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Diagnosis and Assessment

Terence M. Keane, Frank W. Weathers,
and Edna B. Foa

Posttraumatic stress disorder (PTSD) is a psychological condition that reflects the development of characteristic symptoms following exposure to high-magnitude life stressors (*Diagnostic and Statistical Manual of Mental Disorders*, fourth edition [DSM-IV]; American Psychiatric Association, 1994). These symptoms include distressing thoughts, feelings, and images that recapitulate the traumatic event; a persistent avoidance of cues associated with the traumatic event; emotional numbing of responsiveness; and a collection of symptoms that represent a persistent increase in stress and arousal. Typically, the disturbance is experienced for longer than 1 month and it causes clinically significant distress or impairment in occupational and social functioning.

To qualify for this diagnosis an individual must be exposed to a traumatic event that involved life-endangering components and the individual's response had to include intense fear, helplessness, or horror. If symptom duration is less than 3 months, then a diagnosis of acute PTSD is conferred, while if duration extends beyond 3 months, the condition is deemed chronic. Occasionally, symptoms emerge months or even years following the exposure to the traumatic event. In these cases, a diagnosis of PTSD with delayed onset is warranted.

DIAGNOSTIC CRITERIA

Fortunately, most people who are exposed to a traumatic event do seem to recover over time. Yet for a sizeable minority, symptoms of PTSD seem to occur and in the absence of treatment can cascade into the development of a

serious and persistent psychiatric condition. PTSD is characterized by reexperiencing symptoms that include (1) recurrent and intrusive recollections of the event, (2) recurrent dreams of the event, (3) acting as if the event were recurring, (4) intense distress at exposure to cues that symbolize the event, and (5) physiological reactivity to cues or reminders of the event.

The disorder also encompasses symptoms of avoidance and emotional numbing. These can include (1) efforts to avoid thoughts, feelings, or even conversations of the event; (2) efforts to avoid activities, places, or people associated with the event; (3) an inability to recall important details surrounding the event; (4) a diminished interest in formerly enjoyable activities of life; (5) a feeling of detachment, estrangement, or alienation from other people; (6) a restricted range of emotional experiences; and (7) a sense of a shortened future accompanied by a notable lack of preparation for the future.

Additionally, symptoms of arousal that were not present prior to the traumatic event conclude the symptom picture. These arousal symptoms can be (1) sleep difficulties, (2) irritability or anger outbursts, (3) difficulty concentrating, (4) hypervigilance for danger or a reoccurrence of a life-threatening situation, and (5) an exaggerated and distressing startle response.

PREVALENCE OF EXPOSURE TO TRAUMATIC EVENTS

Once thought to be relatively rare, recent epidemiological research on the prevalence of exposure to traumatic events has challenged this notion. Norris (1992) surveyed four urban areas in southeastern United States and found that 69% of the adults reported experiencing one or more traumatic events in their lives. Similarly, Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) conducted a nationwide survey of criminal victimization among women and found that 69% of them reported being victimized at least once in their lives. Breslau, Davis, Andreski, and Peterson (1991) found a prevalence of 39% of people experiencing a traumatic event in a relatively young, well-educated, and insured population. Even college-student populations reported high rates of exposure to traumatic events. Vrana and Lauterbach (1994) found that 84% of the undergraduate population at a major Midwestern university reported exposure, with 33% stating that they had experienced four or more traumatic events. Clearly, exposure to traumatic events is far more commonplace than experts originally anticipated.

PREVALENCE OF PTSD

Fortunately, people who are exposed to traumatic life events do not always develop PTSD. In the Breslau, Davis, Andreski, and Peterson (1991) study,

approximately 25% of those exposed to a traumatic event ultimately developed PTSD, yielding a nearly 9% lifetime prevalence of the disorder. Norris (1992) found a current rate of PTSD of 5%, while Resnick and collegues (1993) reported a 9% current rate of PTSD among women, accompanied by a 12% lifetime rate. General population estimates have also yielded high rates of PTSD. In the Kessler, Sonnega, Bromet, Hughes, and Nelson (1995) National Comorbidity Survey, lifetime PTSD was found in 8% of the adult population. Prevalence rates of PTSD in children have received little empirical attention to date; this is an area in clear need of additional research.

