disorder previously in their lifetime. The remaining majority of participants with an anxiety disorder

(58.6%) reported having another mental disorder in the same 12-month period. There is considerable overlap between youth and adults in terms of patterns of comorbidity.

Homotypic Comorbidity

Frequently, adults diagnosed with one anxiety disorder also tend to have a secondary anxiety disorder diagnosis (Barlow, 1988). In a sample of 130 clients seeking treatment for anxiety, Sanderson, DiNardo, Rapee, and Barlow (1990) found that most individuals (70%) met criteria for another diagnosis. Of those clients with a comorbid diagnosis, approximately one-third were diagnosed with secondary SP or SoP.

Mood Disorders

There is plentiful empirical evidence that anxiety disorders and depression co-occur throughout the lifespan (Kessler et al., 1998; Wittchen, 1996). Rivas-Vazquez, Saffa-Biller, Ruiz, Blais, and Rivas-Vazquez (2004) described anxiety and mood disorder comorbidity as "more the rule rather than the exception" (p. 74). Recent research indicates that the onset of anxiety disorders typically precedes the onset of depression, and furthermore, an anxiety diagnosis increases the risk for later depression at a 5-year follow-up (Wittchen, Beesdo, Bittner, & Goodwin, 2003). Comorbid depression and anxiety are associated with a poorer prognosis. Individuals with both anxiety and depression typically have more severe symptoms, respond less favorably to treatment, and are at higher risk for suicide (Rivas-Vazquez et al., 2004). Because having an anxiety disorder increases one's risk for later onset of depression, there is a pressing need for early detection and treatment of depression in the context of anxiety to improve prognosis.

Research findings specify that PD and GAD are associated with the highest levels of comorbidity with depression. In the NCS sample, 55% of the participants with lifetime PD also reported a lifetime diagnosis of depression. Furthermore, approximately the same number of participants with lifetime panic attacks (but not PD) also met criteria for depression (Kessler et al., 1998). Likewise, most of the NCS participants with a 12-month GAD diagnosis (58.1%) also met criteria for major depression at 12 months (Kessler, DuPont, Berglund, & Wittchen, 1999).

Substance Use Disorders

Substance use disorders may co-occur with anxiety disorders among adolescents and adults (Lopez, Turner, & Saavedra, 2005). Data from the Epidemiological Catchment Area (ECA) study indicated that 15% of individuals with an anxiety disorder also reported a SUD within the previous 12 months (Regier, Rae, Narrow, Kaelber, & Schatzberg, 1998). In an international epidemiological study, it was found that nearly half of the individuals with any lifetime anxiety disorder diagnosis also met diagnostic criteria for drug dependence (Merikangas et al., 1998). Kessler et al. (1997) found that among men and women who participated in the NCS, many of those individuals who endorsed alcohol dependence reported that their alcohol dependence was secondary to the onset of an anxiety disorder diagnosis (i.e., 21.8% of men and 49.7% of women). The co-occurrence of substance use disorders seems to be most closely linked with a PTSD diagnosis (Hofmann, Richey, Kashdan, & McKnight, 2009; Lopez et al., 2005).

Functional Assessment

The goals of functional assessment are to determine the frequency, intensity, or duration of problematic target behaviors, as well as to determine the antecedent conditions under which the behaviors occur (i.e., eliciting and discriminative stimuli), perceived functions, and consequences of these target behaviors (Martin & Pear, 2007). In terms of treatment planning, functional assessment of anxiety disorders may serve to identify antecedent conditions that may be altered to reduce the likelihood of experiencing anxiety. The reinforcement contingencies that are maintaining the behavior may be identified. The sources of reinforcement may also be eliminated to decrease the target behavior.

Haynes and O'Brien (1990) defined functional analysis as "the identification of important,

controllable, causal functional relationships applicable to a specified set of target behaviors for an individual client" (p. 654). This conceptualization focuses on identifying variables that meet three criteria (i.e., important, controllable, and causal), and one can accordingly target these variables for treatment. While there may be many variables associated with a target behavior, not all will be clinically useful. For instance, there may be important variables that are causal but not controllable (e.g., exposure to a traumatic event leading to the development of PTSD).

There are three main foci in a functional analysis: the antecedents, target behavior(s), and direct consequences. Target behaviors are usually triggered by a predictable set of antecedents or environmental conditions (e.g., drinking alcohol may be immediately preceded by an interpersonal conflict). Most antecedents occur just prior to or at the same time as the onset of the behavior. The specific consequences arise as a result of performing the target behavior. In a functional assessment, the target behavior(s) is theorized to serve some function. Analysis of the antecedents and consequences help the clinician to derive a hypothesis about what is maintaining the target behavior. Typically, behaviors may function to help individuals obtain something which they desire (i.e., positive reinforcement) or to help individuals avoid something they find aversive (i.e., negative reinforcement). Thus, an individual may drink to receive attention from other bar patrons, or he may drink to escape the experience of painful emotions by becoming intoxicated.

Functional assessment may be initiated when treatment is not progressing adequately. It may be that the selected treatment is not effectively addressing the antecedents and consequences maintaining a problematic behavior. On the other hand, it is recommended that functional assessment be implemented at the outset of treatment to make sure that the relevant environmental contexts can be taken into account during treatment planning. Based on the data gathered during functional assessment, treatment components may be altered or entirely omitted depending on the particular functions that the behavior is serving. This ensures that the intervention will focus on the idiosyncratic variables that have been maintaining behavior problems for the individual. Despite the strong connection between conducting a thorough functional assessment and identifying the most important targets for treatment, evidence suggests that this is an under-utilized approach to treatment planning. Perhaps it is often not included in assessment because it takes more time and effort than diagnosis (Virués-Ortega & Haynes, 2005).

Functional Assessment Strategies

Functional assessment can be conducted via three different methods. It is recommended that multiple assessment types be used to determine causal functional relationships most efficiently (Haynes & O'Brien, 1990). The first method is indirect assessment. Other people familiar with the individual's behavior are asked to complete relevant questions that provide information about the instances in which they have observed the problem behavior in the past. Because this is an indirect method, it is susceptible to errors and bias and may not be as reliable as direct methods of functional assessment.

The second method of functional assessment is to observe the individual performing the problem behavior in her or his natural setting. When possible to observe the individual unobtrusively, this method can provide meaningful data relevant to the problem behavior(s). An advantage of this type of live observation is that the clinician may be able to identify aspects of the behavioral sequence (i.e., antecedent conditions and consequences) that are currently outside the awareness of the individual and those interacting with him or her.

The final method for functional assessment is to conduct a functional analysis or an experimental functional assessment. In this type of assessment, the practitioner sets up and alters the antecedent conditions and consequences to elicit the problem behavior and note the patterns of performance under these different conditions. This method serves to support or refute hypotheses made about the function of problem behavior

for the individual. For example, suppose that a client was interested in reducing drinking behavior in social situations. A clinician might set up an experimental functional assessment situation in which the client is faced with a social interaction with a stranger (i.e., the hypothesized antecedent), but not given the opportunity to consume an alcoholic beverage (i.e., the target behavior).

Using Functional Analysis to Assess for Comorbidity

Functional assessment is a particularly valuable part of any comprehensive assessment with children because their level of cognitive development may limit their ability to reflect upon and report their anxious thoughts (Beidel & Turner, 2005). Furthermore, it has been noted that anxiety may not be easily recognized in children because young people tend to use avoidance skillfully to completely evade anxious feelings and to report somatic symptoms rather than identifying and reporting their worries or fears (Emslie, 2008). Although these barriers to valid assessment are more frequently discussed in the context of diagnosis with young people, they apply equally well to some adult populations.

The use of functional analysis bypasses the need for accurate self-report and allows the clinician to directly observe the problem behaviors and their impact on functioning. It is also an outstanding tool for assessing comorbid conditions because the clinician is able to identify the extent to which overlapping features of the separate disorders are connected as antecedent conditions or direct consequences of one another. Behavioral analysis of presenting symptoms was specifically recommended by Rachman (1991) as a strategy for managing comorbidity.

Homotypic Comorbidity

When clients seek treatment for a primary anxiety disorder, a functional analysis should be conducted to determine if symptoms of an additional anxiety disorder are present. The diagnostic criteria for many of the anxiety disorders include a specification that the disorder should only be diagnosed if not better accounted for by another anxiety diagnosis (American Psychiatric Association, 2000). For example, phobic avoidance should not be interpreted as evidence for SP if it is better explained as avoidance of some object due to an OCD obsession. Thus, a thorough functional assessment should aim to identify the conditions immediately before and after escape from (or avoidance of) feared objects, people, or situations. The data from functional assessment may assist the clinician in determining whether different stimuli are feared in the context of a single anxiety disorder (e.g., avoiding dogs and public bathrooms because of obsessions about contagion in the context of OCD) or whether they are associated with independent anxiety disorders (i.e., SP and OCD).

Functional analysis may reveal that there are different conditions and consequences that lead to avoidance of these two situations. For example, the individual may nervously cross the street when confronted by another person walking with a leashed dog and immediately feel relief when safely across the street (indicative of a SP). However, he may avoid entering any public bathroom yet still feel the need to wash his hands repeatedly after merely thinking about being in one (indicative of OCD). It may be the case that there are two separate anxiety diagnoses present without significant symptom overlap, or the symptoms from one diagnosis may be exacerbating the impairment associated with the other diagnosis. Also, it may be necessary to treat one condition first, even when it is not the most impairing condition, because the symptoms from one disorder may interfere with effective treatment of the comorbid disorder (e.g., the SP of dogs leads to avoidance of situations that need to be accessed to effectively conduct in vivo exposures for contamination OCD).

Mood Disorders

When a client reports social anxiety and subsequent withdrawal, a functional assessment should include an exploration of the antecedent conditions and consequences surrounding social avoidance. It may be that the client anticipates (or receives) negative evaluation by others consistent

with a diagnosis of SoP. On the other hand, the client may be experiencing social withdrawal associated with depression. Furthermore, if a client has frequent difficulty completing between-session homework assignments, it is a good opportunity to explore the functional relationships among other behaviors that "get in the way" of having time to complete therapy homework assignments. Again, avoidance of anxiety-provoking exercises outside of sessions can be typical for individuals who suffer with anxiety. However, such behavior may also indicate poor motivation and effort associated with low self-efficacy, hopelessness, or fatigue as part of depression.

Micco and Ehrenreich (2010) proposed that the reason that children with comorbid anxiety and depression may not improve as much in treatment, especially with cognitive behavior therapy (CBT), is because they frequently avoid social activities with peers. The same may be true for depressed adolescents and adults. This social withdrawal leads to fewer opportunities for pleasant experiences, which further contributes to depression. Depressed individuals also have low energy, which limits their motivation to engage in treatment, particularly between-session practice assignments. The prognosis is even poorer when one considers children with SoP and comorbid depression (Ledley et al., 2005). These factors should be comprehensively explored in the context of a functional assessment to evaluate whether the client is experiencing symptoms of depression that are likely to interfere with anxiety treatment.

Externalizing Disorders

With respect to comorbid ODD or CD, functional assessment should focus on the extent to which disruptive oppositional behavior is triggered by fear or worry. Youth may misinterpret feelings of anxiety as feelings of anger. The consequences they experience as a result of performing a disruptive behavior (e.g., escape or removal from an anxiety-provoking demand or situation) may be serving to maintain anxiety and reinforce disruptive behavior patterns. Thus, the anxiety may remain invisible while others readily perceive the defiant behavior.

If comorbid ODD or CD is present, treatment may initially proceed with a focus on identifying feelings and managing the physiological hyperarousal that accompanies anxiety (and anger) with relaxation exercises (Micco & Ehrenreich, 2010). As part of treatment, parents should also be trained in how to consistently respond to their child's disruptive behavior in a non-reinforcing way (e.g., ignoring or not paying attention to disruptive behavior so the child does not perform the behavior again in the future when seeking attention). Parents may also be unwittingly reinforcing disruptive behavior by removing the child from anxiety-provoking situations when the child acts in a disruptive manner. Once the client can accurately distinguish between anxiety and anger and disruptive behavior has decreased, traditional anxiety treatment may proceed. As youth with disruptive behavior disorders become more compliant to parental requests, they may more fully benefit from treatment, particularly in terms of completing between-session assignments which are typically overseen by parents.

Functional assessment for comorbid ADHD should focus on identifying the events that precede anxiety reactions. Individuals with ADHD often experience anxiety in school or work contexts because they are frequently inattentive to detail or instructions and experience subsequent anxiety about fulfilling responsibilities. A functional analysis may elucidate the relations between inattentive behavior and anxiety symptoms. Primary treatment of comorbid ADHD may also allow the child or adolescent to focus and concentrate during treatment sessions. Modifications to traditional therapy sessions, such as shorter individual sessions, a behavior plan to reinforce on-task behavior, and having the child write down the main skills learned in session, may be introduced to increase the probability that children with ADHD can benefit from treatment (Micco & Ehrenreich, 2010).

PDD

Because there is evidence that anxiety is increased among youth PDD as communication deficits increase (Davis et al., 2011), a functional assessment should include observation of social skills.

The antecedents and direct consequences of target behaviors (e.g., fleeing a location or aggression) should be carefully analyzed to see whether they are primarily experienced in social situations. If this is found to be the case, treatment should then focus on remediation of basic social skills before other anxiety symptoms are addressed.

Substance Use Disorders

Research has indicated that there may be a variable relationship between substance use and different anxiety disorders. Kushner, Sher, and Beitman (1990) found that agoraphobia and SoP were related to self-medication of anxiety symptoms (e.g., Preisig, Fenton, Stevens, & Merikangas, 2001; Swendsen et al., 2000). On the other hand, Kushner and colleagues found that PD and GAD were more likely to arise as a consequence of alcohol consumption. This underlines the importance of a thorough functional assessment of the antecedent conditions and consequences of alcohol abuse in order to make a hypothesis about the function of the behavior.

It may be that drug or alcohol use and/or abuse develops as a coping mechanism subsequent to experiencing pathological anxiety (i.e., central nervous system arousal), but once a pattern of substance use has begun, it is likely to become a "cyclic interaction" (Reynolds, Tull, Shalev, & Lejuez, 2010, p. 275). Specifically, drugs and alcohol, which are depressants, may be used to decrease anxiety, but during withdrawal states, anxious arousal is intensified and further substance use becomes more likely. A functional assessment of the events that typically precede alcohol use as well as the events that follow acute anxiety episodes can guide clinicians to tailor appropriate treatment.

Reynolds et al. (2010) caution clinicians to consider that functional assessment of concurrent substance use and anxiety disorders can be complicated by the fact that patterns of substance use may become automatic after a period of time. When this occurs the person may be completely unaware of anxious feelings as a result of total avoidance of anxiety. In this case, it may be difficult for the individual to identify anxious thoughts or feelings as part of the antecedents or consequences of substance use. If this appears to be the case for an individual, these authors suggest that clinicians assess whether there is an emergence of anxious thoughts or feelings if an individual is not able to use drugs or alcohol when he or she so desires.

Selecting Primary Treatment Goals

There is some evidence that individuals with a primary anxiety disorder may have a poorer response to treatment when there is a comorbid disorder. This indicates that it behooves clinicians to consider treating certain comorbid disorders first. For instance, Berman, Weems, Silverman, and Kurtines (2000) found that children with an anxiety disorder and comorbid depression had significantly worse treatment outcome. Ledley et al. (2005) found that adults with SoP and higher levels of depression symptoms had both more severe anxiety symptoms and less reduction in SoP symptoms. Furthermore, participants who dropped out of the study had higher levels of depression as compared to those who remained in the study.

Clients with comorbid depression and SoP will be quite reluctant to participate in exposure-based practice assignments that involve socialization and may have low self-efficacy if they have social skills deficits. Therefore, individuals with comorbid anxiety and depression may benefit from behavioral activation, pleasant events scheduling, and cognitive restructuring at the beginning of treatment to reduce symptoms of depression and thus increase effort and motivation to participate in anxiety treatment (Micco & Ehrenreich, 2010).

There is evidence that comorbid externalizing disorders also have a negative impact on treatment success. Kashani, Deuser, and Reid (1991) reported that children with comorbid anxiety and externalizing disorder have more severe symptoms and greater mood disturbance, including irritability, lability, and emotional outbursts. Kendall, Brady, and Verduin (2001) found that while anxious children with and without externalizing disorders both improved after receiving

CBT (70.4% and 68.4%, respectively), youth who continued to meet diagnostic criteria for ADHD or ODD post-treatment were significantly less likely to recover from their principal anxiety disorder. These results suggest that if treatment gains generalize beyond anxiety to also address the comorbid externalizing disorder, youth are most likely to have remission of both anxiety and the co-occurring disruptive behavior disorder. However, if the externalizing disorder is not fully addressed, odds are that anxiety treatment will not be successful.

Furthermore, there is evidence that more severe externalizing comorbidity has an even larger impact on treatment efficacy. Costin, Vance, Barnett, O'Shea, and Luk (2002) found that boys with anxiety and both comorbid ADHD and ODD did not demonstrate improvements in self-ratings of anxiety or parents' ratings of internalizing and externalizing symptoms after group CBT treatment and separate parent group treatment targeting anxiety. This is evidence that comorbid externalizing disorders should be targeted as a primary focus of treatment.

Other research has shown that comorbidity does not always interfere with response to treatment for the anxiety disorder (Brown, Antony, & Barlow, 1995; Olatunji, Cisler, & Tolin, 2010; Ollendick, Jarrett, Grills-Taquechel, Hovey, & Wolff, 2008; Tsao, Mystkowski, Zucker, & Craske, 2002). Thus, it is necessary to consider the data collected during functional analysis to determine whether anxiety will be maintained by the symptoms of the comorbid disorder. Moreover, ongoing functional assessment may be necessary to determine the appropriate course of treatment as symptoms of the comorbid disorders wax or wane, thus resetting the behavioral contingencies.

For instance, treatment outcome research indicates that anxiety symptoms negatively impact treatment for the comorbid substance use disorder. Charney, Palacios-Boix, Negrete, Dobkin, and Gill (2005) found that individuals receiving treatment for alcohol or drug addiction who also had symptoms of anxiety and depression were less likely to be abstinent at 6 months than individuals with no other psychiatric symptoms and individuals with depressive symptoms only. The converse is also true. Treatment of the anxiety disorder is likely to be negatively affected by the physiological effects and consequences of drug or alcohol use and vice versa.

Specifically, the effects of intoxication and withdrawal symptoms can interfere with the exposure-based treatment of an anxiety disorder, such as PTSD. A necessary condition for exposure treatment to be effective is that the individual must be capable of feeling the physiological symptoms of anxiety for habituation to subsequently occur (Foa & Kozak, 1986). The effects of intoxication will diminish a person's ability to feel anxious, just as the symptoms of withdrawal will interfere with a person's ability to habituate. However, if one waits to treat the anxiety disorder until after the substance use disorder has been treated, the ongoing struggles with anxiety make that individual more prone to relapse into drug and alcohol abuse (Reynolds et al., 2010).

Charney et al. (2005) indicated that it is a common clinical practice in addiction treatment to avoid diagnosing a co-occurring mood or anxiety disorder until after 1 month of abstinence because a clinician must initially consider whether the effects of the substance are primarily responsible for the development of the individual's mood symptoms. However, due to the elevated risk of relapse in the context of a comorbid anxiety disorder, a functional assessment may be used to identify treatment targets that take into account the complex interplay of anxiety and substance use disorder treatment. Recent research has indicated that in the case of comorbid substance use disorder and PTSD, the prognosis is better for the individual if he or she receives PTSD treatment early within the context treatment for addiction (Ouimette, Moos, & Finney, 2003). Grant et al. (2004) reached a similar conclusion that all individuals presenting for addiction treatment should be assessed and treated for mood and anxiety disorders to reduce risk of relapse. In their sample, 33% of individuals seeking substance use disorder treatment also had at least one current anxiety disorder.

In conclusion, given that anxiety disorders are frequently accompanied by a comorbid or secondary diagnosis, the clinician must strive to

perform a thorough assessment of all relevant variables. Functional assessment is the ideal way to evaluate whether symptoms from an additional disorder may be serving to maintain anxiety symptomatology. Analysis of antecedents and consequences that surround escape, avoidance, or other anxiety reactions may shed light on additional symptoms that should be alleviated before proceeding with conventional anxiety treatment.

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9 Assessment of Suicidal and Non-suicidal Self-injury in Anxiety Disorders

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Suicide is a significant public health problem worldwide. In 2007, suicide was the 11th leading cause of death in the United States, and the second and third leading causes of death for individuals aged 25–34 and 15–24 years, respectively (Centers for Disease Control and Prevention, 2007). In addition, suicide attempts occur at a greater rate than suicide deaths. It is estimated that there are approximately 25 suicide attempts for each suicide death (Goldsmith, Pellmar, Kleinman, & Bunney, 2002). Other estimates suggest an even greater rate of suicide attempts to deaths; among those aged 15–19 years, Mann et al. (2006) report approximately 400 suicide attempts to each death for boys and 3,000 suicide attempts to each death for girls. In a nationally representative sample of individuals aged 15–54 years, 2.7% of those surveyed reported a suicide attempt during their lifetime, 3.9% reported having a suicide plan, and 13.5% reported suicidal ideation (Kessler, Borges, & Walters, 1999; Nock & Kessler, 2006). Similar prevalence rates have been found worldwide. In a cross-national survey of 17 countries, lifetime prevalence of suicide attempts was reported to be 2.7%, while 3.1% and 9.2% of those surveyed reported a suicide plan and suicidal ideation, respectively (Nock et al., 2008). In addition to the emotional and economic costs of attempted suicide, the strongest predictor of future suicidal behavior is a history of previous suicide attempts (Borges et al., 2006; Joiner et al., 2005), emphasizing the need for identification and clinical intervention.

Suicide deaths, suicide attempts, and suicidal ideation vary in terms of lethality and action, but all are defined as self-injurious thoughts and behaviors with intent to die (i.e., Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). However, some individuals engage in self-injurious behaviors without suicidal intent. This behavior, non-suicidal self-injury (NSSI), involves deliberate injury to the body and includes behaviors such as cutting, burning, carving, scratching, and skin picking (Favazza, 1998; Prinstein, 2008). However, NSSI is performed without intent to die, distinguishing it from suicidal behaviors. NSSI differs from suicidal behaviors in several other important ways. The behavior is chronic and repetitive, while suicide attempts occur more infrequently, and NSSI is usually of lower lethality than attempted suicide (Muehlenkamp, 2005). Further, NSSI is more common than attempted suicide (CDC, 2007; Muehlenkamp & Gutierrez, 2004; Ross & Heath, 2002), with alarming prevalence rates in both clinical and nonclinical samples (Andover & Gibb, 2010; Briere & Gil, 1998; Klonsky, Oltmanns, & Turkheimer, 2003; Nijman et al., 1999; Zlotnick, Mattia, & Zimmerman, 1999); studies have shown that up to 38% of young adults engage in NSSI (Gratz, Conrad, & Roemer,

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_9, © Springer Science+Business Media New York 2013

2002; Klonsky et al., 2003). The prevalence of the behavior emphasizes the need to include NSSI in clinical assessments.

Non-suicidal self-injury is often associated with borderline personality disorder (BPD), as it comprises a criteria symptom of the disorder (American Psychiatric Association [APA], 2000). However, it is important to realize that NSSI is neither necessary nor sufficient for a diagnosis of BPD, and a significant number of individuals who engage in NSSI do not meet criteria for BPD (Andover, Pepper, Ryabchenko, Orrico, & Gibb 2005; Zlotnick et al., 1999). Although NSSI does not necessarily occur within a psychiatric disorder and does not alone indicate existing psychopathology, the behavior can occur across psychiatric disorders (Briere & Gil, 1998; Zlotnick et al., 1999). Therefore, it is important for clinicians to recognize that NSSI is not restricted to a particular diagnosis and exists in individuals experiencing a range of psychiatric symptoms.

Although NSSI is a nonlethal behavior performed without suicidal intent, its negative consequences mandate clinical attention. By definition, NSSI results in physical injury ranging in medical severity and physical disfiguration. The behavior is frequent and repetitive (Briere & Gil, 1998; Muehlenkamp, 2005; Walsh, 2006), placing the individual at continual risk of harm. The behaviors are likely to increase in level of risk or lethality over time, resulting in more severe injuries, attempted suicide, or even death (Briere & Gil, 1998; Stellrecht et al., 2006). Further, individuals are impacted by social stigma, guilt, shame, and social isolation associated with the behavior (Gratz, 2003), and NSSI is associated with other risky behaviors, including illicit drug use and frequent binge drinking (Serras, Saules, Cranford, & Eisenberg, 2010).

Research has supported a functional model of NSSI. The behavior may be performed for automatic negative reinforcement (i.e., removal of an aversive stimulus), automatic positive reinforcement (i.e., generation of a favorable stimulus), social negative reinforcement (i.e., escape from interpersonal demands), and social positive reinforcement (i.e., gaining attention from others or access to environmental or interpersonal resources; Nock & Prinstein, 2004, 2005). Research suggests that while individuals who engage in NSSI endorse both automatic and social reinforcement from the behavior, NSSI may be performed most often for the function of automatic reinforcement, such as emotion regulation (Nock & Prinstein, 2004).

Despite differences between NSSI and attempted suicide, a significant number of individuals with a history of NSSI report past suicide attempts (Jacobson, Muehlenkamp, Miller, & Turner, 2008; Langbehn & Pfohl, 1993; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006), and a history of NSSI has been found to statistically predict history of attempted suicide (Andover & Gibb, 2010; Whitlock & Knox, 2007). Individuals with a history of NSSI may be more likely to die from a suicide attempt than individuals without a history of NSSI because they tend to underestimate the lethality of their attempts (Stanley, Gameroff, Michalsen, & Mann, 2001), and NSSI and repeated suicide attempts may habituate individuals to the physical and emotional pain necessary to die by suicide (Van Orden et al., 2005).

An assessment of suicidal and non-suicidal thoughts and behaviors should be a routine part of any clinical assessment. In this chapter, we present an overview of the assessment of suicide and NSSI in anxiety disorders. Specifically, we will discuss the associations among suicide and NSSI and anxiety disorders, strategies for assessing suicidal thoughts and behaviors and NSSI, and issues pertinent to the assessment of suicide and NSSI among individuals with anxiety disorders.

Suicide and Anxiety Disorders

Risk for suicide may not be commonly considered in individuals with anxiety disorders, as clinicians often associate suicide risk with mood disorders (Simeon & Hollander, 2006). However, patients with anxiety disorders do experience significant suicidal ideation and make suicide attempts (Simeon & Hollander, 2006). Sixty percent of individuals in a nationally representative sample endorsing suicidal ideation and 70.4% of those reporting a suicide attempt met criteria for an anxiety disorder (Kessler, Berglund, Borges, Nock, & Wang, 2005). Specifically, among those endorsing a suicide attempt, 42.2% met criteria for a

specific phobia, 41.5% social phobia, 35.1% panic disorder, 30.0% post-traumatic stress disorder (PTSD), 27.8% obsessive–compulsive disorder (OCD), 15.5% generalized anxiety disorder, and 6.8% agoraphobia without panic disorder (Kessler et al., 2005). This suggests that anxiety disorders are commonly experienced by individuals reporting significant suicidal thoughts and behaviors.

Several studies have found the presence of an anxiety disorder to be associated with suicidal ideation and attempts (Sareen, Cox et al., 2005), and researchers have suggested that anxiety disorders may be a significant risk factor for suicidality (Boden, Fergusson, & Horwood, 2007; Hawgood & De Leo, 2008). However, research is unclear as to the specific anxiety disorders that may be related to suicide. Goldston et al. (2009) found GAD and panic disorder to be associated with an increased risk of suicide attempts, while Nock and Kessler (2006) reported that simple phobia, but not social phobia, agoraphobia, panic disorder, GAD, or PTSD, was a risk factor for attempted suicide. Other studies report that disorders characterized by anxiety and agitation, such as PTSD, and poor impulse control most strongly predict the progression from suicidal ideation to suicide plans and attempts in longitudinal studies (Nock, Hwang, Sampson, & Kessler, 2010). Studies have demonstrated that severe or worsening symptoms of anxiety, rather than a diagnosis of an anxiety disorder, may be associated with suicide attempts (i.e., Tuisku et al., 2006; Simeon & Hollander, 2006).

Research suggests that some anxiety disorders may be related to suicidal ideation, but not to suicide attempts. ten Have et al. (2009) found social phobia to be significantly associated with suicidal ideation, but not suicide attempts. However, although agoraphobia, specific phobia, and GAD were not associated with suicidal ideation, they were significantly associated with suicide attempts. Sareen, Cox et al. (2005) suggest that GAD, social phobia, and OCD may be directly related to suicidal ideation, but the association between anxiety disorders and attempted suicide may be mediated though other comorbid disorders.

Research investigating the association between suicide and anxiety disorders has yielded mixed results, particularly when evaluating anxiety disorders as an independent risk factor for suicide. Mood disorders are most strongly associated with suicidal ideation and suicide attempts, but several studies have demonstrated that anxiety disorders are also associated with suicidality, although not as strongly as mood disorders (Beautrais, Wells, McGee, & Oakely Browne, 2006; Nock et al., 2008). While the majority of studies do demonstrate that anxiety is associated with suicidal thoughts and behaviors, this relation appears to be due to comorbidity with other mental disorders, especially mood disorders (Hawgood & De Leo, 2008). However, individuals with comorbid anxiety disorders present a more severe clinical picture in terms of suicidal thoughts and behaviors. Comorbid mood and anxiety disorders are associated with a higher likelihood of suicide attempts than mood disorders alone (Sareen, Cox et al., 2005). Among individuals with depressive disorders, higher levels of anxiety symptoms are associated with increased suicide risk (Chioqueta & Stiles, 2003), and severe anxiety and agitation may precede suicidal behaviors among individuals with mood disorders (Fawcett, 2007). Although several studies demonstrate that the association among suicidality and anxiety disorders is nonsignificant when statistically controlling for the presence of mood disorders, Bolton et al. (2008) found that the presence of one or more anxiety disorders at baseline was significantly associated with suicide attempt during a 3-year follow-up period, even after statistically controlling for sociodemographic variables and depressive disorders. Some research suggests that panic disorder, PTSD, OCD, and social phobia may be associated with suicidality even after controlling for comorbid conditions (i.e., Hawgood & De Leo, 2008). For example, PTSD has been found to be independently associated with suicidal ideation and attempts when statistically controlling for mood disorders and substance use disorders (Sareen, Houlahan, Cox, & Asmundson, 2005). Other research suggests that GAD, social phobia, agoraphobia, and separation anxiety disorder are the most associated with suicide attempts through their association with other comorbid disorders (Nock et al., 2010).

Several factors have been associated with suicidality in anxiety disorders, including worsening symptoms, increasing functional impairment, poor

social support, an acute life crisis, feelings of overwhelming anxiety and loss of control, onset or worsening of depressive symptoms, and comorbid personality or substance use disorders (Simeon & Hollander, 2006). Several explanations of the association between anxiety and suicidality have been proposed. First, individuals may consider or attempt suicide as an escape from severe or worsening anxiety symptoms (Bolton et al., 2008; Sareen, Cox et al., 2005). Second, comorbid conditions, such as mood disorders or substance use disorders, may influence the association between anxiety disorders and suicide (Sareen, Cox et al., 2005). Lastly, the presence of anxiety disorders may increase the likelihood of a third variable that may lead to suicidal behavior (Bolton et al., 2008). For example, alcohol may be used to relieve anxiety symptoms; however, this alcohol use may be associated with subsequent suicidality.

Considerable research has focused on the association between suicidality and panic disorder specifically. Using data from the Epidemiologic Catchment Area (ECA) study, Weissman, Klerman, Markowitz, and Ouellette (1989) reported that 20% of individuals with a history of panic disorder also reported a lifetime suicide attempt. Researchers have reported an increased risk of attempted suicide associated with both panic disorder and panic attacks; individuals with panic disorder were found to be more than ten times more likely to attempt suicide than individuals without a mental disorder, and those with a history of panic attacks were five times more likely to attempt suicide (Mannuzza, Aronowitz, Chapman, Klein, & Fyer, 1992). Similar to the association between suicidality and anxiety disorders in general, suicide attempts in panic disorder are strongly associated with comorbid mood disorders, substance use, and personality disorder, such as borderline personality disorder (Diaconu & Turecki, 2007; Friedman, Jones, Chernen, & Barlow, 1992; Simeon & Hollander, 2006; Vickers & McNally, 2004). Among individuals with panic disorder and history of suicide attempts, the attempt often preceded panic disorder onset and occurred during an episode of a mood substance disorder (Mannuzza et al., 1992). Individuals with panic disorder and major depressive disorder reported a suicide attempt rate of nearly 20%; although individuals with panic disorder alone reported a 7% suicide attempt rate, this is still significantly higher than found in the general population (Johnson, Weissman, & Klerman 1990; Diaconu & Turecki, 2007). Research on the association between pure panic disorder and suicide attempts is inconsistent; while some researchers have found that panic disorder is not associated with attempted suicide when statistically controlling for comorbid diagnoses (Hornig & McNally, 1995), others have reported panic disorder to be associated with a history of a suicide attempt in the past year, even when controlling for comorbidity (Goodwin & Roy-Byrne, 2006).

Panic disorder and panic attacks are also associated with increased risk for suicidal ideation (Goodwin & Roy-Byrne, 2006; Pilowsky et al., 2006). Individuals with panic disorder report similar levels of suicidal ideation as individuals with depressive disorders (Diaconu & Turecki, 2007). Unlike findings regarding the relation between panic disorder and attempted suicide, research generally suggests that the association between panic disorder and suicidal ideation continues to be significant after statistically controlling for comorbid conditions (Goodwin & Roy-Byrne, 2006). Suicidal ideation may be experienced as a result of the symptoms and functional impairment associated with panic disorder (Simeon & Hollander, 2006). Research has suggested that the relation between suicidal ideation and panic disorder may be associated with specific anxiety-related variables, such as overall anxiety severity, anticipatory anxiety, increased attention toward and avoidance of somatic sensations, and phrenophobia, a fear of cognitive incapacitation (Schmidt, Woolaway-Bickel, & Bates, 2001).

NSSI and Anxiety Disorders

Few studies have investigated the association between NSSI and specific anxiety disorders. However, studies have demonstrated increased levels of anxiety among individuals with a history of NSSI (Andover et al., 2005; Bennum & Phil, 1983; Klonsky et al., 2003; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003; Ross & Heath, 2002). High levels of anxiety may also be related to a specific subgroup of NSSI; Klonsky and Olino

(2008) reported that one class of individuals with NSSI was characterized by use of several methods of NSSI, endorsement of both automatic and social functions of the behavior, and high levels of anxiety. Studies have suggested that individuals with NSSI report a history of elevated symptoms of anxiety dating back to childhood (i.e., Fulwiler, Forbes, Santangelo, & Folstein, 1997).

The subjective experience of anxiety is often reported by individuals who engage in NSSI. Nearly half of a sample of individuals who engaged in NSSI reported that feelings of anxiety and tension precipitated their NSSI (Bennum & Phil, 1983). The behavior is commonly performed for the function of automatic negative reinforcement (i.e., Nock & Prinstein, 2004), which can serve to decrease aversive feelings of arousal or anxiety. Further supporting this function of NSSI, several studies have demonstrated physiological (Brain, Haines, & Williams, 1998; Haines, Williams, Brain, & Wilson, 1995) and subjective (Darche, 1990; Herpertz, 1995; Favazza, 1989) tension reducing qualities associated with the behavior. Researchers have reported a decrease in physiological arousal while imagining NSSI as measured by heart rate, respiration, galvanic skin response, and finger pulse amplitude (Brain et al., 1998; Brain, Haines, & Williams, 2002; Haines et al., 1995). This pattern of activation is consistent with the function of automatic negative reinforcement; NSSI is maintained as it decreases autonomic arousal.

Specific methods of NSSI are also associated with anxiety disorders. Specifically, skin picking behaviors are often comorbid with anxiety disorders. The majority of individuals with psychogenic excoriation (i.e., skin picking) at a dermatology clinic were diagnosed with a current anxiety disorder (Arnold et al., 1998), and over half of a sample of individuals engaging in self-injurious skin picking met criteria for an OCD diagnosis (Wilhelm et al., 1999). Self-injury is also associated with obsessive–compulsive symptoms outside a diagnosis of OCD. Hayes, Storch, and Berlanga (2009) report that score on a measure of skin picking severity is positively correlated with measures of obsessive–compulsive symptoms and impulsivity, and body-focused repetitive behaviors (e.g., skin picking, hair pulling) are often considered under the obsessive–compulsive spectrum (Hayes et al., 2009).

Research has shown that suicidal and nonsuicidal thoughts and behaviors are associated with anxiety in general and specific anxiety disorders. Although researchers may be mixed in their evaluation of anxiety disorders as independent risk factors for suicide, research indicates that anxiety disorders are associated with suicidality, even if that association occurs largely in the context of mood disorders, and individuals with comorbid anxiety and mood disorders are at greater risk for suicidal behaviors than individuals with either disorder alone. For these reasons, it is important to assess for suicidality and NSSI among individuals presenting with anxiety symptoms, regardless of the presence of a mood disorder.

Assessing Suicidal Ideation and Behaviors

Assessment of suicide risk may occur in an intake evaluation, where psychiatric history is being obtained, or during the course of therapy. It is essential that the clinician be prepared with an approach to handle the assessment of suicide risk, and a suicide risk assessment should be performed and documented with all patients (Berman, 2006). During the assessment, the clinician should identify factors that may increase or decrease risk while addressing the patient's immediate safety (APA, 2003). It is important that the patient feel comfortable in discussing previous or current suicidal thoughts or behaviors; therefore, rapport or therapeutic alliance should be established.

Before the Assessment: Considerations

Suicide is a psychiatric condition that can result in the death of a patient, a fact that may overwhelm clinicians. It is important to recognize that asking about suicide does not increase a patient's risk for suicide or give the patient the idea of suicide (APA, 2003). Not asking about suicide or avoiding a suicide risk assessment is more likely to place a patient at increased risk. Suicide is a topic that can be

frankly confronted and managed in a clinical setting. The thought of discussing suicide with a patient may feel intimidating or overwhelming, but it is important that the clinician approach the conversation in a calm, matter-of-fact manner, communicating comfort in discussing the topic and a willingness to listen to the patient. A severe or hesitant approach will not facilitate the patient's disclosure of sensitive and often stigmatized information. Discussion of suicidal thoughts and behaviors in a concerned but straightforward manner may increase the patient's willingness to disclose suicidal thoughts and behaviors.

Conducting a Suicide Risk Assessment

A suicide risk assessment includes an evaluation of a patient's suicidal ideation, suicide plan, and suicidal intent. Below is a description of each area, including suggestions for questions clinicians may use to assess that area.

Assessing Suicidal Ideation

Suicidal ideation is common in clinical and community samples. Nearly 14% of a national representative sample report suicidal ideation during their lifetime; this percentage is greater among individuals in mental health settings (Kessler et al., 1999; Paykel, Myers, Lindenthal, & Tanner, 1974). The majority of patients who report suicidal ideation will not attempt suicide (Crosby, Cheltenham, & Sacks, 1999; Mann et al., 2006); however, suicidal ideation is quite serious as it indicates an increased risk for suicide. Suicidal ideation may consist of thoughts of death (passive suicidal ideation) and thoughts of killing oneself (active suicidal ideation). Assessment of suicidal ideation should be direct and specific (i.e., "Have you been thinking about killing yourself?"). The clinician may specifically ask about killing oneself—as opposed to hurting oneself—to differentiate between suicidal and non-suicidal ideation. Frequency, intensity, and duration of the suicidal ideation should also be assessed. Research indicates that more frequent, intense, and long-lasting suicidal ideation is more troubling for the patient and may indicate increased suicide risk (APA, 2003; Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; Joiner, Rudd, & Rajab, 1997). If any suicidal ideation is reported, the suicide risk assessment will continue with an assessment of a suicide plan.

Assessing Suicide Plan

Once suicidal ideation has been established, existence and details of a plan for suicide must be assessed. This is best accomplished using open-ended questions, such as "Do you have a plan for how you would kill yourself?" or "What have you been thinking about doing to kill yourself?" Method of suicide should be assessed, as well as availability of the method, level of detail, timing, setting, and precautions against rescue or discovery. Regardless of the detail of the suicide plan, suicidal intent should be assessed among those who indicate having a plan for suicide.

Assessing Suicidal Intent

Finally, a suicide risk assessment must include an assessment of suicidal intent. Suicidal intent refers to the patient's expectation and desire to die as a result of suicide (APA, 2003). Suicidal intent can be assessed with questions such as "How likely do you think it is that you will try to kill yourself?" or "How strong is your desire to kill yourself?" Level of detail of the suicide plan can also indicate suicidal intent. For example, if a patient has taken action to prepare for the suicide, such as collecting pills for an overdose, making plans to be alone to prevent discovery, giving away possessions, or writing a suicide note, this may indicate increased suicidal intent. Strength of patient's intent to die and belief in the potential lethality of the suicide plan should be considered. Clinicians may also assess the patient's subjective courage and competence to die by suicide, as research indicates that these are important indicators of suicide risk (Joiner et al., 1997). A comprehensive assessment of suicidal intent is imperative, as the imminence of suicide risk will have implications for the action taken.

Suicide Risk Assessments with Children

Conducting a suicide risk assessment with children may require the consideration of additional factors. Not all young children understand that suicide, and death in general, is irreversible, and understanding

of death and suicide may depend on the child's developmental level and experiences of illness and death, including information from home or school (American Academy of Child & Adolescent Psychiatry, 2001). Clinicians working with children should also assess the child's understanding of death and suicide. Understanding of death and lethality in children may be limited; therefore, the child's belief in the lethality of a particular method is more indicative of suicide risk than actual lethality of the method. Collateral information from family members may be particularly important; family engagement in treatment is also particularly important (Berman, 2006).