PTSD also seems to occur at higher rates in populations that we characterize as high risk for the disorder. The National Vietnam Veterans Readjustment Study, a landmark epidemiological effort and the first attempt by any country to quantify the psychological toll of a war on its soldiers, found that 30% of the 3.1 million Vietnam veterans developed PTSD at some time following the war. Fifteen percent of them still had PTSD 15 years after the war concluded.

Similarly, individuals who have experienced rape are also at greater risk for developing PTSD. The Kilpatrick, Edmonds, and Seymour (1992) National Women's Study found that 13% of American women had experienced a completed rape at some time in their life. Nearly one-third of them eventually developed PTSD as a result. This study yielded an astoundingly high national rate of 4% rape-related PTSD among American women.

Disasters also seem to induce PTSD at high rates. Green, Lindy, Grace, and Leonard (1992) studied the effects of the dam collapse in Buffalo Creek, West Virginia. They found a 59% lifetime rate of PTSD among survivors and a 25% current rate 14 years after the flooding.

Clearly, exposure to traumatic events is common in the United States and it seems that the prevalence of PTSD in the general population is high, ranking behind only substance abuse disorders, major depression, and social phobia in frequency. As a result, trauma exposure and PTSD represent a major challenge to the public health delivery system in Western developed countries.

Most of the major, well-controlled studies of the prevalence of traumatic events and PTSD have occurred in the United States. Many scholars feel that the prevalence of trauma exposure and PTSD is higher in the developing world in part due to the lack of resources present there to avert disasters and to mitigate their aftermath (De Girolamo & McFarlane, 1996). Future research will determine the extent to which this is an accurate assessment of the situation in developing countries.

Gender differences in exposure and in the development of PTSD are suggested by the results of several epidemiological studies. As found in the National Comorbidity Survey, it seems that males (60%) are more likely to be exposed to traumatic events than females (50%). Yet females (12%) were more likely to develop PTSD than were males (6%). This distinction may be

a real gender difference in the susceptibility to PTSD, possibly linked to biological, psychological, or social differences. Alternatively, it may be a direct function of the types of events to which men and women are differentially exposed. For example, women are more than 10 times as likely to be raped, and men are twice as likely to have experienced a dangerous accident. The capacity of different events to induce PTSD at different rates is only now being explored systematically. These studies may very well inform us about the mechanisms associated with the preliminary gender differences in exposure and PTSD observed to date.

In a recent study on this topic, Breslau and colleagues (1998) indeed found that assaultive violence (including rape) induced the highest rate of PTSD of all the traumatic events measured. Yet the sudden and unexpected death of a loved one contributed the highest proportion of PTSD cases (31%) due to its high frequency in the population (60%). This study also found that PTSD persisted longer in women than men, often longer than 6 months (74%), and longer when the traumatic event was directly rather than indirectly experienced. This study also found racial differences in the development of PTSD in that nonwhites were almost twice as likely to develop PTSD following exposure than were whites, findings that again require continued study to understand more fully the mechanisms involved.

ASSESSMENT OF PTSD

PTSD is thus a disorder with high frequency in the general population. Increasingly, clinicians are recognizing that a sizable portion of members of their clinical practice has experienced traumatic events for which they are requesting services. An additional portion of patients' care is complicated by the presence of PTSD. Accordingly, there has been great interest among clinicians in the proper assessment and evaluation of patients with PTSD. Clearly, PTSD is assessed for many different purposes, and the goals of a particular assessment can determine the approach selected by the professional. Clinicians often have as their objective a diagnostic workup that includes a differential diagnosis and treatment planning. They may also be involved in forensic evaluations in which diagnostic accuracy is of utmost importance. Researchers may be interested in the frequency of occurrence, the risk factors, and the complications associated with PTSD (as in epidemiological studies). Moreover, researchers may seek high levels of diagnostic accuracy when studying biological and psychological parameters of the disorder, as in case–control types of studies. Each clinical and research situation requires a different solution depending upon the assessment goals of the professional. For this reason, we present a general overview of the methods by which clinicians can evaluate the quality of available instruments.

Psychometric Theory and Principles

The quality of psychological assessment is examined through two psychometric characteristics: reliability and validity. Reliability is the consistency or replicability of test scores. Validity is the meaningfulness or accuracy inferences, interpretations, or decisions made upon the basis of scores on tests or instruments. Test developers often report the consistency of tests over time (test–retest reliability), over different interviewers or raters (interrater reliability), or over the many items comprising a particular test (internal consistency). Reliability is reported for continuous measures as a simple correlation coefficient that can vary between 0 and 1. Reliability for dichotomous measures such as diagnostic interviews (indicating the presence or absence of a disorder) often is reported as a kappa coefficient (Cohen, 1960) which is also reported as 0–1 and interpreted as the percent agreement above chance.

Measures of validity include content validity, which represents the extent to which a test provides coverage of the domain of symptoms of a condition. The better the coverage of key symptoms, the better the content validity. If the measure of a disorder predicts something of interest or importance, such as response to an intervention, it is said to have good criterion-related validity. Finally, if a measure is correlated with other measures of the same disorder, it is said to have good construct validity.

Diagnostic instruments in the field of mental health are usually evaluated on the basis of their diagnostic utility, a type of criterion-related validity pertaining to a test's capacity to predict diagnostic status (Kraemer, 1992). There are three steps in determining the diagnostic utility of a given instrument. First, a "gold standard" is selected. In psychological research, this is ordinarily a diagnosis based on a clinical interview, but it may also be a determination based on several sources of information. Second, both the gold standard and the newly developed test are administered to the experimental group of participants. Finally, a variety of cutoff scores are examined to determine their diagnostic utility or, in other words, their ability to predict the diagnosis provided by the gold standard. Optimal cutoff scores for the test are those that predict the greatest number of cases and noncases from the original sample.

All measures of a psychological disorder are imperfect (Gerardi, Keane, & Penk, 1989). Two measures of the error contained within a test are false positives and false negatives. A false positive occurs when a patient scores above the cutoff, but is not a true case. A false negative occurs when a patient scores below the given cutoff yet is in fact a true case. Diagnostic utility is often described in terms of a test's sensitivity and specificity. These are measures of a test's performance that take into account errors made in prediction. Sensitivity is the measure of a test's true positive rate, or the probability that those with the disorder will score above a given cutoff score. Specificity is the true negative rate of a test, or the probability that those without the disorder will score below the cutoff for the test. Sensitivity is low if the test yields too many false negatives, whereas specificity is low if the test yields too many false positives.

Selection of tests and diagnostic instruments should include an examination by the clinician of relevant data on their psychometric properties. Inspection of rates of false positives, false negatives, sensitivity, and specificity will also inform the clinician as to how the instrument performs. Conclusions drawn in the clinical assessment are most accurate if they take into account these limitations.

Structured Diagnostic Interviews

It is standard practice in clinical research to employ a structured diagnostic interview to ensure that all PTSD symptomatology is reviewed in detail. Diagnostic interviews combine the virtues of defining precisely how a diagnosis was made with the use of interviews that have known psychometric properties (i.e., reliability and validity). The use of structured diagnostic interviews in the clinical setting is less common, with perhaps the single exception of clinical forensic practice, in which it is strongly encouraged (Keane, 1995). Nonetheless, the use of diagnostic interviews in clinical settings may well improve diagnostic accuracy and improve treatment planning (Litz & Weathers, 1994). The use of broad-based diagnostic interviews that cover the range of high-frequency diagnoses assists the clinician in that it will provide not only an evaluation of the target disorder but also of the extent of clinical comorbidity that is present (Keane & Wolfe, 1990; Weiss & Marmar, 1997). Some of the available diagnostic interviews and their psychometric properties are presented here.