Suicide Risk Assessment Disposition

A difficult reality clinicians face in assessment of suicide risk is that despite the best efforts of researchers, suicide and suicidal behavior cannot be reliably predicted (Berman, 2006; Rudd & Joiner, 1998). For example, researchers have estimated that among 15–19 year olds, the suicide attempt to death ratio is 400:1 for boys and 3,000:1 for girls (Mann et al., 2006). Conducting a suicide risk assessment and intervening can rely heavily on clinical judgment. Once a suicide risk assessment has been conducted and suicidal ideation, plan, and intent have been established, a disposition must be decided upon. This decision must incorporate legal and ethical responsibilities and organizational guidelines. The following recommendations are based on the protocol suggested by Joiner, Walker, Rudd, and Jobes (1999) and the experience of the authors. An appropriate disposition for an individual who indicates suicidal ideation, but not a suicide plan or intent, may include continued assessment, such as a phone call a few days later to assess suicide risk, or focus in treatment. A crisis plan should also be established, including plans to call a clinician, suicide hotline, or friend or family member if the suicidal ideation worsens or the patient feels unsafe. Depending on the clinician's judgment, he or she might suggest that if the feelings do not lessen after seeking social support, or if the patient develops more suicidal plans or intent, that the patient go to the nearest emergency room or call emergency services. Clinicians may wish to use a detailed emergency coping card with a step-by-step plan of what a patient can do in the event of an emergency.

If a clinician feels that a patient is at elevated risk, such as a suicide plan or intent that is not imminent, the clinician may consider increased frequency or duration of therapy sessions to attempt to resolve current symptoms, address stressors, and reevaluate treatment goals such as reducing feelings of hopelessness, increasing social support, and improving self-soothing, self-control, coping, or problem-solving skills (Joiner et al., 1999). If a patient is in imminent danger of attempting suicide, the clinician should closely monitor the patient and may consider voluntary hospitalization or even involuntary hospitalization if necessary. Documentation of all risk evaluation, assessment, and treatment goals and progress is essential when treating patients who report any suicidal ideation, plan, or intent. All clinical activities and decisions should be regularly recorded in a clinician's progress notes (Berman, 2006; Joiner et al., 1999).

Associated Factors to Assess

In addition to assessment of suicidal ideation, suicide plan, and suicide intent, assessment of other suicide risk factors may provide additional information important in determining suicide risk. In addition to the assessment of suicide risk, these associated factors may be important in treatment planning.

History of Suicide Attempts

History of previous suicide attempts is an important factor to consider when assessing risk for future suicide attempts. History of attempted suicide is the single strongest predictor of a future attempt (Joiner et al., 2005). Number of previous attempts is also an important factor to consider; an individual with multiple past attempts is at a greater risk for future suicide attempts than an individual with a single past attempt (Joiner et al., 1999). It is important that the clinician gather as much information as possible about past attempts, including to what extent a suicide attempt was planned versus

impulsive by asking how long he or she had been thinking about it and any indicators about planning such as leaving a suicide note or making preparations for what would happen after her or she died (Joiner et al., 2005). Information about history of suicide attempts can also inform the clinician about the extent to which the patient has begun to habituate to the physical and emotional pain inherent in suicide, which may increase risk for future suicide death (Van Orden et al., 2010).

Demographic Factors

In the United States, men are almost four times more likely to die by suicide than women, but women are three times more likely to attempt suicide than men (Joiner et al., 2005; Kessler et al., 1999). Rates of suicide differ among age groups, with the highest rate of suicide among the elderly over age 80 (APA, 2003; CDC, 2007). Caucasians are more than twice as likely to die by suicide as members of racial minority groups in the United States, with the exception of Native Americans (APA, 2003; CDC, 2007). Single adults are twice as likely as those who are married to die by suicide but those who are divorced, separated, or widowed are more likely to die by suicide than married individuals (APA, 2003). Lower levels of education are associated with increased likelihood to attempt suicide (Kessler et al., 1999).

Comorbid Mood Disorders

While research has demonstrated an association between anxiety disorders and suicidal thoughts and behaviors, mood disorders may play an important role in this association. Comorbid mood and anxiety disorders are associated with a higher likelihood of suicide attempts than mood disorders alone (Sareen, Cox et al., 2005), and an increased risk for suicide in depressive disorders has been noted for individuals reporting higher levels of anxious symptoms (Chioqueta & Stiles, 2003). In addition, severe anxiety or agitation—independent of an anxiety disorder—may precede suicidal behaviors among individuals with mood disorders (Fawcett, 2007). Therefore, it is particularly important to assess suicide risk among anxious individuals presenting with a comorbid mood disorder or depressive symptoms.

Precipitant Stressors

Assessment of relatively recent life stressors, particularly those involving interpersonal loss or disruption, is important in understanding suicide risk. The clinician should determine if the stressor continues to be significant for the patient. For any patient, the existence of notable stress combined with suicidal symptoms may be considered riskier than suicidal symptoms alone (APA, 2003; Joiner et al., 1999).

Hopelessness

Hopelessness is a psychological symptom that can exacerbate risk for suicide and can be considered a major risk factor for suicide (Beck, Steer, Beck, & Newman, 1993; Chance, Kaslow, & Baldwin, 1994). Joiner et al. (2005) described hopelessness as one of the most important risk factors for suicide. Hopelessness can be assessed as a risk factor for suicide, and if present, can be targeted as a part of treatment (APA, 2003).

Social Support

Lack of social support is associated with an increased risk for suicide (APA, 2003; Joiner et al., 1999). In addition, feeling of being disconnected from or not belonging to any social network may increase risk for suicide (Van Orden et al., 2010). Perceived social support is important to assess as a risk factor for suicide, but also as a protective factor. In addition, knowing the level of social support available to an individual may be helpful in treatment planning and disposition.

Risk Factors in Children and Adolescents

As with adults, any suicide attempt is a major risk factor for future attempts and completed suicide (Shaffer, Gould, et al., 1996), but as only 10–40% of adolescents who complete suicide have made a previous attempt, it is necessary to assess for other risk factors (Brent et al., 1988). In addition to having at least one psychiatric disorder, adolescents who die by suicide are more likely to have a family history of suicide, depression, and substance abuse. In addition, they are more likely to live in home environments that exhibit high levels of conflict and difficulties with communication (Gould, Fisher, Parides, Flory, & Shaffer, 1996).

Protective Factors

Clinicians should also consider factors that may protect an individual against suicidal behavior. Self-reported reasons for living are a protective factor against suicide (APA, 2003); assessing reasons for living may build discrepancy for the patient or may provide the clinician with information to use during intervention. This is also an opportunity to gain insight into the degree of the patient's optimism about life (APA, 2003). It is important to determine whether the patient feels a purpose for living, if he or she feels that his or her life has some meaning, if there are people that are important for the patient, or plans for the future. In addition, personality traits such as self-control or problem-solving ability may also serve as protective factors against suicide (Joiner et al., 1999); for example, these traits may influence initiating and participating in psychological treatment (Joiner et al., 1999). As mentioned above, the presence of positive social support including family members, friends, or other sources of support may serve as a protective factor against suicide, and increasing the level of social support can be a target for treatment (APA, 2003). In addition to positive social support, self-control, and problem-solving skills, research has indicated that other protective factors against suicide risk may include a sense of responsibility to family, children in the home, employment, pregnancy, religious beliefs, coping skills, the presence of another person in the home, and a positive therapeutic relationship (APA, 2003). Assessment of protective factors may add to a clinician's understanding of a patient's suicide risk, but such assessment will also inform the clinician of the resources available to the patient, which can be valuable information in treatment planning.

Assessment Instruments for Suicide

Several interview and self-report measures have been developed to assess suicidal ideation and intent in children, adolescents, and adults. Below is a review of commonly used measures that have been supported by empirical research, but this list is not exhaustive. Interview measures developed for use with adults include the Scale for Suicide Ideation (SSI; Beck, Kovacs, & Weissman, 1979), Modified Scale for Suicide Ideation (MSSI; Miller, Norman, Bishop, & Dow, 1986), and the Suicide Intent Scale (SIS; Beck, Schuyler, & Herman, 1974). The SSI is one of the most widely used measures for evaluating suicidal ideation. The SSI can be useful if a patient has a history of one or more previous suicide attempts, as the measure includes items that assess the number of previous suicide attempts and the degree of intent to kill oneself during the most recent suicide attempt. The MSSI is a modified version of the SSI that includes items that assess additional features of suicidal ideation, such as intensity of suicidal ideation, subjective courage and competency to attempt suicide, and talking and writing about death. The SIS is a widely used interviewer-administered instrument that measures the degree of intent to die during a previous suicide attempt, including planning and perceived lethality of a suicide attempt.

Self-report measures developed for adults include the Beck Scale for Suicide Ideation (BSI; Beck & Steer, 1991), the Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991), and the Suicidal Behaviors Questionnaire (SBQ-14; Linehan, 1996). The BSI is a self-report measure that can be helpful for clinicians who wish to gather information about the intensity of a patient's attitudes, behaviors, and plans to die by suicide during the past week. The measure assesses features such as wish to die, desire to make a suicide attempt, duration and frequency of ideation, and amount of actual preparation for an attempt the patient considered. While the BSI is helpful in gaining insight into the intensity of a patient's suicidal ideation, the ASIQ can be used to assess the frequency of suicidal thoughts. The ASIQ also includes items that assess a number of areas of suicidal ideation, such as thoughts of how and when a patient may attempt suicide to the perceived response of others to the patient's suicide. The SBQ-14 is a self-report instrument that includes questions that measure five domains: past suicidal ideation, future suicidal ideation, past suicide threats, future suicide attempts, and likelihood of dying in a future suicide attempt. This measure assesses a broad time frame, including current day, month, year, and lifetime.

Several measures have been developed to assess suicidality specifically among children and

adolescents. However, surprisingly few clinical interviews are supported by research. Two clinical interviews for use with child or adolescent patients are the Child Suicide Potential Scale (CSPS; Pfeffer, Conte, Plutchik, & Jerrett, 1979) and the Suicidal Behaviors Interview (SBI; Reynolds, 1990). The CSPS is a comprehensive semi-structured interview that can be used to assess suicidal ideation and previous and future suicidal behavior in youth as young as 6 years old. The CSPS also includes questions about precipitant stressors and the child's concept of death. The SBI is a semi-structured interview used to assess current level of seriousness of suicidal behavior as well as past suicidal behavior in adolescents aged 12–19 years. The SBI also includes questions about risk and protective factors for suicidal behavior, including distress, life events, and social support.

Self-report measures specifically developed for use with children and adolescents include the Suicidal Ideation Questionnaire (SIQ; Reynolds, 1987), the Suicidal Ideation Questionnaire-Junior (SIQ-JR; Reynolds, 1987), the Suicidal Behaviors Questionnaire for Children (SBQ-C; Cotton & Range, 1993), the Columbia Teen Screen (CTS; Shaffer, Wilcox, et al., 1996), and the Child-Adolescent Suicidal Potential Index (CASPI; Pfeffer, Jiang, & Kakuma, 2000). The SIQ is one of the most widely used measures for suicidal ideation in adolescents. The self-report instrument can be used to screen the frequency and severity of suicidal ideation in adolescents. The SIQ-JR is a version of the SIQ that can be used with junior high school students as young as 11 years old to assess frequency and severity of suicidal ideation. In order to gather information about suicidal behaviors in children, clinicians may elect to use the SBQ-C. The SBQ-C is a version of the SBQ that has been simplified to a third-grade level, containing four questions about suicidal thoughts and attempts. The CTS is a self-report measure that screens for suicidal ideation, behavior, and risk factors among adolescents. The CTS is a brief instrument used to determine adolescent risk for suicide. The CASPI is also used to assess risk for suicidal behavior; however the CASPI is supported for use in 6–17 year olds. The instrument contains only yes or no questions that assess early onset suicidal behavior.

Suicide and SSRIs

In light of recent concerns on the use of selective serotonin reuptake inhibitors (SSRIs) in children and adolescents (e.g., Hammad, Laughren, & Racoosin, 2006), it is necessary to review the current literature on the risk of increased suicidal thoughts and behaviors due to SSRI use. Following a review of published and unpublished controlled clinical trials of antidepressants in children and adolescents (Hammad, 2004), the U.S. Food and Drug Administration (FDA) issued black-box warnings on SSRI package inserts regarding the possibility of increased suicidal thoughts and behavior in children and adolescents. Although the warning was meant to direct clinicians to closely monitor this population during SSRI treatment, there is some evidence that SSRI prescriptions have decreased as a result of these warnings and that suicide rates have increased in the intervening years (Gibbons, Hur, Bhaumik, & Mann, 2006). It is difficult to draw conclusions based on ecological studies (i.e., Gibbons et al., 2006), but such findings suggest that antidepressant treatment in children and adolescents should not be rejected out of hand without a solicitous review of the available evidence. Naturally, clinicians should carefully weigh the risks and benefits of SSRI treatment for any individual patient, but in general, clinicians should recognize that the larger magnitude of SSRI benefit in anxiety disorders (as compared to that in depression) suggests that the risk/benefit ratio for anxiety disorders favors SSRI treatment (Seidel & Walkup, 2006).

Initial evidence in support of increased suicidality following treatment with antidepressants was derived from clinical lore and findings in early fluoxetine trials (King et al., 1991). Significant research regarding this matter did not begin until 2003, when data from a trial of adolescents treated with paroxetine showed a weak but statistically significant increased risk of self-injury and suicidal thoughts during active drug treatment (Wooltorton, 2003). Following this study, the FDA commissioned meta-analyses of 24 randomized controlled trials for all SSRIs; of the trials studied, 16 studied efficacy in major depressive disorder, four in obsessive–compulsive disorder,

three in social or general anxiety disorders, and one in attention-deficit/hyperactivity disorder. While no suicide deaths occurred in any of these trials ($n = 4{,}487$), increased suicidal adverse events were associated with active drug (SSRI) treatment (approximately 4% in active compounds to 2% in placebo; Hammad et al., 2006). As a result, the FDA issued black-box warnings on all SSRI package inserts. However, not all studies of child and adolescent suicidality and completed suicides have confirmed the concerns resulting from the FDA study. In fact, almost all youth who die by suicide are not taking antidepressants at the time of death (Dudley, Goldney, & Hadzi-Pavlovic, 2010; Isacsson, Holmgren, & Ahlner, 2005), and prior to the FDA warnings, higher SSRI prescription rates were associated with lower rates of completed suicide in children and adolescents (Gibbons et al., 2006).

Methodological confounds such as severity of illness, a variety of diagnoses, and sampling artifacts often limit the interpretation and generalization of results from studies of SSRI treatment and youth suicidality (Barbui, Esposito, & Cipriani, 2009; Klein, 2006; Mann et al., 2006). For example, children and adolescent samples used in the FDA analysis were drawn from moderate-to-severely ill populations across a variety of mental disorders (Hammad et al., 2006). Subsequent reanalyses and replications of the FDA data have clarified the risk in children and adolescents. While vigilance when prescribing psychotropic treatment is advised for every patient, the extra caution applied to SSRI treatment of children and adolescents is not equivalent for depressive and anxiety disorders (Baldwin et al., 2005; Kaizar, Greenhouse, Seltman, & Kelleher, 2006). In anxiety-disordered children and adolescents, the risk of suicidality is less and the therapeutic benefits are greater.

Clinicians can exercise good clinical practice by evaluating the risk/benefit ratio of SSRI treatment and monitoring specific suicide concerns on an individual patient basis. Anxiety disorders themselves are a risk factor for suicidality in adolescents, with risks increasing with multiple anxiety disorders (Boden, Fergusson, & Horwood, 2007). Research has demonstrated risk of increased suicidality due to SSRI treatment among children and adolescents with anxiety disorders to be little (in comparison to major depression; Vitiello & Waslick, 2010) or none (Bridge et al., 2007; Wohlfarth et al., 2006), and SSRI treatment generally is not associated with an increased risk of suicide death (Fergusson et al., 2005; Khan, Khan, Kolts, & Brown, 2003). Furthermore, multiple lines of research suggest that SSRIs actually lower suicide risk in children and adolescents (Mann et al., 2006), and SSRIs may be particularly efficacious for adolescents with anxiety disorders (Bridge et al., 2007).

Assessment of Non-suicidal Self-injury

As mentioned previously, individuals with a history of NSSI exhibit higher levels of anxiety than those without an NSSI history (Andover et al., 2005; Ross & Heath, 2002). In addition, between 15 and 49% of individuals who engage in NSSI meet criteria for various DSM-IV anxiety disorder diagnoses (Hintikka et al., 2009; Nock et al., 2006). Given the significant negative consequences associated with NSSI and increased levels of anxiety among those with NSSI, it is essential to assess for NSSI among individuals with anxiety disorders or high levels of anxiety. Guidelines for the assessment of NSSI are discussed below; for a more detailed guide please see Walsh (2007).

Before the Assessment: Considerations

Before conducting an assessment of NSSI, it is essential to understand that the function of NSSI, by definition, does *not* involve suicide. Although NSSI and attempted suicide both involve deliberate injury to the body, they differ in several important ways. NSSI is performed only without intent to die, while attempted suicide is performed with intent to die. Although NSSI and suicide often co-occur (i.e., Andover & Gibb, 2010; Stanley et al., 2001), these behaviors differ in suicidal intent, perception of the event, proposed function of the behavior, chronicity, and method (Muehlenkamp, 2005; Suyemoto, 1998). However, given the co-occurrence of NSSI and

suicide, it is important to include an assessment of suicide risk when assessing NSSI.

As discussed earlier, the functional approach to NSSI (Nock & Prinstein, 2004) posits that there are four primary functions of NSSI that differ along two dimensions: contingencies that are automatic versus social, and reinforcement that is positive versus negative. When NSSI is performed for automatic positive reinforcement, individuals engage in NSSI in order to achieve a desirable physiological state, or generation of a favorable emotional or physical state (Nock & Prinstein, 2004). In automatic negative reinforcement, the self-injurious behavior is immediately followed by a decrease in aversive thoughts or feelings (Nock, 2010). Supporting this theory are laboratory-based studies, which have shown that self-injurers show decreased physiological arousal following imaginal exposure to self-injury (Haines et al., 1995; Welch, Linehan, Sylvers, Chittams, & Rizvi, 2008). The automatic negative reinforcement function of NSSI is likely the most salient when considering individuals who experience high levels of anxiety. If individuals lack the coping skills to manage their anxiety, they may turn to self-injury as a way to alleviate the anxiety. Therefore, it is particularly important to ask individuals experiencing anxiety about the possibility of engaging in NSSI as a means to manage their negative affective states.

Social reinforcement refers to the use of NSSI as a way to modify one's environment. Social negative reinforcement refers to an individual's use of NSSI as a way to escape demands placed upon them by others. For example, an individual might engage in NSSI in order to avoid engaging in an unpleasant activity with others. Social positive reinforcement involves using NSSI to achieve attention from others or to manipulate the environment. This four-factor model of NSSI has received empirical support in the literature (Brown, Comtois, & Linehan, 2002; Nock & Prinstein, 2004). Clinicians should ask about both intrapersonal and interpersonal factors when assessing the function of NSSI. Intrapersonal factors include affect regulation, anti-dissociation, self-punishment, and putting a stop to suicidal thoughts, while interpersonal factors include creating a boundary between the self and others, and letting others know the extent of one's physical pain (Klonsky & Glenn, 2009). Understanding the function or functions of an individual's self-injury has important implications for future treatment.

The most commonly used method of NSSI is cutting or carving one's skin with a sharp object, such as a knife or razor (e.g., Gratz, 2001; Linehan, Comtois, Brown, Heard, & Wagner, 2006), on the arms, legs, or stomach (Nock, 2010), although a significant number of individuals report scratching and skin picking behaviors (i.e., Andover, Primack, Gibb, & Pepper, 2010). Other common methods include burning skin, severe scratching, carving words or pictures on skin, biting, inserting objects under skin or nails, erasing skin to draw blood, breaking bones, and self-hitting. Preliminary research suggests that there may be a gender difference in reported methods of NSSI; in a sample of undergraduates, women were significantly more likely than men to report cutting and scratching, and men were significantly more likely than women to report burning (Andover et al., 2010). In addition, many individuals report using multiple methods of NSSI (Nock, 2010). Therefore, it is essential that clinicians assess for NSSI generally, rather than asking about a specific behavior (i.e., "Have you ever hurt yourself on purpose without trying to kill yourself?" is preferable to "Have you ever cut yourself without trying to kill yourself?").

Assessment of NSSI

A common concern among clinicians and researchers is that inquiring about self-injurious behaviors will have an iatrogenic effect, giving individuals the idea to engage in these behaviors (Nock, 2010). In fact, asking about self-injurious behaviors does not increase the likelihood of experiencing suicidal thoughts and behaviors (Gould et al., 2005) or levels of distress (Reynolds, Lindenboim, Comtois, Murray, & Linehan, 2006). Thus, assessments that include questions about NSSI and suicide can be performed without concern that they will have deleterious consequences.

The manner in which a clinician responds to initial disclosure of self-injury is important, as this will impact the patient's willingness to discuss his or her self-injurious behavior. Clinicians should respond initially to self-injury with a "low key, dispassionate demeanor" (Walsh, 2006, p. 1066). If one appears shocked or uncomfortable, it is unlikely that the individual will provide more information about their self-injury. On the other hand, if a clinician reacts with intense sympathy and support, this could possibly reinforce the behavior, particularly if the individual engages in NSSI for social reinforcement. Thus, the most helpful strategy is to "proceed in a dispassionate way, which is neither reinforcing nor punitive" (Walsh, 2007, p. 1060), and to set a nonjudgmental tone. Asking questions such as "Why do you think you self-injure?" shows that the clinician wants to better understand the individual's self-injury and allows the individual to share his or her experience in an open and honest manner. As Walsh (2007) notes, NSSI might be an individual's only effective method of emotion regulation; therefore, sending the message that an individual should immediately stop the behavior can be invalidating. Asserting the importance of gaining new skills that serve the same function is more effective than forbidding self-injury. While many clinicians' initial reaction might be to contract for safety, there is a lack of quantitative evidence to support such contracts (McMyler & Pryjmachuk, 2008).

Once an individual is comfortable discussing self-injury, the clinician should inquire about the individual's NSSI history. Important questions include age of onset and methods used. As most people use multiple methods of NSSI, it is essential to ask about other forms of self-injury in addition to those reported. For each method, the frequency of episodes and duration of episodes should be discussed. Longer episodes indicate greater levels of distress (Walsh, 2007) and are therefore more concerning. In addition, clinicians should ask individuals what areas of the body they injure and the extent of the physical injury. This question is especially important, as risk and lethality tend to increase over time (Walsh & Rosen, 1998). Most often, people tend to harm the arms, legs, and abdomen (Nock, 2010); therefore, people who injure the eyes, face, breasts, and genitals may be experiencing more severe or potentially psychotic symptoms and should possibly receive emergency mental health treatment or hospitalization (Walsh, 2007). Details such as use of a tool during self-injury episodes and patterns regarding physical location and social context when engaging in self-injury are also important, as they have significant treatment implications. For example, identifying the times of day during which an individual is at higher risk for engaging in NSSI can have important treatment implications regarding replacement behaviors.

Carefully assessing function of self-injury also has significant treatment implications. As previously mentioned, asking an individual what they believe to be the function of his or her NSSI is a useful way to determine function; however, the individual may lack insight into the functions of self-injury. One way to assess function is to conduct functional analyses on recent episodes of self-injury. A functional analysis for NSSI includes a discussion of the antecedents of self-injury, including events in the environment, as well as thoughts, feelings, and behaviors preceding the episode. Next, characteristics of the episode such as those discussed above should be discussed in detail. Consequences of NSSI should then be discussed, including thoughts, feelings, behaviors, and environmental consequences such as the reactions of others. Although it is impossible during the process of a single assessment to conduct an adequate number of functional analyses to determine all the functions NSSI might serve an individual, functional patterns can emerge after only a few detailed analyses. Again, individuals experiencing high levels of anxiety may utilize NSSI as a means to decrease or eradicate anxious feelings in the absence of more adaptive emotion regulation strategies (automatic negative reinforcement). Similarly, it is possible that individuals with social anxiety may use NSSI as a means to escape unpleasant social situations (social negative reinforcement).

Assessment Instruments for NSSI

There are numerous measures, both in self-report and interview formats, which are used to

assess for a history of NSSI, including frequency, duration, methods used, and age of onset. Although these measures were originally designed for research purposes, they can be extremely useful for guiding the clinician toward further questioning about NSSI as part of a clinical interview (Walsh, 2007). It is important to note that these instruments are intended to assess past behavior, not to predict future self-injurious behavior.

Self-report instruments specifically created for NSSI include the Functional Assessment of Self-Mutilation (FASM; Lloyd, Kelley, & Hope, 1997), the Inventory of Statements about Self-Injury (ISAS; Klonsky, & Glenn, 2009), and the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001). The FASM is a self-report measure that assesses a history of the functions of NSSI including methods used, frequency, and age of onset. The ISAS also assesses the functions of NSSI, as well as the lifetime frequency of 12 NSSI behaviors. Five additional questions assess descriptive and contextual factors, such as age of onset, experience of pain during NSSI, and whether NSSI is performed alone or around others. The DSHI is a behaviorally based, 17-item self-report questionnaire developed specifically to assess the frequency, duration, severity, and type of self-injurious behavior.

Interview measures include the Self-Injurious Thoughts and Behavior Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007), and the Suicide Attempt Self-Injury Interview (SASII; Linehan et al., 2006). The SITBI is a structured interview with 169 items in five modules that assesses the presence, frequency, severity, function, precipitants, and characteristics of five types of self-injurious thoughts and behaviors: suicidal ideation, suicide plans, suicide gestures, suicide attempts, and NSSI. Another structured interview, the SASII, was designed to provide a comprehensive description about both NSSI and nonfatal suicide attempts. The SASII allows for the assessment of suicidal intent for acts of self-injury independent of the form or consequences of the act (Linehan et al., 2006). Further, the SASII provides individual ratings for lethality, including medical treatment required, lethality of method used, and physical consequences of the self-injurious behavior.

Summary

Suicidal and non-suicidal self-injurious thoughts and behaviors are extremely prevalent in clinical and community samples, and anxiety and anxiety disorders are associated with deliberate self-injury with and without suicidal intent. Research is mixed on whether anxiety disorders are directly associated with suicidal ideation and attempts or if this association is due to the association between other comorbid conditions and suicide. The association between anxiety disorders and NSSI has yet to be more fully explored; however, current research supports the association between NSSI and increased anxiety symptoms, and NSSI is often performed to regulate negative automatic states, such as anxiety. Failing to discern suicidal and non-suicidal behavior co-occurring with an anxiety disorder precludes treatment and prevention of such behavior (Sareen, Cox et al., 2005); therefore, suicidal ideation and attempts and NSSI should be assessed among individuals presenting with significant anxiety or an anxiety disorder.

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Assessment of Anxiety Symptoms Using the MMPI-2, MMPI-2-RF, and MMPI-A

10

Martin Sellbom and Tayla T.C. Lee

Evolution of the MMPI Instruments

The Minnesota Multiphasic Personality Inventory (MMPI) was developed by Hathaway and McKinley (1943) to facilitate psychodiagnosis. Although the MMPI has often been described as being constructed in an atheoretical vacuum, this was actually not the case. The then contemporary descriptive nosological system and a combination of psychodynamic and behavioral theory all played a role in generating the test's items and scale construction (Ben-Porath, 2006). In developing the instrument, Hathaway and McKinley gathered almost 1,000 potential items by examining the literature concerning the major psychiatric diagnoses of the time complemented by their own extensive clinical experience. They administered the candidate items to various groups of psychiatric patients, as well as a normative group consisting of approximately 750 individuals, primarily skilled laborers and farmers, many of whom were visitors to the University of Minnesota Hospital. The authors then developed scales using an empirical keying method, which assigned items to a particular diagnostic scale if they discriminated sufficiently between members of a specific diagnostic group (e.g., depression) and the normal group. This procedure yielded the eight original MMPI Clinical Scales.[1]

Despite the (at the time) cutting edge scale development methodology, initial evidence suggested MMPI Clinical Scales were insufficiently effective in predicting membership in specific diagnostic categories (Hathaway, 1960). However, the MMPI underwent a transformation from an instrument designed to predict diagnostic taxonomies to one that relies on empirically derived correlates in assessing symptomatology and personality patterns. The call for establishing empirical correlates for the MMPI was made by Meehl (1945, 1954), who suggested that the test would be optimally used if such correlates were established. These recommendations were subsequently followed by Meehl's (1956) call for a "good cookbook," which could be used to inform clinicians about the empirical correlates of the MMPI scales. This transformation allowed for the MMPI to become the most frequently used self-report inventory measuring personality and psychopathology (Lubin, Larsen, & Matarazzo, 1984; Piotrowski & Keller, 1989) as well as the most researched (Reynolds & Sundberg, 1976).

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[1] Although there are ten basic clinical scales, Scale 5 (Masculinity/Femininity) and 0 (Social Introversion) were added at later stages, and are not considered part of the eight original scales.

D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_10,

By the 1970s, it was becoming increasingly apparent that some changes were in order for the MMPI. In 1982, the University of Minnesota Press, the test's publisher, formed a restandardization committee to coordinate the revision of the MMPI and collection of a new normative sample that would be more appropriate for the varying settings in which the instrument was used. This committee had two major goals: to improve the test while maintaining continuity with the original version to the extent possible and to ensure that the large amount of research generated on the original MMPI could still be applied with the revision. The result of the restandardization project was the Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). The MMPI-2 not only retained the original Clinical and Validity scales but also included a new normative sample (described later), additional validity scales assessing response inconsistency, and a set of content scales assessing the major domains of the MMPI item pool. Today, the MMPI-2 is widely used in a variety of settings (Archer et al., 2006; Camara, Nathan, & Puente, 2000) and remains the most frequently investigated psychological test (Butcher & Rouse, 1996).

During the same time period the MMPI was being revised to the MMPI-2, the University of Minnesota Press also commissioned the development of a revised version of the MMPI specific for use with adolescents. Revision efforts in this area were motivated by needs to address numerous concerns regarding the appropriateness and applicability of scores and interpretations derived from an instrument developed and normed in an adult population in describing adolescents (Archer, 1987; Williams, 1986). The result of this process was the creation of the Minnesota Multiphasic Personality Inventory-Adolescent Version (MMPI-A; Butcher et al., 1992). Butcher et al. (1992) highlighted that development of the MMPI-A was focused not only on retaining those aspects of the MMPI that were the most useful (e.g., the basic Clinical scales) but also on adding key innovations introduced in the revised adult version of the instrument (e.g., use of Uniform *T*-scores, the Content scales, and measures of response inconsistency). They also addressed other concerns by reducing the number of items scored on the test from 560 to 478, altering or deleting items that contained inappropriate, outdated, or confusing language, and adding items and developing scales covering specific aspects of adolescent development and psychopathology. The MMPI-A is the most widely used, objective self-report measure of adolescent personality and psychopathology (Archer & Newsom, 2000), as well as one of the most widely researched measures of adolescent psychopathology (Baum, Archer, Forbey, & Handel, 2009).

Finally, the most recent version of the MMPI instruments is the Restructured Form of the MMPI-2 (MMPI-2-RF; Ben-Porath & Tellegen, 2008; Tellegen & Ben-Porath, 2008). Initial development constituted the restructuring of the eight original clinical scales (Tellegen et al., 2003). Recognizing the substantial strengths of the clinical scales, which included extensive empirical validation and decades of clinical experience among practitioners, it had been known for a long time that the scales themselves were not psychometrically optimal as measures of diagnostic constructs (Tellegen et al., 2003; Tellegen & Ben-Porath, 2008). The primary step in developing these scales was to identify and extract a common general emotional distress dimension (labeled demoralization) that saturates the clinical scales, elucidate distinct target constructs from each scale, and thereby improve their convergent and discriminant validity. This resulted in a set of nine Restructured Clinical scales (RC scales; Tellegen et al., 2003), including a measure of demoralization and eight other scales assessing key components of the basic Clinical scales (except Scale 5 and 0), scored on both the MMPI-2 and the MMPI-2-RF.

After the RC scales had been introduced to the MMPI-2, work continued on several other psychometrically efficient scales for a new version of the inventory—the MMPI-2-RF (Ben-Porath & Tellegen, 2008; Tellegen & Ben-Porath, 2008). This version of the MMPI was designed to take advantage of the clinically useful variance of the MMPI-2 item pool in an efficient and psychometrically up-to-date manner. Scales developed

for the MMPI-2-RF were intended to assess (a) constructs not directly measured by the RC scales, (b) facets of the broader RC scales, or (c) distinctive core components from the original clinical scales not covered by the RC scales. A set of higher-order scales was also developed to provide a hierarchically organized interpretative framework for the test (Tellegen & Ben-Porath, 2008). Lastly, the MMPI-2-RF contained revised versions of standard MMPI-2 Validity scales, as well one new validity scale assessing somatic over-reporting. This latest edition of the MMPI instruments has displayed promising construct validity and maps onto contemporary models of personality and psychopathology (Graham, 2011).

Administration of the MMPI-2, MMPI-2-RF, and MMPI-A

The MMPI-2 and MMPI-2-RF should only be administered to those who are 18 years of age or older (Ben-Porath & Tellegen, 2008; Butcher et al., 2001). Younger individuals should be administered the adolescent version of the test, the MMPI-A (Butcher et al., 1992). All versions of the MMPI family of instruments are available from Pearson Assessments (pearsonassessments.com). The MMPI-2/MMPI-A/MMPI-2-RF should be administered in a quiet and comfortable place for the test-taker. It takes about one to one and a half hours to administer the tests in standard booklet and answer sheet form for individuals of normal intellectual functioning (Graham, 2011). Complicating factors such as disabling psychopathology, low reading level, or lower intellectual functioning may result in a longer time, such as 2 hours or more. Administration by computer using standard software available through Pearson Assessments reduces the amount of time needed to complete the inventory.

There are certain test conditions that may preclude an individual from taking one of the MMPI-based instruments. The manual authors (Ben-Porath & Tellegen, 2008; Butcher et al., 1992, 2001) recommend that individuals who have less than a sixth grade reading level not be administered the MMPI-2, MMPI-2-RF, or MMPI-A in the standard format. However, some persons with limited reading ability can complete the test if it is presented using a standard audio version of the test available on cassette or CD. Other conditions that might preclude administration of one of the MMPI instruments include altered cognitive states or confusion stemming from brain impairment, as well as severe psychopathology.

There are special factors that should be accounted for during administration of the MMPI-A in order to reduce or prevent problems and difficulties that are common with adolescent test-takers (Archer & Krishnamurthy, 2002; Butcher et al., 1992). Most importantly, for adolescent test-takers, who are often being assessed due to a parent's request rather than the adolescent's, the test-user should attempt to engage the adolescent as a joint participant in the testing process. This includes establishing rapport prior to testing, as well as soliciting from the adolescent what types of information that he or she would like to learn from taking the test. Second, it should be recognized that many adolescents will struggle to complete the 478 items with adequate effort due to fatigue and distractibility. As such, it will be especially important during administration of the MMPI-A to provide a quiet environment, direct supervision, and frequent breaks. In some cases, it may be appropriate to break administration of the MMPI-A into two or more shorter sessions.

Basic Description of the MMPI-2

The MMPI-2 is a 567-item true/false self-report inventory (Butcher et al., 2001). Its large normative sample consists of 1,138 men and 1,462 women of diverse ethnic backgrounds and from different regions of the United States. The standard scales of the MMPI-2 currently include 9 Validity Scales, 10 Clinical Scales (and 31 subscales), 9 Restructured Clinical (RC) Scales, 15 Content Scales (and 28 Content Component Scales), 15 Supplementary Scales, and 5 Personality Psychopathology Five (PSY-5) Scales. Many other scales have been developed or proposed for the test; however, only the

standard scales just mentioned are recommended for use by the publisher.

The *validity scales* are an essential component of the MMPI-2. Some were first introduced when the original MMPI was published to address a challenge inherent in self-report inventories: their susceptibility to misleading responding and scoring error. More specifically, these scales were designed to assess various forms of response bias, including nonresponding, inconsistent responding, acquiescent and counter-acquiescent responding, over-reporting, and under-reporting. The *clinical scales* were developed, as reported earlier, to assess major diagnostic syndromes, but are currently focused on the assessment of various forms of psychopathology symptoms and not diagnostic in nature. To disentangle multiple scale elevations and better focus test interpretations, *code types* (two or three most elevated scales in the profile) are frequently generated from the clinical scale profile. The test-user can also consult the *Harris–Lingoes and Si subscales* to determine which aspect constructs assessed by Clinical scales should be emphasized (Ben-Porath, Hostetler, Butcher, & Graham, 1995; Harris & Lingoes, 1995). The *restructured clinical (RC) Scales* (Tellegen et al., 2003) were developed to remove a common demoralization factor that saturates the original Clinical Scales, elucidate distinct target constructs from each scale, and thereby improve their convergent and discriminant validity (Tellegen et al., 2003). The *content scales* (Butcher, Graham, Williams, & Ben-Porath, 1990) were developed through a series of rational–conceptual and empirical analyses modeled after Wiggins's (1969) original set of Content Scales for the MMPI. They are designed to facilitate test interpretation by providing a reliable indication of the individual's self-presentation and expanding the content domains represented by the original Clinical Scales. *Content component scales* (Ben-Porath & Sherwood, 1993) were developed to assist in identifying which aspects of Content scale interpretation are most relevant in describing the test-taker. The s*upplementary scales* are a collection of MMPI-2 measures developed over the test's history. The *personality psychopathology five* (PSY-5; Harkness, McNulty, & Ben-Porath, 1995) scales were designed to measure five-dimensional personality constructs that describe normal to abnormal range personality traits. MMPI-2 scales that measure anxiety symptoms will be discussed in more detail in the following section.

MMPI-2 Scales Associated with Anxiety Symptoms

Table 10.1, intended to be a quick reference, provides a list and basic description of each of the MMPI-2 scales that indexes some form of anxiety symptomatology. In this table, we also provide basic internal consistency reliability estimates from the test's normative sample. In this section, we focus specifically on the MMPI-2 scales associated with anxiety.

Clinical Scales

There are two clinical scales that are particularly relevant to the assessment of anxiety symptoms: Scale 7 (Psychasthenia or Pt) and Scale 0 (Social Introversion or Si). The former scale was developed by selecting items that differentiating a group of patients with Psychasthenia symptoms—a psychiatric syndrome characterized by obsessiveness, tension, and anxiety, from a group of nonpatient individuals (McKinley & Hathaway, 1942). Because the Psychasthenia group was small, Hathaway and McKinley (1942) also correlated the candidate scale with all remaining items in the MMPI pool to ensure a longer and more internally consistent scale. Later research supported that Scale 7 did indeed measure symptoms of anxiety, distress, tension, and self-doubt, but also a substantial amount of general maladjustment (e.g., Dahlstrom, Welsh, & Dahlstrom, 1972; Graham, 2011).

Scale 0 (Si) is a 70-item scale that was developed by Drake (1946) to assess social introversion/extroversion. Later research has supported the use of Scale 0 for assessing the individuals' experiences in social situations, especially as it relates to introversion and social maladjustment,

Table 10.1 Scale names, number of items, reliability, and description for MMPI-2 and MMPI-2-RF scales related to anxiety symptoms

Scale	Abbreviation	Number of items	Reliability[a] (men/women)	Description
MMPI-2				
Scale 7: Psychasthenia	Pt	48	0.85/0.87	General anxiety, obsessive–compulsive thinking, and nonspecific emotional distress
Scale 0: Social Introversion	Si	69	0.82/0.84	Introversion, shyness, social alienation, social inadequacy, and nonspecific emotional distress
Shyness/Self-Consciousness	Si1	14	0.81/0.84	Social anxiety, feelings of inadequacy, interpersonal sensitivity
Demoralization	RCd	24	0.87/0.89	Nonspecific emotional distress, depressed mood, general anxiety
Low Positive Emotions	RC2	17	0.68/0.62	Low positive temperament, anhedonia
Dysfunctional Negative Emotions	RC7	24	0.81/0.83	Negative emotions, including anxiety, worry, guilt, anger, and fears
Anxiety	ANX	23	0.82/0.83	General anxiety, anxious apprehension, worry, and emotional distress
Fears	FRS	23	0.72/0.75	General fearfulness, harm avoidance, phobic fear
Generalized fearfulness	FRS_1	12	NR	General fearfulness, nervousness, phobic anxiety
Multiple Fears	FRS_2	10	NR	Fear of many specific stimuli (e.g., animals, natural disasters); specific fearfulness
Obsessiveness	OBS	16	0.74/0.77	Obsessive thinking, rumination, indecisiveness, inefficacy
Social Discomfort	SOD	24	0.83/0.84	Social introversion, anxiety, avoidance, and withdrawal
Shyness	SOD_2	7	NR	Social anxiety; Shyness and discomfort in social situations
Keane PTSD scale	PK	46	0.85/0.87	Post-traumatic distress, with an emphasis on dysphoria
Neuroticism/Negative Emotionality	NEGE	33	0.84/0.84	Predisposition for experiencing negative emotions, including anxiety, worry, guilt, anger, and fears
MMPI-2-RF				
Dysfunctional Negative Emotions	RC7	24	0.81/0.83	See MMPI-2
Stress/Worry	STW	7	0.52/0.60	Anxious apprehension, preoccupation with disappointments, and worry about misfortunes and finances
Anxiety	AXY	5	0.42/0.46	Anxiety, fright, nightmares, sleep difficulties
Behavior-Restricting Fears	BRF	9	0.44/0.49	Fears that inhibit normal activity, generalized fearfulness
Multiple Specific Fears	MSF	9	0.69/0.71	Many specific fears, such as animals and acts of nature
Shyness	SHY	7	0.74/0.77	Social anxiety, including feeling embarrassed and uncomfortable around others
Negative EMOTIONALITY/ NEUROTICISM	NEGE-r	20	0.76/0.78	See MMPI-2

[a]Internal consistency reliability (Cronbach's alpha) from MMPI-2 normative sample. NR: not reported in MMPI-2 manual (Butcher et al., 2001)

including anxiety (e.g., Sieber & Meyers, 1992; Ward & Perry, 1998). Scale 0 has three subscales intended to assist in clarifying clinically significant elevations, including Si1 (Shyness/Self-Consciousness), Si2 (Social Avoidance), and Si3 (Alienation—Self and Others; Ben-Porath et al., 1995), with the Si1 subscale being most sensitive to social anxiety (cf. Sieber & Meyers, 1992).