Structured Clinical Interview for DSM (SCID)

The SCID is the most widely used interview to assess Axis I and Axis II psychiatric disorders. It consists of separate modules for the most common diagnostic categories. While the administration of the full SCID can be time-consuming, it does provide information across a broad range of clinical conditions. In many clinical settings, the SCID is used to assess systematically only those conditions that are most frequently encountered. This is economical in terms of time and still provides an examination across key conditions. In working within the context of a trauma clinic, it is recommended that the anxiety disorder, affective disorder, substance abuse disorder modules, and the psychotic screen be employed. This provides a fairly comprehensive examination of those conditions that are frequently comorbid and a systematic way to ensure that a patient does not endorse signs of schizophrenia, a condition that would require a different initial set of clinical interventions.

The PTSD module of the SCID appears to be both clinically sensitive and reliable. Keane and colleagues (1998) examined the interrater reliability of the SCID by asking a second interviewer to listen to audiotapes of an initial interview. They found a kappa of .68 and agreement across lifetime, current, and never PTSD of 78%. Similarly, in a sample of patients who were reinterviewed within a week by a different clinician, they found a kappa of .66 and diagnostic agreement of 78%.

The SCID's primary limitation is that it permits only a dichotomous rating of a symptom (present or absent), placing clinicians in a forced choice situation. Most clinicians agree that the psychological symptoms occur in a dimensional rather than dichotomous fashion, so the SCID seems limited by the use of the present–absent scoring algorithm. Several options have evolved in the field as a result of this limitation.

Anxiety Disorders Interview Schedule—Revised (ADIS-R)

Developed by DiNardo and Barlow (1988), the ADIS-R is a structured diagnostic interview that focuses primarily on the anxiety and affective disorders. The ADIS-R uses a Likert-type scaling procedure for symptoms and is thus capable of being analyzed in multiple ways to determine the extent to which a symptom is present or absent. Assessment of the psychometric properties of the ADIS-PTSD module in two separate studies produced mixed results. In the first study, a small group of combat veterans was assessed by two independent interviewers. Blanchard, Gerardi, Kolb, and Barlow (1986) found excellent sensitivity (1.0) and specificity (.91). In a community-based study with less impressive results, the hit rates were less stable (DiNardo, Moras, Barlow, Rapee, & Brown, 1993).

PTSD Interview

Watson and colleagues' (1991) PTSD Interview yields both dichotomous and continuous scores. The authors report strong test–retest reliability (.95) and internal consistency (alpha = .92), as well as strong sensitivity (.89), specificity (.94), and kappa (.82) when compared with the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981).

The PTSD Interview appears to have excellent psychometric properties but differs in administrative format from most other structured diagnostic clinical interviews. With it, patients are provided a copy of the scale to read along with the interviewer. From this copy of the scale, they are asked to give to the clinician their rating on the Likert-type scale for each of the symptoms. This format shares much in common with self-report questionnaires, yet deviates from the other diagnostic scales in that it does not allow clinicians to make ratings of their own and utilize their expertise and experience.

Structured Interview for PTSD (SI-PTSD)

The SI-PTSD was developed by Davidson, Smith, and Kudler (1989). As with the PTSD Interview, the SI-PTSD also yields both dichotomous and continuous measures of PTSD symptoms. As a result, it appears to be a useful instrument for diagnosing PTSD and measuring symptom severity. Symptoms are rated by the clinician on 5-point Likert-type scales, and the focus for the clinician is on symptom severity. It possesses initial probe questions and provides helpful follow-up questions to promote a more thorough understanding of the patient's symptom experiences. In a study of male combat veterans, the authors found sensitivity of .96 and specificity of .80, suggesting sound performance.

Clinician-Administered PTSD Scale (CAPS)

Developed by the National Center for PTSD in Boston, the CAPS was designed for use by trained, experienced clinicians (Blake et al., 1990). Consisting of 30 items, the CAPS assesses all 17 symptoms of PTSD as well as a range of associated, frequently observed features. Also contained in the CAPS are ratings for social and occupational functioning and an assessment of the validity of patient responses. Like the PTSD Interview and the SI-PTSD, the CAPS provides both dichotomous and continuous scores. Unique features of the CAPS are that it contains separate ratings for frequency and intensity of each symptom and possesses behaviorally anchored probe questions and scale values. Interviewers are trained to ask their own follow-up questions and use their clinical judgment in arriving at the best ratings.

If administered completely (i.e., all questions regarding associated features, functional impairments, validity ratings), the CAPS takes approximately 1 hour to complete. If only the diagnostic symptoms are assessed, the time for administration is cut in half.

Psychometric data on the performance of the CAPS demonstrate unusual strength in identifying cases and noncases of PTSD. Across three clinicians and 60 separate male veteran subjects, Weathers and colleagues (1992) found test–retest correlations between .90 and .98. Internal consistency was equally impressive, with alpha at .94 across all three primary symptom clusters. Correlations with other established measures of PTSD yielded strong evidence for the construct validity of the CAPS. The correlation of the CAPS was .91 with the Mississippi Scale, .77 with the Keane PTSD Scale of the MMPI-2, and .89 with the SCID-PTSD symptom score. Correlations with a measure of antisocial personality disorder were low, as predicted by the multitrait–multimethod study design.

Using the CAPS as a continuous measure, it was found to have 84% sensitivity, 95% specificity, 89% efficiency, and a kappa of .78 against the SCID. Using the CAPS as a diagnostic measure, a kappa of .72 was found,

as compared with the SCID diagnosis. Whether used as a diagnostic or a continuous measure, these findings establish the CAPS as a sound measure of PTSD with excellent psychometric properties. Replications of these findings with male and female motor vehicle accident survivors (Blanchard et al., 1995) and patients with serious mental illnesses of both genders (Mueser et al., 1999) indicated the generalizability of these results across populations, races, and genders. A recent publication carefully explicated nine different scoring algorithms for the CAPS and their implications for diagnostic accuracy, reliability, and validity coefficients (Weathers, Ruscio, & Keane, 1999).

PTSD Symptom Scale Interview (PSS-I)

Developed by Foa, Riggs, Dancu, and Rothbaum (1993), the PSS-I possesses many strong clinical features that warrant its consideration for clinical and research use. Consisting of the 17 criteria of the PTSD diagnosis, the PSS-I uses Likert-type rating scales for each of the criterion symptoms. It can be scored as a continuous and dichotomous measure of PTSD and takes approximately 20 minutes to complete. Administering this measure to 118 women with sexual assault histories, Foa and colleagues (1993) found excellent interrater reliability, diagnostic sensitivity of .88, and specificity of .96. Test–retest reliability over 1 month was also reported to be strong.

The advantages of the PSS-I are its relative brevity, its promising psychometric properties, and its use of Likert-type rating scales that provide both a dichotomous and a continuous scoring routine. Another strength of this interview is its development and validation with sexual assault survivors, a population of great interest and importance clinically.

Self-Report Questionnaires

Several self-report measures have been developed as a time- and cost-efficient method for obtaining information on PTSD symptomatology. These measures enjoy widespread acceptance and use due to ease of administration and scoring, and they are also useful adjuncts to the structured diagnostic instruments. They can also be invaluable when used as screens for PTSD and are most frequently used as continuous measures of PTSD, but specific cutoff scores can be used in order to arrive at a diagnosis of PTSD.

Impact of Event Scale—Revised (IES-R)

Initially developed by Horowitz, Wilner, and Alvarez (1979), the IES was revised by Weiss and Marmar (1997) to incorporate the symptoms of hyperarousal for PTSD (Criterion D). The original scale, which contained only reexperiencing symptoms and avoidance/numbing symptoms, needed to be

revised in order to parallel more closely the diagnostic picture. While the authors have provided some preliminary data, more information is needed about the revised version's reliability and validity. The most frequently used measure of PTSD, the original IES possessed good psychometric properties. Similar studies with the revised instrument will ensure its continued use in clinics and research settings.

Mississippi Scale for Combat-Related PTSD

The Mississippi Scale (Keane, Caddell, & Taylor, 1988) is a 35-item scale designed to measure combat-related PTSD. The items were selected from an initial pool of 200 items generated by experts to closely match the DSM-III criteria for the disorder. The Mississippi Scale has excellent psychometric properties, with an alpha of .94 and test–retest reliability of .97 over a 1-week interval. Using a cutoff score of 107, the Mississippi Scale had strong sensitivity (.93) and specificity (.89).