Restructured Clinical Scales

There are several RC scales germane to assessing anxiety symptoms. One of these scales is RC7 (Dysfunctional Negative Emotions), which focuses on core negative emotionality markers, such as anxiety, fear, guilt, and anger. Although RC7 is the scale that is considered most useful in the general assessment of anxiety symptoms, because they measure broad affective dimensions relevant to unipolar mood and anxiety disorders, RCd (Demoralization) and RC2 (Low Positive Emotions) should also be considered in the assessment of some forms of anxiety symptomatology. These scales were developed by Tellegen et al. (2003) who recognized the methods of scale creation used for the MMPI clinical scales resulted in substantial saturation of those scales with general maladjustment and distress common to most psychiatric disorders. Tellegen et al. (2003) suggested demoralization could be isolated and accounted for if conceptualized through Tellegen's (1985) framework of positive and negative emotionality, where demoralization corresponds to the pleasantness–unpleasantness vector between these two orthogonal affective dimensions. Tellegen's model links depression to low positive emotionality and anxiety to high negative emotionality. Therefore, as a first step in RC scale construction, demoralization markers were identified based on factor analyses of Clinical Scales 2 and 7. Demoralization items were then factor analyzed with item from respective clinical scales to derive distinct core components for each of them. A final set of nonoverlapping RC scales were developed from these core components.

Content Scales

Butcher et al. (1990) developed four content scales that are relevant to the measurement of anxiety symptomatology: Anxiety (ANX), Fears (FRS), Obsessiveness (OBS), and Social Discomfort (SOD). The FRS and SOD scales have two content component scales (FRS_1: Generalized Fearfulness and FRS_2: Multiple Fears; SOD_1: Introversion and SOD_2: Shyness) that can assist with further delineation (Ben-Porath & Sherwood, 1993). Among the SOD component scales, Shyness is more sensitive to social anxiety (Ben-Porath & Sherwood, 1993). Each of these scales were rationally derived by identifying target constructs, nominating test items to measure each construct, and having judges rate the degree to which items indeed reflected the intended construct. Statistical approaches were also used to refine the scales' internal reliability.

Supplementary Scales

There are two supplementary scales, originally developed for the MMPI and later revised for the MMPI-2, that were developed to assess anxiety. Welsh's Anxiety (A) scale (Welsh 1965; Welsh and Dahlstrom 1956) assesses the largest factor emerging from factor analytic studies of the MMPI, which is generalized maladjustment. Despite the scale's label, it is not a specific measure of anxiety at all, but rather captures the demoralization component described earlier. Indeed, the correlation between Welsh's A and the RCd scale is greater than 0.90 in most clinical samples (e.g., Rouse, Greene, Butcher, Nicholas, & Williams, 2008). It is not recommended for use in the assessment of anxiety. The second scale is Keane, Malloy, and Fairbank's (1984) PTSD scale (PK), which was developed in a Veterans Affairs sample by identifying items that differentiated a group of carefully diagnosed psychiatric patients with PTSD from those without. Notably all PTSD patients had some form of combat trauma.

Personality Psychopathology Five Scales

There is one PSY-5 scale that is relevant to the assessment of anxiety: Neuroticism/Negative Emotionality (NEGE). This scale was designed to measure a dispositional tendency to experience a wide range of negative emotions, including anxiety and fear, particularly with a pathological range (Harkness et al., 1995). These authors developed the NEGE scale using a combination of rational-replicated selection, where lay raters were asked to deduce which MMPI-2 items reflected the PSY-5 constructs (including NEGE), and a series of rationale and statistical refinements.

MMPI-2: Applied Recommendations

In the following sections, we provide conceptual and empirically informed guidelines for how to use the MMPI-2, and in particular, the scales just described, in the assessment of anxiety symptoms. Rather than strictly adhering to the categorical perspective outlined in the American Psychiatric Association's current edition of the Diagnostic and Statistical Manual (DSM-IV-TR, 2000), we group anxiety symptoms in accordance with a variety of empirically supported models of anxiety symptoms. In general, these models emphasize a broad general negative emotionality/demoralization factor, in addition to specific anxiety factors (e.g., Brown, 2007; Watson, 2005; Zinbarg & Barlow, 1996). Further, some research has indicated that depression and general anxiety are genetically indistinguishable (Kendler, 1996) and that they are structurally (both genotypically and phenotypically) separate from other anxiety disorders, particularly those with a fear-based component (e.g., Kendler, Prescott, Myers, & Neale, 2003; Krueger & Markon, 2006). Thus, the domains we emphasize here are negative affect/generalized trait anxiety, post-traumatic stress, social anxiety, obsessive-compulsivity, and phobic fear. Although an argument could easily be made for a separate panic or interoceptive anxiety domain, the MMPI-2 instruments are unlikely to capture these types of symptoms specifically.

Negative Affect/Trait Anxiety

Several MMPI-2 scales perform quite well in the assessment of negative affect/trait anxiety. As described earlier, Scale 7 is more likely to be a good overall measure of general maladjustment and negative emotionality, rather than any specific form of anxiety. Numerous studies have reported that Scale 7 is correlated with depressive symptomatology at least as strongly as anxiety—findings that have been reported and replicated in private practice clients (e.g., Sellbom, Graham, & Schenk, 2005), outpatient mental health clients (e.g., Graham, Ben-Porath, & McNulty, 1999), psychiatric inpatients (e.g., Arbisi, Ben-Porath, & McNulty, 2002), and college counseling settings (e.g., Sellbom, Ben-Porath, & Graham, 2006) to mention a few.

The restructured version of Scale 7, RC7, measures dysfunctional negative emotions in a more discriminant way. Several studies have indicated that this scale clearly has a dispositional component, as evidenced by large correlations with temperament domains such as Neuroticism and Negative Emotionality (Sellbom & Ben-Porath, 2005; Sellbom, Ben-Porath, & Bagby, 2008b; Simms, Casillas, Clark, Watson, & Doebbeling, 2005), which makes it similar to the PSY-5 NEGE scale (e.g., Bagby, Sellbom, Costa, & Widiger, 2008; Harkness, McNulty, Ben-Porath, & Graham, 2002). Several studies have also found that RC7 and NEGE are substantially correlated with symptom inventories or therapist symptom ratings (e.g., Arbisi, Sellbom, & Ben-Porath, 2008; Forbey & Ben-Porath, 2008; Harkness et al., 2002; Sellbom, Ben-Porath, & Bagby, 2008a) and trait measures of general anxiety (Egger, De May, Derksen, & van der Staak, 2003; Forbey & Ben-Porath, 2008; Harkness et al., 1995; Sellbom et al., 2008b; Trull, Useda, Costa, & McCrae, 1995). Thus, when RC7 and/or NEGE are elevated in an MMPI-2 protocol, the individual is very likely to be prone to experience a wide range of negative emotions including anxiety, anger, guilt, and fear.

The content scales can be particularly useful in honing in on what types of negative emotions are experienced by the individual. With regard to generalized anxiety, the ANX content scale is

likely to be most useful. Research has indicated that this scale is more strongly associated with symptoms and trait measures of generalized anxiety more so than other negative emotions, such as anger or fear, in both college and clinical samples (e.g., Ben-Porath, McCully, & Almagor, 1993; Graham et al., 1999). Moreover, Strassberg (1997) reported very large correlations between ANX and the Trait Anxiety scale from the State-Trait Anxiety Inventory in both US and Australian college samples. Strassberg (1997) and Barthlow, Graham, Ben-Porath, and McNulty (1999) showed that the ANX scale added incremental validity to Scale 7 in predicting self-reported and therapist-rated symptoms of general anxiety.

In sum, Scale 7, and more specifically so, RC7 and NEGE provide good measurement and indication of an individual's propensity toward experiencing a wide range of negative emotions. The ANX scale provides more specific measurement of general trait anxiety, where individuals who score high on this scale are likely to report excessive rumination and worry. They also tend to feel overwhelming stress about current and future events, as if they are "losing" their mind, or that something dreadful is bound to occur.

Post-traumatic Stress

The MMPI and MMPI-2 has a long-standing history of assessing symptoms of PTSD. Initially, such assessment focused on examining average clinical scale profiles (see e.g., Lyons & Wheeler-Cox, 1999; Penk et al., 1988; Wise, 1996, for reviews). Some research has indicated that the 2–8 code types (defined as clinical scales 2 and 8 being the most elevated in the profile) were the most frequent in PTSD patients; however, in most studies this code type occurs in less than 20% patients with PTSD (cf. Penk et al., 1988). Furthermore, most of these studies have indicated highly variable results using clinical scale profiles, rendering little specificity to actually identifying post-traumatic stress with any particular code type or profile (cf. Wise, 1996). For this reason, we focus on the specific scales reviewed earlier and indicated as relevant to the assessment of anxiety.

Several clinical scales have been associated with post-traumatic stress (e.g., 2, 7, 8; Penk et al., 1988; Scheibe, Bagby, Miller, & Dorian, 2001; Wise, 1996). Given what these scales have in common, it is likely that demoralization, like that assessed by the RCd scale, is what accounts for this strong association. Indeed, Wolf et al. (2008) recently found that RCd was the strongest predictor of PTSD symptoms among clinical and RC scales. Moreover, confirmatory factor analyses (e.g., Palmieri, Marshall, & Schell 2007; Simms, Watson, & Doebbeling, 2002) have indicated support for a four-factor structure of PTSD symptoms in which dysphoria (nonspecific distress) makes up the largest factor. This finding likely explains the high comorbidity for PTSD with other disorders (particularly major depression) and that it tends to load with major depressive disorder, dysthymic disorder, and generalized anxiety disorder on a distress disorder factor (e.g., Slade & Watson, 2006). Furthermore, RCd was associated with a very large effect size in the differentiation of distress and fear psychopathology (Sellbom et al., 2008a).

Although demoralization is likely to account of the most variance in PTSD, it is not a specific predictor of such symptoms. Scale 7, RC7, ANX, and NEGE are also likely to be highly sensitive to post-traumatic stress (Miller, Kaloupek, Dillon, & Keane, 2004; Miller et al., 2010; Scheibe et al., 2001; Sellbom et al., 2008a; Wolf et al., 2008). Scale 7 and ANX were associated with the largest effect sizes among the clinical and content scales (RC and PSY-5 scales were not included in this study) in differentiating PTSD and non-PTSD patients in a workplace trauma sample (Scheibe et al., 2001). Moreover, McDevitt-Murphy, Weathers, Flood, Eakin, and Benson (2007) found that Scale 7 and ANX were able to differentiate PTSD from Social Phobia, but not depression. However, no study has found any of these scales to differentiate from depression or generalized anxiety (McDevitt-Murphy et al., 2007; Sellbom et al., 2008a), indicating that they are more generally sensitive to negative affect and trait anxiety, and not specific to post-traumatic stress.

The only scale on the MMPI-2 designed to specifically assess post-traumatic stress is Keane

et al.'s (1984) PTSD scale (PK). The results for this scale have been variable and dependent on the population examined. In their initial study of combat veterans, Keane et al. (1984) found that the scale correctly identified 84% of individuals with PTSD in a cross-validation sample. Subsequent research with veteran samples who have been exposed to trauma samples have cross-validated the positive findings for PK (e.g., Kirz, Drescher, Klein, Gusman, & Schwartz 2001; Munley, Bains, Bloem, & Busby, 1995; Watson, Kucala, & Manifold, 1986). Most recently, Wolf et al. (2008) found that the PK was associated with a larger effect size ($d = 1.65$) than any of the clinical or RC scales in differentiating veterans with PTSD from those diagnosed with other psychiatric disorders. It also added incremental utility in differentiating the groups above and beyond all the other scales, including RCd.

Despite the apparent utility of the PK scale in combat veteran samples, the scale has fared less well when examined in other samples. Kirz et al. (2001) found (using discriminant function analysis) that the PK scale was much less useful in differentiating PTSD patients and non-PTSD trauma patients in individuals with a history of sexual trauma versus combat trauma (65% and 78% overall correct classification, respectively). Scheibe et al. (2001) found that PK differentiated claimants with and without PTSD in a workplace trauma sample, but its associated effect size estimate ($d = 1.16$) was not as large as that of Scale 7 and ANX. Moreover, these authors also conducted logistic regression analyses and found that PK failed to add incremental utility to the clinical and content scales in differentiating PTSD and non-PTSD claimants.

There is increasing evidence that the PK scale primarily measures nonspecific emotional distress (the PTSD dysphoria component) in nonveteran samples (see e.g., Lyons & Wheeler-Cox, 1999). McDevitt-Murphy et al. (2007) found that PK did not differentiate between PTSD and Major Depressive Disorder in a civilian sample. Graham et al. (1999) found that the PK scale most strongly correlated with a history of depression and therapist ratings of depressed mood in an outpatient mental health sample.

In sum, scales on the MMPI-2 are likely to be most useful in identifying the dysphoria component associated with PTSD, which tends to overlap with other distress disorders (depression, GAD). For patients with history of DSM-IV-TR (APA, 2000) Criteria A trauma, elevations on Scales 2, 7, 8, RCd, RC7, ANX, and PK should warrant further assessment of PTSD, but none of these scales are specific to this disorder. In combat veteran samples, PK does appear to have some significant utility in differentiating PTSD from other disorders, and a raw score of 28 is associated with optimal classification accuracy (Litz et al., 1991).

Social Anxiety

The measurement of social anxiety on the MMPI-2 requires two components: negative emotionality (reflecting anxiousness) and shyness. For the MMPI-2, Scale 7 and, more specifically so, RC7 provide good indices of the general fearfulness factor (Sellbom et al., 2008a), especially when other negative emotions (e.g., sadness, anger) can be ruled out. Furthermore, research has indicated that low positive temperament is an important distinctive component of both major depressive disorder and social phobia (Brown, 2007; Brown, Chorpita, & Barlow, 1998; Sellbom et al., 2008a). Thus, measurement of low positive emotionality, which reflects in part a reduced capacity to condition pleasure from social stimulation (e.g., Tellegen & Waller, 1992), could be useful in the assessment of social anxiety. Sellbom et al. (2008a) and Tellegen et al. (2006) have shown that RC2 (Low Positive Emotions) is preferentially associated with depression among distress disorders and social phobia among fear disorders.[2]

[2]The PSY-5 domain Introversion/Low Positive Emotionality could also be useful in this assessment, but it measures both the broad introversion domain and low positive emotionality with the same scale. As argued later, it is important to break these measurements into more specific component in assessing social anxiety on the MMPI-2. The same argument can be made for assessment of social anxiety with the MMPI-2-RF, which is discussed in the next major section.

In addition to elevations on scales reflecting anxiousness, fearfulness, and low positive temperament, scales specific to social anxiety need to be elevated. As mentioned, Scale 0 and SOD provide measurement of the broad domain of social introversion and have both been linked to social anxiety, feelings of insecurity and inadequacy in interpersonal contexts, and shyness, but also broad symptoms of anxious and depressed affect (e.g., Graham et al., 1999; Sieber & Meyers, 1992; Ward & Perry, 1998). Therefore, we recommend that the subscales for Scale 0 and SOD also be examined for a more specific measurement of social anxiety. Among the Scale 0 subscales, Si1 is more specific to measuring social anxiety and interpersonal sensitivity than the other two subscales (Ben-Porath, Hostetler, Butcher, & Graham, 1989; Graham et al., 1999; Sieber & Meyers, 1992; Ward & Perry, 1998). For instance, Sieber and Meyers (1992) found that Si1 displayed good convergent and discriminant validity in the measurement of shyness and social anxiety, whereas the other subscales were more associated with broader sociability and introversion. Among the SOD content component scales, SOD_1 tends to be associated with the same descriptors as its parent scale, whereas SOD_2 is more specific to shyness, interpersonal sensitivity, and inability to create good first impressions in a large outpatient mental health sample (Ben-Porath & Sherwood, 1993; Graham et al., 1999).

In sum, the assessment of social anxiety with the MMPI-2 is promising as there are several indices that reflect aspects of social anxiety symptoms. Elevations on RC7 and RC2 may reflect a dispositional proclivity toward experiencing social anxiety (but also depression), and Scale 0 and SOD, particularly when Si1 and SOD2 are also elevated, can provide specific characterization of this negative emotionality as having a social anxiety component.

Obsessive-Compulsivity

The research on measuring obsessive–compulsive symptoms with the MMPI-2 is limited. Early research with the MMPI found that Scale 7 was positively correlated with obsessive–compulsive symptoms (cf. Dahlstrom et al., 1972), which is also consistent with more contemporary research (e.g., Ben-Porath et al., 1993; Graham et al., 1999; Tellegen et al., 2006). RC7, which is less saturated with nonspecific distress, is also slightly more strongly correlated with symptoms of obsessive–compulsive disorder relative to Scale 7 in some studies (e.g., Forbey & Ben-Porath, 2008; Tellegen et al., 2006). Nonetheless, as indicated earlier, this scale cannot directly differentiate between obsessive–compulsive symptoms and other forms of anxiety either.

The OBS content scale exhibits good criterion-related validity in that it is strongly correlated with other self-report inventories measuring OCD symptoms (e.g., Ben-Porath et al., 1993; Forbey & Ben-Porath, 2007; Graham et al., 1999). However, it does not appear to be specific to such symptoms as previous research has indicated that scores on this scale are equally related to measures of generalized anxiety and depression (Ben-Porath et al., 1993; Graham et al., 1999). It is likely that this scale is capturing the rumination, intrusive/obsessive thinking, and indecisiveness components that appear to be common to these disorders.

Phobic Fear

Several MMPI-2 scales are sensitive to phobic fear symptoms, including Scale 7, RC7, NEGE, and the FRS content scale (e.g., Forbey & Ben-Porath, 2007, 2008; Tellegen et al., 2006). As indicated earlier, the first three are not specific to indexing fearfulness, and therefore will not be useful in differentiating between such symptoms and other forms of anxiety. Several studies have found that RC7 showed moderate to large correlations with various measures of agoraphobia, social phobia, and specific phobia in both clinical and nonclinical samples, but correlations with generalized anxiety, post-traumatic stress, and depression were sometimes larger (Forbey & Ben-Porath, 2008; Sellbom et al., 2008a; Tellegen et al., 2006). Sellbom et al. (2008a) further indicated that RC7 was uniquely associated with

fear psychopathology (symptoms of agora-, social, and specific phobias), but not associated with distress psychopathology, in a model accounting for the covariation with demoralization. In other words, these authors indicated that the high correlation between RC7 and non-anxiety measures was likely due to overlap with demoralization. Thus a significant and distinct portion of the variance in RC7 is related to fearfulness, and an MMPI-2 profile in which RC7 is elevated, but RCd is not, indicates substantial likelihood of phobic fear symptomatology.

The FRS content scale is the most specific measure of phobic fear on the MMPI-2. Research on the utility of this scale in assessing phobic fear has been fairly limited. Graham et al. (1999) found scores on the FRS scale were more strongly correlated with therapist ratings of phobic anxiety than anything else in a very large clinical sample. Moreover, Ben-Porath et al. (1993) demonstrated that FRS was most strongly correlated with phobic anxiety in women than any other form of negative emotionality, but that this scale had an equally strong association with obsessive thinking among men. The content component scales do not seem to be particularly useful in clarifying FRS elevations in terms of the assessment of phobic anxiety (Graham, 2011), but Graham et al. (1999) did find that FRS_2 was more specific to phobic anxiety in women, whereas FRS_1 seemed to be associated with more general apprehensive, obsessive thought, and diagnoses of schizophrenia, in addition to fearfulness. Thus, the FRS scale is likely to be the best indicator of phobic fear, but more research with external criteria of diagnostic nature is needed before this scale is used routinely for this purpose.

Basic Description of the MMPI-2-RF

The MMPI-2-RF is a 338-item true/false self report inventory, which is conceptually and empirically linked to contemporary models of personality and psychopathology. The test uses the non-gendered version of MMPI-2 normative sample (Ben-Porath & Forbey, 2003). The standard scales of the MMPI-2-RF include 8 Validity Scales, 3 Higher-Order (H-O) Scales, 9 Restructured Clinical (RC) scales, 23 Specific Problem (SP) scales, 2 Interest Scales, and 5 revised Personality Psychopathology Five (PSY-5) Scales. A majority of the scales of the MMPI-2-RF are organized in a hierarchical fashion with higher-order scales at the top, RC scales in the middle, and SP scales at lowest level.

The eight *validity* scales consist of seven revised versions of scales from the MMPI-2, as well as one new scale designed to assess over-reporting of somatic symptoms. The three *higher-order* scales represent measurement of the broad domains of psychopathology related to internalizing, externalizing, and thought disturbance that have been consistently identified in the empirical literature, including large epidemiological studies (e.g., Kotov, Gamez, Schmidt, & Watson 2010; Krueger & Markon, 2006; Vollebergh et al., 2001). The nine *restructured clinical* (RC) scales are identical to their MMPI-2 counterparts described earlier. The 23 *specific problems* (SP) scales were developed primarily not only to assist in clarifying H-O and RC scale interpretation but also to measure clinical and personality domains not sufficiently covered by the RC scales. The SP scales include five Somatic/Cognitive, nine Internalizing, four Externalizing, and five Interpersonal scales. The two *interest* scales measure two distinct core components derived from the original MMPI-2 clinical Scale 5 (Masculinity/Femininity)—Physical/Mechanical and Aesthetic/Literary interests. Finally, the MMPI-2-RF includes a set of revised *PSY-5* scales (Harkness & McNulty, 2007; Harkness et al., 2002) that are identical in domain coverage to their MMPI-2 counterparts.

MMPI-2-RF Scales Associated with Anxiety Symptoms

The scales within the internalizing hierarchy would be most useful to assessing anxiety symptoms and are listed and described in Table 10.1. This table also includes reliability information derived from the MMPI-2-RF Normative sample. Because the RC scales on the MMPI-2-RF are

identical to those featured on the MMPI-2, and the PSY-5 scales are very similar, we will only describe the Specific Problems (SP) scales associated with anxiety symptoms here. However, applied recommendations are provided for all MMPI-2-RF scales applicable to the assessment of anxiety later in this chapter.

Specific Problems Scales

There are five MMPI-2-RF SP scales that various aspects of anxiety. Per Ben-Porath and Tellegen (2008), Stress/Worry (STW) measures anxious apprehension, preoccupation with disappointments, and worry about misfortunes and finances. Individuals who score high on this scale are likely to be stress-reactive and engage in obsessional, ruminatory thinking. Anxiety (AXY) is another measure of anxiety, but of more intense and pervasive nature compared to STW. AXY measures intense frights, intrusive ideation, sleep difficulties, and symptoms associated with post-traumatic distress. Behavior-Restricting Fears (BRF) describe fears that inhibit normal activity, such as agoraphobia, as well as generalized fearfulness. Multiple Specific Fears (MSF) cover a diverse range of many specific fears, such as animals and acts of nature. Finally, Shyness (SHY) is an interpersonal (rather than internalizing) SP scale that measures social anxiety, including feeling embarrassed and uncomfortable around others.

MMPI-2-RF: Applied Recommendations

It should be noted that the MMPI-2-RF is a relatively new instrument, and with the exception of the RC scales, there are few peer-reviewed studies on its scales that are focused on the measurement of anxiety symptoms. However, the MMPI-2-RF Technical Manual (Tellegen & Ben-Porath, 2008) provides extensive data supporting the validity of MMPI-2-RF scale scores using samples from diverse settings (e.g., outpatient and inpatient clinical, forensic, medical) with various criterion modalities (e.g., self-report, therapist ratings, etc.). In the following, we use the same framework for applied recommendations as we did for the MMPI-2.

Negative Affect/Trait Anxiety

As reviewed for the MMPI-2 section, RC7 and NEGE-r are both associated with a wide range of negative emotions, including symptom ratings and trait measures of anxiety (e.g., Harkness et al., 1995, 2002; Sellbom et al., 2008b).[3] An examination of correlations for these scales with a variety of trait measures of neuroticism, negative emotionality, and anxiety revealed that both measures have very large correlations (0.60+) across many different types of samples (Tellegen & Ben-Porath, 2008). As such, both scales are likely measuring substantial trait-based negative effect. As mentioned earlier, RC7 is substantially correlated with measures of generalized anxiety disorder [e.g., 0.62 with Generalized Anxiety Disorder Questionnaire-IV (Newman et al., 2002; Sellbom et al., 2008a)] and more so than with any other form of internalizing psychopathology. However, an examination of both symptom and trait correlates of this scale (and NEGE-r) reveals associations with a wide range of negative emotions beyond anxiety, including fear and anger.

The STW and AXY SP scales of the MMPI-2-RF are likely to be more specific to general and distress-related anxiety. STW is focused on anxious apprehension and worry as well as rumination, whereas AXY focuses more on intense anxiety and arousal (Tellegen & Ben-Porath, 2008). In some preliminary data, we have recently found that STW is the best individual predictor of GAD-Q-IV in a college sample (Lee & Sellbom, 2011). Moreover, Sellbom and Gervais (2010) examined the relative utility of the MMPI-2-RF internalizing SP scales in differentiating between major depression, GAD, and PTSD in a large clinical disability sample. Using structural

[3]Note the MMPI-2 version of the Neuroticism/Negative Emotionality scale is referred to as NEGE, while NEGE-r refers to the version scored on the MMPI-2-RF.

equation modeling, they found that STW and AXY were the only significant predictors of a latent generalized anxiety factor. Further, their results indicated that STW was specific to general anxiety, while AXY was the only significant predictor of a post-traumatic stress latent factor.

In sum, elevations on the RC7 and NEGE-r scales should suggest consideration of generalized trait anxiety. Consultation of the internalizing SP scales, which include measures of fearfulness (as indicated earlier) and Anger Proneness (ANP), could further elucidate the type of negative emotions experienced. In a profile in which STW and AXY are elevated, but other internalizing SP scales are not (including ANP, BRF, and MSF), generalized anxiety in particular should be considered.

Post-traumatic Stress

Based on the extensive MMPI-2 discussion, it is clear that RCd, and to a lesser degree, RC7 and NEGE-r are likely to be implicated in this distress disorder. These scales are likely to capture some of the nonspecific distress symptoms and general negative emotionality associated with this disorder (e.g., Miller et al., 2004; Simms et al., 2002). However, these scales are not specific to post-traumatic stress, and elevations on these scales suggest consideration of a wide variety of emotional distress and anxiety-related symptomatology. The scale that is the most strongly associated with PTSD symptoms, and more so than with any other types of internalizing psychopathology, is AXY. For example, Tellegen and Ben-Porath (2008) provide correlations between the MMPI-2-RF scales and the Detailed Assessment of Post-traumatic Stress (DAPS; Briere, 2001) in a large civil forensic disability sample. AXY showed stronger correlations with most DAPS subscales than any other scale on the test. Furthermore, we have found that the AXY scale is the best predictor of a global PTSD latent scale (as indicated by scores from multiple PTSD measurements) among the internalizing SP scales, as well as latent factors representing all three symptom clusters of PTSD symptoms outlined in the DSM-IV-TR ([APA, 2000]; Sellbom, Lee, Ben-Porath, Arbisi, & Gervais, 2012). As just mentioned, AXY is also the only scale that contributes to the differentiation of a latent PTSD construct from latent constructs representing depression and generalized anxiety (Sellbom & Gervais, 2010).

In sum, elevations on RCd and RC7 should raise possible consideration of a range of distress disorders, particularly of those of an anxious nature if RC2 is not elevated. Furthermore, if a DSM-IV-TR (APA, 2000) Criterion A stressor has been identified, a concurrent elevation of the AXY scale should direct this consideration toward PTSD (and even more so if STW is not elevated).

Social Anxiety

As indicated for the MMPI-2, RC7 and RC2 may reflect a dispositional proclivity toward negative and low positive temperament, which have been implicated in social anxiety and depression (Brown, 2007; Brown et al., 1998). The MMPI-2-RF also features an interpersonal SP scale that is particularly relevant to the assessment of social anxiety—Shyness (SHY). This scale was developed primarily via factor analyses of items derived from Si1 and SOD2. Tellegen and Ben-Porath (2008) present impressive validity results that indicate that this scale is associated with both anxiety and social inhibition. In both medical and mental health outpatients, this scale is the most strongly correlated with the Fear Questionnaire (Marks & Matthews, 1979) subscale Social Fear. Furthermore, Lee and Sellbom (2011) show that SHY is most strongly associated with social anxiety and more so than any internalizing SP scale in a college sample. This scale was also minimally correlated with measures of depression, GAD, PTSD, and other specific phobias. The same pattern of association between self-report of social avoidance and distress and SHY, but not internalizing SP scales, was reported by Forbey, Lee, and Handel (2010) in a college student sample. Thus, in sum, elevations on RC7 and RC2 with a concurrent elevation of SHY should raise significant consideration of social anxiety.

Obsessive-Compulsivity

There are not scales specifically related to OCD symptomatology on the MMPI-2-RF. As mentioned for the MMPI-2 section, RC7 shows moderate to large correlations with symptom measures of obsessive–compulsive disorder (Forbey & Ben-Porath, 2008; Sellbom et al., 2008a; Tellegen et al., 2006) and therapist ratings of obsessive–compulsive symptoms in mental health clients (Tellegen et al., 2003). Of the SP scales, STW contains items that reflect some obsessive–compulsive thinking in addition to general anxious apprehension. Tellegen and Ben-Porath (2008) show that STW has the strongest correlation with therapist ratings of obsessive–compulsive compared to all other internalizing SP scales in a large outpatient mental health sample. However, as indicated earlier, RC7 cannot directly differentiate obsessive–compulsive symptoms from other forms of anxiety or general negative emotions and preliminary evidence suggests the same is true for STW. Thus, elevations on both RC7 and STW should raise the possibility of obsessive–compulsive symptoms, but other, external information will be needed for more specificity.

Phobic Fear

As noted earlier for the MMPI-2, several studies have found that RC7 has moderate to large correlations with various measures of agoraphobia, social phobia, and specific phobia in both clinical and nonclinical samples and is uniquely associated with fear psychopathology (Forbey & Ben-Porath, 2008; Sellbom et al., 2008a; Tellegen et al., 2006). As such, an MMPI-2-RF profile in which RC7 is elevated, but RCd is not, indicates substantial likelihood of phobic fear symptomatology.

There are two MMPI-2-RF SP scales that can provide more specific and complimentary assessment of phobic fear: BRF and MSF. The latter scale is more strongly associated with harm avoidance (the dispositional tendency to avoid dangerous activities or situations), whereas BRF scale is more broadly related to generalized phobic anxiety and fearfulness (Tellegen & Ben-Porath, 2008). The two scales also have a discriminant pattern of associations with different types of phobic fears. In clinical and nonclinical settings, BRF is more specific to agoraphobia than MSF, assessing anxiety that inhibits normal activities (Lee & Sellbom, 2011; Tellegen & Ben-Porath, 2008). These same studies indicate MSF is more strongly correlated with measures of specific phobias (e.g., animals, blood/injury, natural disasters). These scales also have good discriminant validity, as evidence has suggested they are strongly related to measures of phobic fear and are have substantially smaller associations with measures of distress symptomatology (Lee & Sellbom, 2011; Sellbom & Gervais, 2010; Tellegen & Ben-Porath, 2008).

Basic Description of the MMPI-A

The MMPI-A is a 478-item true/false self-report inventory designed to assess the social, emotional, and behavioral functioning of adolescents between the ages of 14 and 18 (Butcher et al., 1992). The normative sample of the MMPI-A is a large, nationally representative sample, consisting of 805 boys and 815 girls between the ages of 14 and 18 who were randomly recruited from schools in the United States. The adequacy of MMPI-A scores based on the normative sample in various demographic groups has been supported in previous research (e.g., Schinka, Elkins, & Archer, 1998).

The MMPI-A contains scales similar to those scored on the MMPI-2, with the exception of RC scales, which have not been developed for the MMPI-A. Specifically, there are seven *validity* scales scored on the MMPI-A, assessing methods of responding to items that would prevent the test-user from gaining a representative picture of the test-taker's psychological functioning (Butcher et al., 1992). Like the MMPI-2, the MMPI-A contains ten, basic *clinical* scales that were maintained during the revision process from the MMPI (Butcher et al., 1992). These scales are intended to provide a broad overview of the problems and difficulties being reported by the adolescent. Following the methods used to develop the MMPI-2 content scales, Williams, Butcher,

Ben Porath, and Graham (1992) developed 15 *content* scales to provide a method of assessing the basic content domains of the MMPI-A item pool. The content scales were intended to provide additional methods of clarifying the adolescent's self-presentation and identifying which interpretative statements should be emphasized (Butcher et al., 1992). The MMPI-A also contains a set of six *supplementary* scales that were either carried over from the MMPI or added to the test during development (Butcher et al., 1992). These scales are intended to enhance the clinical picture of the adolescent provided by the clinical and content scales by assessing important areas not covered with other MMPI-A scales. Lastly, the MMPI-A contains adolescent versions of the *personality psychopathology five* (PSY-5; McNulty, Harkness, Ben-Porath, & Williams, 1997) scales that were originally developed for the MMPI-2.

MMPI-A Scales Associated with Anxiety Symptoms

Table 10.2 lists all MMPI-A scales that are associated with the assessment of anxiety on the MMPI-A. This table is intended to provide a quick reference for the reader and includes a basic description of the scale, as well as reliability information from the normative sample.

Clinical Scales

Clinical scales relevant to the assessment of anxiety scored on the MMPI-A include Clinical scale 7 (Psychasthenia; Pt) and scale 0 (Social Introversion; Si). Scale 7 on the MMPI-A is identical in composition to its MMPI predecessor (Butcher et al., 1992). As discussed in reference to the MMPI-2, Scale 7 was originally created to detect Psychasthenia symptoms (McKinley & Hathaway, 1942), but was later recognized as a measure of nonspecific distress and trait anxiety (e.g., Dahlstrom et al., 1972; Graham, 2011). Content of Scale 7 items includes questions regarding the experience of anxiety, obsessive thoughts, problems with concentration, and somatic complaints, as well as general unhappiness and poor self-esteem. Scale 0 on the MMPI-A is a minimally revised version of its MMPI predecessor. As described earlier, Scale 0 was developed by Drake (1946) to assess sociability, with subsequent research supporting use of this scale for assessing the individuals' experiences in social situations, especially as it relates to introversion and social maladjustment (e.g., Dahlstrom et al., 1972; Graham, 2011). Scale 0 has three subscales intended to assist in clarifying clinically significant elevations, including Si1 (Shyness/Self-Consciousness), Si2 (Social Avoidance), and Si3 (Alienation—Self and Others; Butcher et al., 1992).

Content Scales

Content scales relevant to the assessment of anxiety include Anxiety (A-anx), Obsessiveness (A-obs), and Social Discomfort (A-sod), as well as corresponding content–component scales (Ben-Porath, Graham, Archer, Tellegen, & Kaemmer, 2006; Butcher et al., 1992, 2001; Sherwood, Ben-Porath, & Williams, 1997). All three of these scales closely correspond to their MMPI-2 counterparts (Butcher et al., 1992, 2001). The A-anx scale measures general anxiety symptoms, including worry and rumination, somatic experiences related to anxiety (e.g., tension), and generalized distress. A-obs assesses difficulties in decision making, worry, rumination, and intrusive thoughts. Lastly, A-sod includes items concerning discomfort in social situations and introversion, as well as social avoidance. The A-sod content scale has two Content–Component scales, A-sod$_1$ (Introversion) and A-sod$_2$ (Shyness; Ben-Porath et al., 2006; Sherwood et al., 1997).

Supplementary Scales

There is one supplementary scale relevant to the assessment of anxiety scored on the MMPI-A, Welsh's Anxiety (A) scale (Welsh, 1965; Welsh and Dahlstrom, 1956). This scale was maintained on the MMPI-A during the revision process from the MMPI, containing 35 of the original 39 items (Butcher et al., 1992). As described earlier for the MMPI-2, this scale assesses generalized distress

Table 10.2 Scale names, number of items, reliability, and description for MMPI-A scales related to anxiety symptoms

Scale	Abbreviation	Number of Items	Reliability[a] (boys/girls)	Description
Scale 7: Psychasthenia	Pt	48	0.84/0.86	General anxiety, obsessive–compulsive thinking, and non-specific emotional distress
Scale 0: Social Introversion	Si	62	0.79/0.80	Social shyness, avoidance, and problems, as well as some symptoms of depression
Shyness/Self-consciousness	Si_1	14	NR	Social Introversion and Shyness
Anxiety	A-anx	21	0.76/0.80	General anxiety, anxious apprehension, worry, obsessive–compulsive thinking, and emotional distress
Obsessiveness	A-obs	15	0.72/0.72	Content related to obsessive thinking and compulsive behaviors, related to general maladjustment
Social Discomfort	A-sod	24	0.77/0.78	Social introversion, anxiety, avoidance, and withdrawal
Shyness	A-sod2	10	0.60/0.68	Shyness and discomfort in social situations
Welsh Anxiety scale	A	35	0.87/0.89	Generalized distress and maladjustment
Neuroticism/Negative Emotionality	A-nege	22	0.74/0.76	Predisposition for experiencing negative emotions, including anxiety, worry, guilt, anger, and fears

[a]Internal consistency reliability (Cronbach's alpha) from MMPI-A normative sample. NR: not reported in MMPI-A manual (Butcher et al., 1992)

and includes items regarding the experience of being distressed, overwhelmed, and hopeless, as well as feelings of anxiety and worry. Although we prefer RCd as a measure of generalized distress common to psychopathological conditions on the MMPI-2, there is no RCd counterpart on the MMPI-A. However, previous research has suggested the A scale on the MMPI-2 correlates quite highly with the RCd scale in across samples (e.g., Sellbom et al., 2006). As such, this scale can be viewed as an imperfect proxy for assessing the demoralization construct on the MMPI-A.

Personality Psychopathology Five Scales

From the PSY-5 scales and relevant to the assessment of anxiety is the Negative Emotionality/Neuroticism Scale (A-nege) and Introversion/Low Positive Emotionality scale (A-intr). A-nege scale contains 22 items and was designed to assess a broad affectively based, predisposition for experiencing negative emotions (e.g., anxiety, nervousness, and guilt; McNulty et al., 1997). Although we preferred RC2 as a proxy for low positive temperament on the MMPI-2 (because of specificity), there is no RC2 counterpart on the MMPI-A. We therefore believe that A-intr can serve as a good proxy for this temperament domain. However, while the MMPI-2 and MMPI-A versions of the PSY-5 share a majority of their items and were designed to assess the same construct using similar methods, these two versions of the PSY-5 scales should not be considered equivalent as they were developed independently of one another and no studies have examined the similarities between descriptors based on adolescent and adult versions.

MMPI-A: Applied Recommendations

Assessing Negative Affect/Trait Anxiety

High scores on Clinical scale 7, A-anx Content scale, and on A-nege PSY-5 scale are the best indicators of general trait anxiety on the MMPI-A. Specifically, previous research has suggested that Scale 7 in adolescents can be best conceptualized as assessing not only generalized anxiety but also somatic complaints and generalized distress. For example, in a sample of adolescent outpatients, significant associations were demonstrated between scores on Scale 7 and characterizations of the adolescent as anxious, tense, nervous, and self-critical (Lachar, 1990, c.f., Butcher et al., 1992). Gallucci (1994) demonstrated significant associations between scores on Scale 7 and therapist rated levels of self-criticism and self-doubt. Results of this study also suggested adolescents with high scores on Scale 7 were likely to be rated as having difficulty making decisions, as well as be prone to guilt. However, in keeping with the MMPI-2 literature, research has also demonstrated that this scale is associated with nonspecific distress, including depressed mood, suicidality, self-harm, and low self-esteem (e.g., Cashel, Rogers, Sewell, & Holliman 1998; Forbey, Ben-Porath, & Davis, 2000; Wrobel & Lachar, 1992).

As with the MMPI-2, the A-nege scale is likely to be a purer indicator of negative emotionality with less saturation by nonspecific emotional distress. The A-nege scale was intended to assess a wide range of negative emotions, including anxiety, fear, anger, and guilt (Ben-Porath et al., 2006). McNulty et al. (1997) provided initial evidence for the validity of scores on this scale in a mixed inpatient and outpatient clinical sample. Their results indicated scores on A-nege were related to having a documented history of internalizing problems, including things like social withdrawal, identity issues, low self-esteem, depression, suicide ideations/gestures, tension/nervousness, somatic complaints, eating problems, and concentration difficulties. Behavior checklists and therapist-provided ratings also supported the characterization of A-nege as a scale assessing anxious tendencies (e.g., guilt, fears, and worries). Subsequently, Veltri et al. (2009) replicated most of these descriptors, indicating that boys in forensic settings with high A-nege scores could be described as overanxious, while girls with high A-nege scores experienced fatigue and low levels of energy, as well as thoughts and behaviors related to self-injurious or suicidal actions.