These results were replicated in an independent laboratory by McFall and colleagues (1990a), who found that the Mississippi Scale was highly correlated with the SCID-PTSD module. These findings suggest that the Mississippi Scale, widely used in clinical and research settings serving veterans, is a valuable self-report tool.

Keane PTSD Scale of the MMPI-2

Originally derived from the Minnesota Multiphasic Personality Inventory (MMPI) Form R, the Keane PTSD Scale (PK) now consists of 46 items empirically drawn from the MMPI-2 (Keane, Malloy, & Fairbank, 1984; Lyons & Keane, 1990). The original report on the scale indicated that the PK correctly classified some 82% of the 200 subjects in the study. Subsequent studies have confirmed these findings in combat veteran populations (Watson, Kucala, & Manifold, 1986).

In terms of reliability, Graham (1990) found the PK to have strong internal consistency (.85–.87) and test–retest reliability (.86–.89). Although only a few studies to date have been conducted on the PK in nonveteran populations, the data appear to be promising (Koretzky & Peck, 1990). More research is needed in this area, especially in the area of forensic psychology, where the MMPI-2 is frequently employed because of its validity indexes.

Penn Inventory for Posttraumatic Stress

The Penn Inventory is a 26-item questionnaire developed by Hammerberg (1992). Its psychometric properties have been examined in multiple trauma populations, and its specificity is comparable to that of the Mississippi Scale, while its sensitivity is only slightly lower. Used with accident victims, veterans,

and general psychiatric patients, it has primarily been employed with samples of male patients.

Posttraumatic Diagnostic Scale (PTDS)

Developed by Foa, Cashman, Jaycox, and Perry (1997), the PTDS is derived directly from DSM criteria. The items of the PTDS map directly onto the DSM-IV criteria for PTSD; thus, the questionnaire consists of 17 questions. The PTDS begins with a 12-question checklist to elucidate the traumatic events to which an individual might have been exposed. Next, patients are asked to indicate which of the events experienced has bothered them most in the past month. Patients then rate their reactions to the event at the time of its occurrence in order to determine if the event fits both Criterion A1 and A2.

The patient then rates on a 4-point scale the *frequency* of each of the 17 symptoms of PTSD they have experienced in the past 30 days. The final section of the scale asks for self-ratings of impairment across nine areas of life functioning. This scale was validated using several populations, including combat veterans, accident victims, sexual- and non-sexual-assault survivors, and survivors of a range of other traumatic events.

The psychometric analyses proved to be exceptional. For internal consistency, the coefficient alpha was .92 overall; test–retest reliability for the diagnosis of PTSD over a 2- to 3-week interval was also high (kappa = .74). For symptom severity, the test–retest correlation was .83. When compared to a SCID diagnosis of PTSD, a kappa coefficient of .65 was obtained with 82% agreement; the sensitivity of the test was .89, whereas its specificity was .75. Clearly, this self-report scale functioned well in comparison to the clinician ratings obtained in the SCID. It is a useful self-report and screening device for measuring PTSD and its symptom components.

PTSD Checklist (PCL)

Also developed by researchers at the National Center for PTSD in Boston, the PCL comes in two versions: one for civilians, and the other for military personnel. The scale contains the 17 items contained in the DSM diagnostic criteria scored on a 5-point Likert-type scale. Weathers, Litz, Herman, Huska, and Keane (1993) examined its psychometric properties and found excellent internal consistency (alpha = .97), excellent test–retest reliability over a 2- to 3-day period (.96), and strong correlations with other measures of PTSD: .93 with the Mississippi Scale, .77 with the PK scale, and .90 with the IES. Blanchard, Jones-Alexander, Buckley, and Forneris (1996) used the PCL in their studies of motor vehicle accident victims and found that its correlation with the CAPS was .93, and its overall diagnostic efficiency was .90 compared to the CAPS. The properties of the PCL compared with other populations have yet to be reported in the literature.