The A-anx content scale likely provides the most specific assessment of generalized anxiety on the MMPI-A. This scales measures cognitive, physical, and emotional experiences related to anxiety. Results of initial empirical examinations presented in the MMPI-A Technical Manual (Butcher et al., 1992) provided support for the use of A-anx as a measure of general anxiety. These data suggested that individuals with high scores on A-anx could be described as having difficulties with tension, worry, and sleep (e.g., nightmares), as well as problems with concentration and staying on task. Independent research examining scale score correlates of A-anx in adolescent psychiatric inpatients (Arita & Baer, 1998; Veltri et al., 2009), as well as boys in a juvenile detention facility and other forensic settings (Cashel et al., 1998; Veltri et al., 2009), has supported that A-anx assesses markers of general anxiety. However, some studies have also suggested scores on this scale are related to general distress, somatic complaints, social withdrawal, obsessive–compulsive thinking, fearfulness, and depression in correctional, forensic, and mental health samples (Cashel et al., 1998; Rinaldo & Baer, 2003; Veltri et al., 2009).

In sum, elevated scores on Scale 7 should raise considerations for high negative effect, which suggests increased vulnerability to experiencing trait anxiety. The A-anx scale will likely be the best indicator of the negative emotionality being reported is a result of anxious apprehension; a lack of elevation should raise consideration of other types of negative emotions, including fear and anger.

Assessing Post-traumatic Stress Symptoms

Unlike the MMPI-2, there have not been any scales developed to specifically assess symptoms of post-traumatic stress disorder (PTSD) for the MMPI-A. However, if a significant traumatic event has been identified during the assessment, evidence of the experience PTSD symptoms using the MMPI-A will be best examined through scales assessing the dysphoria symptom cluster identified in factor analyses of PTSD symptoms (see e.g., Palmieri et al., 2007; Simms et al., 2002) as well as negative emotionality that is associated with anxiety disorders more generally (e.g., Brown, 2007). Specifically, the MMPI-A scales described earlier in this chapter as measures of trait anxiety (e.g., Scale 7, A-nege, A-anx) are going to be helpful in establishing the presence of cognitive and physical symptoms of anxiety. The other key component of PTSD symptoms, dysphoria, can be identified using Welsh's Anxiety (A) scale. On the MMPI-A, Welsh's Anxiety (A) scale is the best predictor of undifferentiated emotional discomfort and has clearly been linked to such in a variety of clinical settings (Archer, 2005; Archer, Gordon, Anderson, & Giannetti, 1989; Veltri et al., 2009). Thus, in sum, the MMPI-A is unlikely to be useful in specifically capturing post-traumatic stress, but elevations on A, Scale 7, A-nege, and A-anx in the context of a DSM-IV-TR (APA, 2000) Criterion A trauma history should warrant consideration of such symptoms.

Assessing Obsessive-Compulsivity

Scales 7, A-anx, and A-obs are most likely to be sensitive to obsessive–compulsive symptoms in adolescents. More general descriptors of Scale 7 and A-anx were presented earlier in this chapter. In addition to those general descriptions, at least for boys, previous research has demonstrated that scores on Scale 7 and A-anx are associated with the experience of intrusive, obsessive thoughts and compulsive behaviors (Cashel et al., 1998). However, based on content alone, the most specific scale for assessing obsessive–compulsive symptoms is A-obs scale. This content scale contains items that are highly face valid, including questions regarding the experience of unreasonable worry, ruminative thinking, indecisiveness, and fears for the future (Butcher et al., 1992). Unfortunately, no empirical studies have examined the association between obsessive–compulsive symptom reports and A-obs scores. In fact, initial validity results presented in the MMPI-A Technical Manual (Butcher et al., 1992) provide support only for the use of A-obs as a measure of

general maladjustment, as well as dependent, anxiety-driven behavior in boys and suicidal ideation in girls. Rinaldo and Baer (2003) demonstrated that A-obs adds incrementally to the Clinical scales in the prediction of anxiety and anger. Importantly, subsequent research has suggested that A-obs is related to suicidal ideation and behaviors in both boys in correctional and forensic settings and girls in inpatient treatment settings (Cashel et al., 1998; Veltri et al., 2009). Thus, in sum, elevations on Scale 7, A-anx, and A-obs should raise consideration of obsessive–compulsive symptoms (in addition to general trait anxiety), but clinicians should be aware that these scales are not specific to such symptomatology.

Assessing Social Anxiety

As with the MMPI-2, social anxiety symptoms are best captured on the MMPI-A via a combination of scales indicating difficulties due to general anxiety, as well as social discomfort, anxiety, and avoidance. The general trait measures of anxiety described earlier (e.g., Scale 7, A-nege) will be helpful in identifying cognitive and somatic experiences of anxiety symptoms, as well as general distress and impairment. Moreover, a low positive temperament, which is associated with social anxiety (e.g., Brown, 2007), can be indexed via A-intr. The symptoms specific to social interactions, including anxiety and discomfort in social situations, as well as social avoidance, can be most specifically indexed by Scale 0 and the A-sod content scale.

Williams and Butcher (1989) found in a sample of 844 adolescents from outpatient and inpatient treatment settings that Scale 0 was significantly related to being socially withdrawn and timid. In addition, Wrobel and Lachar (1992) indicated that for both boys and girls, scores on Scale 0 were associated with parent ratings of having few friends, difficulties making friends, and being shy with others. Characterizations of high scorers as social withdrawn, but also generally anxious and distressed, have been suggested by subsequent research examining scale score validity in clinical treatment samples of adolescents, as well as adolescent boys in forensic settings (Forbey et al., 2000; Veltri et al., 2009; Wrobel & Lachar, 1992).

Because Scale 0 is heterogeneous and somewhat saturated with emotional distress and aspects of introversion unrelated to social anxiety, the Si subscales (Butcher et al., 1992; Graham, 2011) can further differentiate social anxiety from general introversion and sociability. Si1 (Shyness/Self-consciousness) elevations indicate that emphasis should be placed on descriptions of the adolescent as shy, easily embarrassed, and uneasy in social situations, more so than the other two subscales. Although empirical research has not established which of these subscales is best used in identifying social anxiety symptoms, the scale is sufficiently similar to the MMPI-2 version that it is likely that this scale is specific to such. Future research will need to confirm this statement.

The Social Discomfort (A-sod) Content scale and its related Content–Component scales can also provide evidence of social anxiety symptoms. Results of initial empirical examinations presented in the MMPI-A Technical Manual (Butcher et al., 1992) provided support for the use of A-sod as a measure of social discomfort and withdrawal. Subsequent research supported this characterization, suggesting significant associations between scores on A-sod and self-reported problems in social interactions, as well as introversion, social withdrawal, and distress (Arita & Baer, 1998; Cashel et al., 1998; Forbey et al., 2000). Clarification of which A-sod descriptors to emphasize during interpretation are facilitated by the Content–Component subscales, A-sod$_1$ (Introversion) and A-sod$_2$ (Shyness; Ben-Porath et al., 2006). In cases where A-sod$_1$ (Introversion) is elevated, aspects of social discomfort, withdraw, and avoidance should be emphasized. In cases where A-sod$_2$ (Shyness) is elevated, the social introversion and shyness aspects of A-sod interpretations should have more emphasis. However, no studies have empirically examined whether specific configurations of these two content–component scales are indicative of social anxiety symptoms.

In sum, although conclusions are currently tentative due to lack of sufficient empirical research, Scales 7, A-nege, and A-intr indicate the likelihood of negative and low positive temperament in adolescence likely to be linked to social anxiety (Brown, 2007). Scale 0 and A-sod, and particularly, Si1 and A-sod2, should more specifically raise considerations of social anxiety.

Assessing Phobic Fear

Unlike current adult versions of the MMPI, the MMPI-A does not contain any scales directly assessing fearfulness. The potential for phobic anxiety should be raised when Scale 7 and particularly A-nege are elevated in the absence of other depression and anxiety indicators (e.g., A-anx, A-sod, A-ang, A-obs). However, additional fearfulness assessment is necessary for confirmation, particularly, since such symptoms can occur in conjunction with other forms of anxiety and emotional distress.

Conclusions

As reviewed in this chapter, it should be clear that the MMPI family of instruments have a long-standing and rich base of empirical research supporting the ability of their scales to assess symptoms of anxiety disorders. Nonetheless, it has probably not escaped the reader that we are cautious about our recommendations concerning the assessment of anxiety symptoms with the MMPI instruments. The most significant issue concerns specificity. In general, the various scales highlighted in this chapter tend to be quite sensitive to a variety of symptoms, but (with a few exceptions) not very specific. Several of the scales reviewed do not differentiate between specific forms of anxiety or in some instances negative emotions more broadly. In some instances, there are no scales specifically designed to detect a type of anxiety symptoms (e.g., phobic fears for MMPI-A).

Despite our caution, we are not recommending against the use of the MMPI instruments in clinical practice. On the contrary, we highly recommend it! Scales on the MMPI-2/RF/A are some of the most extensively researched scales available to clinicians (e.g., Butcher & Rouse, 1996). Further, scale elevations can yield a vast amount of information and are useful obtaining a broad, overarching picture of the individual, not just about anxiety, but many other symptoms of psychopathology and personality traits as well (see e.g., Graham, 2011). Instead, what we would like to leave the reader understanding is that scale elevations and patterns of those elevations on MMPI-2/RF/A scales should raise consideration about different forms of anxiety symptomatology, but specific diagnoses should not be assigned on the basis of MMPI information alone. Any information derived from self-report inventories should be corroborated by other sources.

The MMPI-2, MMPI-2-RF, and MMPI-A have scales that are quite promising in the assessment of anxiety symptoms, but future research is necessary to further inform their use. There are very few studies that have examined the degree to which scales on these three inventories differentiate between different types of anxiety (see e.g., Sellbom et al., 2008a; Tellegen et al., 2006). Lee and Sellbom (2011) and Sellbom and Gervais (2010) have begun such work with the MMPI-2-RF, but these findings should be considered tentative until subjected to replication. Furthermore, it is evident that the MMPI-A has lagged behind its adult counterparts in research output, and more research is needed beyond just empirical correlate studies that currently saturate the literature. Studies on the diagnostic efficiency, especially with regard to differential diagnoses, are sorely needed.

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11 Anxiety Disorders and Evidence-Based Practice: The Role of Broadband Self-Report Measures of Personality in Diagnosis, Case Conceptualization, and Treatment Planning

Jon Rogove

Men acquire a particular quality by constantly acting a particular way.... You become just by performing just actions, temperate by performing temperate actions, brave by performing brave actions.

—Aristotle (384–322 BC)

Rather than argue about the existence of "consistency," it would be more constructive to analyze and study the cognitive and social learning conditions that seem to foster – and to undermine – its occurrence.

—Walter Mischel (1973, p. 259)

I never thought I'd say this, but…what [Obama] needs in his personality is a little George Bush.

—Bill Maher (2009)

Implicit in the quotations printed above is an appreciation for the utility of describing and understanding who people are. The recognition that people differ from each other with regard to cognitive, affective, behavioral, and conative tendencies has existed for nearly as long as civilization itself (Weiner & Greene, 2008), and attempts to understand the nature of these individual differences predate modern psychological science by a magnitude of millennia. For example, classic and contemporary literature alike are replete with portrayals of men of courage, woman of fortitude, callous villains, and valiant heroes. Describing one's character is not only a useful literary device, however. An empirically based conceptualization of an individual's personality provides a context from which to better understand that person's moment-to-moment thoughts, feelings, and behaviors.

The modern study of personality is said to have been initiated by Francis Galton in the last quarter of the nineteenth century when he proposed that personality is heritable and capable of scientific investigation (McGrath, 2012). The advent of modern personality assessment can be traced to the second and third decades of the twentieth century with the creation of the Personal Data Sheet (Woodworth, 1920), a self-report scale designed to identify World War I draftees who were susceptible to posttraumatic stress reactions, and the Bernreuter Personality Inventory (Bernreuter, 1931), a self-report inventory comprised of several scales designed to measure multiple aspects of personality (Greene, 2000; Weiner

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_11,

& Greene, 2008). Over the course of the past 90 years, the field of personality psychology has evolved into a modern science, and numerous well-studied and empirically validated instruments have been designed that measure dimensions of personality, including those that relate directly to the assessment and treatment of anxiety.

The current chapter was written with one goal in mind—to provide clinicians with a framework for assessing the personalities of their clients in an evidence-based fashion so as to enhance the effectiveness of anxiety treatment (cf., APA Presidential Task Force on Evidence-Based Practice, 2006). It is argued that, when a client presents for treatment complaining of anxiety, a thorough assessment of his or her personality can shed substantial light on numerous factors directly related to his or her condition, and obtaining this information can have a positive impact on the treatment that he or she receives. For example, knowing that a person is typically hardworking and prone to experience moderate levels of negative emotion has predictive value with regard to overcoming psychological maladjustment in treatment (Miller, 1991).

This chapter is divided into four sections, arranged to provide the reader with a clear understanding of how one might effectively utilize personality tests when planning anxiety treatment. First, five broadband multidimensional tests of personality and psychopathology are briefly introduced—the Personality Assessment Inventory (PAI), the adolescent version of the Personality Assessment Inventory (PAI-A), the Millon Clinical Multiaxial Inventory-III (MCMI-III), the Millon Adolescent Clinical Inventory (MACI), and the NEO Personality Inventory-3 (NEO-PI-3). Second, the use of these instruments to assist with differential diagnosis and the identification of comorbid conditions is presented. Third, their utility in measuring transdiagnostic variables is discussed. Finally, a case illustration is presented that illustrates how one might utilize personality measures in the context of providing empirically based treatment for an individual presenting for anxiety treatment.

Personality Inventories

Personality Assessment Inventory

The Personality Assessment Inventory (PAI; Morey, 1991, 2007a) is a measure of adult personality and global psychopathology, designed to assess adults aged 18 years and older. An adolescent version of the PAI (PAI-A; Morey, 2007b), which closely parallels the PAI, is available to assess adolescents aged 12–18 years. Administration time is approximately 40–50 min for the adult version and 30–45 min for the adolescent version. The PAI consists of 22 primary scales: 4 validity scales, 11 clinical scales, 5 treatment consideration scales, and 2 interpersonal scales. Thirty-one subscales and nine supplemental scales are also available. Brief descriptions of the primary PAI scales are provided in Table 11.1.

Items for most scales are included on the basis of both rational and empirical methods. Specifically, items were selected based on a preconceived definition of each construct and later validated. This method of scale construction differs from the criterion-keying approach used by the developers of the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1940). Consequently, all of the items on a given scale are conceptually related to the construct they are measuring. The PAI was standardized on both normal and clinical patient groups. Clients can therefore be compared to both a normal and a clinical group. The PAI focuses predominantly on Axis I conditions, though some information relevant to Axis II conditions and personality can be gleaned from the profile of scores. For example, the computer-generated interpretive report assesses the similarity between the client's profile and the prototypic profiles for known clinical groups, and generates hypotheses about possible Axis I and Axis II diagnoses. Treatment considerations are also provided in the report.

Table 11.1 PAI validity, clinical, treatment, and interpersonal scales

Scale (acronym)	Description
Validity scales	
Inconsistency (INC)	Inconsistency of responding throughout the inventory; scale composed of item pairs with related content
Infrequency (INF)	Inconsistency of responding throughout the inventory; scale composed of items with extremely low endorsement frequencies
Negative Impression (NIM)	Self-unfavorable responding or malingering
Positive Impression (PIM)	Self-favorable responding or disinclination to admit minor flaws
Clinical scales	
Somatic Complaints (SOM)	Concern with one's own health and physical functioning; perceived somatic impairment
Anxiety (ANX)	Cognitive, affective, and physiological symptoms of generalized anxiety, including worry, apprehension, nervousness, and physical tension and stress
Anxiety-Related Disorders (ARD)	Clinical features of specific anxiety disorders, including phobias, traumatic reactions, and obsessive–compulsive problems
Depression (DEP)	Cognitive, affective, and physiological symptoms of depression, such as pessimism, unhappiness, and sleep and appetite changes
Mania (MAN)	Symptoms characteristic of mania and hypomania; for example, grandiosity, racing thoughts, elevated mood, irritability, and impatience
Paranoia (PAR)	Clinical characteristics of paranoia and paranoid personality, including hypervigilance, distrust of others, suspicion, and hostility
Schizophrenia (SCZ)	Symptoms of psychotic disorders, such as bizarre beliefs and experiences, social poor social competence, and characteristic cognitive deficits
Borderline Features (BOR)	Features characteristic of severe personality disorder. Subscales measure affective lability and instability, problems with identity, unstable and fluctuating interpersonal relations, impulsivity, and poorly controlled anger
Antisocial Features (ANT)	Symptoms and signs relevant to of antisocial personality and psychopathy, including a history of illegal activity, difficulty with authority, lack of empathy, egocentrism, and craving for novelty and stimulation
Alcohol Problems (ALC)	Behaviors and problematic consequences indicative of alcohol abuse and alcohol dependence
Drug Problems (DRG)	Problematic consequences and behaviors characteristic of drug use and substance dependence
Treatment scales	
Aggression (AGG)	Attitudes and behaviors associated with anger, aggression, and hostility; level of poorly regulated anger; potential for aggression
Suicidal Ideation (SUI)	Suicidal thoughts, ranging from hopelessness and vague thoughts of dying to active suicidal ideation associated with imminent plans for self-harm
Stress (STR)	The impact of recent stressors on a person's life. Stressors assessed include family problems, financial hardships, employment difficulties, and major life changes
Nonsupport (NON)	Perceived social nonsupport, considering both the quantity and quality of available support
Treatment Rejection (RXR)	The degree to which a person is disinterested in and unwilling to begin, continue, and make personal change in psychotherapy
Interpersonal scales	
Dominance	The extent to which a person is autonomous and forceful (versus passive and acquiescent) in personal relationships
Warmth	The degree to which a person is warm, empathic, and interested in (versus cold, rejecting, and disinterested in) personal relationships

(continued)

Table 11.1 (continued)

Scale (acronym)	Description
Supplemental indexes	
Malingering Index (MAL)	Malingering; More specific indicator of malingering than NIM
Rogers Discriminant Function (RDF)	Discriminant function designed to distinguish patients from malingerers
Defensiveness Index (DEF)	Defensive responding; More specific indicator of defensiveness than PIM
Cashel Discriminant Function (CDF)	Designed to distinguish between defensive and honest responding
Suicide Potential Index (SPI)	Cumulative index of risk factors for completed suicide
Violence Potential Index (VPI)	Cumulative index of risk factors for violence
Treatment Process Index (TPI)	Cumulative index of treatment amenability factors

Source: Morey (2007a, pp. 25–49)

Millon Clinical Multiaxial Inventory-III

The Millon Clinical Multiaxial Inventory-III (MCMI-III; Millon, Millon, Davis, & Grossman, 2009) is a measure of adult personality and global psychopathology, designed to assess adults aged 18 years and older. Administration time is approximately 25–30 min. The MCMI consists of 29 primary scales: 5 Validity scales, 11 Clinical Personality Patterns scales, 3 Severe Personality Pathology scales, 7 Clinical Syndromes scales, and 3 Severe Clinical Syndromes scales. Forty-two facet scales can also be scored. Table 11.2 provides descriptions of the primary MCMI-III scales.

Similar to the scale construction methodology utilized with the PAI, items for most scales were included on the basis of both rational and empirical methods. Items were selected on account of Millon's evolutionary model of personality (see also Millon & Davis, 1996) and the DSM-IV criteria for personality disorders (American Psychiatric Association, 1994) and Axis I symptomatology. The MCMI-III was standardized on a clinical patient group and is, therefore, most appropriate for use with a clinical population. In contrast to the PAI, the MCMI focuses predominantly on Axis II conditions. In addition, raw scores are transformed into base rate (BR) scores rather than standard scores, so diagnosticians utilizing the MCMI-III should be familiar with the associated implications. Lastly, the computer-generated interpretive report provides hypotheses regarding possible Axis II and Axis I diagnoses, based on how well the client's profile corresponds conceptually to these categories. Treatment considerations are also supplied in the report.

Millon Adolescent Clinical Inventory

The Millon Adolescent Clinical Inventory (MACI; Millon, Millon, Davis, & Grossman, 2006) is a measure of adolescent personality patterns and global psychopathology, designed to assess adolescents aged 13–19 years. Administration time is approximately 25–30 min. The MACI is comprised of 31 primary scales: 4 Validity scales, 12 Personality Patterns scales, 8 Expressed Concerns scales, and 7 Clinical Syndrome scales. Thirty-six facet scales can also be scored. In contrast to the PAI-A (which closely corresponds to the PAI), the structure of the MACI differs somewhat from that of the MCMI-III. This is largely due to the MACI's focus on issues specifically relevant to adolescents (e.g., identity diffusion, peer insecurity, child abuse, and substance abuse proneness). Similar to the scale construction methodology utilized with the MCMI, items were selected, in part, on the basis of Millon's evolutionary model of personality (cf., Millon & Davis, 1996). The MACI was standardized on adolescent patients and is, consequently, most suitable for use with a clinical population. Like the MCMI-III, raw scores are transformed into base rate (BR) scores rather than standard scores. The computer-generated interpretive report provides hypotheses regarding possible Axis II and Axis I diagnoses, along with treatment considerations (Table 11.3).

Table 11.2 MCMI-III validity, personality, and clinical scales

Scale	Description
Modifying indices	
Invalidity (V)	Inconsistency of item endorsement
Inconsistency (W)	Inconsistency of item endorsement
Disclosure (X)	Self-unfavorable responding; the extent to which the person is inclined to be self-revealing or secretive
Desirability (Y)	Self-favorable responding or reluctance to admit minor flaws
Debasement (Z)	Self-unfavorable responding; a tendency towards self-deprecation
Personality styles	
Schizoid (1)	Diminished ability to experience psychic pain or pleasure; apathy, inexpressiveness and passive asociality. Corresponds to DSM-IV schizoid personality disorder
Avoidant (2A)	Reduced ability to experience pleasure, but tendency to experience psychic pain; active asociality. Corresponds to DSM-IV avoidant personality disorder
Depressive (2B)	Reduced capacity to experience psychic pleasure; pessimism, glumness, and hopelessness. Corresponds to DSM-IV research criteria for depressive personality disorder
Dependent (3)	Passive dependence on acceptance and approval of others; unassertive and sentimental. Corresponds to DSM-IV dependent personality disorder
Histrionic (4)	Active and insatiable search for approval, attention, and acceptance; fear of autonomy; fickle mood. Corresponds to DSM-IV histrionic personality disorder
Narcissistic (5)	Disinterest in the needs of others; interpersonal exploitation, self-centeredness and egocentrism. Corresponds to DSM-IV narcissistic personality disorder
Antisocial (6A)	Irresponsible interpersonal conduct; impulsive and antisocial behavior; rebellious attitude. Corresponds to DSM-IV antisocial personality disorder
Sadistic (6B)	Abrasive, unkind, and coercive interpersonal conduct; desire for dominance; irritable mood. Corresponds to DSM-III-R sadistic personality disorder
Compulsive (7)	Respectful interpersonal conduct; perfectionism and self-discipline; cognitive rigidity and indecision. Corresponds to DSM-IV obsessive–compulsive personality disorder
Negativistic (8A)	Vacillation between obedience and hostile struggle for independence; labile and irritable mood; self pity. Corresponds to DSM-IV research criteria for passive–aggressive personality disorder
Masochistic (8B)	Deferential and servile interpersonal conduct; undeserving self-image; dysphoric mood. Corresponds to DSM-III-R self-defeating personality disorder
Severe personality styles	
Schizotypal (S)	Eccentric and aberrant behavior; social isolation; mistrust of others; disorganized cognition. Corresponds to DSM-IV schizotypal personality disorder
Borderline (B)	Intense moods; affective instability; erratic interpersonal relations; impulsivity; self-destructive actions. Corresponds to DSM-IV borderline personality disorder
Paranoid (P)	Vigilant mistrust of others; interpersonal defensiveness; abrasive irritability; resistance to external influence. Corresponds to DSM-IV paranoid personality disorder
Clinical syndromes	
Anxiety (A)	Phenomenology and observable signs of general anxiety
Somatoform (H)	Preoccupation with health matters and somatic complaints typically associated with somatoform disorders
Bipolar: Manic (N)	Symptoms of mania and hypomania
Dysthymia (D)	Symptoms and phenomenology of dysthymic disorder
Alcohol Dependence (B)	Problems associated with alcohol use and alcohol dependence
Drug Dependence (T)	Problems associated with drug use and drug dependence
Posttraumatic Stress Disorder (R)	Symptoms and phenomenology associated with traumatic stress reaction

(continued)

Table 11.2 (continued)

Scale	Description
Severe clinical syndromes	
Thought Disorder (SS)	Symptoms relevant to the spectrum of schizophrenic disorders
Major Depression (CC)	Symptoms and phenomenology of significant depression
Delusional Disorder (PP)	Symptoms relevant to delusional disorder

Source: Millon et al. (2009, pp. 27–50)

NEO Personality Inventory-3

The NEO Personality Inventory-3 (NEO-PI-3; McCrae & Costa, 2010) is a measure of normal personality, which may be used with individuals aged 12 years and older. Administration time is approximately 30–40 min. The NEO-PI-3 measures the five broad domains of personality identified through years of research (cf., McCrae & Costa, 2003)—Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C)—along with 30 facets of personality. Similar to the scale construction methodology utilized with the PAI and MCMI-III, items were selected on the basis of both rational and empirical methods. In contrast to the PAI and MCMI-III, the NEO-PI-3 does not directly measure psychopathology, though it does yield information directly relevant to treatment and the diagnosis of various disorders. For example, the computer-generated interpretive report compares a client's profile to a prototypic profile for each DSM personality disorder, and generates hypotheses about possible and unlikely diagnoses. Hypotheses are also generated regarding prognosis and optimal treatment selection. The NEO-PI-3 personality domain scales and facet scales are outlined in Table 11.4.

Differential Diagnosis and Comorbidity

A primary goal of personality assessment is to assist with accurately diagnosing the condition(s) that are cause for concern and to begin to disentangle factors responsible for their maintenance. Although this may appear straightforward enough in the case of anxiety disorders, it behooves diagnosticians to consider several complicating factors. First, the anxiety disorders overlap conceptually with each other and with numerous other conditions, including mood disorders, psychotic disorders, eating disorders, and various personality disorders. Second, the anxiety disorders very often co-occur with other disorders. Third, anxiety disorders are, on occasion, etiologically related to substance use and physiological conditions (e.g., in the case of substance-induced anxiety). Fourth, anxiety and fear are normal human emotions that are adaptive under *certain* conditions (Barlow, 2002; LeDoux, 1996).

Anxiety disorders are conceptually similar to each other and to many other DSM-IV-TR conditions (APA, 2000; cf., Barlow, Allen, & Choate, 2004). For example, panic attacks, avoidance, *and* worry-like cognitive phenomena are characteristics of not only panic disorder (PD) and panic disorder with agoraphobia (PDA) but also social anxiety disorder (SAD), specific phobia (SP), generalized anxiety disorder (GAD), obsessive–compulsive disorder (OCD), posttraumatic stress disorder (PTSD), separation anxiety disorder, and hypochondriasis. Similarly, avoidance is an associated feature of depressive disorders, eating disorders, and psychotic disorders; and the flashbacks characteristic of PTSD resemble the illusions, hallucinations, and other perceptual disturbances seen in psychotic disorders, mood disorders, and delirium. Moreover, negative affect is characteristic of both anxiety and depression (Barlow et al., 2004; Clark & Watson, 1991; Clark, Watson, & Mineka, 1994). Considering the role these phenomena are purported to play in the maintenance of anxiety disorders (e.g., Barlow, 2002; Kessler, 1997; Barlow et al., 2004; Borkovec, Alcaine, & Behar, 2004; Clark, 2004; Clark, 1986; Foa, Huppert, &

Table 11.3 MACI validity, personality, expressed concerns, and clinical scales

Scale	Description
Modifying indices	
Reliability (VV)	Inconsistency of item endorsement
Disclosure (X)	Self-unfavorable responding; inclination to be self-revealing
Desirability (Y)	Self-favorable responding or reluctance to admit minor flaws
Debasement (Z)	Self-unfavorable responding; a tendency toward self-deprecation
Personality patterns	
Introversive (1)	Corresponds to the MCMI-III Schizoid scale
Inhibited (2A)	Corresponds to the MCMI-III Avoidant scale
Doleful (2B)	Corresponds to the MCMI-III Depressive scale
Submissive (3)	Corresponds to the MCMI-III Dependent scale
Dramatizing (4)	Corresponds to the MCMI-III Histrionic scale
Egotistic (5)	Corresponds to the MCMI-III Narcissistic scale
Unruly (6A)	Corresponds to the MCMI-III Antisocial scale
Forceful (6B)	Corresponds to the MCMI-III Sadistic scale
Conforming (7)	Corresponds to the MCMI-III Compulsive scale
Oppositional (8A)	Corresponds to the MCMI-III Negativistic scale
Self-Demeaning (8B)	Corresponds to the MCMI-III Masochistic scale
Borderline Tendency (9)	Corresponds roughly to the MCMI-III Borderline scale
Expressed concerns	
Identity Diffusion (A)	Unclear sense of self; unfocused goals and values
Self-Devaluation (B)	Low self-esteem; dissatisfaction with self-image
Body Disapproval (C)	Dissatisfaction with physical appearance or social appeal
Sexual Discomfort (D)	Uneasiness over sexual thoughts, feelings, and impulses
Peer Insecurity (E)	Peer rejection and resultant discontent
Social Insensitivity (F)	Indifference to the welfare of others; lack of empathy; little interest in friendships
Family Discord (G)	Family tension, conflict, or rejection; feeling of estrangement
Childhood Abuse (H)	Shame and disgust associated with various forms of physical abuse
Clinical syndromes	
Eating Dysfunctions (AA)	Tendencies toward anorexia nervosa and/or bulimia nervosa
Substance-Abuse Proneness (BB)	Pattern of substance use that has led to considerable impairment
Delinquent Predisposition (CC)	Tendencies toward antisocial or delinquent behavior
Impulsive Propensity (DD)	Poor control over sexual, aggressive, and other impulses
Anxious Feelings (EE)	Phenomenology and observable signs of general anxiety
Depressive Affect (FF)	Symptoms and phenomenology of depression
Suicidal Tendency (GG)	The presence of self-destructive thoughts and plans

Source: Millon et al. (2006, pp.7–24; 55–59)

Cahill, 2006; Rachman, 1998; Rapee & Heimberg, 1997; Riskind & Williams, 2006; Salkovskis & Freeston, 2001; Wells, 2000), diagnostic clarification has significant treatment implications.

To complicate things further, anxiety disorders frequently co-occur with other conditions, most often depressive disorders, alcohol and substance use disorders, and personality disorders (Barlow, 2002); Kessler, 1997. As reported by Woody and Ollendick (2006), both Axis I and Axis II comorbidity reliably predicts poorer treatment outcome in individuals being treated for anxiety. Further, personality disorder traits may well have differential effects on the treatment of some anxiety disorders (Scholing & Emmelkamp, 1999; cf., Newman, Crits-Christoph, Gibbons, & Erickson, 2006), and the moderating effects of various patient traits on treatment outcome may differ according to diagnostic category (Castonguay & Beutler, 2006a). Consequently, identifying and addressing co-occurring conditions are of utmost importance.

Anxiety disorders should also be differentiated from nonpathological anxiety. Nearly everyone

Table 11.4 NEO-PI-3 domains and facets

Scales	Description of constructs
Domains	
Neuroticism (N)	General tendency to experience negative emotions (e.g., anxiety, sadness, and guilt) and to have difficulty coping with cravings and stress
Extraversion (E)	Overall propensity to be gregarious, active, assertive, and cheerful
Openness to Experience (O)	General inclination to be inquisitive about one's inner experience and willing to entertain values, ideas, and ways of doing things that differ from one's own
Agreeableness (A)	General proclivity to be unselfish, empathic, willing to help others, and to believe that others are trustworthy
Conscientiousness (C)	Overall tendency to be purposeful, resolute, and determined
Neuroticism facets	
Anxiety (N1)	Inclination to experience worry, fear, and other anxiety-related states
Angry Hostility (N2)	Tendency to experience anger, frustration, and other anger-related states
Depression (N3)	Propensity to experience sadness, guilt, and other depression-related states
Self-Consciousness (N4)	Tendency to experience shame, embarrassment, and other related states
Impulsiveness (N5)	Proclivity to have difficulty controlling cravings and urges
Vulnerability (N6)	Propensity to have difficulty coping with stress
Extraversion facets	
Warmth (E1)	Tendency to be affectionate and friendly and to genuinely like people
Gregariousness (E2)	Proclivity to enjoy other the company of others
Assertiveness (E3)	Inclination to be dominant and socially ascendant
Activity (E4)	Propensity to be physically active and to experience a sense of energy
Excitement Seeking (E5)	Tendency to crave excitement and stimulation
Positive Emotions (E6)	Inclination to experience positive emotions (e.g., happiness and excitement)
Openness facets	
Fantasy (O1)	Proclivity to fantasize, daydream, and to have a vivid imagination
Esthetics (O2)	Propensity to appreciate art and beauty
Feelings (O3)	Tendency to be receptive to one's own inner feelings
Actions (O4)	Inclination to be willing to try different things
Ideas (O5)	Tendency to be open-minded and to be willing to consider new ideas
Values (O6)	Propensity to be open to reexamining one's values
Agreeableness facets	
Trust (A1)	Tendency to believe that others are sincere and have good intentions
Straightforwardness (A2)	Inclination to be truthful, genuine, and sincere
Altruism (A3)	Proclivity to be concerned about and willing to help others in need
Compliance (A4)	Propensity to cooperate and inhibit aggression during interpersonal conflict
Modesty (A5)	Inclination to be unassuming and humble
Tender-Mindedness (A6)	Tendency to be sympathetic and moved by the needs of others
Conscientiousness facets	
Competence (C1)	Inclination to be capable, reasonable, and effectual
Order (C2)	Proclivity to be tidy, neat, and well organized
Dutifulness (C3)	Tendency to stick to ethical values and carry out moral obligations
Achievement Striving (C4)	Propensity to work hard to attain one's goals
Self-Discipline (C5)	Tendency to carry tasks out to completion
Deliberation (C6)	Inclination to think through things carefully before acting

Source: McCrae and Costa (2010, pp. 19–24)

experiences heightened levels of anxiety on occasion. Normal anxiety and fear are believed to have phylogenetically served the function of distancing humans and other organisms from imminent, looming threats to physical survival (Barlow, 2002; LeDoux, 1996). Anxiety and fear have thus

served a universal, adaptive function over the course of evolution, protecting humans from harm. Few would argue that the momentary elicitation of high levels of fear in response to an individual seeing a speeding car racing toward them is pathological. In contrast to normal anxiety, anxiety disorders have primarily been conceptualized as being phenomenologically- and etiologically related emotional constructs associated with *exaggerated* danger perceptions (Barlow, 2002; Barlow et al., 2004; Cisler, Olatunji, & Lohr, 2009). Further, by definition, pathological anxiety is associated with substantial distress and/or significantly interferes with important areas of functioning (APA, 2000).

Due largely to the efforts of the American Psychological Association (APA, Division 12) Task Force on the Promotion and Dissemination of Psychological Procedures (Chambless et al., 1998), treatments and interventions that are considered to be efficacious on the basis of randomized controlled trials have been identified. These "Empirically Supported Treatments" (Chambless et al., 1998; Chambless & Hollon, 1998; cf., Nathan & Gorman, 2002) are *validated for use with specific disorders*, and many of these treatments were explicitly *designed for specific disorders*. For example, the efficacy of certain forms of cognitive–behavioral therapy designed specifically for panic disorder is strongly supported by more than 25 randomized controlled trials (White & Barlow, 2002), with treatments including interoceptive exposure yielding the largest effect sizes (Gould, Otto, & Pollack, 1995).

Impressive support has also been documented for treatments designed for other anxiety disorders (e.g., exposure plus response prevention for obsessive–compulsive disorder, exposure, and multicomponent cognitive–behavioral treatments for social anxiety disorder, exposure-based procedures for specific phobias, and cognitive–behavioral therapy for generalized anxiety disorder); depression (e.g., behavior therapy, cognitive behavior therapy, and interpersonal therapy for major depressive disorder); substance use disorders (e.g., cognitive–behavioral therapy and 12-step treatment for alcohol use disorders); and other conditions (Chambless et al., 1998; Chambless & Hollon, 1998; Nathan & Gorman, 2002). Recognizing this, an interorganizational task force was recently initiated by the Association for Behavioral and Cognitive Therapies (ABCT) to create guidelines for optimal doctoral-level education and training in cognitive and behavioral psychology (Klepac et al., 2012).

Likewise, in 2006, the Task Force on Empirically Based Principles of Therapeutic Change of Division 12 and the North American Society for Psychotherapy Research (NASPR) published a book (Beutler & Castonguay, 2006) in which it identified participant, relationship, and technique factors associated with treatment outcome in a number of disorders, including anxiety. Therefore, distinguishing between normal anxiety and dysfunctional anxiety, accurately differentiating between plausible diagnoses, and identifying comorbid conditions all have crucial implications for treatment.

The Role of Personality Inventories in Diagnosis

Diagnosis is a clinician-based determination involving the integration of data from a variety of sources, often including a clinical interview, behavioral observations, information from collateral sources, narrowband self-report measures (e.g., the Beck Anxiety Inventory; Beck & Steer, 1993), performance-based measures of personality (e.g., the Rorschach Inkblot Method), and broadband instruments such as the PAI, MCMI-III, and NEO-PI-3. Although broadband measures are only one of several sources of data at the clinician's fingertips, they provide a rich basis of empirically derived information from which to develop diagnostic hypotheses.

When a client presents for treatment reporting symptoms of anxiety, a comprehensive evaluation of his or her personality and global levels of psychopathology can shed considerable light on many variables directly relevant to diagnosis, especially when the data obtained converges with information gathered from other sources. To illustrate, a client[1] of the author (Dr. Rogove)

[1]For the sake of illustration and protecting confidentiality, the case presented in this chapter is a conglomeration of actual patients treated by the author.

sought treatment for what he described as, "terrible anxiety." As part of the initial evaluation, he was administered the PAI, MCMI-III, and NEO-PI-3. All of the validity scales were within normal limits. On the PAI, he obtained elevations on the Anxiety (ANX), Anxiety-Related Disorders (ARD), Depression (DEP), Stress (STR), and Nonsupport (NON) scales; on the MCMI-III, the Anxiety (A) and Major Depression (CC) scales were elevated along with a moderate elevation on the Compulsive (C) scale; and on the NEO-PI-3, he scored in the high range on the Neuroticism (N) and Conscientiousness (C) domain scales, in the low range on the Agreeableness (A) domain scale, in the high range on the Angry Hostility (N2) and Depression (N3) facet scales, and in the very high range on the Anxiety (N1) and Vulnerability (N6) facet scales. No further scale elevations were obtained, including those that would have otherwise suggested the presence of a substance-related disorder, thought disorder, somatoform disorder, severe personality disorder, or heightened risk of suicide or violence.

In the absence of other information, the findings obtained from these instruments indicated several things about the client. First, the client's scores on the PAI and the MCMI-III suggested that, at the time of the evaluation, he was experiencing considerable symptoms of anxiety and depression. The elevation that he obtained on the Stress (STR) scale of the PAI further indicated that recent stressors might have played a role in his condition, while the elevation on the Nonsupport (NON) scale suggested that he perceived little in the way of a social support network. Third, his profile on the NEO-PI-3 and the elevation he obtained on the Compulsiveness (C) scale of the MCMI-III further suggested that the issues that brought him in for treatment were superimposed on personality characterized by: (a) a general tendency to experience negative emotions (especially worry, fear, and other anxiety-related states), (b) a propensity for having difficulty managing stressful situations, (c) a generally disagreeable interpersonal style, and (d) obsessive–compulsive traits, including perfectionism, rigidity, and remarkable adherence to social conventions. These findings converged with data from other sources and provided empirical support for the author's working hypothesis that the client had generalized anxiety disorder and major depressive disorder, and they resulted in empirically based hypotheses about variables maintaining his current condition and the best course of treatment. He was referred for a psychiatric consultation, a functional analysis was conducted, and cognitive–behavioral treatment was initiated to address his depression.

Transdiagnostic Factors

Despite the importance of considering diagnosis in the treatment planning process and the efficacy of selecting treatments on the basis of diagnosis, up to half of those treated with empirically supported treatments do not respond as well as might be expected (Chambless & Ollendick, 2001; Ollendick & King, 2004; Woody & Ollendick, 2006), and only 40–60% of those treated achieve high end-state functioning (Roemer, Orsillo, & Barlow, 2002). Further, meta-analyses have revealed that intervention effects, though critical, do not account for the whole picture, with some studies indicating that specific treatment methods account for no more than 8% of outcome variance across diagnoses (Wampold, 2001). Although controversial, findings like the latter clearly indicate that the effectiveness of a given intervention is likely to depend on more than the specific techniques utilized. An abundance of research has been devoted to identifying transdiagnostic variables associated with treatment outcome (cf., Castonguay & Beutler, 2006b; Norcross, 2011; Wampold, 2001). This section focuses predominantly on the patient factors most relevant to personality assessment in the context of anxiety treatment.

Symptom Severity and Distress

Treatment for anxiety is less likely to be effective when the condition(s) being treated is severe, and

the client reports experiencing substantial distress (Newman et al., 2006). This is especially true in the case of social anxiety disorder (e.g., Otto, Pollack, Gould, Worthington, McArdle, & Rosenbaum, 2000; Safran, Alden, & Davidson, 1980; Scholing & Emmelkamp, 1999), PTSD (e.g., Ford, Fisher, & Larson, 1997; Johnson & Lubin, 1997; Perconte & Griger, 1991; Taylor, Fedoroff, Koch, Thordarson, Fecteau, & Nicki, 2001), PD (e.g., Emmelkamp & Kuipers, 1979), and OCD, though at least two studies have shown this to also be the case with GAD (e.g., Butler, 1993; Butler & Anastasiades, 1988). Baseline symptom severity also reliably predicts treatment outcome in child and adolescent samples undergoing anxiety treatment (e.g., Piacentini, Bergman, Jacobs, McCracken, & Kretchman, 2002; Silverman, Pina, & Viswesvaran, 2008).