Los Angeles Symptom Checklist (LASC)

Consisting of 43 items scored on Likert-type scales, the LASC has been extensively studied across different populations (males and females, adults and adolescents, various trauma types). King, King, Leskin, and Foy (1995) examined the psychometric properties of the LASC and found it to possess high internal consistency (alphas ranging from .88 to .95) and test–retest reliability over a 2-week interval (.90 and .94). Its strengths include the various ways in which it can be scored (continuously or dichotomously) and its inclusion of a range of associated features, signs of distress, and functional problems. Using only the 17-item PTSD index, King and colleagues (1995) found sensitivity of .74, specificity of .77, and an overall hit rate of 76% compared to a SCID diagnosis.

The use of these self-report questionnaires in a wide range of clinical and research contexts seems well supported by extant data. It is clear that they can be successfully employed to measure PTSD symptoms when administering a structured diagnostic interview is not feasible or practical. Many of the measures can be used interchangeably, as the findings appear to be robust for the minor variations in methods and approaches involved. In selecting a particular instrument, the clinician is encouraged to examine the data for that instrument on the population for which it is to be employed. In so doing, the clinician is apt to maximize the accuracy and efficiency of the test employed.

Psychophysiological Measures

Research on biologically based measures of PTSD has grown tremendously in the past 10 years. Findings suggest that PTSD alters a wide range of physiological functions (Yehuda, 1997) and may also affect structural components of the brain (Bremner et al., 1995). To date, these findings have not been subjected to rigorous psychometric testing to determine the extent to which the deviations are predictive of PTSD and non-PTSD cases. The primary exception to this conclusion is in the area of psychophysiological reactivity, which from the start examined diagnostic accuracy (see, e.g., Blanchard, Kolb, Pallmeyer, & Gerardi, 1982; Malloy, Fairbank, & Keane, 1983; Pitman, Orr, Forgue, deJong, & Claiborn, 1987).

The findings in this area clearly point to the capacity of psychophysiological indices to identify and classify cases of PTSD on the basis of reactivity to audio-, audiovisual-, and imagery-based cues. Measures have included heart rate, blood pressure, skin conductance, and electromyography (EMG). Studies covered the range of trauma survivors and include victims of motor vehicle accidents, combat veterans from available eras, and survivors of female sexual assault and terrorism. In perhaps the largest study of its kind, Keane and colleagues (1998) examined the responses of over 1,000 combat

veterans to audiovisual- and imagery-based cues of combat experiences. The results supported the presence of elevated psychophysiological arousal and reactivity in the participants, more than two-thirds of whom were correctly classified as PTSD or non-PTSD.

Clearly, psychophysiological assessment is costly in terms of time, patient burden, and cost. Yet in cases where much is at stake, it might be helpful to employ this assessment strategy clinically (cf. Prins, Kaloupek, & Keane, 1995). Widespread adoption of this method of assessment is not anticipated due to the costs, the expertise required, and the success of other, economical methods of assessment such as the diagnostic interviews and the psychological tests that are available.

RECOMMENDATIONS FROM THE NIMH–NATIONAL CENTER FOR PTSD CONFERENCE ON ASSESSMENT STANDARDIZATION

In November 1995, 45 clinicians and researchers from across the world met in Boston, Massachusetts, in conjunction with the annual meeting of the International Society for Traumatic Stress Studies to discuss and debate various approaches to the assessment of PTSD (Keane, Solomon, & Maser, 1996). While their task was to provide guidance for conducting clinical research in the field, their recommendations bear on the development of standards for assessing PTSD in many different settings and for a variety of purposes. The conference participants reached consensus on several parameters of the assessment process, described as follows:

1. Clinician-administered structured diagnostic interviews provide valuable clinical information. Clinicians should evaluate their quality using as a guideline the psychometric properties of reliability, validity, and clinical utility.
2. Structured diagnostic interviews that provide both a dichotomous and continuous rating of PTSD symptoms are preferred.
3. Symptom frequency, intensity, and duration of a particular episode are dimensions that should be assessed. It is important to determine levels of distress as articulated by patients regarding their symptom presentation.
4. Ratings of impairment and disability secondary to the symptom complex provide important information regarding the severity of the condition.
5. Measures that evaluate both components of the traumatic event (i.e., A1 and A2) are preferred and even essential.
6. Instruments whose reliability and validity studies contain information regarding their performance across gender, racial, and ethnic groups are to be given preference, especially when the instrument is to be used with males and females of different cultures and races.
7. Self-report instruments for PTSD should meet the standards for psychometric instruments established by the American Psychological Association's *Standards for Educational and Psychological Tests* (1986).
8. When examining for the presence of traumatic events in the history of a person, the committee "recommended a set of carefully worded items that cover a range of types of events as a minimum." Furthermore, the committee recommended that "in-depth questions need to be asked about event occurrences, perceived life threat, harm, injuries, frequency, duration, and age." The events identified as key to review include war-zone stressors, sexual assault in adulthood and childhood, robbery, accidents, technological disasters, natural disasters or hazardous exposures, sudden death of a loved one, life-threatening illnesses, and witnessing or experiencing violence.
9. The committee also recommended that comorbidity be closely examined because response to treatment can vary depending upon the presence of additional psychological conditions. The committee recommended a full assessment of Axis I disorders using a structured clinical interview such as the SCID or something comparable in scope and efficiency.
10. Finally, the committee recommended that "in evaluating stressors, careful behaviorally-anchored terminology should be used, avoiding jargon such as abuse, rape, etc., terms which are inherently imprecise and not universally understood in the same way within and across cultures."

SUMMARY

Assessment of traumatic events and PTSD is a topic of growing interest and concern in the mental health field (Wilson & Keane, 1997). Since the inclusion of PTSD in the diagnostic nomenclature of the American Psychiatric Association, there has been considerable progress in understanding and evaluating the psychological consequences of exposure to traumatic events. Conceptual models of PTSD assessment have evolved (Keane, Wolfe, & Taylor, 1987; Sutker, Uddo, & Allain, 1991), psychological tests have been developed (Foa, Cashman, Jaycox, & Perry, 1997; Norris & Riad, 1997), diagnostic interviews have been validated (Davidson, Smith, & Kudler, 1989; Foa, Riggs, Dancu, & Rothbaum, 1993; Weathers et al., 1992), and subscales of existing tests have been created to assess PTSD (i.e., MMPI-2: Keane, Malloy, & Fairbank, 1984; Symptom Checklist 90—Revised: Saunders, Arata, & Kilpatrick, 1990). We can rightly conclude that the assessment devices available to assess PTSD are comparable to or better than those available for any disorder in the DSM. Multiple instruments have been developed to cover the range of needs of the clinician. The data on these instruments are nothing short of outstanding.

Clearly, the assessment of PTSD in clinical settings focuses on more than the presence, absence, or severity of PTSD. A comprehensive assessment strategy would purport to gather information about an individual's family history, life context, symptoms, beliefs, strengths, weaknesses, support system, and coping abilities. This would assist in the development of an effective treatment plan for the patient. The primary purpose of this review has been to examine the quality of a range of different instruments used to diagnose PTSD. It should also be clear to the reader that the comprehensive assessment of a patient certainly needs to include indices of social and occupational functioning. Finally, a satisfactory assessment ultimately relies upon the clinical and interpersonal skills of the clinician, since many topics related to trauma are inherently difficult for the patient to disclose and to share with others.

The present review is not intended to be comprehensive in its review of all instruments available for the assessment of PTSD. Many more exist. The intent of the review has been to provide a heuristic structure that clinicians might employ when selecting a particular instrument for their clinical or research purposes. By carefully examining the psychometric properties of an instrument, the clinician can make an informed decision about the appropriateness of a particular instrument for the task at hand. Instruments that provide a full utility analysis (i.e., sensitivity, specificity, hit rate, etc.) for the examination do much to assist clinicians in making their final judgments. Furthermore, instruments that are developed and evaluated on multiple trauma populations, across different genders, and with different racial, cultural, and age groups are highly desirable. This inclusiveness should be the ultimate goal for all instruments.

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