As reported by Woody and Ollendick (2006), both Axis I and Axis II comorbidity also reliably predicts poorer treatment outcome in individuals being treated for anxiety. Further, personality disorder traits may well have differential effects on the treatment of some anxiety disorders (Scholing & Emmelkamp, 1999; cf., Newman et al., 2006). These findings are consistent with studies indicating that clients with more diagnoses and more severe conditions are at risk for profiting less from psychotherapy in general (for a review, see Clarkin & Levy, 2004). Low levels of symptom severity and distress may also impede therapeutic progress in certain clients, presumably because low levels of distress result in poor motivation and decreased responsibility to change (McCrae, Harwood, & Kelly, 2011; Sanderson & Clarkin, 2002).

An extensive history of research has identified moderators of the stress response that, if targeted, may buffer against the harmful psychological effects of overwhelming stress and have beneficial effects on the outcome of treatment (c.f., Feldman, Eisenberg, Gambini-Suarez, & Nassau, 2007; Lehrer, Woolfolk, & Sime, 2007; Quick, Quick, & Nelson, 1997; Smith, 2007). Moderators that may have value in the context of anxiety treatment include interpersonal conflict (Berman, Weems, Silverman, & Kurtines, 2000; Brent & Birmaher, 2006; Chambless & Steketee, 1999; Durham, Allan, & Hackett, 1997; McGrady, 2007; Tarrier, Sommerfield, Pilgrim, & Faragher, 2000), perceived social support (Newman et al., 2006), social problem solving (Chang, D'Zurilla, & Sanna, 2004; D'Zurilla & Nezu, 1999; Nezu, Wilkins, & Nezu, 2004), anger and hostility (Meichenbaum, 2007; Spielberger, 1991), cognitive appraisal (Lazarus, 1999; Meichenbaum, 2007; Pretzer & Beck, 2007), perception of control (Barlow, 2002), pessimistic attributional style (Barlow, 2002; Luten, Ralph, & Mineka, 1997), and, in children, parenting style (Barlow, 2002; Chorpita & Barlow, 1998). Thus, it behooves clinicians to evaluate a client's level of distress, identify potential moderators of the stress response, and adjust interventions accordingly.

PAI

Self-report instruments have been used repeatedly in clinical and research settings to assess level of distress in patients. The PAI, in particular, has been utilized to measure distress and severity of symptoms (e.g., depression and anxiety) in varied populations, including college students seeking counseling services (e.g., Sagun, 2007), female breast cancer patients (e.g., Singh & Verma, 2007), sleep disordered patients (e.g., Freeman, 2000), patients diagnosed with PTSD (e.g., Drury et al., 2009; McDevitt-Murphy, Weathers, Adkins, & Daniels, 2005; Mozley, Miller, Weathers, Beckham, & Feldman, 2005), and individuals suffering from mild to severe traumatic brain injuries (Edwards-Stewart, 2008; Kurtz, Shealy, & Putnam, 2007; Wymer, 2005).

Several PAI indices are particularly useful for evaluating global distress and symptom severity. The Mean Clinical Elevation (MCE), a supplemental score provided in the interpretive report, serves as a gauge of overall severity of symptoms and distress (Kurtz, 2010; Siefert & Blais, 2010). Calculated by averaging the *T*-scores of the 11 clinical scales, it is a useful measure of global distress and overall symptom severity and diversity. Likewise, the Stress (STR) scale is designed to measure perceived life stress. Elevated levels of STR indicate that a client perceives his or her current environment as being chaotic, unpredictable,

and distressing (Morey, 2007a; Siefert & Blais, 2010). As might be expected, studies have documented elevations on STR in criterion groups ranging from clinical groups (Morey, 1991) to inmates on death row (Cunningham & Vigen, 1999). Lasorsa (2000) observed that STR is moderately correlated with the Occupational Stress Inventory (Osipow & Spokane, 1987); Morey (1991) demonstrated that STR is highly correlated with the Social Readjustment Rating Scale (Holmes & Rahe, 1967) in a sample of community adults.

A third PAI index that proves to be a valid measure of global distress is the Negative Impression Management (NIM) scale (Morey, 2007a). Originally designed to be a measure of overreporting, NIM is moderately correlated with the clinical scales (Kurtz, 2010) and is, therefore, influenced by both deliberate dissimulation and high levels of distress. When used in conjunction with Rogers Discriminant Function (RDF; Rogers, Sewell, Morey, & Ustad, 1996)—a supplemental score that is highly predictive of conscious attempts to exaggerate psychopathology but uncorrelated with psychopathology—NIM is especially useful for identifying clients with high levels of global distress.

A more refined understanding of a client's distress can be gleaned by inspecting the relative elevations among the PAI indices of internalizing psychopathology: Somatic Complaints (SOM), Anxiety (ANX), Anxiety-Related Disorders (ARD), and Depression (DEP). That is, individuals' distress often manifests differently; understanding how an individual's distress manifests can prove fruitful in the context of treatment. A client who presents with heightened generalized anxiety (assessed by ANX) would likely be handled differently than a client who presents with heighted depression (assessed by DEP), traumatic stress (assessed by ARD-T), obsessive–compulsive symptoms (assessed by ARD-O), and significant somatic complaints (assessed by SOM).

The Millon Inventories

The MCMI-III scales that are most directly relevant to the constructs of global distress and symptom severity are the Clinical Syndrome and Severe Clinical Syndrome scales, particularly Anxiety (Scale A), Somatoform (Scale H), Dysthymia (Scale D), Post-Traumatic Stress Disorder (Scale R), and Major Depression (Scale CC), all of which have been found by Millon et al. (2009) to correlate highly with traditional gauges of distress, including the Beck Depression Inventory (BDI; Beck & Steer, 1987), the State-Trait Anxiety Inventory (STAI; Spielberger, 1983), the Depression, Anxiety and Global Severity indices of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994), and relevant scales of the MMPI-2. Further, high scores for all nine MCMI scales used to assess Axis I clinical syndromes have been found to be significantly associated with more stressful and negative life events, more net distress, and more intensely negative ratings (Leaf, Alington, Mass, DiGiuseppe, & Ellis, 1991).

Two additional MCMI-III indices are functional indicators of global distress: the Disclosure index (Scale X) and the Debasement index (Scale Z). Scale X is a measure of how drastically a client deviates from the norm with regard to the number of items endorsed. An elevated score indicates that a client endorsed a greater number of items than the typical patient (Weiner & Greene, 2008). Scale Z was designed to identify a response bias characterized by a tendency to devalue or denigrate oneself. However, while Scales X and Z are both sensitive to purposeful symptom exaggeration, they are also influenced by legitimately heightened emotional distress (Millon et al., 2009; Weiner & Greene, 2008). An MCMI-III profile containing elevations on Scales X and Z, in conjunction with other indicators of distress (e.g., from the clinical interview or behavioral observations), is suggestive of genuine distress.

Although the Clinical Syndrome scales, Scale X and Scale Z are most directly relevant to the measurement of distress, an examination of the Clinical Personality scales and Severe Personality Pathology scales can provide clinicians with an understanding of the personality factors contributing to a client's distress and a framework that is valuable for the purposes of case conceptualization, anticipating the course of treatment, and

selecting appropriate forms of therapy (c.f., Millon & Davis, 1996). As Millon et al. (2009) point out, the number of Clinical Personality Patterns scales elevated above BR 75 is typically proportional to the extent of one's personality pathology, with a greater number of elevations being suggestive of more extensive psychopathology. Higher scores are also more indicative of a greater degree of pathology than are lower scores. Likewise, clients who obtain elevations on the Severe Personality Pathology scales (S, C, and P) are especially likely to engage in pathological behaviors, to rely on dysfunctional coping skills, and to have maladaptive beliefs about the self and other.

NEO-PI-3

In contrast to the PAI and the MCMI-III Clinical Syndrome scales, the NEO-PI-3 was designed to measure personality traits and, thus, does not measure acute distress, per se (McCrae & Costa, 2010). What it does excel at, however, is identifying an individual's level of emotional stability, propensity for experiencing distress, and the presence of a more chronic form of distress. The Neuroticism domain and its facets are especially helpful in this regard (Costa & McCrae, 1980; McCrae & Costa, 2010; McCrae et al., 2011; Sanderson & Clarkin, 2002). High neuroticism has been linked to lifetime anxiety and depressive disorders (Bienvenu et al., 2004), the acuity of anxiety and depressive disorders (Bienvenu et al., 2004), the development of new episodes of anxiety (Calkins et al., 2009), the severity of panic disorder and social anxiety disorder (Kristensen, Mortensen, & Mors, 2009), and comorbidity among anxiety and depressive disorders (Spinhoven, de Rooij, Heiser, Smit, & Penninx 2009).

Individuals high in Neuroticism are prone to experience any combination of the following: apprehension, fear, tension, and worry (assessed by the Anxiety [N1] facet); anger, frustration, and resentment (assessed by the Angry Hostility [N2] facet); guilt, loneliness, sadness, and hopelessness (assessed by the Depression [N3] facet); embarrassment, shame, and feelings of inferiority (assessed by the Self-Consciousness [N4] facet); irresistible cravings and urges and impulsivity (assessed by the Impulsiveness [N5] facet); and emotional vulnerability in the face of stress (assessed by the Vulnerability [N6] facet; McCrae & Costa, 2010). Each of these facets has been shown to be individually related to negative affect and lower life satisfaction (Costa & McCrae, 1984) and anxiety symptomatology (Uliaszek et al., 2009). Accordingly, an examination of an individual's Neuroticism domain score, along with his or her corresponding facet scores, can clarify the breadth and pervasiveness of an individual's condition.

The Extraversion domain and its facets are also relevant. Low extraversion has been shown to be associated with social anxiety disorder, agoraphobia, and dysthymia (Bienvenu et al., 2004), symptoms of depression (Naragon-Gainey, Watson, & Markon, 2009), and the severity of panic disorder and social anxiety disorder (Kristensen et al., 2009). Research (Naragon-Gainey et al., 2009) has revealed that the Extraversion facet most clearly linked to symptoms of depression is Positive Emotions (E6), a measure of the tendency to experience positive emotions such as happiness, joy, and excitement.

Perceived Social Support and Family Dysfunction

Individuals being treated for anxiety disorders typically fare better when they perceive the availability of adequate levels of social support, particularly when social support is defined as *quality* of social support (Newman et al., 2006). For example, higher degrees of marital tension have been found to diminish the likelihood of sustained therapeutic change in a sample of married and cohabitating patients diagnosed with GAD (Durham et al., 1997). Likewise, higher levels of expressed emotion (EE)[2] have been

[2]Broadly conceptualized as poor quality of social support (Newman et al., 2006), expressed emotion is a measure of the degree to which families are critical of, hostile toward, and emotionally over-involved with those experiencing psychopathology (Leff & Vaughn, 1985).

found to moderate the effect of cognitive–behavioral therapy on PD and OCD (Chambless & Steketee, 1999) and on PTSD (Tarrier et al., 1999). Perhaps most relevant in the context of child and adolescent treatment, family dysfunction is also a prominent risk factor for poor outcome across internalizing and externalizing disorders (Brent & Birmaher, 2006; Dadds, Schwartz, & Sanders, 1987), including the anxiety disorders (Berman et al., 2000).

Perceived social support and family dysfunction are also associated with the anxiety disorders more generally (Whisman & Beach, 2010). For example, marital quality has been shown to prospectively predict the onset of anxiety disorders (Overbeek et al., 2006), and it has been demonstrated that individuals with an anxiety disorder report more family dysfunction than do individuals without an anxiety disorder (Friedmann et al., 1997). Similarly, numerous studies show that low levels of perceived social support predict future worsening of psychiatric symptomatology, even when initial levels of symptomatology are statistically controlled (Rhodes & Lakey, 1999), while others have shown that the expression of trait anxiety is moderated by perceived social support, such that trait anxiety is positively correlated with the expression of that anxiety in those reporting low levels of perceived social support, but not in those with average or above average levels of perceived social support (Hyde, Gorka, Manuck, & Hariri, 2011).

PAI

The PAI scale most directly related to perceived social support is the Nonsupport (NON) scale (Morey, 2007a). Consisting of items like, "My friends are not there for me when I need them," "I do not like being around my family members," and "I do not have people I can talk to when I'm having problems," high scores on NON indicate that a patient has little in the way of a social support system to aid in the management of life stressors. Morey (2007a) describes criterion group studies revealing (a) large differences on NON between community and standardization samples (Morey, 1991) and (b) that NON is sensitive to the impact of supportive interventions (Stevens & Duttlinger, 1998). In the initial PAI validation studies, Morey (1991) found that NON was correlated with a number of measures of social support, most notably the Procidano Perceived Social Support measures (Procidano & Heller, 1983). Information that is helpful for conceptualizing a person's interpersonal challenges may be gleaned from the Warmth (WRM) and Dominance (DOM) scales (Morey, 2007a). Based on the circumplex model of interpersonal behavior (Leary, 1957; McCrae & Costa, 2003; Wiggins, 1979), WRM provides a measure of the degree to which a client is affectionate, empathic, and sociable; very low scores are suggestive of interpersonal distance, coldness, and unresponsiveness, while very high scores are indicative of an exceptionally strong need to be accepted by others (Morey, 2007a). DOM is a measure of the extent to which a person is controlling, directive, and autonomous. Very low scores are suggestive of a lack of confidence in social interactions and the subordination of interests and needs; elevated scores are indicative of an interpersonally taxing style characterized by a strong need for control and domineering behavior.

The Millon Inventories

Although a review of the MCMI-III Clinical Personality Patterns scales, Severe Personality Pathology scales, and associated Grossman facet scales can shed light on the kinds of interpersonal problems a client tends to have, the MCMI-III does not contain a direct measure of perceived social support or family dysfunction (Millon et al., 2009). In contrast, the MACI (Millon et al., 2006) has one scale designed to assess interpersonal problems and one scale that are directly related to family dysfunction. The Peer Insecurity scale (Scale E) is purported to measure the emotional and behavioral correlates of peer nonacceptance and rejection, with high scores suggestive of peer rejection and associated feelings of sadness and dismay. The Family Discord scale (Scale G) is designed to measure family conflict, tension, and estrangement; an adolescent who obtain a heightened score on Scale G is likely to perceive his familial relationships as conflictual, tense, and unsupportive.

Psychometric data largely supports the use of Scale G as a measure of family dysfunction, while the data is somewhat ambiguous for the use of Scale E as a measure of peer insecurity. Millon et al. (2006) evaluated the validity of MACI scales by correlating scale scores with clinical judgments and with scores from established collateral test instruments. Validation studies strongly support the use of Scale G as an indicator of family dysfunction. Millon et al. (2006) found Scale G to correlate moderately with clinical judgment, and to correlate highly with established measures of family dysfunction and related constructs, such as the Family Relations and Peer Relations subscales of the Problem Oriented Screening Instrument for Teenagers (POSIT; National Institute on Drug Abuse, 1991). Interestingly, Scale G was found to correlate more highly than Scale E with the Peer Relations subscale of the POSIT and the Social Insecurity scale of the Eating Disorders Inventory (EDI-2; Garner, 1991). Millon et al. (2006) do not provide an explanation for these discrepancies.

NEO-PI-3

The NEO-PI-3 is a measure of personality traits and, therefore, is not designed to be utilized as a direct measure of social support or family dysfunction (McCrae & Costa, 2010). Nevertheless, an examination of an individual's NEO-PI-3 profile can provide the clinician with empirically derived information from which to develop informed hypotheses about personality factors that may be (a) contributing to an individual's interpersonal problems and (b) utilized in the context of therapy to bolster a person's resistance to stress and reduce psychological distress.

Numerous studies have linked the NEO Inventories to social support and family conflict. As might be expected, studies that have examined the relationship between personality traits and perceived social support have typically found that individuals low in Neuroticism (N), high in Extraversion (E), and moderately high in Agreeableness (A) have higher levels of perceived social support (Swickert, Hittner, & Foster, 2010). This is not surprising considering the interpersonal behavioral dispositions characteristic of these traits. Compared to those who are high in neuroticism, individuals who are low in neuroticism are more emotionally stable and less likely to be negatively impacted by interpersonal challenges (McCrae & Costa, 2010). Likewise, those high in extraversion tend to be cheerful, optimistic, sociable, and friendly, and individuals who are agreeable are inclined to be altruistic, kind, and sincere.

Other domains of the NEO-PI have also been linked to perceived social support. For example, Tong et al. (2004) investigated the relationship between NEO-PI domains and two sources of social support—perceived support from family and others. Regression analysis showed the Agreeableness (A) and Conscientiousness (C) domains to be independent predictors of perceived social support from family and the Conscientiousness (C), Extraversion (E), and Openness to Experience (O) domains to be independent predictors of social support from others.

Regarding family conflict, Galezewski (2001) found that married couples with high levels of marital distress were best differentiated from those with low levels of conflict by scores on the neuroticism, agreeableness, and conscientiousness domains. Married couples reporting high levels marital distress tended to have higher neuroticism and lower agreeableness and conscientiousness scores than their low marital distress counterparts. The interpersonal behavioral dispositions characteristic of conscientiousness include competence, organization, ethical behavior, aspiration, self-discipline, and careful consideration (McCrae & Costa, 2010).

Treatment Adherence and Compliance

Central to empirically supported treatments for anxiety are collaboration, active involvement, and homework. Clients are asked to engage in exposures and behavioral experiments, to monitor and challenge their thoughts, and to engage in other interventions designed to accelerate treatment gains and to enhance generalization. Homework compliance has emerged as a robust predictor of treatment outcome across anxiety

disorders, especially when the *quality* of completed assignments is taken into consideration. For example, Schmidt and Woolaway-Bickle (2000) investigated the relationship between homework compliance and outcome in a cognitive–behavioral treatment for PD and discovered that homework *quality* was a significant predictor of treatment outcome. Quality of homework was assessed based on a number of criteria, including the extent to which the exposure evoked appropriate levels of anxiety and whether the participant remained in the anxiety-evoking situation until intra-trial habituation occurred. Homework compliance also appears to predict treatment outcome in cognitive–behavioral treatments of social anxiety disorder (Rosenberg, Ledley, & Heimberg, 2010) and GAD (Ritter, Blackmore, & Heimberg, 2010).

Accordingly, determining a client's risk of noncompliance and identifying the factors that may contribute to nonadherence are essential endeavors for the clinician providing anxiety treatment. Indeed, identifying clients' pretreatment who are at risk for treatment noncompliance and dropout may help clinicians to modify interventions in a way that maximizes the probability of adherence and/or retention. The results of various studies, for example, provide preliminary evidence that motivational interviewing may enhance engagement with subsequent anxiety treatment, especially with regard to homework compliance (Arkowitz & Westra, 2004; Westra & Dozois 2006, 2008).

Collecting feedback about progress in an ongoing fashion and being appropriately responsive to relationship factors may also result in more positive outcomes with treatment-resistant clients (Lambert & Shimokawa, 2011; Norcross & Wampold, 2011). For instance, though few studies have investigated interactions between reactance and therapist directiveness in the context of anxiety treatment, per se (Newman et al., 2006), recognizing manifestations of psychological reactance (Brehm, 1966; Brehm & Brehm, 1981) and adjusting therapist directiveness accordingly may well bolster a client's sense of control, decrease noncompliance, and increase the effectiveness of treatment (Beutler, Harwood, Michelson, Song, & Holman, 2011; McCrae et al., 2011; Miller, 1991; Sanderson & Clarkin, 2002). Thus, knowing, before treatment begins, that a client is at risk for nonadherence and dropout can help a clinician to modify interventions in a way that increases the likelihood of compliance and retention.

PAI

The PAI contains three measures that are indispensable for identifying potential noncompliance with treatment (Morey, 2007a). The Treatment Rejection (RXR) scale is a measure of the extent to which an individual refuses to acknowledge and accept responsibility for his or her problems and is unwilling to participate actively in treatment (Morey, 2007a). Moderately low scores are indicative of a person who is likely motivated for treatment, while high scores are reflective of a person who is likely to resist efforts to change. The Treatment Process Index (TPI) is an aggregate index of 12 features from the PAI profile that correspond to factors described in the psychotherapy literature as being associated with poor treatment amenability (e.g., limited social support, high levels of stress, poor motivation, hostility, distrust, low psychological mindedness, and an egosyntonic defensive style). High TPI scores are suggestive of a difficult treatment process. The third measure is the Mean Clinical Elevation (MCE), which was described above. Kurtz (2010) provides a useful schema for systematically combining data from these measures to develop empirically based hypotheses about a client's prognosis. This schema is reproduced in Table 11.5.

Three additional indices that are helpful for identifying noncompliance issues are the Positive Impression Management (PIM) and Defensiveness (DEF) scales and the Cashel Discriminant Function (CDF; Morey, 2007a). Designed to be measures of defensiveness, the PIM and DEF scales are moderately correlated with the clinical scales (Hopwood, Blais, & Baity, 2010) and are, therefore, influenced by both purposeful dissimulation and defensiveness or low levels of distress. In contrast, the CDF (Cashel, Rogers, Sewell, & Martin-Cannici, 1995) is a supplemental score that is predictive of conscious attempts to underreport psychopathology,

Table 11.5 Interpretive hypotheses for MCE, RXR, and TPI combinations

	Treatment amenability	
Motivation and global distress	Low amenability (TPI ≥ 7)	High amenability (TPI < 7)
Unmotivated (RXR T-Score > 50)	The patient will likely prove resistant and disinterested in help for his/her problems. He or she is probably a mandated case	The patient is likely to be well adjusted, but unlikely to acknowledge his/her problems or distress. Symptoms may have a situational or somatic focus
Motivated for Treatment (RXR T-Score = 30–50) + Moderate Distress (MCE = 52–67)	Prognosis is fair. Despite adequate motivation, the patient may be defensive, and interpersonal problems may prove to be problematic to the therapist	Best prognosis. The patient is likely to benefit from therapy, as he/she is likely to be well adjusted and to have adequate motivation for change
Motivated for Treatment (RXR T-Score = 30–50) + High Distress (MCE > 67)	Prognosis is guarded. Patient is likely to place excess responsibility on the therapist. An extended course of treatment and/or drop out are likely	Prognosis is good, especially if the patient begins to make progress earlier in the course of treatment
Hypermotivated (RXR T-Score < 30)	Prognosis is poor. The patient is likely to have unrealistic expectations of therapy. This is likely to be a challenging case for experienced therapist. There is a high risk for early termination	Prognosis is fair. Despite being well adjusted, the patient is likely to have unrealistic expectations of therapy. Early alliance building may be necessary to prevent dropout and maintain the patient in therapy

Source: Kurtz (2010, pp. 13–34)

but uninfluenced by real psychopathology. When used together, these measures are especially useful for determining the nature of a client's defensiveness. In the case where PIM or DEF is elevated along with CDF, a client's defensiveness is likely to be strategic or deliberate (Khadivi & Evdokas, 2010; Kurtz, 2010; Siefert & Blais, 2010). In contrast, an elevated PIM scale in the context of a normal CDF score is suggestive of either (a) an honest, but overly positive, perception of one's problems or (b) problems that are perceived by the client as being circumscribed and situational (Kurtz, 2010).

The Millon Inventories

The MCMI-III does not contain scales designed to measure treatment adherence, per se (Millon et al., 2009), and studies examining the utility of the MCMI for predicting treatment participation and compliance have largely focused on externalizing problems (e.g., Fernandez-Montalvo & López-Goñi, 2010; Hamberger & Hastings, 1989; McMahon, Kelley, & Kouzekanani, 1993; Simonsen, Haslund, Larsen, & Børup, 1992; Whitmarsh, 1999). Fernandez-Montalvo and López-Goñi (2010) compared the personality traits of dropouts and completers in a sample of cocaine-addicted patients. Dropouts were shown to have higher scores on the Antisocial (6A) scale, as well as the Histrionic scale (Scale 4). Completers showed significantly elevated scores on the Compulsiveness scale (Scale 7). Whitmarsh (1999) similarly found higher scores on Scale 7 in a sample of alcoholics in an outpatient treatment program of those who completed the program. There is adequate evidence to suggest that a compulsive personality structure can actually be beneficial to treatment retention. The high adherence rate for individuals with compulsive personality traits is also logical, particularly in those exhibiting moderate symptomatology (Millon et al., 2009). Clinicians who are mindful of the potentially positive benefits of these traits can use them in the service of treatment design and implementation.

Examination of the validity indices can also shed light on the possibility of noncompliance. Although not well studied, the validity indices can provide the basis for hypotheses regarding how likely a client is to comply with the demands of psychotherapy (Millon et al., 2009). For example, those with high Disclosure (Scale X) or Debasement (Scale Z) scores are likely to be either in a state of crisis or to be purposely attempting to portray themselves in a negative light. The Desirability Index (Scale Y) might also be useful in this regard. In contrast to Scale X and Scale Z, Scale Y assesses self-favorable responding or a reluctance to admit minor flaws. Similar to high scores on the PIM scale, elevations on Scale Y indicate that a client is likely to have concealed some aspect of his or her psychological or interpersonal difficulties.

NEO-PI-3

The NEO-PI-3 provides a wealth of empirically derived information from which to develop hypotheses about personality factors that may be (a) responsible for an individual's resistance and (b) utilized by the clinician to design strategies to combat nonadherence. All five domains have been implicated in treatment noncompliance (e.g., Christensen & Smith, 1995; Cohen, Ross, Bagby, Farvolden, & Kennedy, 2004; Dobbels et al., 2005; Galluccio Richardson, 2003; Szymborska-Kajanek, Wróbel, Cichocka, Grzeszczak, & Strojek, 2006; Telles-Correia, Barbosa, Mega, & Monteiro, 2009), but conscientiousness, agreeableness, and neuroticism are the most widely studied, and each domain points to a different likely basis for the noncompliance. The domain with perhaps the most robust relationship with noncompliance is Conscientiousness (C). Individuals who are high in C are typically hardworking, self-disciplined, orderly, and competent (McCrae et al., 2011). In contrast, those low in C tend to be unskillful, poorly organized, unmotivated, forgetful, sloppy, and/or impulsive. Thus, clients who are low in C are often reluctant to carry out the tasks necessary for therapeutic change and may even be more likely to miss scheduled therapy appointments (McCrae & Costa, 2010; Miller, 1991; Sanderson & Clarkin, 2002).

Neuroticism (N) has also been shown to predict treatment adherence in certain populations (e.g., Szymborska-Kajanek et al., 2006). As

described above, levels of distress that are excessive and too low may also impede therapeutic progress in certain clients, presumably because very high levels are often indicative of conditions that are more multifaceted, agonizing, and pervasive, while low levels of distress result in poor motivation and decreased responsibility to change (McCrae et al., 2011; Sanderson & Clarkin, 2002). A combination of very high in N and low C does not bode well for persons in treatment. This combination of scores is often seen in those with borderline, antisocial, and passive–aggressive personality disorders (Sanderson & Clarkin, 2002). Similarly, those with low N and low C are likely to have very little incentive to change.

Agreeableness (A) is another domain with a relatively well-established relationship with treatment adherence (e.g., Cohen, Ross, Bagby, Farvolden, & Kennedy, 2004; Szymborska-Kajanek et al., 2006; Telles-Correia et al., 2009). Individuals with high A are trusting and compliant and usually willing to follow clinicians' recommendations (McCrae & Costa, 2010). In contrast, low scores on A suggest that a person is mistrustful, antagonistic, resistant, and oppositional. Such clients have a propensity for seeing their therapists' sound opinions and recommendations as useless or inaccurate (Sanderson & Clarkin, 2002). Therapists are likely to have difficulty establishing an effective working alliance with disagreeable clients (McCrae et al., 2011; Miller, 1991). This is vital, as the working alliance is a transdiagnostic factor with a robust relationship with therapeutic outcome (Federici, Rowa, & Antony 2010; Horvath, Del Re, Flückiger, & Symonds, 2011). When treating a client with low levels of agreeableness, clinicians might benefit from establishing trust and convincingly communicating the reasons for a given treatment plan or intervention.

Case Illustration

Michael, the client described above, was a 37-year-old married executive who was referred to the author for treatment. At the time of his referral, William was complaining of chronic worry and symptoms of depression. The initial evaluation was accomplished via a clinical interview with William and his wife, along with the PAI, MCMI-III, and NEO-PI-3. As detailed above, a review of the data revealed that he was, in fact, experiencing substantial symptoms of generalized anxiety and depression, and that recent stressors associated with his high-stress job and a conflictual marriage were likely to have played a role in his condition. No scale elevations were obtained that would have otherwise suggested the presence of a substance-related disorder, thought disorder, somatoform disorder, severe personality disorder, or heightened risk of suicide or violence. Recognizing the value of identifying and evaluating the transdiagnostic factors described above, measures of these variables were reviewed.

Symptom Severity and Distress

Although William scored in the normal range on the Negative Impression Management (NIM) scale, Rogers Discriminant Function (RDF), the Disclosure index (Scale X), and the Debasement index (Scale Z), his PAI profile was characterized by noteworthy elevations on the Anxiety (ANX), Anxiety-Related Disorders (ARD), Depression (DEP), Stress (STR), and Nonsupport (NON) scales, and he obtained elevations on the Anxiety (A) and Major Depression (CC) scales of the MCMI-III. In the context of a moderately elevated PAI Mean Clinical Elevation (MCE) and only one elevation on the MCMI-III Clinical Personality Patterns scales (i.e., the Compulsive scale), these data were strongly suggestive of a relatively high, yet circumscribed level of distress, predominantly confined to symptoms of anxiety and depression.

Further, on the NEO-PI-3, the client obtained elevations on the Neuroticism (N) scale and scored in the low range on the Agreeableness (A) domain scale. An examination of the number and type of NEO-PI facet scale elevations revealed that a number of factors were likely to have been playing a moderating role in the development and maintenance of William's distress, including a propensity for experiencing anger and hostility, depression and anxiety; interpersonal conflict

and low perceived social support; and a tendency to have difficulty managing stressful situations. Examination of the client's cognitions and behaviors revealed additional variables that appeared to be exacerbating his distress, including a perception of uncontrollability. Several of these factors were directly targeted early on in treatment in an attempt to reduce the client's distress to a less disruptive level.

Perceived Social Support and Family Dysfunction

Individuals being treated for anxiety disorders usually fare better in treatment when they perceive the availability of quality social support (Newman et al., 2006), probably in part because social support plays a protective function in those with trait anxiety, such that the positive association between levels of trait anxiety and state anxiety is weakened in those with adequate levels of perceived social support (Hyde et al., 2011). Likewise, a number of studies have shown that marital quality prospectively predicts the onset of anxiety disorders (Overbeek et al., 2006). Considering the pertinence of these variables to William's assessment and treatment, they were evaluated. William obtained elevations on the Nonsupport (NON) and Dominance (DOM) scales of the PAI.

These findings were accompanied by the heightened Neuroticism (N) score, elevated Angry Hostility [N2] facet score, and low Agreeableness (A) score described above. Taken together, these findings indicated that William was likely to have been experiencing low levels of perceived social support and to have a generally disagreeable interpersonal style characterized by a need for control, hostility, and domineering behavior. It was hypothesized that controlling, domineering behavior, a propensity for anger and hostility, and a disagreeable interpersonal style were likely contributing to both his marital problems and the inadequate support he was receiving from others. Efforts to increase the client's perceived social support were initiated in the early phases of treatment, and later phases of therapy were devoted to changing the pattern of interpersonal behavior that proved to be functionally related to his troubled social relationships, anxiety, and depression.

Treatment Adherence and Compliance

Collaboration, active involvement, and homework compliance are central to empirically supported treatments for anxiety and depression. William's scores on the Treatment Rejection (RXR) scale, Treatment Process Index (TPI), Positive Impression Management (PIM) scale, Defensiveness (DEF) scale, and Cashel Discriminant Function (CDF) were all within normal limits. In conjunction with the moderately elevated Mean Clinical Elevation (MCE) described above, these PAI scores indicated that William was likely to be fundamentally compliant with the demands of treatment. Likewise, his score on the MCMI Compulsiveness scale (Scale 7) was high, and his scores on the Disclosure (X), Debasement (Z), and Desirability (Y) scales were all unelevated, again suggesting that he would probably adhere to the requirements of therapy. On the NEO-PI-3, William scored in the high range on the Conscientiousness (C) domain scale, indicating that he was hardworking, self-disciplined, orderly, and competent—qualities predictive of treatment adherence. Although his Neuroticism (N) score was high, it was not excessively high.

Of importance, however, were his low Agreeableness (A) domain score and his heightened Angry Hostility (N2) facet score. Having identified these factors, extra care was taken to (a) systematically establish trust, (b) convincingly communicate the logic behind recommendations and interventions, (c) adjust therapist directiveness to bolster a William's sense of control, (d) collect client feedback in an ongoing fashion, (e) ensure that there was clear consensus on the goals and tasks of therapy, and (e) repair ruptures in the working alliance as they occurred.

Conclusion

Over the past 90 years, the field of personality psychology has evolved into a modern science, and numerous well-studied and empirically validated

broadband self-report instruments have been designed that measure dimensions of personality, including those that relate directly to the assessment and treatment of anxiety. When a client presents for treatment complaining of anxiety, a thorough assessment of his or her personality can shed substantial light on numerous factors related to his or her condition, and obtaining this information can have a positive impact on the treatment that he or she receives.

Goals central to personality assessment include assisting with accurately diagnosing the condition(s) that are cause for concern, identifying co-occurring conditions, and disentangling factors responsible for their maintenance—aspirations that are relevant to the cognitive–behavioral treatment of anxiety disorders. Broadband self-report instruments are also indispensable for measuring transdiagnostic variables pertinent to anxiety treatment, including symptom severity and global distress, social support and family dysfunction, and the likelihood and source of treatment noncompliance.

This chapter was arranged to provide the reader with a clear understanding of how one might effectively utilize the PAI, PAI-A, MCMI-III, MACI, and NEO-PI-3 when planning treatment for individuals with anxiety. The use of these instruments to assist with differential diagnosis and the identification of comorbid conditions was presented, and their value in measuring transdiagnostic variables was reviewed.

Acknowledgment The author would like to thank his intern, Olivia Maldonado, for kindly assisting with the preparation of this chapter.

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Contemporary Personality Disorder Assessment in Clients with Anxiety Disorders

12

Kevin D. Wu

Assessment of personality functioning is an important component of any comprehensive psychological evaluation, and that remains true when working with individuals who present with anxiety disorders. This is due in part to extensive cross-axis comorbidity within the current diagnostic system—namely, the implications comorbidity holds for case conceptualization and the deleterious impact it tends to have on disorder course and treatment outcome. Individuals diagnosed with anxiety disorders often present with additional symptomatology, including personality disorders (PDs; Bienvenu & Stein, 2003).[1] In fact, relations between anxiety and personality constitute a vast area; some of this content is addressed elsewhere in this *Handbook*. For example, use of the MMPI and projective techniques to assess personality and anxiety, objective personality measures to assess anxiety, and assessment of personality and anxiety in children and adolescents are addressed separately. That coverage allows the current chapter to focus on assessment and diagnosis of PDs in adult anxiety clients. To accomplish this in light of evolving conceptualizations of personality pathology, this chapter begins by considering the nature of personality and PDs and transitions to their association with and impact on individuals with anxiety disorders, reviews the *DSM-5* proposed model for diagnosing PDs, and concludes by noting several PD assessment instruments.

Personality and Its Traits

Any consideration of PDs must begin with a primer on personality—not a small task. Indeed, "the field of personality psychology, as a unified discipline distinct from clinical and social psychology, has come of age" (John, Robins, & Pervin, 2010, p. xi). This field represents a large domain and multiple views as to how it should be studied. For example, personality research can focus on either shared dimensions among groups of people or idiosyncrasies of the individual character (Barenbaum & Winter, 2010). These represent two very different approaches to studying personality, and this chapter will focus on the former. Differences notwithstanding, a common-ground and core issue involves stability in personal characteristics that make individuals who they are, and different from others. My student is *outgoing*, *enthusiastic*, *confident*, and *hard-working*. My sister is *honest* and *loyal*, a really *dependable* person. My father is *demanding*, but also *generous* and *supportive*. These are several of a long list of personal characteristics, or personality traits, used to describe

[1] An important caveat is that PDs are poised to undergo critical revisions in *DSM-5*, detailed subsequently. What impact the anticipated revisions will have on comorbidity rates and, more fundamentally, our study of anxiety–personality relations, will be an issue to follow once *DSM-5* has been in use for a period of time.

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_12,

ourselves and others. That each language has evolved a list of terms to capture human characteristics is the foundation of the lexical approach to personality (Allport & Odbert, 1936; Goldberg, 1993; John, Naumann, & Soto, 2010). Whether trained in trait theory or not, it is beyond debate that most people use such descriptors to comment on the nature of themselves and others. However broad or narrow or absolute or qualified the characteristics, a critical feature is that they capture people's qualities *in general*. That is, traitedness implies that people are relatively consistent most of the time and across contexts. A person who is relatively outgoing tends to be outgoing in most situations that allow for the expression of outgoingness (consider relatively open social settings such as a gathering of friends versus those that restrict expression such as a tax audit). Relative to people lower on this trait, the outgoing person will demonstrate feelings and behaviors reflecting comfort with or preference for activities such as meeting new people or expressing oneself. Conversely, people who are shy tend to be reserved and inhibited in most situations relative to people lower on shyness. Although specific expression may vary for several reasons, a key premise is that the underlying tendency to be outgoing or shy or nice or funny or annoying remains fairly consistent across time and context.[2]

Trait models have been important within the personality literature for many decades and continue to have a major influence on the study of individual differences. In particular, trait models that are arranged hierarchically—reflecting empirical covariation among traits rather than simply listing them—have been a useful way to organize the many aspects of personality. Within these models, "big" traits that describe broad personal characteristics subsume "smaller" traits that cover narrower characteristics. An example is the Five Factor Model (FFM; John, Naumann, & Soto, 2010; McCrae & Costa, 2010). The FFM organizes personality around five relatively orthogonal domains (*neuroticism*, *extraversion*, *agreeableness*, *conscientiousness*, *openness*) that comprise the highest level of the hierarchy.[3] In turn, each domain is described by more specific, lower-order facets. For example, the domain of neuroticism reflects individual differences in the tendency to experience psychological distress. In a widely used FFM measure (NEO-PI-R); neuroticism is comprised of six lower-order facets: *anxiety*, *angry hostility*, *depression*, *self-consciousness*, *impulsiveness*, and *vulnerability*. Even further, each facet is composed of narrower content, ultimately, down to discrete exemplar behaviors. Of note, whereas the FFM is the most recognizable of these models, others target different numbers of key traits and were developed independently (e.g., Eysenck & Eysenck, 1975). Importantly, these models converge to a substantial extent and generally agree on a finite number of key traits (Markon, Krueger, & Watson, 2005; Watson, Clark, & Harkness, 1994).

Critical to all of the models is the issue of dimensionality: Traits such as neuroticism are viewed as continuous, bipolar constructs on which individuals can vary from low to high. For example, *Joe and Jon both are competitive, but Jon takes even trivial challenges so seriously that games no longer are fun*. In this scenario, Joe and Jon both rate as "competitive," but are distinguished by Jon's more extreme standing on the trait. People who know these men likely can recall experiences in which Jon's behavior reflected this aspect of his personality. Overall, what makes people unique is their relative standing across many characteristics. Consider a two-dimensional example: *Sue and Bob both are highly conscientious, but whereas Sue is charming, Bob is ill-tempered*. Conscientiousness and agreeableness are traits on which people may vary orthogonally, and in this example, greatly. Broadly, and to a degree, personalities can be summed by unique combinations of

[2] On this last issue, the reader is encouraged to review the literature that addresses the relative importance of personality traits versus situational determinants for the prediction of behavior. This longstanding discussion became known as the "person–situation debate" (e.g., Epstein 1979, 1980; Kenrick & Funder, 1988; Mischel, 1968).

[3] There are data to support the existence of two superordinate factors that constitute the highest level in the FFM hierachy, that is, above these five factors (see Block, 2010).

many dimensions that combine to create a near-limitless range of diversity.[4] This is an important point to emphasize: Trait models do not suggest that all of human personality can be neatly captured by only five or so descriptors. Their complexity resides in the layered hierarchy of broad and narrow characteristics. Readers are encouraged to review the literature addressing trait models (Block, 1995; Digman, 1990, 1997; Eysenck & Eysenck, 1975; Goldberg, 1993; John, Naumann, & Soto, 2010; Markon et al., 2005; McCrae & Costa, 1997; Simms, 2007; Tellegen, 1985; Watson, Clark, & Chmielewski, 2008; Watson et al., 1994; Widiger, 2005; Widiger, Livesley, & Clark, 2009). This literature includes critical debates over many issues, including the precise number of traits at the top of the personality hierarchy, the cross-cultural nature of traits, and the relative importance of traits versus situational variables for predicting behavior. Currently, trait models are paramount to the study of personality.

Personality and PDs in the DSM

Generally consistent with the empirical literature in one sense, *DSM* defines personality traits as "enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts" (American Psychiatric Association [APA], 2000, p. 686). Thus, *DSM* stability does not require absolute expression of the quality—as noted, personality traits are generally descriptive of one's tendencies, but allow for the important influence of context as well as competing drives and motivations. In fact, it is critical that people are able to modulate their feelings to some extent and adapt their behavior to suit the prevailing context. For example, a shy person may learn to give verbal presentations to large audiences at work and even develop confidence when discussing familiar material, which is adaptive for his career. To the extent that he values his job, he will be motivated to overcome his shyness as needed and perform as required. However, thrust into a novel situation or one without such incentive, he still is predicted to feel and act inhibited relative to those who are dispositionally less shy. Thus, he has not changed his general nature per se, but rather adaptively altered his experience and outward expression within this given context.

For clinicians, of most interest may be the issue of personality pathology. From a dimensional trait perspective, this means consideration of when does very low or very high standing on a given characteristic become maladaptive and therefore reflect a clinically relevant problem that requires attention? Or framed as above, are one's tendencies rigid across differing situations that require flexibility? This is critical to the concept of personality pathology. Returning to *DSM*, a PD is diagnosed when a person's "enduring pattern of inner experience and behavior … deviates markedly from the expectations of the individual's culture," causes distress or impairment in multiple domains of functioning, and is pervasive across situations (APA, 2000, p. 689). This is a notably broad definition and certainly there are myriad ways in which people can deviate from culturally normative expectations for affective and interpersonal functioning. That is, people can struggle with being "too low" or "too high" on any trait. For example, *Karen is so passive at office meetings such that her supervisor thinks she is disengaged*, whereas *Kelly is so aggressive that she doesn't recognize when it would be in her best interest to keep quiet*. *Brian only looks out for himself and doesn't contribute to the team's goals*, whereas *Bill is so invested in helping others that he often fails to meet his own needs*. Simply put, for any characteristic on which people may vary, it is possible to exhibit problematic functioning due to extreme high or low manifestations of that characteristic. Recalling the prior example, if the shy employee had not overcome his inhibition about giving presentations, he might have quit his job or been demoted for poor performance. When inflexibility interferes with one's goals, it by definition becomes an issue of clinical relevance.

[4]There also is the potential for dynamic interactions among these traits that would allow for even further diversity among individual personality profiles.

Beyond the general definition of personality pathology, there are many views as to what constitutes PDs and how best to organize them. Coolidge and Segal (1998) reviewed the evolution of the *DSM* PDs, from the cardinal personality types and trait disturbances in 1952; to the separation of 11 PDs onto Axis II in 1980; to the current 10 PDs organized on three clusters. Cluster A (Paranoid, Schizoid, Schizotypal) reflects odd or eccentric patterns; Cluster B (Antisocial, Borderline, Histrionic, Narcissistic) reflects dramatic, erratic, or emotional patterns; Cluster C (Avoidant, Dependent, Obsessive–Compulsive) reflects anxious or fearful patterns.[5] Each diagnosis summarizes a clinically relevant pattern of experiences and behaviors. For example, the essential feature of Dependent PD is "a pervasive and excessive need to be taken care of that leads to submissive and clinging behavior and fears of separation" (APA, 2000, p. 721). Clients must demonstrate at least five of eight criteria that include *difficulty making everyday decisions without an excessive amount of advice and reassurance from others*, *needs others to assume responsibility for most major areas of his or her life*, and *has difficulty expressing disagreement with others because of fear of loss of support or approval*. Each *DSM* PD is operationalized by essential features and specific criteria that must be met polythetically—that is, a sufficient number of a longer but finite list of criteria. The basic structure is that once the broad definition of a PD has been met, the ten diagnoses specify the nature of the individual's dysfunction. Of note, diagnoses are made categorically—that is, diagnosis present or absent based on whether the individual meets the threshold number of symptoms for a given PD.

The utility of *DSM*'s categorical approach to diagnosis has been roundly criticized, and it is an understatement to suggest that this is a major issue regarding the PDs. Key problems include but are not limited to temporal stability, within-diagnosis heterogeneity, between-diagnosis comorbidity, and disconnect from the normal-range personality literature. Readers are encouraged to access the literature that details strengths and limitations of the categorical PD model and alternate dimensional approaches (Clark, 2007; Clark, Watson, & Reynolds, 1995; Frances, 1993; Livesley, 2007; Livesley, Schroeder, Jackson, & Jang, 1994; Nathan & Langenbucher, 1999; Shedler & Westen, 2007; Simms et al., 2011; Trull & Durrett, 2005; Tyrer, 2001; Wakefield, 2008; Westen, DeFife, Bradley, & Hilsenroth, 2010; Widiger & Clark, 2000; Widiger et al., 2009; Widiger & Lowe, 2008). This issue will resurface when reviewing the *DSM-5* proposal.

Personality–Psychopathology Relations

With a brief primer to personality and PDs, the next consideration is how they relate to anxiety. Widiger and Smith (2010) reviewed the general nature of relations between personality and psychopathology, summarizing three major models of association: *pathoplasty*, *spectrum*, and *causal*. Pathoplasty models consider the bidirectional influence of personality and psychopathology on the expression of each. Spectrum models consider ways in which personality and psychopathology may comprise parts of a common hierarchical model. Causal models consider the impact of personality on psychopathology and vice versa. These issues are noted here to encourage the reader to consider the multiple possibilities and fundamental nature of personality–psychopathology relations. Examples of literature that specifically addresses anxiety disorders include D. J. Stein, Hollander, and Skodol's (1993) review with an emphasis on methodological limitations of studies aimed at anxiety and Axis II relations; Bienvenu and Stein's (2003) review of the nature of relations between anxiety and both normal-range personality and personality disorder traits; and Shea and Yen's (2003) consideration of stability as a potentially flawed basis for distinguishing Axis I from Axis II conditions.

[5] *DSM-IV-TR* also lists Personality Disorder Not Otherwise Specified (PDNOS) and two diagnoses in need of further study: Depressive PD and Passive–Aggressive (Negativistic) PD.

Limitations notwithstanding, the most studied aspect of these relations is diagnostic comorbidity between Axis I conditions and PDs.[6] Estimates typically are at least 50% and often higher for clinically identified samples (Clark, 2007). Some symptom-based structural models were developed to account for empirical patterns of comorbidity, highlighting covariation among anxiety, depression, and PDs (Watson, 2005). Whereas the nature of personality–psychopathology relations was noted as an issue to resolve, it is clearer that the presence of comorbid conditions tends to have a deleterious impact on course and outcome. The major focus of comorbidity research with respect to anxiety disorders has been on depression, and rightfully so, as their overlap is extensive (Mineka, Watson, & Clark, 1998). However, PD presence among clients with anxiety is a substantial issue, and although not invariant, there is substantial evidence to support that the presence of a PD has negative consequences for the course of anxiety symptoms. For example, Ansell et al. (2011) followed for 7 years 499 individuals diagnosed with one of six anxiety disorders to determine the impact of comorbid personality pathology. Among the several major findings from this study were that for individuals with Social Phobia, Avoidant PD predicted lower remission rates and Schizotypal PD predicted greater relapse; for individuals with GAD, the presence of Obsessive–Compulsive Personality Disorder (OCPD), Borderline PD, and Schizotypal PD all predicted negative courses, including relapse, new onset of episodes, and proportion of time spent in a GAD episode. There was a generally similar finding for each of the six anxiety disorders examined. Overall, Ansell et al. concluded that "specific PD diagnoses have negative prognostic significance for the course of anxiety disorders underscoring the importance of assessing and considering PD diagnoses in patients with anxiety disorders" (p. 1019). The breadth of the PD domain likely precludes simple 1:1 associations with anxiety disorders in most instances, but these data suggest that assessment of personality pathology can be a valuable tool when working with clients who suffer from anxiety symptoms.

Specific Anxiety–Personality Disorder Pairings

Two specific sets of relations between anxiety disorders and PDs require mention. The first involves OCD and OCPD. Aided by what Pfohl and Blum (1991) characterized as an unfortunate similarity in naming, there has been long-standing interest in a purported OCD–OCPD association. Axis I OCD is marked by intrusive thoughts, images, or impulses that are unwanted and cause distress (obsessions) and rigid compensatory behaviors aimed to reduce distress (compulsions). Axis II OCPD is a "preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency" (APA, 2000, p. 725). *DSM* indicates that "despite the similarity in names, [OCD] is usually easily distinguished from [OCPD] by the presence of true obsessions and compulsions" (APA, p. 728). Nevertheless, there is a substantial literature that attempts to address this issue, much of which examines rates of comorbidity between the two diagnoses. Early work tended to support an association, including comorbidity at rates as high as 55–70% (Black, 1974; Rasmussen & Tsuang, 1986). However, additional study has not confirmed those findings, instead suggesting that whereas individuals with OCD often present with personality pathology, it is not more likely to be OCPD than other PDs, particularly the other two Cluster C PDs (Albert, Maina, Forner, & Bogetto, 2004; McGlashan et al., 2000; Wu, Clark, & Watson, 2006). Thus, there may be no necessary association between the two conditions.[7]

[6] Clark (2007) noted that "comorbidity" is a misnomer with respect to PDs if defined as the co-occurrence of two independent conditions. This is because the *DSM-IV* PDs are not independent conditions. Nevertheless, for the sake of convenience, it will continue to be used.

[7] It is important to note that this conclusion is not universally supported (e.g., Eisen et al., 2006, reached a different conclusion from their analysis at the level of specific OCPD criteria).

The second pairing involves Social Phobia and Avoidant PD. Social Phobia is marked by elevated fear of social or performance situations which may be embarrassing; *DSM* includes a *generalized* specifier if the individual fears are not limited to circumscribed situations. Avoidant PD similarly involves a "pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation" (APA, 2000, p. 718). *DSM* recognizes the similarity between these two descriptions, in fact suggesting that they may be "alternate conceptualizations of the same or similar conditions" (APA, p. 720). Several other investigators have concurred with this conclusion based on overlapping symptoms and reported experience (Carter & Wu, 2010a, b; Hofmann, Heinrichs, & Moscovitch, 2004; Hook & Valentiner, 2002; Reich, 2000). Thus, (generalized) Social Phobia and Avoidant PD may be redundant constructs.

The DSM-5 Proposal

Based on available reports—most of which cite overwhelming evidence to conclude that the current model of PD diagnosis is not scientifically viable—the diagnosis of PDs appears headed for substantial changes. In fact, according to the relevant *DSM-5* Work Group, the field faces a "major reconceptualization of personality psychopathology" (Skodol et al., 2011, p. 4). The proposal reviewed below was retrieved from www.dsm5.org during Summer 2011.

The Work Group proposes a hybrid dimensional-categorical model developed to improve flexibility and clinical utility. This model includes five general criteria for the presence of a PD: (A) significant impairment in self and interpersonal functioning; (B) one or more pathological personality trait domains or trait facets; (C) relative stability across time and consistency across situations; and determination that the impairment is not better understood as normative due to (D) developmental stage or cultural consideration or (E) the direct physiological effects of a substance or medical condition. For criterion A, the Work Group has identified two components of each self (identity or self-direction) and interpersonal (empathy or intimacy) functioning which are central to overall personality functioning. For example, *empathy* reflects a dimensional construct that can be assessed using a 5-point "level of impairment" scale ranging from 0 (no impairment/healthy functioning; e.g., *capable of accurately understanding others' experiences and motivations in most situations*) to 4 (extreme impairment; e.g., *pronounced inability to consider and understand others' experience and motivation*). Using the same 5-point scale, descriptors are provided for each component at each level of functioning; the clinician's task is to identify the level that best characterizes the client's functioning for each component.

In the proposed model, criterion B identifies specific traits of concern. Reminiscent of current trait models, the Work Group lists five major domains (*negative affectivity*, *detachment*, *antagonism*, *disinhibition*, *psychoticism*) that subsume 25 narrower facets, labeled "core criteria" (e.g., negative affectivity includes nine facets, among them *emotional lability*, *hostility*, and *suspiciousness*). Of note, (1) both domains and facets are conceptualized as bipolar (e.g., an individual may be problematically too high or too low on the facet of *impulsivity*) and (2) some facets appear relevant to more than one domain (e.g., *hostility* is listed under both negative affectivity and antagonism). Each domain and facet is defined, which should facilitate clinical evaluation. Together, criteria A and B constitute the essential features of a PD. Satisfaction of criteria C, D, and E is required for assigning a formal diagnosis.

The proposed model also describes six personality disorder types: Antisocial, Avoidant, Borderline, Narcissistic, Obsessive–Compulsive, and Schizotypal. These six conditions have received the most empirical support to date and resemble their same-named counterparts in *DSM-IV*. Following the above structure, each is described by both characteristic impairment as well as core pathological personality traits. For example, Avoidant type includes self-impairment in identity as having *low self-esteem* and *excessive feelings of shame or inadequacy*, and interpersonal impairment in intimacy as shown by a

reluctance to get involved with people unless being certain of being liked (criterion A). Two pathological traits are listed and described: *detachment* and *negative affectivity*. Detachment is characterized by three facet-level problem areas: *withdrawal*, *intimacy avoidance*, and *anhedonia* (criterion B). Beyond the six specific types, a seventh diagnostic listing is Personality Disorder Trait Specified—loosely analogous to the current PDNOS diagnosis—with criteria A, C, D, and E the same as for the six named types. The difference resides in criterion B, which requires the presence of one or more of the pathological trait domains (or facets). Thus, an important change is that clinicians will be able to determine if one or more personality traits leave a client vulnerable to problematic personality functioning and serve as the basis of a clinically significant disorder—even if the clinical presentation is not adequately reflected by one of the six defined types.

Overall, the proposed model retains some elements of traditional PD content (e.g., the six types familiar from *DSM-IV*) but also revises PD diagnosis to incorporate contemporary thinking about personality pathology (e.g., assessment for degree of deviation from healthy functioning on a finite number of bipolar traits implicated in personality pathology). This revision should improve on coverage issues that currently result in excessive use of the PDNOS option (Verheul & Widiger, 2004) and may facilitate treatment planning in that clinicians will be able to highlight specific problematic traits that relate to client difficulties. Another potential advantage of such a system involves decreased exclusivity on pathology. That is, although our focus tends to be on the identification of variables that confer liability for symptomatology, a less-studied domain involves aspects of functioning that may serve as buffers from negative experiences. For example, many people endure traumatic experiences. Are there personality characteristics that allow for the majority of these people to emerge without anxiety symptoms that are severe enough to meet threshold for PTSD? For those who do, what personality traits may predict better treatment engagement, thus offering a positive predictor for subsequent treatment outcome? Overall, the proposed model appears to broaden our conceptualization of PDs to include *personality*, especially as it tends to be studied in the normal-range empirical literature.

Assessment Options

One immediate implication of the proposed revision to *DSM* is that some of the current PD assessment instruments will require revision—namely, measures that focus on specific *DSM-IV* disorders or criteria not retained in *DSM-5*. Conversely, measures that assess the domains and facets listed within the *DSM-5* model will be of increased focus and clinical utility. Perhaps more fundamentally, it appears that PD assessment in the future will necessarily involve consideration of a wider range of traits that may confer liability to or protection from self and interpersonal problems. In the short term, however, it seems likely that clinical focus will remain on liability, as the empirical basis for trait standing that is predictive of negative outcomes is further along—that is, there is a more established set of trait elevations that correlate with problematic functioning.

With this in mind, there are several instruments for assessing PDs.[8] Of course, for the sake of space it is noted that there are literally hundreds of instruments to assess personality and personality pathology, and therefore the discussion will be limited to the most commonly used measures. Indeed, if there is a construct named in the empirical literature, there is strong likelihood that at least one and perhaps dozens of measures claim to assess that construct. This is true for traits as well as personality disorders, such that there are stand-alone instruments for several of the *DSM-IV* PDs. Given the breadth of this chapter,

[8]Other titles may be consulted, including Weiner and Greene (2008), Segal and Coolidge (2007), and Hilsenroth and Segal (2003). Lengthy reviews and entire texts are dedicated to personality measurement, and provide detailed information about the history and development of key measures, specific aspects of administration and required training, data regarding targeted populations, and psychometric performance culled from extant research.

the highlighted instruments assess either the full range of formal *DSM-IV* PD diagnoses and their nearly 100 specific criteria or are omnibus in terms of assessing personality traits that facilitate PD diagnosis (see Table 12.1).

Clinician-Rated

Structured interviews allow for a detailed assessment of psychological functioning and the opportunity for trained interviewers to gather follow-up information for the most relevant domains. They also rely less on clients possessing insight as to their functioning—a significant consideration in some contexts—and offer improved reliability over unstructured interviews (see Segal & Coolidge, 2007, for advantages and disadvantages of interviews). The five interviews listed in Table 12.1 assess all of the *DSM-IV* PDs. They are the Structured Clinical Interview for *DSM-IV* Axis II (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997); Structured Interview for *DSM-IV* Personality (SIDP-IV; Pfohl, Blum, & Zimmerman, 1997); International Personality Disorders Examination (Loranger, 1999); Personality Disorders Interview-IV (PDI-IV; Widiger, Mangine, Corbitt, Ellis, & Thomas, 1995); and Diagnostic Interview for Personality Disorders-IV (DIPD-IV; Zanarini, Frankenburg, Sickel, & Yong, 1996). These measures range from 30 to 120 min for typical full administration, but most should take 60–90 min. However, a review of the empirical literature reflects that many researchers choose to administer only portions of these instruments for the purpose of targeting a single or subset of *DSM-IV* PDs. They target a fair amount of overlapping content (i.e., *DSM-IV* PD space), with individual criteria typically rated on 3- or 4-point scales ranging from *absent* to *of clinical concern*. However, each has unique features that users may consider when selecting the most appropriate one to use. For example, the SCID-II and DIPD-IV are organized by *DSM-IV* disorder, whereas the SIDP-IV and PDI-IV can be administered either by disorder or by behavioral/thematic domain (e.g., *interests and activities*, *work style*). To facilitate broad usage, the IPDE has been translated into several languages and can be scored for either *DSM-IV* or *ICD-10* PDs. Of value in some settings, the SCID-II and the IPDE offer questionnaire-based screening instruments. The literature evaluating the psychometric properties of these five interviews is extensive in some cases, including consideration of their utility in one context versus another (e.g., forensic versus clinical self-referral). Overall, they cover the territory of the *DSM-IV* PDs; it remains to be seen how much revision they will require as we approach *DSM-5*.

An alternative clinician-rated measure, the Shedler-Westen Assessment Procedure (SWAP; Shedler & Westen, 2007), is a 200-item Q-set. The SWAP was developed in part to further address the issue of client insight. "The 'standard vocabulary' of the SWAP allows clinicians to provide in-depth psychological descriptions of patients in a systematic and quantifiable form and ensures that all clinicians attend to the same spectrum of clinical phenomena" (Shedler & Westen, 2007, p. 43). The SWAP generates dimensional scores for the *DSM-IV* PDs, a set of empirically derived syndromes, and 12 personality factors, and includes narrative case descriptions. This instrument represents a departure from the interviews above.

Self-report

Questionnaires offer an efficient and cost-effective means of assessing symptoms and there are many instruments designed to address *DSM* PDs. Table 12.1 lists six common instruments: Personality Assessment Inventory (PAI; Morey, 2007); Dimensional Assessment of Personality Pathology Basic Questionnaire (DAPP-BQ; Livesley & Jackson, 2009), Millon Clinical Multiaxial Inventory (MCMI-III; Millon, Davis, Millon, & Grossman, 2009), NEO Personality Inventory Revised (NEO-PI-R; Costa & McCrae, 1992); Personality Disorder Questionnaire (PDQ-4; Hyler, 1997); and Schedule for Nonadaptive and Adaptive Personality (SNAP-2; Clark, Simms, Wu, & Casillas, in press). More so than the interviews, these questionnaires reflect substantial

Table 12.1 Snapshot of personality disorder assessment instruments

Instrument	Length	Scales included	Reading level	Additional materials, alternate forms, or notes
Interviews				
SCID-II	30–60 min	10 *DSM-IV* PDs	8th grade[a]	119-item SCID-II Personality Questionnaire
		DSM-IV PD-NOS		Computer-assisted interview version
		Depressive PD		Computer-administered questionnaire version
		Passive–aggressive PD		Training DVD
SIDP-IV	60–90 min	10 *DSM-IV* PDs	n/a	Standard topical sections version
		Self-Defeating PD		Modular version arranged by disorder
		Depressive PD		Consent form for contacting informant
		Negativistic PD		
IPDE	60–120 min	10 *DSM-IV* PDs	4th grade[a]	77-item *DSM-IV* Screening Questionnaire
		DSM-IV PD-NOS		59-item *ICD-10* Screening Questionnaire
		11 *ICD-10* PDs		
PDI-IV	90–120 min	10 *DSM-IV* PDs	n/a	Personality Disorders Interview Booklet
		Depressive PD		Thematic Content Areas Interview Booklet
		Passive–aggressive PD		
DIPD-IV	90 min	10 *DSM-IV* PDs	n/a	
		Depressive PD		
		Passive–aggressive PD		
Q-sort				
SWAP	200 items	*DSM-IV* PDs	n/a	Clinician-rated
		Empirically based syndromes		Web and Microsoft® Excel® versions
		12 personality factors		Narrative case descriptions generated
Questionnaires				
PAI	344 items	4 validity scales	4th grade	27-item Critical Items Form
		11 clinical scales		Hand scored and scannable answer sheets
		5 treatment scales		Interpretive software
		2 interpersonal scales		Digital Manual
DAPP-BQ	290 items	1 validity scale	5th grade	
		18 traits related to PDs		
MCMI-III	175 items	10 *DSM-IV* PDs	8th grade	Hand, computer, or mail-in scoring
		Masochistic PD		Uses Base Rate Scores
		Depressive PD		Audio CD version
		Negativistic PD		Spanish version
		Sadistic PD		Training CD
		5 correction/validity scales		
		11 clinical syndromes,		
		42 facets		

(continued)

Table 2.1 (continued)

Instrument	Length	Scales included	Reading level	Additional materials, alternate forms, or notes
NEO-PI-R	240 items	5 domains	6th grade	Self- and observer-report item booklets
		30 facets		60-item NEO-Five Factor Inventory
		3 validity items		Hand- or machine-scoring
PDQ-4+	99 items	Total score	8th grade	Clinical Significance Interview
		10 *DSM-IV* PDs		Paper or online administration
		Depressive PD		
		Negativistic PD		
SNAP-2	390 items	7 validity scales	6th grade	Computer adaptive version
		15 trait & temperament scales		33-item SNAP Other Rating Form
		10 *DSM-IV* PDs		
		Depressive PD		
		Passive–aggressive PD		

SCID-II Structured Clinical Interview for *DSM-IV* Axis II, *SIDP-IV* Structured Interview for *DSM-IV* Personality, *IPDE* International Personality Disorders Examination, *PDI* Personality Disorders Interview, *DIPD* Diagnostic Interview for Personality Disorders, *SWAP* Shedler-Westen Assessment Procedure, *PAI* Personality Assessment Inventory, *DAPP-BQ* Dimensional Assessment of Personality Pathology-Basic Questionnaire, *MCMI* Millon Clinical Multiaxial Inventory, *NEO-PI-R* NEO Personality Inventory Revised, *PDQ* Personality Disorder Questionnaire, *SNAP* Schedule for Nonadaptive and Adaptive Personality

[a]Reading level given for companion questionnaires

variability in content. That is, whereas most contain items that can be mapped onto *DSM* PD criteria—even if such assessment was not the major aim of the instrument—the personality space tends to be broader. In fact, *all* of the Table 12.1 instruments include content and scales beyond the formal PDs. For example, the PAI includes 18 scales addressing clinical content, treatment, and interpersonal functioning; the DAPP-BQ also assesses 18 traits relevant to personality pathology; beyond the *DSM* PDs, the MCMI-III assesses 11 clinical syndromes and 42 facets. The SNAP-2 includes 15 trait and temperament scales, in addition to the *DSM-IV* PD scales which themselves can be scored in three ways: dimensionally, by presence of individual criteria, and for categorical diagnosis. Noted previously, the NEO-PI-R is tied to the FFM and has been used increasingly to assess content relevant to personality pathology. Of note, several of these measures offer the benefit of separate validity scales, valuable for detecting problematic response styles such as random or inconsistent responding, true or false tendency, or symptom exaggeration/minimization. Some include separate forms for the report of informed others, such as parents or spouses. In combination with clinical assessment, these questionnaires can be valuable in the diagnosis and conceptualization process.

As noted, several trait models and associated questionnaires appear in the contemporary literature. It is important to restate here that these instruments converge, but they are not redundant—each possesses unique information. For example, Bagby, Marshall, and Georgiades (2005) compared three trait instruments—one representing 5-, 7-, and 18-factor models—to predict interview-based *DSM-IV* PD symptoms. All three instruments significantly explained PD variance. However, the 18-factor model contributed unique prediction beyond the 5- and 7-factor models for all ten PDs; the 5-factor model contributed unique prediction beyond the 7-factor model for all ten PDs; the 7-factor model contributed unique prediction beyond the 5-factor model for eight of the PDs and beyond the 18-factor model for five of the PDs. Other studies have drawn similar conclusions; from such work it

becomes clear that the PD space is broad and there may not yet be a single measure that comprehensively incorporates all of it.

Conclusions

Individuals with anxiety disorders frequently exhibit personality dysfunction and therefore its assessment is important. Clinicians and researchers are encouraged to access the literatures that aim to clarify anxiety–personality relations and advance our understanding of how these relations will help serve our clients. As we approach a new *DSM*, it is likely that our work in this domain will change, perhaps beginning the process of closing a long-standing gap between the personality and personality disorder domains. Such a change brings obvious challenges, as well as opportunities to break new ground in the study of anxiety and personality.

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Projective Personality Assessment of Anxiety: A Critical Appraisal

13

Caleb W. Lack and Shannon P. Thomason

The assessment of an individual's psychological state—thoughts, feelings, behaviors—is an enormous part of a psychologist's life. Indeed, the story of clinical psychology prior to World War II is the story of psychological assessment, from Lightner Witmer's first psychological clinic to Army Alpha and Army Beta to the Wechsler-Bellevue intelligence test (Plante, 2011). Unfortunately, as is the case in the development of most scientific fields, not all early development was actually progressive. Many health fields in their infancy embrace non-supported (outside of anecdotal stories or personal experience) theories, treatments, or measures of assessment. In medicine, for example, we have humorism, which led to bleeding and cupping (Hart, 2001), or animal magnetism, which led to mesmerism and channeling the magnetic fluid (Baker, 1990). In clinical psychology, many today view the continued use of projective measures of personality to assess psychopathology as akin to a physician who uses trepanning to treat epilepsy—as a pseudoscientific practice which should have no place in a modern, scientific field. There are, however, numerous supporters of the use of projective techniques and tests to assess for psychopathology in both clinical practice and academia (Hogan, 2005; Hojnoski, Morrison, Brown, & Matthews, 2006).

The purpose of this chapter is to examine, using a scientifically skeptical but not cynical mindset, if the evidence supports the continued use of projective measures in the realm of anxiety assessment. To do so, we will first familiarize the reader with the historical and theoretical background behind the development of the most commonly used projective measures. Then, we shall examine the history of the controversy of their use, beginning in the 1950s and continuing to the present day. Next, evidence specifically concerning the use of such instruments for assessment of anxiety (both in general and for specific problems) will be summarized. Finally, conclusions and recommendations for clinical practice will be offered.

It is important to note at this point that projective measures are often equated with psychoanalytic and psychodynamic theories of personality and psychopathology, particularly by persons unfamiliar with their history and development. However, not all measures (e.g., the Rorschach) were developed from a psychodynamic or analytic framework, although many were indeed later co-opted by clinicians and researchers from such a theoretical background. Readers should also be aware of the long-standing and ongoing controversies and debates regarding the validity and scientific status of psychodynamic theory, which has come under attacks from both within (e.g., Bornstein, 2001) and without (Fuller Torrey, 1986; Popper, 1963).

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_13,

There remain, however, many ardent supporters and promoters of psychodynamic theory and the usefulness of its treatment methods (e.g., Leichsenring, Rabung, & Leibing, 2004; Shedler, 2010).

Before turning to the history of projective measures, though, some terminology issues must be addressed. Types of measures used to assess for personality characteristics and psychopathology are often divided into two categories: objective and projective (Weiner & Greene, 2008). Objective tests make *direct* inferences about a person's psychological state based on his or her self-report (or in some cases, report from significant others such as parents) to very clear questions. Projective tests, in which instructions or stimuli are more ambiguous and less structured, make *indirect* inferences about a person's psychological state. The term "projective" itself comes from Frank (1939), who thought that using ambiguous stimuli would allow a person to project their "private world" onto such stimuli, and as such "interpret the material and react affectively to it" (p. 403).

This terminology can be seen, however, as heavily value-laden (e.g., "If one is objective, the other must be subjective!") and may not be very useful. One task force of the American Psychological Association, the Psychological Assessment Work Group, even recommended replacing the label "objective" with "self-report instrument" and "projective" with "performance-based measures" (Meyer et al., 2001). Others recommended use of "self-report measures" and "free response measures" (Meyer & Kurtz, 2006). Such recommendations, however, have not been adopted by the majority of practitioners and researchers, and as such this chapter will retain usage of the more familiar term "projective measures."

A Brief History of Projective Measures

Many persons who are only superficially familiar with the development of the various measures to be discussed below (the Rorschach Inkblot Method, the Thematic Apperception Test, figure drawings, and sentence completion) have the idea that the usage and interpretation of these measures are all based on Sigmund Freud's theories of personality and psychoanalysis. This, however, is far from the truth. In fact, each measure described below has its own unique development, sometimes directly related to Freudian theories, sometimes influenced by them, and sometimes largely independent of them. Below, we will discuss the origins of four common projective tests (or classes of tests), focusing on the theoretical underpinnings of them and the scientific evidence for such theories. We will then discuss the basis and support for their use in clinical settings, particularly for assessment of anxiety.

Rorschach Inkblot Method

To gain an understanding of the strength of beliefs for and against the use of our first test, the Rorschach (also called the Rorschach Inkblot Method [RIM]) has been described as being "the most cherished and the most reviled of all psychological assessment tools" (Hunsley & Bailey, 1999, p. 267). It is frequently listed as one of the most commonly used psychological measures by clinical and school psychologists (Archer & Newsom, 2000; Hojnoski et al., 2006) and frequently taught in clinical psychology doctoral programs (Belter & Piotrowski, 2001), although anecdotal evidence suggests a decline across the past decade. The Rorschach also holds a grip on the public imagination, as evidenced by the use of similar inkblots in media from comic books ("Watchmen" by Alan Moore and Dave Gibbons) to music videos ("Crazy" by Gnarls Barkley).

Hermann Rorschach's development of the test that would bear his name is an interesting story. He was apparently intrigued as a youth (as was much of Germany) by a popular parlor game called *Klecksographie* (roughly "Blotto" in English), where one would drip ink onto a piece of paper, fold it in half, and then compete to give the most numerous or interesting answers (Exner, 2003). Psychological research using inkblots had been conducted by a number of researchers in the early part of the twentieth century, but had primarily confined itself to the areas of visual perception and memory processes, although Alfred

Binet researched their use in measuring intelligence (Zubin, Eron, & Schumer, 1965). Rorschach, however, was either unaware or ignored these lines of research when, in 1918, he created his blots and developed their usage. He did, however, appear to be inspired by work conducted by a medical student in Zurich, who was unable to show success in distinguishing psychotic patients from non-patients using responses to inkblots (Gurvitz, 1951).

Rorschach's inkblots were not what one would have seen in a game of Blotto, however. He appears to have painstakingly constructed them using ink and watercolors, rather than relying purely on chance or random drips and patterns (Exner, 2002; Morganthaler, 1954). Based on his only major work (he died at age 37, only 9 months after publication of it), Rorschach was particularly concerned with two factors in a person's response to the blots: movement and color (Rorschach, 1921/1964). He does not appear to have been influenced by Freudian theories in constructing the inkblots or their interpretation, and instead had his own theory that the perception of movement and color would give insight into personality. In particular, he thought movement responses were related to introversion, while color responses were related to extraversion ("extratension" in his terminology).

The idea that perception of movement and introversion were related appears to be based in part on muscle movement and dream research by a philosopher in the 1800s named John Mourly Vold (Ellenberger, 1993). Rorschach took Mourly Vold's idea that inhibition of movement during sleep would cause more dream imagery involving movement and applied it to the responses generated by his inkblots. In other words, his theory was that introverts should see more images that are moving in the blots, due to their being psychologically inhibited. Rorschach also outlined a theory that the perception and use of color in descriptions of the inkblots were related to affect and extraversion. In particular, those who used more color responses were more extraverted and likely to show high levels of emotion. Unlike with his ideas about movement, however, his theory about color seems to have been pulled from common vernacular ("black moods" for example) and personal opinion rather than any research or previous theories (Rapaport, Gill, & Schafer, 1946). Rorschach also seemed particularly interested in the balance of introversion and extraversion, called "Experience Balance" in English (abbreviated *EB*). The ratio of movement (*M*) to color responses, he believed, would reveal a person's "basic experience and orientation toward reality" (Wood, Nezworski, Lilienfeld, & Garb, 2003).

Rorschach's reasons for focusing on color and movement, therefore, need to be examined to see if they are actually supported by a preponderance of scientific evidence. A review of the literature shows that the answer is, for the most part, "no." *EB*, for example, has not consistently been demonstrated to be related to introversion or extraversion (see Holtzman, 1950 or Wysocki, 1956 for disconfirming evidence; Allen, Richer, & Plotnick, 1964 for confirming), and Color responses have not been consistently related to any particular diagnosis such as depression (for a review see Stevens, Edwards, Hunter, & Bridgman, 1993). It should be noted, however, that some of Rorschach's hypotheses do have some consistent support. For example, that a more intelligent person would provide higher numbers of *M* responses has been supported to a moderate degree (see Frank, 1979 for a review), as have some indicators of psychotic disorders (see Dawes, 1994; Lilienfeld, Wood, & Garb, 2001).

So, was Rorschach right? The answer is "mostly not" with the occasional "yes." While his major hypotheses have not been shown to be correct, some minor ones have support. What does this mean for the test as a whole, then? Should it all be thrown out? These inconsistencies and concerns led to numerous within-group conflicts during the 1930s and beyond, as different groups of researchers and clinicians developed further types of scores, or refined the meaning of certain scores (see Exner, 1969 for a review of major systems of interpretation). It was during these conflicts that some began to use the Rorschach as a more psychoanalytically oriented test, interpreting responses to blots as if they were dreams (content approach) rather than relying on a more formal structural approach (e.g., following Rorschach's methods). Furthermore, well-conducted research in the 1950s

showed that the Rorschach was not more useful (and was in fact slightly less useful) than a more objective measure of personality, the MMPI, and appeared to highly overpathologize normal individuals (e.g., Little & Shneidman, 1959). Further research showed that it added little to nothing in the way of incremental validity if one already had access to biographical information and a person's history (see Garb, 1998 for a review). By the beginning of the 1960s, most research-oriented and scientifically based psychologists thought the Rorschach was not a useful instrument (see critiques by Cronbach, 1949; Jensen, 1958).

Such criticism and lack of scientific support led directly to a number of reform attempts for the Rorschach. The most complete one, and the one that likely saved the Rorschach from being consigned to the graveyard of psychological tests, was John Exner's Comprehensive System (CS; 1974, 1993). The CS included reviews of the literature, norms, and administration guidelines—all things that were lacking at the time. Exner also led extensive research into reliability and validity of the traditional scores, while at the same time developing new ones. Exner has been described as having "almost single-handedly rescued the Rorschach and brought it back to life" (American Psychological Association Board of Professional Affairs, 1998, p. 392). All the while, though, findings by researchers other than Exner or his associates began to appear, with results often in sharp contrast to those reported in the CS's manual. In fact, the vast majority of the supportive studies cited in the latest CS manual (Exner, 1993) are unpublished studies conducted by Exner and his research team at Rorschach Workshops (Wood, Nezworski, Lilienfeld, et al., 2003).

As research on the CS conducted by those *without* ties to Exner and the Rorschach Workshop began to accumulate in the 1980s and 1990s, numerous concerns that were identical to those raised by research in the 1950s and 1960s were raised: overpathologizing, low diagnostic accuracy outside of psychotic disorders, and lack of relationship to objective measures of psychopathology and personality (for a review see Hunsley & Bailey, 2001; Lilienfeld, Wood, & Garb, 2000). Even the norms of the CS were found to be seriously different from the results of other studies (e.g., Shaffer, Erdberg, & Haroian, 1999; Wood et al., 2001). Flaws within Exner's own norms were even found, as over a third of his normative sample was found to not exist; from his own report, 221 of the 700 normative subjects were actually duplicate records (Exner, 2001). Of special note, the majority of supportive studies for the Rorschach have recently been published in the *Journal of Personality Assessment*, a well-respected journal that publishes large amounts of high-quality research. It also happens to be the official journal of the Society for Personality Assessment, which originated as the Rorschach Institute, and is almost exclusively staffed by editors who are very strong proponents of the Rorschach's use.

What, then, can be said about the usage of the Rorschach in clinical settings? Interestingly, both opponents (Wood, Lilienfeld, Garb, & Nezworski, 2000) and proponents (Weiner, 1999) conclude that it should *not* be used diagnostically. To wit, "Rorschach data are of little use in determining the particular symptoms a person is manifesting…. Accordingly, the nature of these symptoms is better determined from observing or asking directly about them than by speculating about their presence " (Weiner & Greene, 2008, p. 396). Clinically, there are *some* CS scores that are related to intelligence and psychotic disorders, just as Rorschach's original system found almost 90 years ago (Wood, Nezworski, & Garb, 2003). But in terms of relationship to currently used diagnostic categories, there is currently no solid scientific evidence that using the Rorschach under the CS can accurately and consistently assist with the diagnosis of anxiety disorders in general, or any specific category of anxiety, such as GAD, PTSD, OCD, or phobias (Wood et al., 2000). It should be noted that one study found specific Rorschach indicators present in children with PTSD (Holaday, 2000), although the same indicators were found in children with oppositional defiant disorders, albeit to a lesser degree; it was a small sample though, and the raters were not blind to the children's diagnoses (as confirmed by objective measures). There is, however, a non-CS scale—the Elizur Anxiety scale—that relates

to real-world anxious behaviors (Aronow & Reznikoff, 1976; Goldfried, Stricker, & Weiner, 1971), although not to specific disorders. Unfortunately, it is best regarded as a research instrument, given the lack of standardized norms or methods of administration (Wood, Nezworski, & Garb, 2003).

In summary, then, the Rorschach began life in 1922 as a theoretically shaky, non-empirically supported test for the majority of psychopathology (psychotic disorders being the exception). Despite almost 90 years of research and usage on it, and various iterations of scoring and administration criteria, the preponderance of evidence today indicates that it has changed little over years. There is not any reasonable, empirically supported reason to use the Rorschach as a tool to assist in the diagnosis of any anxiety disorder.

Thematic Apperception Test

The Thematic Apperception Test (TAT; Murray, 1943) has a history almost as long as the Rorschach, and, also like the Rorschach, it has a highly interesting development and history (see Cramer, 2004 for full details). The two major figures in the development of the TAT were Henry Murray and Christina Morgan. Murray was a surgically trained physician with a PhD in biochemistry before being hired on faculty of the Harvard Psychological Clinic in 1926. Although initially largely unqualified for such a position, Murray underwent extensive training in psychoanalysis, including meeting with Carl Jung, and intensive reading in psychiatric and psychological literature (Robinson, 1992). Morgan was an artist and certified nurse's aide who was highly influenced by Jung's theories on personality and psychopathology, having been analyzed by him personally (Douglas, 1993). Although unremarked on in many writings on the TAT (e.g., Groth-Marnat, 2003; Weiner & Greene, 2008), Murray and Morgan also engaged in a long-lasting extramarital affair that ended only with her suicide in 1967 (Douglas, 1993). Murray and Morgan may appear odd choices to develop a major psychological test, but the TAT ranks second only to the Rorschach as the most often used type of projective test by clinical psychologists (Camara, Nathan, & Puente, 2000). It is less popular, but still quite frequently used by school psychologists (Hojnoski et al., 2006).

Murray appears to have been the theoretical driving force behind the TAT, as it is based on his *needs-press* concepts of personality. For Murray, an individual's personality is the result of an interaction between one's needs (internal motivations) and presses (environmental or situational pressures that impact how one expresses those needs). Morgan, who is absent as an author from the officially published version of the test[1] (Murray, 1943), assisted more in the preparation of the actual testing materials (the pictures on the test cards), some early administration of the measure, and writing the results for publication (Holt, 1949). The instrument itself (in the final version) consists of 31 black and white cards that have pictures of various kinds (14 show a single person, 11 show two people, three have a group of people, two have scenes of nature, and one is blank), although only 20 are used with each individual, since some cards are specific to age or gender. Examiners show the cards to the examinee and ask him or her to tell a story based on the picture. The stories that are told, according to Murray, reveal numerous aspects of personality and can be used to understand how someone thinks and feels in real-world influenced by Jung's theories. Murray believed that these stimuli would also "expose the underlying tendencies which the subject…is not willing to admit, or cannot admit because he is unconscious of them" (p. 1, 1943).

The TAT manuals (Murray, 1943, 1971) provide very clear and detailed procedures for assessing 28 "needs" and 24 "presses" along a 5-point scale based on the stories told. However, similar to what happened with the Rorschach, numerous other systems and methods of using the TAT soon developed. Methods using a smaller number of cards than the standard 20 (often 8–12) became

[1]It appears that a number of health problems, combined with her lack of later development of the test, caused her to ask to be removed as an author (Murray, 1985).

common (Karon, 2000), and a majority of practitioners do not appear to use any of the available scoring systems, instead relying on "intuitive" interpretations of the stories (Gieser & Stein, 1999; Groth-Marnat, 2003; Rossini & Moretti, 1997). In fact, surveys show that few users even follow Murray's guidelines to present the cards across two different sessions (Vane, 1981) or even present the same cards in published research (Keiser & Prather, 1990). So, just as with the Rorschach, many users of the TAT, both historically and currently, are not using it as originally intended by the developers or even from the same theoretical viewpoint as them [e.g., Westen, Lohr, Silk, Kerber, and Goodrich's (1989) psychodynamic, object-relations focused scoring system].

There have been several positive findings regarding scoring on the TAT and relationship to specific areas of psychological functioning, but they have all been found when using a particular scoring system. For example, one meta-analysis found TAT scores under McClelland's system were superior to self-report scores in predicting long-term career outcomes, such as success in a one's career and level of income (Spangler, 1992). Westen's scoring system has been found to differentiate between those with and without personality disorders (Ackerman, Clemence, Weatherill, & Hilsenroth, 1999). Other scoring systems have shown TAT scores to be related to therapy attendance in persons with personality disorders (Ackerman, Hilsenroth, Clemence, Weatherill, & Fowler, 2000) and general symptom improvement in persons treated in an inpatient unit (Fowler et al., 2004). There have not, however, been any studies that have successfully used the TAT (in any of its scoring variations) to accurately assess anxiety, either in general or for specific diagnostic categories.

Unfortunately, as shown above and noted by many (e.g., Groth-Marnat, 2003; Hunsley, Lee, & Wood, 2003), the majority of those using the TAT clinically would not benefit from this information, since most practitioners are not using either standardized administration or scoring procedures. Add in the TAT's lack of incremental validity (Garb, 1998), the high potential for overpathologizing normal populations based on TAT responses (Lilienfeld et al., 2000), and it can be seen why the TAT "rarely plays a prominent role in clinical diagnostic evaluations" (Weiner & Greene, 2008, p. 469). Indeed, the purpose of the TAT, as originally conceived, was not for it to be used as a diagnostic instrument, but instead as a method of exploring a person's experience of the world around them and the underlying motives they attributed to others. It was not intended to assess for manifested symptoms seen in a psychological disorder.

So, in summary, we see that the TAT has some limited empirical support in assessing for personality disorders and achievement motives when using particular scoring systems. In none of these systems, however, has evidence shown it to be a useful tool to measure cognitive, emotional, or behavioral symptoms of any anxiety disorder. Further, given that few practitioners use the TAT in the standardized manner that it was intended to be used, those that do use it in a diagnostic fashion are undoubtedly relying on personal experience and judgment, rather than empiricism and sound research, with all the attendant biases and problems relying purely on personal experience entails (Dawes, Faust, & Meehl, 1989). In short, the TAT should not be used for the purposes of diagnosing any anxiety disorder.

Figure Drawings

The third type of projective test to be discussed is not a specific measure, like the Rorschach or the Thematic Apperception Test, but instead a collection of measures. A number of methods to reportedly assess personality and psychopathology require that an individual to draw pictures of a person, people, or objects. The three most widely used are the Draw-A-Person test (DAP; Harris, 1963), the House–Tree–Person test (HTP; Buck, 1948), and the Kinetic Family Drawing test (KFD; Burns & Kaufman, 1970). In surveys of clinical psychologists, all rank in the top 15 most commonly used instruments (Hogan, 2005), while school psychologists use them in 26–43 % of assessments (depending on the instrument; Hojnoski et al., 2006). Given the speed and ease of their administration (many take fewer than

10 min), it is perhaps unsurprising that they are used so frequently.

Although each test has its own set of interpretation(s), there are two broad approaches to scoring figure drawings: the global approach and the sign approach (Lilienfeld et al., 2000; Weiner & Greene, 2008). In the global approach (Koppitz, 1968), interpretation is based on sets of indicators that are summed to yield a total score of adjustment (or lack thereof). One scoring system (Tharinger & Stark, 1990) calls for a global score based not on sets of indicators, but instead the general impression of the psychologist. The sign approach, in contrast, relies on identification of isolated features of the drawing (e.g., eye size, size of figure, placement of figure) that are supposedly related to specific pathology or personality problems. For example, Machover (1949, 1951) identified large eyes as being linked to paranoid ideation, small figures to low self-esteem, and placing figures high on a page to high achievement striving. Purportedly, constructing these drawings could bypass conscious efforts to hide or exaggerate symptoms and provide a more complete understanding of a person.

Large amounts of research over the last 60 years have been conducted to examine the reliability and validity of figure drawings, with highly varied results. Interrater reliability (IRR) for the individual pieces used in the signs approach, for example, has been shown to be widely variable across different studies (for major reviews see Kahill, 1984; Palmer et al., 2000; Vass, 1998). Though certain signs have been shown as reliable from rater to rater (for example, size, detail, and line heaviness in Joiner, Schmidt, & Barnett, 1996), others were horribly unreliable, throwing the overall IRR into question. The same type of studies examining global scoring in the global approach have yielded consistently higher rates of IRR, although still quite variable (for reviews see Kahill, 1984; Thomas & Jolley, 1998). Internal consistencies for quantitative approaches have been moderate to high, with many showing high levels (Groth-Marnat & Roberts, 1998; Naglieri, McNeish, & Bardos, 1992).

Validity studies across different projective drawings have met with a number of difficulties, particularly in the sign approach. A primary one is lack of consistency in operational definitions. For instance, different studies or scoring systems often have the same feature interpreted in a different way. To illustrate, West's (1998) meta-analysis found that head sizes were interpreted to indicate sexual abuse in some studies but physical abuse in others. Some guidelines for interpreting drawings seem to almost specialize in making non-falsifiable predictions. Hammer (1959) said that pathology could be seen in drawings that were too large or too small, lines that were too heavy or too light, and ones that had either too few or too many corrections (erasures). Others stated that those same signs could either indicate high levels of anxiety or successful coping efforts against high anxiety (Handler & Reyher, 1965). Or, it might be that, as Waehler (1997) contends, lack of validity in a drawing may be simply because that individual does not show their distress in a drawing. Making such non-falsifiable predictions and explaining away negative findings are both hallmarks of pseudoscientific thinking (Shermer, 2002).

Specific research examining the validity of the sign approach for different psychological characteristics shows the problems one would expect based on the above information. For example, only 7% (2 of 30) of Machover's (1949, 1951) signs have been found to have support—round torsos being indicative of more stereotypically feminine personality traits and drawings that were colored in being related to anxiety level (Kahill, 1984). Similar reviews of the KFD concluded that individual signs showed little to no relation to actual psychopathology (Handler & Habenicht, 1994). A study examining depressive and anxious symptoms in children on an inpatient psychiatric ward used both projective measures and objective measures (Joiner et al., 1996). Interestingly, this study found that the differing projective measures not only did not relate to scores on the objective measures, but also did not have a relationship to scores from the different projective measures (even another drawing measure). Other well-controlled studies have similar lack of validity in the sign approach in assessing for depressive and anxious symptoms in children (Tharinger & Stark, 1990). It should be mentioned,

however, that one study of school children found that those with high scores on an objective anxiety measure showed significantly lower amounts of pencil pressure on the DAP, resulting in light lines (LaRoque & Orbzut, 2006).

Despite the lack of validity demonstrated by the sign approaches, however, there is a silver lining for projective drawings. In a study examining the KFD and DAP, Tharinger and Stark (1990) were able to accurately distinguish groups of children. The KFD was able to differentiate between children with and without mood disorders, while the DAP distinguished among children who had mood disorders and mixed mood/anxiety problems (Tharinger & Stark, 1990). Crucial to the point of this chapter, however, neither one was able to discriminate those with from those without anxiety disorders. There was also not a direct comparison to objective measures and their ability to distinguish between groups, even though there are mountains of evidence to support their use with children (Sattler, 2008). Further, there has been some support for the use of another global scoring procedure for the DAP, the Screening Procedure for Emotional Disturbance, to differentiate between groups of children with and without disruptive behavior problems (Naglieri & Pfeffier, 1992). Several other studies found similar results (e.g., Matto, 2002; Matto, Naglieri, & Clausen, 2005), although one study found much lower effect size differences and concluded that it was of limited utility in the schools (Wrightson & Saklofske, 2000).

Even these positive findings, though, must be interpreted cautiously at this point. One reason is that it is not known if controlling for intelligence, which has been shown to be lower across many types of psychopathology, would reduce or eliminate the positive findings reviewed above. The lone study the current authors found that addressed that issue (Schneider, 1978) found that controlling for intelligence eliminated the possible incremental validity of drawings given to school-age children when assessing for behavior problems. The complex role of artistic ability in impacting scores and interpretations is also not well understood, with some suggesting that it may play the role of a suppressor variable (Lilienfeld et al., 2000). Also problematic is the fact that it is unknown how many practicing clinicians use a sign versus a global approach, although a small study of active practitioners (Smith & Dumont, 1995) suggests that the vast majority of those that rely on drawings for clinical hypotheses use some combination of the approaches.[2]

In summary, it does appear that there may be limited uses for global scoring systems for projective drawings, in particular using the DAP and KFD for assessment of general behavioral and mood problems. There are not, however, any replicated lines of research that support the use of projective drawings and interpretation to differentiate children or adults with anxiety from a normal population, either in general or for specific disorders. The use of projective drawings in persons with anxiety, then, is unlikely to be diagnostically useful or add any incremental validity to more objective measures. Further research on this issue, particularly as regards global scoring systems, should be conducted.

Sentence Completion

Sentence completion is the single most frequently used projective method by school psychologists and is employed by approximately 60 % in the most recent survey (Hojnoski et al., 2006); sentence completion tests (SCTs) are also commonly used by clinical psychologists for both adult and child evaluations (Archer & Newsom, 2000; Camara et al., 2000; Hogan, 2005). Compared to the other methods reviewed above, SCTs actually

[2]Mixing such vastly different systems is not scientifically or psychometrically sound. As the first author's father has told him on more than one occasion, "You know what you get when you mix five pounds of manure with five pounds of ice cream? Ten pounds of manure." (J.R. Lack, personal communications).

have the longest history of usage and, much like the Rorschach, began life in the realm of experimental psychology. The earliest SCT appears to have been constructed by Herman Ebbinghaus (1897), who used them to examine reasoning and intelligence in adolescents. Their first usage to examine personality and psychopathology began with Carl Jung's theories concerning free word association, which developed into formalized procedures involving only a one word stimulus and response (for examples see Kent & Rosanoff, 1910; Rapaport et al., 1946). This evolved into short phrases, and finally sentences and measures quite similar to those used today by the 1930s (Weiner & Greene, 2008). A common thread among the early clinical users of SCTs was that the responses they generated were not simply self-report, but were instead providing a view into inner, conflicts, desires, and wishes (Holsopple & Miale, 1954; Rohde, 1946).

Given that there are well over 40 published SC measures (Sherry, Dahlen, & Holaday, 2004), the current review will focus on only two: the most widely used measure, the Rotter Incomplete Sentences Blank (RISB), and the most heavily researched measure, the Washington University Sentence Completion Test (WUSCT). It should be cautioned, however, that it is unlikely that the below information can generalize to other SCTs.

The RISB (Rotter & Rafferty, 1950; Rotter, Lah, & Rafferty, 1992) is the most used SCT according to surveys of clinical psychologists (Holaday, Smith, & Sherry 2000). Originally developed for assessing combat veterans returned from World War II, it was later adapted to be used with high school students, college students, and adults. The manual for the RISB described it as a screening measure for overall adjustment, not intended for comprehensive personality assessment or diagnostic usage. In sharp contrast to the RISB, the WUSCT (Hy & Loevinger, 1996) was developed as a research, not clinical, measure. Constructed to measure Loevinger's (1976) theory of ego formation, it has been found to be only rarely used clinically (Holaday et al., 2000), but does have a larger body of research on it than any other SCT (Westenberg, Hauser, & Cohn, 2004). Both measures have objective scoring procedures for each sentence stem, as well as a total score. The WUSCT has shown very strong reliability of numerous types and has been quite well validated as measure of ego development (Garb, Lilienfeld, Wood, & Nezworski, 2002). The RISB is less well researched, but reviews have shown adequate interrater, split-half, and test–retest reliability (Sherry et al., 2004).

Using the objective scoring method on the RISB, one study was able to reliably detect poor psychosocial adjustment in college students, differentiating those receiving mental health services 80 % of the time (Lah, 1989). Similar results were found in detecting delinquent adolescent high school males compared to peers (Fuller, Parmelee, & Carroll, 1982). One study even found a moderate relationship between response types on the RISB and psychopathy as measures by an objective measure (Endres, 2004). No studies the authors are aware of, however, examined using the RISB to separate persons with anxiety disorders from those without. The WUSCT, not being designed to measure psychopathology, has been rarely employed for such purposes in the reported literature. One study that did compared ego development (as measured by the WUSCT) in adults with and without a history of psychiatric disorders, finding that the WUSCT scores in higher functioning persons with a history of psychiatric disorders were more like the normal controls (Riberio & Hauser, 2009). One exception relevant to this chapter is a study by Westenberg, Siebelink, Warmenhoven, and Treffers (1999), which found WUSCT scores were able to accurately distinguish children with separation anxiety from children with more generalized anxiety problems.

Unfortunately, as was the case with the other measures summarized previously, it appears that few clinicians use objective scoring methods when utilizing SCTs, instead relying on subjective interpretations (Weiner & Greene, 2008). There certainly is the potential to assess certain clinically relevant symptoms from a person's answer to a sentence stem, particularly stems designed to elicit typical cognitions or behaviors seen in various anxiety disorders. For instance, stems to potentially assess social anxiety might

include "WHEN I ENTER A ROOM _____" or "PEOPLE THINK I _____" while generalized anxiety symptoms might be examined using stems such as "I OFTEN THINK _____." It is not known, however, if many or any clinicians construct and use such stems, and there are not any published SCTs that do so. Sentence completion tests, although some are useful in assessing general distress (RISB) or ego development (WUSCT), do not therefore appear to be a diagnostically useful tool in the assessment of anxiety as commonly employed. Development of new, specific stems may prove useful, however, and research into the issue should be encouraged.

Conclusions

Hopefully, at this point in the chapter several things have become apparent. First, not all projective tests or techniques were created, or have been researched, equally. In their theoretical constructs, intended uses, and research-supported uses, they differ greatly. Second, the use of projective methods is not an either–or proposition. In opposition to the beliefs of their staunchest supporters, they are not empirically supported to be equally adept at assessing all aspects of personality and psychopathology. And in opposition to the beliefs of their staunchest critics, the research evidence does support the use of projective measures for assessing some specific psychological constructs.

Finally, a thorough review of the evidence does not support the routine usage of *any* projective measure in the assessment of anxiety symptoms or diagnostic constructs. While certain measures have been useful in measuring overall adjustment (RISB), psychotic disorders (Rorschach), ego development (WUSCT), personality disorders (TAT), disruptive behavior and mood problems (global figure drawing scores), none have consistently been demonstrated to be diagnostically useful for the assessment of anxiety, either alone or in addition to other measures. Although there is one study showing that responses on the WUSCT can differentiate between two types of anxiety in children, it has not been replicated or expanded to either other disorders or other populations.

Based on all of the above information, the current authors cannot support the routine use of any of the projective measures reviewed herein when assessing for anxiety in child or adult populations. It is, however, encouraged and recommended that further research, particularly on the use of sentence completion tasks such as the WUSCT, be conducted to explore and determine their possible utility in eliciting examples of cognitive, behavioral, or emotional components of anxiety. Such examples could then assist in constructing a more personal formulation of an individual's experience of a particular anxiety disorder, leading to more effective intervention by targeting such symptoms specifically.

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14 Assessment of Insight and Overvalued Ideation: In Obsessive–Compulsive Disorder

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Conventionally, insight has been understood as the ability of an individual to accurately understand their own internal world, to objectively view their own behavior or recognize their own illness, and to appropriately speculate about the thoughts and actions of others (Basil, Mathews, Sudak, & Adetunji, 2005). However, insight is not a dichotomy, present or absent, but rather believed to be multidimensional, varying among individuals (Foa, Kozak et al., 1995). Further, insight involves self-awareness, an understanding of the effects of one's illness on his/her current and future abilities, and an understanding of the need for treatment (Basil et al., 2005). Not only do individuals have varying levels of insight (poor to partial to good), but insight may vary within the same individual throughout the course of his/her disorder (Yaryura-Tobias, 2004). In addition, individuals may have insight into some aspects of their illness while being unaware of others.

Sadock & Sadock (2000) provide five levels of insight: (1) complete denial of illness, (2) slight awareness of illness and need for help, but denial of illness, (3) awareness of illness, but blaming others, external factors, and medical factors, (4) intellectual insight (awareness of illness and acknowledgement that symptoms are a result of irrational feelings or thoughts; however, this knowledge is not a catalyst for change), and (5) true emotional insight (awareness of emotions and underlying meaning of symptoms, as well as readiness for change and welcoming of new ideas and concepts about the self). Mental disorders can greatly affect an individual's perception of the self, others, and the world, thus, impairing one's capability to cope with certain situations. There is evidence to suggest that insight is directly related to social and familial functioning, quality of life, and treatment prognosis. This will be further discussed in section "Application of Assessment Measures."

Historically, it was purported that individuals with OCD perceived their symptoms as absurd, ego-dystonic, and senseless (Janet, 1908; Schneider, 1925). Similarly the DSM-III-R criteria indicated, "the person recognizes his or her behavior is extreme or unreasonable" (p. 247, American Psychiatric Association, 1987), and there was no mention of different levels of insight. However, there were researchers who reported that insight or judgment of unreasonableness was situation bound, whereby under threat, the individual was likely to demonstrate less insight than under non-threat conditions (Eisen & Rasmussen, 1993; Insel & Akiskal, 1986). These individuals appeared to be a group of "atypical" obsessive–compulsives, displaying features that resembled psychosis.

The field trial for OCD led by Foa et al. (1995) elucidated some of the ambiguities concerning the issue of insight by suggesting that insight lies on a continuum from good to poor. During the trial, they identified the following levels of insight: 13%

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_14,

reported total insight (certainty that their feared consequences would not occur); 27% reported being mostly certain; 30% reported uncertainty; 26% reported being mostly certain that the consequences would occur; and only 4% reported being completely certain. It is relevant to note, however, that insight in this field trial was solely based on one question assessing belief in consequences if compulsions were not performed. As a result of the field trials, the DSM-IV allowed for a "poor insight" specifier to be added to the diagnosis if deemed appropriate (American Psychiatric Association, 1994). Alonso et al. (2008), who defined insight as the awareness that symptoms or beliefs were derived from a disorder, reported that between 15 and 36% of individuals displayed poor insight.

A concept associated with insight and OCD is overvalued ideation (OVI). Overvalued ideation is defined as a sustained unreasonable belief that is not ordinarily accepted by other members of society and maintained with less than delusional intensity (American Psychiatric Association, 1994). A delusion is defined as a "false belief based on incorrect inference about external reality" and it is held firmly despite refuting evidence (p. 821, American Psychiatric Association, 2000). The DSM-IV-TR states that it is "difficult to distinguish between a delusion and an overvalued idea" (p. 821, American Psychiatric Association, 2000); the greatest distinction is believed to be the degree of intensity or strength of conviction in the belief (Kozak & Foa, 1994). Overvalued ideation is currently conceptualized as midway on the continuum between rational thoughts and delusions. As obsessions become more realistic and accurate, insight gets worse, and therefore, OVI increases until it reaches delusionality (Table 14.1).

The content of the thoughts for individuals with delusions and individuals with overvalued ideas is believed to be similar in that for both, the thought is bothersome and both have a need to complete the behavior (Kozak & Foa, 1994). The behavioral response elicits distress in those with low and high overvalued ideation as well as in delusional individuals. However, the reason for the distress may vary. Individuals with high overvalued ideation and those with delusions are distressed because it takes time away from other life activities, while those with low overvalued ideation are distressed because they know the behavior is senseless.

Ambiguities remain concerning the operational definitions and differences along the continuum from rational thought to delusionality. The aim of this chapter is to become more familiar with the distinctions within this continuum in order to properly diagnose OVI, to familiarize with the assessment instruments created to assess OVI, and to view the impact of OVI on treatment outcome.

Obsessions, Overvalued Ideas, and Delusions in OCD

The Role of Thoughts and Behaviors in OCD

Researchers into the cognitive-behavioral models of OCD propose that OCD arises from specific obsessive–compulsive core beliefs (Clark, 2004; Frost & Steketee, 2002; Salkovskis, 1996). The Obsessive Compulsive Cognitions Working Group (OCCWG, 1997, 2001) identified six distinct types of OC-related beliefs (i.e., inflated sense of responsibility, overestimation of harm, perfectionism, need to control thoughts, intolerance of uncertain, and over-importance of thoughts) that may become overvalued. If the individual is convinced that the belief is reasonable and true, and it remains steady over a long period of time, it may become overvalued. If this individual has good insight, however, s/he would be able to recognize the belief as unreasonable and irrational and begin to challenge the belief. If the individual has poor insight, s/he would understand that the obsession is causing distress, but be unable to use this information effectively due to the high risk that the consequence may occur.

The Distinction Between Obsessions, OVI, and Delusionality

Wernicke (1900) first introduced the concept of OVI, defining it as a solitary belief that one feels is strongly justified and determines one's actions. He noted that the individual's misperception of

Table 14.1 Scales that assess insight and overvalued ideas in obsessive–compulsive disorder (OCD)

Scales	Authors	Date	Items	Rating	Purpose	Population	Reliability and validity
Item 11 of the Yale-Brown Obsessive–Compulsive Scale (Y-BOCS)	Goodman et al.	1989	1	Likert Scale (0–4)	Assess degree of insight or overvalued ideas	OCD	Lack of data
The Brown Assessment of Beliefs Scale (BABS)	Eisen et al.	1998	7	Likert Scale (0–4)	Assess delusionality and insight	Variety of disorders	High
The Overvalued Ideas Scale (OVIS)	Neziroglu et al.	1999	10	10 questions, ratings from 1 to 10	Assess overvalued ideas	OCD	Moderate to High
The Fixity of Beliefs Questionnaire (FBQ)	Foa et al.	1995	6	Something bad will happen, anxiety but no consequences, urges to ritualize, no consequence	Assess delusionality and Insight	OCD	Lack of data

his surroundings is due to the intense affect that they experience. This affective reaction drives the individual to ignore reality and selectively focus on information that confirms his/her belief.

Wernicke (1900) believed that in comparison to obsessions, overvalued ideas were never believed to be senseless by the individual experiencing them. Although Wernicke does not specifically mention OCD, the process by which beliefs become overvalued may be applicable to any thought. Certain obsessions can develop into overvalued ideas as information is processed, and therefore, the strength of conviction in that belief increases.

In contrast to Wernicke, Jaspers (1913) believed that overvalued ideas are challengeable, transient, isolated, and bound to personality and situation, while delusions are unchangeable and not bound to personality. He believed that overvalued ideas are seen in any individual of strong conviction, whereas delusions are strictly seen in individuals diagnosed with a mental disorder. Jaspers noted that overvalued ideas are understandable (verstandlich) convictions that are incorrectly held to be true (e.g., I will get AIDS from this red "blood" spot). On the other hand, delusions are not understandable (undverstandlich) convictions, but perplexing irrational thoughts that are held as true (e.g., I will get pregnant from sitting on the toilet where a man sat).

McKenna (1984) echoes the work of Jaspers, viewing OVI as different from delusions. He notes that OVI is neither delusional nor obsessional. It is an isolated belief that is not intrusive and not viewed as senseless, whereas delusions are both intrusive and senseless.

The Distinction Between OVI and Delusionality in OCD

In the past, some have suggested that high OVI is a temporary psychotic state in individuals with OCD, calling it a "transient loss of insight" or transitional psychosis (Insel & Akiskal, 1986; Roth, 1978). Insel and Akiskal (1986) used clinical vignettes to illustrate that delusions may be temporarily present in OCD, but they are not markers of schizophrenia. Twenty-three patients with OCD were examined on four aspects of obsessive–compulsive beliefs: (1) perceived validity, (2) resistance, (3) strength of belief in harmful consequences, and (4) perceived absurdity when compared to social and cultural norms. Results suggested that OCD represents a continuum of insight with poor insight being described as obsessive–compulsive psychosis.

Matsunaga et al. (2002) compared OCD individuals with good insight (OCD GI), poor insight (OCD PI), and schizophrenia and OCD (OCD+S) at pretreatment, posttreatment, and 6-month follow-up. Treatment consisted of a combination of clomipramine and cognitive-behavioral therapy (CBT). Item 11 of the Yale-Brown Obsessive–Compulsive Scale (Y-BOCS; see below) was used to assess insight. At pretreatment, 36% of the patients displayed intact insight; however, OCD PI patients exhibited a similar degree of impairment to the OCD+S group. At posttreatment, 56% of OCD PI patients no longer fell into that group; rather, they had gained good insight. This illustrates that some patients with poor insight may gain insight with treatment, while others may continue to have overvalued beliefs that are more resistant to change.

Yaryura-Tobias and McKay (2002) pointed to similarities between high OVI and delusions in schizophrenia. They discussed how thought action fusion and magical thinking are both symptoms in OCD and in schizophrenia and can be conceptualized as either OVI or delusional depending on the disorder. They went on to illustrate that as thought action fusion gets stronger the ability to resist the compulsion gets weaker, suggesting a strengthening of the belief.

Case Vignette

In order to illustrate how OVI presents in clinical practice, a case that displayed severe OCD symptomology and OVI, which appeared at times to take on a delusional quality, is presented below. This vignette further evidences the challenges presented in diagnoses.

Hailey, a junior high school student, recently began being home-schooled due to the increasing intensity of her OCD symptomology. She had excessive concerns of illness and contamination

and believed that touching or coming into contact with people or items from certain countries that were known to have outbreaks of disease could infect her and inevitably cause her death. Hailey was particularly sensitive to Mexico or Mexican products due to the fear of getting the H1N1 virus. At first, she started to avoid touching things while out in public, but soon enough the fear generalized and she became home bound. She believed that a Mexican person or product from Mexico was contaminated and if a person touched that object, they were too contaminated. As the symptoms increased, Hailey became restricted to only certain rooms that she deemed acceptable in her home. She believed that if there was a Mexican person on television in the living room, the living room was now contaminated due to the possibility that the person's saliva from speaking would come through the television set. When speaking with Hailey about this impossibility, she was able to acknowledge that it was most likely impossible, but still had such fear that she refused to enter the room for a certain period of time. In addition, her home schooling was interrupted because she was reading a book for English class, which featured a Mexican boy. Not only did this contaminate the room that she was in, but also contaminated her home-school teacher, and Hailey urged her family not to enter the room so that they too would not become contaminated. Upon working with Hailey using CBT, going outside, she often believed that an object, such as a garbage can, five feet away, had touched her. Despite her agreement that the garbage can was far away and most likely did not touch her, she was convinced she was still infected by it. She would respond that the wind blew the dirt and contamination from the garbage can onto her skin and hair and that she needed to immediately shower to disinfect herself. Hailey's fears were so great that she would become enraged, blaming all that were with her for putting her in danger, and at one point, refused to continue in treatment. Hailey was tried on a various number of medications and began inpatient CBT treatment, slowly displaying progress to overcome her fears.

As observed by reading the vignette above, Hailey clearly is exhibiting obsessive–compulsive behavior. Despite occasional delusional beliefs, such as saliva coming through a television screen, she was able to acknowledge that this was improbable or scientifically impossible when her anxiety decreased. She was less likely to justify this possibility while in a state of increased anxiety. Even though, she could acknowledge the irrationality of her belief at a later time, she remained resistant to entering the room with the television until a specified time period passed, displaying that she continued to believe that the probability of a negative outcome was too great to chance. Therefore, this belief is in excess of solely being considered an obsession, but rather would be referred to as an overvalued idea. However, as you can see from the example above, there is great difficulty in distinguishing between obsessions, overvalued ideas, and delusions in real-life situations due to the fact that Hailey interprets the same situation differently depending on her affect at the time of questioning. These affect-driven reactions make diagnosis and treatment a challenge.

Current Assessments Used to Assess Poor Insight in OCD

Three scales have been developed to assess insight and OVI in obsessive–compulsive spectrum disorders: the Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998), the Overvalued Ideas Scale (OVIS; Neziroglu, McKay, Yaryura-Tobias, Stevens, & Todaro, 1999), and the Fixity of Beliefs questionnaire (FBQ; Foa et al., 1995). At first, due to a lack of psychometrically sound assessment instruments to assess this domain, only single-item assessments, such as item 11 on the Y-BOCS (Goodman et al., 1989), clinician-based ratings, or dichotomously assessed overvalued ideas from five items of clinical criteria in the DSM-IV field trials (Foa et al., 1995) were administered. While item 11 on the Y-BOCS measures degree of insight, clinician ratings, based on bizarreness and fixity, lacked reliability and validity data (Lelliott, Noshirvani, Basoglu, Marks, & Monteiro, 1988). With regard to the five items used in the DSM-IV field trials, due to

very low internal item consistency (range 0.05–0.57), only one item, "belief in consequence," was used to assess insight. Due to this lack of assessment tools to assess OVI, the BABS, OVIS, and FBQ were constructed. Although these measures all assess relatively the same domain, both the BABS and FBQ have been identified as more of a measure of delusionality rather than specifically OVI. In addition, while the FBQ was intended for the OCD population, the BABS has been identified as beneficial for a variety of psychiatric disorders. The OVIS was specifically developed to measure overvalued ideas in the OCD population. These instruments that assess the spectrum of insight, from obsessional thinking to delusionality, will be elaborated upon below. Initially, we will describe the Y-BOCS, specifically the use of item 11, the most widely used single-item assessment of insight, prior to the development of the scales mentioned above.

The Yale-Brown Obsessive–Compulsive Scale

The Y-BOCS (Goodman et al., 1989) is comprised of a symptom checklist and severity scale. The symptom checklist contains obsessions and compulsions that the patient notes as having currently, having had in the past, or never experienced. The severity scale is a ten-item (five for obsessions and compulsions each) clinician-rated assessment that rates the intensity or strength of OCD symptoms. The five items (frequency, interference, distress, resistance, and control) are assessed to compile a total score for each domain. Each item is rated on a five-point Likert scale (0–4), with higher scores signifying a more pathological profile. Total scores range from 0, which would signify no pathology, to 40, a very severe symptom profile. It was reported by McKay, Danyko, Neziroglu, and Yaryura-Tobias (1995) that the items assessing obsessions and compulsions may be factorially distinct and therefore form two dimensions. As a result, it is best to report the obsessions subscale and compulsions subscale scores separately. In addition to these items, additional items are provided to gain more insight into the patient's profile; however, they are not included in the Y-BOCS total score. Item 11 is an additional item that directly assesses a patients' degree of insight or overvalued ideas.

Reliability and Validity

The Y-BOCS displayed excellent inter-rater reliability and a high degree of internal consistency (Goodman et al., 1989). Therefore, the Y-BOCS is considered a reliable instrument for the measurement of severity of symptoms in OCD patients that vary in severity and subtype.

As mentioned previously, due to the lack of instruments that reliably measured overvalued ideas, attempts were made to assess this domain via single-item assessment with item 11 on the Y-BOCS (Goodman et al., 1989). Since only this additional item was used to assess for insight, there was a lack of reliability and validity data (Lelliott et al., 1988; Neziroglu et al., 1999).

The Brown Assessment of Beliefs Scale

The BABS (Eisen et al., 1998) originally consisted of 15 items. Currently, the BABS is a seven-item clinician administered semi-structured scale, and was developed to assess a patient's degree of conviction and insight into their beliefs across a broad range of psychiatric diagnoses. These beliefs consist of delusions and cognitions that underlie obsessional thinking. As mentioned above, it is controversial as to whether delusions are dichotomous, present or absent, or dimensional, or exist on a continuum of insight (Eisen et al., 1998). Overvalued Ideation (Poor Insight) is conceptualized as the midway point between rational identification of obsessional thinking (intrusive ego-dystonic thoughts; Eisen et al., 1998; Insel & Akiskal, 1986; Kozak & Foa, 1994; Neziroglu et al., 1999) and delusionality (firmly held false beliefs with a lack of insight into the irrationality of the content of the belief). Traditionally, obsessions and delusions were viewed as dichotomous; however, currently it is believed that beliefs are

better conceptualized on a continuum. A variety of disorders, such as body dysmorphic disorder (BDD), obsessive–compulsive disorder (OCD), anorexia nervosa, hypochondriasis, schizophrenia, and delusional disorder, are among those that could be considered on this continuum. The BABS is based on this idea.

Prior to administration of this scale, the dominant obsession or concern from throughout the past week is identified, along with the consequence of the identified obsession (Eisen et al., 1998). If the patient has a rapidly fluctuating course of symptoms, it may be more clinically appropriate to assess their status from the past day, rather than the past week. In order to identify this belief, the rater should aid the patient in identifying the specific underlying belief of a vague fear or worry and ensure that if a compulsion is present that it is incorporated into the belief. For example, instead of saying "I'll get fat," the statement should be reformulated as "I'll get fat if I eat more than 20 Cheerios per day." If multiple beliefs are present, but are related to the same disorder (e.g., two thoughts relating to OCD), they should be scored as a composite; however separate ratings should be given for thoughts that are based on differing disorders (e.g., BDD and OCD thoughts).

The BABS assesses nine dimensions, six (i.e., Conviction, Perception of others' views of beliefs, Explanation of differing views, Fixity of ideas, Attempt to disprove ideas, and Insight) of which are summed to a total BABS score. The remaining three domains (i.e., Ideas/Delusions of Reference, Bizarreness, and Ego-syntonicity) are additional and experimental items, the former being the additional item, and the latter two the experimental items. Despite item 7 "Ideas and delusions of reference" not being included in the total BABS score, due to it not being characteristic of disorders that may be characterized by delusional thinking, it is considered part of the seven-item scale.

All domains are structured in a similar format and consist of specific probe questions, such as "What do you think other people (would) think of your beliefs?" However, additional questions and information from other sources may be posed for clarification. Therefore, ratings are based on both patient report and clinical judgment. Each item is scored when the rater chooses from one of the following five anchors: 0 (non-delusional or completely certain beliefs are false), 1 (fairly certain beliefs are false), 2 (indecisive with regard to truth of beliefs), 3 (fairly certain beliefs are true), and 4 (delusional or completely certain beliefs are true).

Reliability and Validity

It was first administered to 46 subjects of varying disorders; OCD spectrum disorders, such as OCD and body dysmorphic disorder (BDD), as well as, mood disorders with psychotic features (Eisen et al., 1998). Inter-rater reliability was reported as good to excellent and Intraclass correlations (ICCs) for total score and individual items were 0.95 and 0.81–0.99, respectively. In addition, Cronbach's alpha coefficient was 0.83 and factor analysis yielded three factors (core features, severity, and psychosis), which accounted for 67% of the variance.

The current form of the BABS, that includes seven items and two experimental items, was assessed for reliability and validity by utilizing a similar patient population (Eisen et al., 1998). Within this study, an acceptable homogeneity was indicated by the Cronbach's alpha coefficient of 0.87 and individual ICCS ranged from 0.79 to 0.98 (Eisen et al., 1998). Factor analysis identified one factor, which accounted for 56% of the variance. With regard to discriminant validity, the BABS was compared to a battery of instruments. The BABS showed a weak correlation with the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962), however this was only found within the BDD group. The BABS displayed convergent validity with the Characteristics of Delusions Rating Scale (Garety & Helmsley, 1987) total score and high correlations on the delusional thinking and conviction items. On the former, the correlation was with the Scale to assess Unawareness of Mental Disorder (Amador et al., 1993), while the latter was found with the Dimensions of Delusional Experience (Kendler,

Glazer, & Morgenstern, 1983), the Fixity of Beliefs Scale (Foa, Kozak, et al., 1995), and the Characteristics of Delusions Rating Scale.

Eisen et al. (1998) concluded that the BABS is a "reliable and valid measure of delusionality" (p. 107). It has been noted, however, that this measure does not necessarily focus on a strict definition of OVI or illness severity (Neziroglu et al., 1999). Inter-rater, test–retest reliability, and internal consistency for both total and individual scores on the BABS were high. The Brown Assessment of Beliefs Scale (BABS) scores were not correlated with symptom severity, but consistent with alternate measures of insight.

Overall, the BABS is a concise instrument that is easily administered and is able to assess change in delusion over time. In addition, ability to assess delusionality facilitates DSM-IV-TR diagnoses, especially in BDD, due to the ability to separate patients categorically into delusional versus non-delusional (Eisen et al., 1998). The BABS may also serve as a useful tool in treatment studies to assess whether medications and different treatment paradigms are effective for a variety of diagnoses.

The Overvalued Ideas Scale

The OVIS is a clinician administered rating scale, specifically developed to quantitatively measure overvalued ideas in a sample of individuals diagnosed with OCD (Neziroglu et al., 1999). The main belief of the individual is determined and if there are several related beliefs all may be written and the composite is assessed. For example, the following beliefs may be addressed: Touching a homosexual's shoulder can make me a homosexual; looking at a man's genital means I am a homosexual. The OVIS consists of ten questions assessing the following: strength of belief, reasonableness of belief, lowest strength of belief in past week, highest strength of belief in past week, accuracy of belief, extent of adherence by others, attribution of differing views by others, views others as possessing same belief/holding differing belief, effectiveness of compulsions, and insight and degree of resistance. For example, in item 1, strength of belief, the following is asked:

> How strongly do you believe that _____ is true?
> How certain/convinced are you that this belief is true?
> Can your belief be 'shaken' if it is challenged by you or someone else?

Following these three questions, there is a scale from 1 to 10 with a key to help aid in answering appropriately. For example, 1 equals "belief is very weak," 5 equals "belief is weaker than stronger," and 10 equals "belief is very strong." When rating the scale, for each belief, scores from the ten questions are summed then divided by 10 to obtain a final score. If more than 1 belief is assessed, these scores are averaged in order to obtain a final score.

Reliability and Validity

According to Neziroglu et al. (1999), the original OVIS administered to 102 patients diagnosed with OCD, displayed high reliability for three differing beliefs ($r=0.88$, $r=0.82$, and $r=0.91$). The scale, along with a battery of other scales, was administered at baseline and 2 weeks following initiation of treatment. For three beliefs, internal consistency was high at 0.95. At 2-week follow-up, these scores fell slightly, but remained stable ($r=0.91$). With regard to test–retest reliability and inter-rater reliability across three beliefs, the total score for individual beliefs was high at $r=0.93$ and $r=0.95$, respectively. When considering only the first belief, the correlation coefficients were as follows: $r=0.86$ and $r=0.88$. In addition, an intraclass correlation of $r=0.74$ displayed that the OVIS is stable over time.

Moderate to high levels of convergent validity were found with a single-item assessment of overvalued ideas, item 11 on the Y-BOCS, the obsession and compulsion subscales on the Y-BOCS, and the psychotic screening data on the Structured Clinical Interview for DSM-III-R, psychotic screen (SCID-P). All correlations were significant ($p<0.01$) and ranged from 0.44 to 0.83. Moderate discriminant validity with anxiety and depression measures (Hamilton depression rating scale (HAM-D) and Hamilton Anxiety

rating scale (HAM-A)) was obtained. Correlations at baseline were 0.47 and 0.53 ($p<0.01$), respectively. In addition, stability of overvalued ideas was observed for those with high scores. Individuals with high levels of OVI displayed less variability than those with lower scores; therefore, those with high levels of OVI are more likely to hold their beliefs with strong conviction and be unwilling to address alternatives to their belief. Similar findings were observed at 2-week follow-up. Overall, very good convergent validity, limited discriminant validity and adequate reliability were demonstrated by the OVIS (Neziroglu et al., 1999).

In order to improve upon the scale, more formal prompts and anchors were added and a follow-up study including 40 patients diagnosed with OCD was conducted. Similar findings to study 1 were observed. Specifically, internal consistency reliability was high ($r=0.85$) at baseline and $r=0.81$ at 2-week follow-up. In addition, test–retest reliability ($r=0.80$) and stability with an intraclass correlation ($r=0.77$) were established. Convergent validity ranged from 0.50 to 0.83 signifying medium to large correlations. With regard to discriminant validity, relatively large correlations were observed with both the HAM-D and HAM-A, as well as the Beck Depression Inventory (BDI). Overall, moderate to high reliability, stability, inter-rater consistency, and convergent validity of the OVIS was observed. Discriminant validity, however, was poor.

Neziroglu, Stevens, McKay, and Yaryura-Tobias (2000) followed up their previous work on the OVIS in order to assess for predictive utility. It was concluded that when a group of participants with OCD participated in behavioral therapy, pretreatment OVIS scores predicted treatment outcome for compulsions, but not for obsessions. In addition, for predicting compulsions, the OVIS displayed a more superior predictive ability over the single-item assessment on the Y-BOCS. A second study was conducted with a group of individuals diagnosed with Body Dysmorphic Disorder (BDD), and similar results were observed; however a significant relationship was observed for obsessions rather than compulsions, the reverse of the study above.

Fixity of Beliefs

The Fixity of Beliefs questionnaire (FBQ), a six-item assessment tool developed by Foa and Kozak (1995), assesses the degree of insight into which individuals with OCD are able to recognize the unreasonableness of their obsessions and compulsions (Abramowitz, Brigidi, & Foa, 1999; Foa, Abramowitz, Franklin, & Kozak, 1999). Ratings of items are based on the feared consequence that will occur if a compulsion is not performed. Therefore, only individuals that have obsessions with a disastrous consequence are assessed with the FBQ.

Items on the FBQ are coded as follows: something bad will happen, increased anxiety but no further consequences, increased urges to ritualize, and no consequences. Item 1 determines whether items 2 through 6 are administered. If individuals meet criteria on item 1, meaning they fear disastrous consequences of not performing their rituals, they continue through question 6 to further assess their certainty in their obsessions and compulsions, their belief of others' views in the consequences, and their reasoning for odd beliefs, flexibility, and bizarreness (Foa et al., 1999).

Foa and Kozak (1995) found that when using questions 2 through 6, weak internal consistency was observed. This scale does not have established inter-rater reliability or validity and is not easily applied to other diagnoses. The FBQ, however, has been found to be correlated highly ($r=0.88$) with the conviction subscale on the BABS, and has supported a spectrum of insight in OCD (Eisen et al., 1998; Foa, Kozak et al., 1995; Foa et al., 1999).

Comparison of Measures

A recent study investigated the relationship among the insight measures. Ya'ara, Reuven, Dar, and Hermesh (2011) assessed 60 outpatients with OCD with the OVIS, item 11 on the Y-BOCS, the BABS, and the Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Batler, Steer, & Warman, 2004) and found a high correlation among them, with the exception

of the BCIS. The BCIS was developed to evaluate self-reflectiveness and overconfidence in interpretations of experience in the schizophrenic population. Ya'ara et al. (2011) concluded that due to the results observed, the inconsistencies in studies on insight in OCD could not be attributed to differences among the instruments.

Application of Assessment Measures

Foa, Steketee, Grayson, and Doppelt (1983) found that individuals that reported their obsessions to be realistic and their compulsions to result in actual prevention of disastrous consequences were observed to respond more poorly to treatment. Kozak and Foa (1994) support that strength in belief directly effects treatment outcome; however, they cite that in some individuals strength of overvalued ideas may vacillate over time, while in others, OVI may be viewed as more of a stable trait.

Despite the paucity of data on the long-term course of individuals with OVI, according to both current and past research, the presence of overvalued ideas in OCD often signifies a poorer prognosis, treatment response, and higher recidivism rate (Catapano et al., 2010; Kozak & Foa, 1994; Neziroglu et al., 1999). Clinically, an individual with overvalued ideas often feels that the intervention is unnecessary and unwanted, and therefore, they are unmotivated to change. This often results in a challenging and frustrating experience for not only the individual, but also their family, and the therapist (Veale, 2006).

Assessing the Role of OVI in OCD

Bellino, Patria, Ziero, and Bogetto (2005) assessed insight in OCD using the OVIS, a semi-structured interview, the Y-BOCS, the National Institute of Mental Health Obsessive–Compulsive Scale (NIMH-OCS), and the Hamilton Depression and Anxiety Scales (HDRS and HARS). Stepwise multiple regression revealed a relationship between OVIS score and demographic and clinical factors. OVIS scores were significantly related to the compulsions score on the Y-BOCS and OCD chronic course. In addition, a positive relationship was observed between the OVIS and family history of OCD, while a negative relationship was observed with obsessive–compulsive personality disorder (OCPD).

Turksoy Karali et al. (1997) used item 11 on the Y-BOCS as the basis to divide groups into poor and intact insight. Those with the former received a score between 1 and 4, while those with the latter, a score of 0. A significant correlation between degree of insight and total obsession compulsion score was observed, thereby displaying a relationship between lack of insight and severity of obsessive–compulsive symptomology. Therefore, they concluded that a more complex clinical picture and severity of symptoms would inevitably lead to more difficulty in treatment and a poorer prognosis.

Psychopharmacological Studies

Alonso et al. (2008) assessed insight among a group of individuals with OCD, using the BABS pre- and post-medication (fluvoxamine and/or clomipramine) treatment. Among the 29.5% of individuals that displayed poor insight, comorbidity with depression and personality disorders (i.e., schizotypal personality disorder) was observed. When the poor insight group was compared to the good insight group, both groups improved significantly in symptoms and insight at post treatment.

Eisen et al. (2001) also examined insight in an OCD population, but assessed the effect of sertraline. Insight and symptom severity were assessed with the use of the BABS and Y-BOCS. It was concluded that insight improved as symptoms decreased in severity and both patients with good and poor insight similarly responded to a trial of sertraline.

Kishore, Samar, Janardhan Reddy, Chandrasekhar, and Thennarasu (2004) used the BABS to assess for insight in an OCD population. Out of 100 individuals, 25% displayed poor insight. Individuals were treated with clomipramine or an SSRI (fluoxetine, sertraline, fluvoxamine, citalopram, or paroxetine). The Y-BOCS in entirety was

administered at baseline and 12 weeks, and treatment response was defined by a decrease in scores by >35%. Total BABS baseline scores were predictive of a poorer treatment response. Specifically, an earlier age of onset, a longer duration of illness, a larger number or OCD symptoms, poorer medication response, and a higher severity and comorbidity (depressions) were associated with poorer insight in OCD. Therefore, baseline BABS scores predicted poorer treatment response.

Catapano et al. (2010) assessed 106 individuals diagnosed with OCD using the BABS to assess insight. Individuals were treated with serotonin reuptake inhibitors (SRIs) and were followed prospectively for 3 years. Of the 22% of individuals that displayed poor insight, a greater severity of obsessive–compulsive symptoms and depression, an earlier age at onset, a higher degree of comorbidity with schizotypal personality disorder, and a higher rate of schizophrenia spectrum disorders in close family members were observed. In addition, OCD individuals with poor insight were less likely to achieve partial remission of symptoms, needed an increased amount of therapeutic trials, and more often were treated with an antipsychotic. Overall, these patients typically had a more complex and severe course and presentation, were less likely to be respondent to medications, and therefore, had a poorer prognosis.

Neziroglu, Pinto, Yaryura-Tobias, and McKay (2004) used the OVIS to assess whether OVI predicts treatment outcome with regard to medication. Specifically, individuals with OCD were administered a 10-week open-label clinical trial of Fluvoxamine (Luvox). At baseline, patients were given the OVIS, and symptom severity was rated. At the end of week 10, the Y-BOCS was administered. A 68% and 62% change were observed in obsessions and compulsions, respectively. On the OVIS, baseline scores predicted treatment outcome for obsessions, but lacked predictive power for compulsions. In other words, higher OVI was associated with poorer outcome for obsessions, although compulsions were not affected by the degree of conviction.

The most robust prediction with the various insight measurements appears to be whether an individual is treated with medications or not (Ya'ara et al., 2011). The predictive ability of insight on other variables such as age of onset, demographics, gender, and comorbidity were more instrument specific. Symptom severity of OCD was not associated with degree of insight.

Behavioral Interventions

It has been demonstrated recently that exposure and response prevention (ERP), a key component of cognitive-behavioral therapy, is highly effective for treating OCD, with about a 75% long-term improvement in symptoms (Foa et al., 1999; Foa & Kozak, 1996). Ito, de Araujo, Hemsley, and Marks (1995) found that ERP may also be successful in treating individuals with overvalued ideas. Forty-six individuals were randomized into two groups for nine weekly sessions that consisted of either in vivo and imaginal ERP or solely in vivo ERP. Individuals participated in daily 90-min self-exposure assignments. Despite a higher increase in resistance to obsessions (displayed on the Y-BOCS) and fixity of beliefs by the ERP group, both groups displayed an overall improvement. Therefore, individuals with poor insight may benefit from ERP despite lacking insight into their beliefs; however, due to the fact that OVI has been observed to be a prognostic indicator, it is essential to understand and diagnose the level of overvalued ideas prior to beginning treatment.

Himle, Van Etten, Janeck, and Fischer (2006) examined insight in a group of OCD patients who were participating in a 7-week treatment with CBT. Patients were grouped into "poor" and "adequate" insight through the use of ratings on item 11 on the Y-BOCS. CBT sessions were composed of 2 h of group therapy, psychoeducation, and between session in vivo ERP assignments. As mentioned above, item 11 on Y-BOCS was used to group individuals; however the Y-BOCS in entirety was administered before and after group treatment. In addition, the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was administered to assess depressive symptoms. It was concluded that although those in the "adequate" group displayed greater benefits

from treatment, those with "poor" insight displayed less benefit, but did improve from baseline levels. Therefore, despite difficulty in treatment with individuals with poor insight, CBT is effective in eliciting change. Similarly, Foa et al. (1999) found that a group of OCD individuals, who feared consequences if their rituals were not performed, benefited from ERP. In order to assess whether the individuals benefited from the 3-week ERP program (3 treatment planning sessions, 15 daily 90-min in vivo and imaginal therapist-supervised exposure sessions, and ERP homework assignments), individuals were administered the Y-BOCS and FBQ prior to beginning treatment and after treatment was completed. Overall, it was concluded that those with poorer insight did not respond as well. However, despite a great change in response, a decrease in the certainty of the outcome of their beliefs was observed.

Researchers have begun to explore acceptance and commitment therapy (ACT) as an alternative treatment approach for individuals with OCD that remain treatment resistant. While ERP is the first choice behavior therapy for treatment of OCD, many individuals remain treatment resistant after several trials of CBT. Main-Wegielnik (2009) examined the efficacy of ACT in the treatment of high overvalued ideation in individuals with OCD. The effects of ACT on overvalued ideation, depression, obsessions, and compulsions were assessed. Six adults participated in 12 sessions of ACT. Participants were administered the OVIS, Quality of Life Inventory (QOLI), the Yale-Brown Obsessive–Compulsive Scale (YBOCS), the University of Rhode Island Change Assessment (URICA), and the Beck Depression Inventory II (BDI-II). Three participants had significant decreases in symptoms of depression (50%), and two participants had significant decreases in OCD symptoms (33.3%) as measured by the YBOCS. However, only one participant demonstrated significant decreases in overvalued ideation as indicated by the OVIS. The researchers suggest that 12 sessions of ACT were not sufficient to reduce OVI in majority of the participants.

Conclusion

Despite the somewhat negative outlook on the prognosis of treatment outcome in individuals with poor insight, a combination of medication management and CBT is currently the best treatment approach. Further research is necessary to continue to clarify the distinction among obsessions, OVI, and delusionality, in order to aid in differential diagnosis and to generate more effective treatment for individuals with overvalued ideas. Because there is data suggesting that OVI assessment is essential for prognostic reasons, we need to develop better treatment strategies to address high overvalued ideation. Perhaps identifying crucial elements of the global concept, for example, reasonableness, attribution of differing views from others, strength of belief in the behavioral component, etc. may enable us to target specific elements of overvalued ideas. Future research may focus on identification of those areas and employing different approaches to deal with those factors.

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Assessment of Disruptive Behavior Disorders in Anxiety

15

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The co-occurrence of anxiety disorders (ADs) and disruptive behavior disorders (DBDs) is substantial and poses significant challenges in the psychological assessment process. DBDs include attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD). Epidemiological and clinical studies suggest that that the overall rate of ADHD in youth with ADs is approximately 15–30% (Biederman, Newcom, & Sprich, 1991; Jensen, Martin, & Cantwell, 1997; Tannock, 2000), whereas the rate of CD/ODD in youth with ADs is around 10% (Angold, Costello, & Erkanli, 1999; Kendall, Brady, & Verduin, 2001). Youth with comorbid AD and DBD may display increased levels of symptomatology and impairment, higher levels of psychosocial adversity, and ongoing adjustment problems (Maser & Cloninger, 1990). These children may also be at greater risk of developing more severe psychopathology than children with either diagnosis alone or may show differential response to treatment (Kendall et al., 2001; Souza, Pinheiro, & Mattos, 2005).

This chapter will focus on the assessment of DBDs (e.g., ADHD, ODD, CD) in youth with ADs. First, the specific DBDs will be defined. Second, prevalence rates of youth with ADs and co-occurring ADHD and ODD/CD will be presented. Next, characteristics of children with comorbid ADs and DBDs will be presented followed by approaches to the assessment of DBDs in youth with ADs. Finally, a case study will be presented to illustrate the assessment process.

Definition of DBDs

Attention-deficit/hyperactivity disorder (ADHD) refers to a persistent pattern of inattention and/or hyperactivity/impulsivity estimated to occur in 3–5% of school-age children (American Psychiatric Association [APA], 2000). Behaviors associated with ADHD include difficulty sustaining attention, seeming not to listen when spoken to directly, failing to follow through on instructions and assignments, disorganization, excessive distractibility, excessive fidgeting or motoric activity, excessive talking, interrupting and intruding on others, and difficulty awaiting one's turn (see Table 15.1). The *DSM-IV* characterizes ADHD by four subtypes: Predominantly Inattentive Type (I), Predominantly Hyperactive-Impulsive (H-I), Combined Type (C), or ADHD- Not Otherwise Specified (NOS).

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_15,

Table 15.1 DSM-IV diagnostic criteria for ADHD, ODD, and CD

DSM-IV criteria: attention deficit hyperactivity disorder
(A) A persistent pattern of inattention and/or hyperactivity–impulsivity that is more frequently displayed and is more severe than is typically observed in individuals at comparable level of development, starting before age 7. Individuals may meet criteria for (1) or (2):
1. Six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:
(a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
(b) Often has difficulty sustaining attention in tasks or play activity
(c) Often does not seem to listen when spoken to directly
(d) Often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
(e) Often has difficulty organizing tasks and activities
(f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
(g) Often looses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
(h) Is often easily distracted by extraneous stimuli
(i) Is often forgetful in daily activities
2. Six (or more) of the following symptoms of hyperactivity–impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:
(a) Often fidgets with hands or feet or squirms in seat
(b) Often leaves seat in classroom or in other situations in which remaining seated are expected
(c) Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) Often has difficulty playing or engaging in leisure activities quietly
(e) Is often "on the go" or often acts as if "driven by a motor"
(f) Often talks excessively
(g) Often blurts out answers before questions have been completed
(h) Often has difficulty awaiting turn
DSM-IV criteria: oppositional defiant disorder
(A) A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present:
1. Often loses temper
2. Often argues with adults
3. Often actively defies or refuses to comply with adults' requests or rules
4. Often deliberately annoys people
5. Often blames others for his or her mistakes or misbehavior
6. Is often touchy or easily annoyed by others
7. Is often angry and resentful
8. Is often spiteful or vindictive
DSM-IV criteria: conduct disorder
1. Often bullies, threatens, or intimidates others
2. Often initiates physical fights
3. Has used a weapon
4. Has been physically cruel to people
5. Has been physically cruel to animals
6. Has stolen while confronting a victim

(continued)

Table 15.1 (continued)

7. Has forced someone into sexual activity
8. Has deliberately engaged in fire setting
9. Has deliberately destroyed others' property
10. Has broken into someone else's house, building, or car
11. Often lies to obtain goods or favors or to avoid obligations
12. Has stolen items of nontrivial value
13. Often stays out late without permission, starting before age 13
14. Has run away from home overnight at least twice
15. Is often truant from school, starting before age 13

Oppositional defiant disorder (ODD) refers to a recurrent pattern of developmentally inappropriate levels of negativistic, defiant, disobedient, and hostile behavior toward authority figures. Behaviors associated with ODD include temper outbursts, persistent stubbornness, resistance to directions, unwillingness to compromise, give in, or negotiate with adults or peers, deliberate or persistent testing of limits, and verbal (and minor physical) aggression. These behaviors are almost always present in the home and with individuals the child knows well. In addition, they often occur simultaneously with low self-esteem, mood lability, low frustration tolerance, and swearing. Prevalence rates for ODD have ranged from 2 to 16% (APA, 2000).

Conduct disorder (CD) refers to a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated. Symptoms include aggressive conduct that causes or threatens physical harm to other people or animals, nonaggressive conduct that causes property loss or damage, deceitfulness or theft, and/or serious violations of rules. Prevalence rates for CD range from 2 to 16% (APA, 2000). *DSM-IV* distinguishes between two types of CD: the childhood-onset subtype (onset prior to age 10) and the adolescent-onset type (absence of any CD symptoms prior to age 10). While the adolescent period is associated with increases in rebelliousness and status offenses, conduct problems are evident in a small subset of adolescents who show more extreme or persistent forms of behavior problems. *DSM-IV* notes that subtyping on the basis of age of onset captures differential information about the likely nature of the presenting problems, developmental course, and prognosis. Children showing the childhood-onset pattern display more severe behavior problems early in childhood that tend to worsen over development (Lahey & Loeber, 1994). These children are also more likely to continue to show antisocial and criminal behavior into adulthood (Frick & Loney, 1999).

Comorbidity of ADs and DBDs

ADs commonly co-occur with DBDs at a rate greater than would be expected by chance (Angold et al., 1999). Table 15.2 reports comorbidity prevalence rates of specific ADs for youth with ADHD, ODD/CD, and CD only, consistent with reported rates in the literature. Across all of these investigations, ADHD may be likely to co-occur with Generalized Anxiety Disorder (GAD), Social Phobia (SOP), Separation Anxiety Disorder (SAD), Obsessive Compulsive Disorder (OCD), and specific phobia (Pfiffner & McBurnett, 2006; Souza et al., 2005; Vance, Harris, Boots, Talbot, & Karamitsios, 2003). Further, there is evidence that SOP, specific phobia, PTSD, GAD, SAD, and panic disorder/agoraphobia may commonly co-occur with ODD/CD in epidemiological and clinical samples (Goodwin & Hamilton, 2003; Nock, Kazdin, Hiripi, & Kessler, 2007; Verduin & Kendall, 2003). Thus, the assessment of ADHD and ODD/CD is of particular importance in the identification of those specific ADs in youth.

Table 15.2 Prevalence of anxiety disorders in samples of youth with externalizing disorders

Sample	Author	GAD	SOP	SAD	Phobia	OCD	PTSD	Agora	Panic
ADHD	Pfiffner and McBurnett (2006)	11	17	12	26	1	–	3	2
	Souza et al. (2005)	13	4	4	–	–	–	–	–
	Vance et al. (2003), parent	35	18	18	24	2	0.01	0	–
	Vance et al. (2003), child	23	13	26	16	14	0.01	0	–
ODD/CD	Nock et al. (2007)	15.5	31.4	12.5	24.7	–	19.7	–	10.9
	Verduin and Kendall (2003)	10.1	–	12	5	–	–	–	–
CD only	Goodwin and Hamilton (2003)	6.2	20.2	–	16.5	–	11.4	9.6	8.6

Note: Numbers reported are percentage of sample
ADHD attention-deficit/hyperactivity disorder, *CD* conduct disorder, *ODD* oppositional defiant disorder, *GAD* generalized anxiety disorder, *SOP* social phobia, *SAD* separation anxiety disorder, *OCD* obsessive–compulsive disorder, *PTSD* posttraumatic stress disorder, *Agora* agoraphobia

Clinical Characteristics of Children with Comorbid ADs and DBDs

The importance of a thorough assessment of DBDs in anxious youth is heightened by the myriad of effects these comorbid disorders may have on one another. Additionally, there is the potential for symptom overlap between ADs and DBDs; thus, careful assessment is vital to obtain accurate diagnoses. Assessment of family characteristics and social characteristics in youth with comorbid ADs and DBDs are also important in understanding impairment and overall functioning of these youth.

Symptom Overlap

The potential for symptom overlap between ADs and DBDs is important to consider in the assessment of these disorders. For example, some of the symptom criteria of SAD (i.e., refusal to separate from a major attachment figure, not wanting to sleep in one's own bed) may overlap with symptoms of ODD (i.e., refusal to do as one is told, being argumentative). Similarly, symptoms of restlessness/fidgeting may be indicative of either an AD and/or of ADHD. Irritability may also be a manifestation of either anxiety or oppositionality. Moreover, these symptoms may be exacerbated or mitigated by the presence of the second disorder. A multi-method multi-informant method is critical for accurately determining clinical diagnoses. Overall, however, there is limited criterion overlap between ADs and DBDs; thus, this issue may not pose as serious a problem for the assessment of AD and DBDs in children as suggested by some.

Family Factors

Parent psychopathology, family conflict, and other parenting behaviors may be related to the expression of comorbid ADs and DBDs in youth and are therefore important to assess. Franco, Saavedra, and Silverman (2006) found parents of children with comorbid AD and externalizing disorders (e.g., ODD, ADHD) were significantly more likely to endorse psychopathology in themselves than parents of children with AD alone. Similarly, children of depressed parents or mixed anxious–depressed parents may have a much wider range of psychiatric disorders, such as ADs and DBDs (Beidel & Turner, 1997). Additionally, family conflict may also be related

to the expression of co-occurring anxiety and aggressive behaviors in youth. For example, a recent investigation by Drabick, Gadow, and Loney (2008) concluded that higher levels of family conflict were present in clinic-referred boys (ages 6–10) with co-occurring anxiety symptoms and ODD symptoms as compared to groups with either condition alone. Additionally, cross-cultural research indicates the use of physical discipline has been linked to both anxious and aggressive behavior in children (Lansford et al., 2005). Thus, assessment of family environment factors such as parent psychopathology, family conflict, and use of physical discipline, through either behavior observations or more formal diagnostic techniques, may be useful in the assessment of the comorbid AD/DBD profile in youth.

Peer Factors

Social impairment commonly occurs in youth with comorbid ADs and DBDs, given the diagnostic criteria of DBDs include social impairment (APA, 2000). In terms of interactions with peers, Franco et al. (2006) found children with comorbid ADs and externalizing disorders (ADHD, ODD, or CD) were less likely to be involved in extracurricular activities as compared to children with an AD alone. Further, AD/externalizing children had significantly worse peer relationships than children with a single AD. Thus, in youth with comorbid ADs and DBDs, impairment in functioning may be evidenced specifically by social impairment.

In addition, it may be important to distinguish between social anxiety and social withdrawal when assessing psychosocial characteristics of children with comorbid AD and DBDs (Loeber, Burke, Lahey, Winters, & Zera, 2000). There is some evidence to suggest social anxiety may serve as a protective factor in predicting the severity of DBDs, whereas social withdrawal may be a risk factor in predicting symptom impairment (Kerr, Tremblay, Pagani, & Vitaro, 1997; Ollendick & Hirshfeld-Becker, 2002). Social anxiety, for example, may indicate more sensitivity to social punishment and social rewards, which may reduce the severity of DBD problems. On the other hand, behaviors symptomatic of DBDs, such as ADHD (e.g., excessive talking, difficulty awaiting turn) and ODD (e.g., frequently arguing with others), may be related to peer rejection and ultimately social withdrawal. Thus, a thorough clinical assessment using a semi-structured interview, self-reports, and behavioral observations may be a useful approach to delineate anxiety in social situations from social withdrawal.

Overall, a thorough examination of overlapping symptoms, family environment, and social is important in diagnosing and treating these co-occurring disorders. Recommendations for the assessment of ADs and DBDs are presented below.

Assessment of ADs and DBDs

Multi-informant, multi-method strategies for assessing DBDs in youth with ADs is critical for accurate determination of diagnostic profiles in youth (De Los Reyes & Kazdin, 2005; Grills & Ollendick, 2002; Jensen et al., 1999). The primary areas to assess are child behavior, the context in which this behavior occurs, associated child characteristics and disorders, and familial or extra-familial (i.e., community, school) factors. Multiple informants may include the child, parent, teacher, and other relevant individuals. Multiple methods should be used including the clinical interview, behavioral observations, situational analyses, behavior rating scales, and cognitive or neuropsychological testing. Areas of focus include a history of the child's development (including temperament), academics, medical conditions, and previous treatment. Aspects of the child's social environment such as parenting characteristics, parental stress, marital discord, and affiliations with deviant peers should be considered.

The "gold standard" clinical interviewing is typically a semi-structured or structured diagnostic interview with multiple informants. Several tools for the assessment of DBDs in youth with

ADs are reviewed below. Specifically, situational analysis, behavioral observation, diagnostic interviews, and behavioral scales which have established psychometric support are reviewed.

Although a number of behavioral rating scales are available for the assessment of ADs, ODD, CD, and ADHD, the present chapter focuses on ratings that either assess for all DBDs (e.g., ODD, CD, and ADHD) or for broadband measures of aggressive symptomatology (see Table 15.3 for additional details). Assessment strategies for youth with primary ADs are covered in more detail in other chapters (see Chaps. 2, 4–6). In this chapter, a number of tools listed below that assess for disruptive behavior symptoms also measure for internalizing symptoms (e.g., anxiety, depressive symptoms); thus, these measures may be particularly useful for tracking symptoms in youth with comorbid ADs and DBDs.

Diagnostic Interviews for ADs and DBDs

Anxiety Disorders Interview Schedule for DSM-IV, Child and Parent Versions (Silverman & Albano, 1996)

The Anxiety Disorders Interview Schedule for DSM-IV, Child and Parent Versions (ADIS-C/P) is a semi-structured interview for ADs in youth, and is particularly useful for youth with comorbid conditions, as the interview includes models for DBDs and other child psychological disorders. During the interview, the clinician assesses symptoms and obtains frequency, intensity, and interference ratings (0–8 scale). These symptoms and ratings are used by the clinician to identify diagnostic criteria and develop a clinician's severity rating (CSR). A CSR of 4 or above (0–8) indicates a diagnosable condition. One limitation to the ADIS is the child is not asked about symptoms of oppositionality and conduct problems; these modules are completed exclusively during the parent interview. Recent examination of the ADIS-C/P (for *DSM-IV*) has yielded acceptable to excellent 7- to 14-day test–retest reliability estimates regarding child (ages 7–16; κ=0.61–0.80) and parent (κ=0.65–1.00) diagnoses for those diagnoses assessed on the ADIS (Silverman, Saavedra, & Pina, 2001).

Diagnostic Interview Schedule for Children-Version IV

The Diagnostic Interview Schedule for Children-Version IV (DISC-IV) is a comprehensive, structured diagnostic instrument that is based on the *Diagnostic and Statistical Manual-IV* (*DSM-IV*; APA, 2000). The interviewee provides yes/no answers to questions regarding symptoms of most psychological disorders observed in children and adolescents aged 6–17. Questions also explore how much the endorsed symptoms interfere in the child's life. Diagnoses are then derived from a structured algorithm that includes the symptom counts, interference levels, and other relevant *DSM-IV* criteria. While this interview is commonly used in the assessment of DBDs in youth, the interview also has modules for comorbid anxiety symptomatology as well. The anxiety modules of the DISC-IV have some evidence of predictive validity (Kasius, Ferdinand, van den Berg, & Verhulst, 1997) and have been shown to possess acceptable test–retest reliability (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). The DISC-IV is comprehensive but highly structured and may allow for less flexibility than a semi-structured report.

Rating Scales for ADs and DBDs

Achenbach Scales (Achenbach, 1991)

The Achenbach scales include child, parent, and teacher-reported measures that assess for internalizing and externalizing symptoms in children between the ages of 4–18. These measures encompass between 112 and 118 items (depending on informant) and utilize a Likert-type scale for how true a given behavior is currently or within the past 6 months (0 = not true, 1 = sometimes true, 2 = very true). Scales included anxious/depressive symptoms, withdrawn symptoms, somatic complaints, attention problems, aggressive behaviors, and delinquent behaviors. These scales were created based on factor analysis of data of clinic-referred youth and youth demographically representative of the USA. Reliability and validity of the scales of the CBCL have been demonstrated.

Table 15.3 Measures to assess disruptive behavior disorders in youth with anxiety disorders

Scale	Author	Sample scales	Items	Ages	Reliability	Informant
BASC	Reynolds and Kamphaus (1992)	Aggression, anxiety, inattention, conduct probs, hyperactivity	109–148	4–18	P: int consist (0.70s–0.90s), test–retest (0.74–0.94)	P, T, Y
CBCL	Achenbach (1991)	Anxious/depressed, inattention, delinquency, social probs, aggression	118	4–18	int consist (0.78–0.97), test–retest (0.95–1.00), inter-rater (0.93–0.96)	P
CRS-R	Conners et al. (1997)	Oppositional behav, social probs, inattention, hyperactivity, perfectionism	28 or 59	3–17	T: test–retest (0.47–0.86), int consist (0.77–0.96)	P, T, Y
DBDRS	Barkley (1997)	ADHD, ODD, CD	50	5–10	F: test–retest (0.68–0.92), int consist (0.72–0.95)	M, F, T
TRF	Achenbach (1991)	Anxious/depressed, inattention, delinquency, social probs, aggression	113	4–18	Test–retest (0.62–0.96), inter-rater (0.60), int consist (0.72–0.95)	T
YSR	Achenbach (1991)	Anxious/depressed, inattention, delinquency, social probs, aggression	112	11–18	Test–retest (0.47–0.79), int consist (0.71–0.95)	Y

Note: Criterion validity assessed and found to be acceptable for all measures
ABRS Aggressive Behavior Rating Scale, *BASC* Behavioral Assessment System for Children, *CBCL* Child Behavior Checklist, *CBRS* Comprehensive Behavior Rating Scale for Children, *CRS-R* Conners' Rating Scales-Revised, *DBDRS* Disruptive Behavior Disorders Rating Scale, *RBPC* Revised Behavior Problem Checklist, *TRF* Teacher's Report Form, *YSR* Youth Self Report, *probs* problems, *behav* behavior, *ADHD* attention deficit hyperactivity disorder, *ODD* oppositional defiant disorder, *CD* conduct disorder, *int consist* internal consistency, *P* parent, *Y* youth, *T* teacher, *M* mother, *F* father, *C* clinician

Behavior Assessment System for Children-2nd Edition (Reynolds & Kamphaus, 1992)

The Behavior Assessment System for Children-2nd Edition (BASC) is a coordinated system of instruments that evaluates the behaviors, thoughts, and emotions of children and adolescents aged 4–18. This system allows clinicians to gather data from youth, teachers, and parents. In addition, the BASC measures both internalizing symptoms (e.g., anxiety) and externalizing symptoms (e.g., aggression, conduct problems, hyperactivity, attention problems). Average internal consistency for the Teacher Ratings Scales is 0.80, and median test–retest reliability is 0.91 (Kamphaus & Frick, 2005). The Parent Rating Scales also have good to excellent internal consistency (0.70s–0.90s; Kamphaus & Frick, 2005) and test–retest reliability over a 2- to 8-week period (0.74–0.94; Reynolds & Kamphaus, 1992). The BASC demonstrates good convergent and DISC-IV discriminant validity (Merrell, Blade, Lund, & Kemp, 2003), as well as acceptable criterion validity (Reynolds & Kamphaus, 1992).

Conners' Rating Scales-Revised (Conners et al., 1997)

The Conners' Rating Scales-Revised (CRS-R) is a 28- or 59-item measure that measures ADHD and other problem behaviors in children and adolescents. The CRS-R is based on a Likert scale and is available for parent, teacher, and adolescent informants for youth aged 3–17. Subscales of interest include oppositional behaviors, social problems, cognitive problems/inattention, hyperactivity, ADHD Index, anxious–shy, and perfectionism. For the teacher report, test–retest reliabilities ranged from 0.47 to 0.86, whereas internal consistency ranges from 0.77 to 0.96. Further, criterion validity was assessed and found to be acceptable.

Rating Scales for DBDs

Disruptive Behavior Disorders Rating Scale (Barkley, 1997; Pelham, Gnagy, Greenslade, & Milich, 1992)

The Disruptive Behavior Disorders Rating Scale (DBDRS) a 50-item measure that is comprised of the *DSM-IV* symptom lists for ADHD, ODD, and CD. The DBDRS uses a 4-point response scale ranging from 0 (*not at all*) to 3 (*very much*) for youth aged 5–10. Mother, father, and teacher reports are available. Father-reported test–retest reliability (0.68–0.92) and internal consistency (0.72–0.95) are adequate to excellent (Erford, 1998). Criterion validity has been found to be acceptable.

Functional Analysis

Functional analysis is a clinician-directed assessment that includes the identification of individual etiological and maintaining factors of anxiety and disruptive behavior disorder symptoms in youth. This approach may be conducted with youth and/or parents and includes identification of catastrophic cognitions, avoidant response patterns, anxiety reactions, disruptive behavior disorder responses, and conditioning experiences (Carr, 1994). The antecedents and consequences that are related to a given behavior may help distinguish if the behavior is related more to anxiety or behavior problems. For example, if a child has anticipatory anxiety and feels nervous leading up to a given activity, they may be more likely to feel irritable and demonstrate inappropriate, disrespectful behavior. As a consequence, the parent may wish to exclude the child from the activity. However, it is possible that this consequence may exacerbate the child's anxiety in future situations as they have avoided the feared situation and have not been exposed to the feared stimuli. Such information allows for a more thorough conceptualization of the problem and aides in treatment planning.

Behavioral Observation

Behavioral observation is another useful means of obtaining useful diagnostic information (e.g., family interaction) without the biases of the various informants (Hudson & Rapee, 2000). Use of formal behavioral observation systems with reliable and validated scales may be particularly useful in reducing assessor biases. Behavioral observation systems involve defining what behaviors one wishes to observe. Levels of analysis

may include isolated behaviors, symptoms of a psychological disorder, or interactions within a social unit. Recording antecedents and consequences of behaviors is also useful and may be particularly useful in planning for treatment.

Behavioral observation is a particularly useful process that allows for assessment of factors that contribute to or maintain child symptomatology (e.g., parenting practices). It should be noted that features of anxiety and oppositional behavior may overlap. In order to parse out differences, antecedents and consequences of such behaviors should be assessed. For example, a youth who is hitting, kicking, and screaming "no" to his parents may be interpreted as anxiety-driven if the antecedent behavior is the parent leaving the room or may be considered a feature of oppositionality if such behavior is exhibited following a parent's request for the child to do a chore.

Summarizing the Data

Assessment data derived from these multi-informant, multi-method strategies are likely to produce rich information that can be used in the diagnosis and treatment of overlapping ADs and DBDs. However, this information can be difficult to summarize when various informants and methods are not in agreement. Researchers have examined various methods of combining child and parent reports of psychopathology in order to accurately arrive at comorbid disorders (Jensen, 2003; Youngstrom, Findling, & Calabrese, 2003). Some have found higher comorbidity rates are obtained via diagnostic interviews and parent reports versus youth or teacher reports (i.e., Youngstrom et al., 2003). While use of multi-informants may increase the likelihood of over-diagnosing comorbidity, discrepancies between informants may be resolved by using the "OR" rule (Jensen, 2003). This rule states if either a parent or child (or other informant) endorses enough criteria to provide evidence for a clinically significant diagnosis, a diagnosis should be assigned. However, this approach may be problematic as such an approach may lead to over-diagnosis in youth. Some have suggested that when parent and child are in disagreement, the parent's report of externalizing behaviors may be more reliable than the child's whereas the child may be a better reporter of internalizing symptoms. Others have suggested that when using dimensional measures of internalizing and externalizing symptoms, it is important to use stringent cut-off scores to reduce the chances of overdiagnosing children and adolescents with more than one disorder (Angold et al., 1999; Garnefski & Diekstra, 1997; McConaughy & Achenbach, 1994).

Case Study

Several of the points illustrated in this chapter are highlighted in the case study of Jason, an 11-year old boy who presented to a university-based specialty clinic for assessment and treatment of a specific phobia. In terms of Jason's specific phobia, he and mother reported in a semi-structured interview a fear of heights that prevented him from hiking with family members, going near windows in tall buildings, and from sleeping in his loft bed.

During the assessment, Jason's mother also expressed concerns regarding Jason's distractibility, academic underachievement, and oppositionality. In a semi-structured interview, mother reported symptoms of hyperactivity, inattention, and impulsivity. Additionally, mother reported that Jason frequently annoys others, refuses to do homework and other tasks such as chores, and blamed others for his mistakes. His mother was extremely frustrated with Jason's behavior, and she was spending less time with him to avoid conflicts. These symptoms of oppositionality occurred primarily in the home setting. While Jason denied symptoms of inattention and oppositionality in a semi-structured interview, clinician behavioral observations evidenced several symptoms congruent with attention-deficit/hyperactivity disorder such as fidgetiness, distractibility, and impulsivity. Further, his academic difficulties were assessed via teacher questionnaire and were reportedly due to difficulty staying focused on schoolwork and homework and impulsive

expressions of frustration at school. Thus, in addition to Jason's diagnosis of specific phobia (heights), he was also diagnosed with ODD and ADHD-C as a result of the findings from the assessment battery. Jason was referred for outpatient psychological therapy to address his anxiety, oppositionality, and attention difficulties.

Summary

The occurrence of DBDs in youth with ADs is greater than would be expected by chance and poses significant challenges in the psychological assessment process. Understanding of the diagnostic criteria of the DBDs (i.e., ADHD, ODD, and CD) is critical for appropriate assessment of these conditions in youth with ADs. Certain ADs may be likely to co-occur with ADHD (GAD, social phobia, SAD, OCD, and specific phobia), whereas other ADs may be likely to occur with ODD/CD (i.e., social phobia, specific phobia, PTSD, GAD, SAD, and panic disorder/agoraphobia). In the assessment of clinical characteristics of comorbid ADs and DBDs, it is important to consider possible symptom overlap between conditions, family environment factors, and social impairment. Multi-informant, multi-method strategies for assessing DBDs in youth with ADs are critical for accurate determination of diagnostic profiles in youth. A combination approach including diagnostic interviews, behavioral measures, situational analysis, and behavioral observation will yield a comprehensive picture of the youth's emotional and behavioral functioning.

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Assessing Complexities in Anxiety Disorders: Consideration of Future Directions

16

Dean McKay and Eric A. Storch

One of the earliest professional tasks mental health service providers are taught in their postgraduate education involves assessment. To take but one example, under the eligibility criteria for doctoral training programs established by the Committee on Accreditation from the American Psychological Association states the following requirement:

> Diagnosing or defining problems through psychological assessment and measurement and formulating and implementing intervention strategies (including training in empirically supported procedures). To achieve this end, the students shall be exposed to at least the following areas: theories and methods of assessment and diagnosis; effective intervention; consultation and supervision; and evaluating the efficacy of interventions (p. 7; Guidelines and Principles; APA Office of Program Consultation and Accreditation, 2012).

The prominence of assessment in this statement suggests the centrality of this activity. Interestingly, while assessment is stressed in postgraduate education, many clinicians consider their primary evaluation tactic to be the clinical interview. Indeed, one recent survey showed that structured interviews are routinely conducted by fewer than 15% of providers (Bruchmüller, Margraf, Suppiger, & Schneider, 2011) suggesting that most practitioners are ignoring a significant portion of their professional training when they enter the workforce. While many professionals fail to continue to rely on select aspects of their postgraduate training, this is a glaring inadequacy not only because of its centrality in graduate coursework but also because of well-established principles showing actuarial prediction of outcomes being superior to clinical judgment (Dawes, Faust, & Meehl, 1989).

To be fair, many clinicians use other assessment instruments to inform practice aside from structured interviews. These measures provide a means for determining specific targets for therapy as well as markers for charting improvement. With the advent of wider acceptance of empirically supported practices (Chambless & Ollendick, 2001), the specific instruments associated with efficacious treatment have become widely known as well. These measures often have the benefit of sound psychometric qualities, and in some instances provide specific cutoffs established using sophisticated methodologies such as receiver operating characteristic curves (ROC curves; Nunnally & Bernstein, 1994) or taxometric analyses (Waller & Meehl, 1998).

And, in the name of additional fairness, assessment procedures that are time consuming are frequently eschewed for simple economic reasons. Specifically, many insurance companies are

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5_16,

reluctant to cover this aspect of practice or provide coverage that is well below that associated with other professional services. This confounding scenario is one important future policy direction that deserves attention. It is tantamount to seeking medical care for high blood pressure and the only assessment being the doctor inquiring as to whether one feels like their pressure is high.

Despite the aforementioned impediments to assessment, it is nonetheless a central feature of psychological practice. In the case of anxiety disorders, there exist a wealth of measures that specifically evaluate the presence and severity of many major presenting problems (for a compendium of measures, see Antony, Orsillo, & Roemer, 2001). The existence of well established and psychometrically sound assessment measures is a critical development for determining treatment outcomes. It is also critical for developing these very same efficacious treatment plans (Antony & Barlow, 2010).

However, it is also the case that many anxiety disorders are associated with relatively common complicating features. The accumulating evidence suggests that there are numerous instances where treatment recommendations vary as a function of specific complicating factors associated with different diagnoses. To take one example: Social Phobia has well-established cognitive–behavioral treatment protocols for both individual (Turk, Heimberg, & Magee, 2008) and group (Heimberg & Becker, 2002) formats. However, a large percentage of Social Phobia sufferers also abuse alcohol and other sedating substances. When this problem is present, treatment must also focus on problems of substance use and dependence either before, or concurrent to, treating Social Phobia (Randall, Book, Carrigan, & Thomas, 2008). Failure to attend to this important feature would increase the likelihood of poor treatment adherence and drop out given the demands of treatment for Social Phobia that is uncomplicated by substance abuse, such as exposure and other anxiety producing treatment challenges. This text has aimed to cover some of the major complicating features associated with anxiety disorders, and describe assessment strategies for the complicating problems that might be less familiar to those who have developed the skills to treat uncomplicated presentations of the different conditions.

While complications associated with disorders are relatively common, there are also several assessment strategies that are familiar to clinicians in a general way, but less familiar as they specifically apply to anxiety disorders. For example, objective personality assessments such as the MMPI are well known, but the applicability to a diagnostic set such as anxiety disorders are not typically described as part of postgraduate education. Nonetheless, since measures such as these are routinely administered, it is essential to elucidate their utility in clinical practice with people with anxiety disorder. Indeed, sticking with the example of the MMPI, the chapter in this volume makes clear that while the measure is valid and well researched, the specific recommendations for interpretations in relation to anxiety disorder clients is far less clear.

Finally, there has been considerable interest in cognitive assessment in the anxiety disorders. Some of the interest stems from a research agenda promoted by funding agencies that stress the identification of neural mechanisms and correlated behavioral indicators that are specific to different psychopathology. While there are good questions as to how much value this research agenda has produced (see, for an example, Whiteside, Port, & Abramowitz, 2004), it has sparked great interest in understanding the relationship between basic cognitive processes such as attention, memory, judgment, and reasoning as it relates to anxiety disorders (Power & Dalgleish, 2008; Williams, Watts, MacLeod, & Mathews, 1997). This has begun to move beyond the research assessment arena into the treatment realm. Specifically, treatments aimed at training anxious clients in differential attention away from threatening stimuli have been piloted and show early promise (i.e., Najmi & Amir, 2010). With the advent of this approach to treatment, reliant as it is on automatic processes, it will be essential that providers have a solid set of assessment skills at their disposal to evaluate improvement.

It is our hope that this volume will alert readers to new approaches to assessment in anxiety disorders, highlight methods of evaluation for common complicating factors, and draw attention to limitations in the existing methodologies in order to promote additional research on the process. Through all of this, the connection between assessment and treatment has been emphasized, and it also our hope that readers will develop a more fine-tuned set of therapeutic strategies to provide more individually tailored interventions for their anxious clients.

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D. McKay and E.A. Storch (eds.), *Handbook of Assessing Variants and Complications in Anxiety Disorders*,
DOI 10.1007/978-1-4614-6452-5, © Springer Science+Business Media New York 2013

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DOI 10.1007/978-1-4614-6452-5, © Springer Science+Business Media New York 2013