

# 4 Unresolved Issues in the Assessment of Trauma Exposure and Posttraumatic Reactions

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At the heart of current knowledge of traumatic events and posttraumatic reactions is our ability to assess these phenomena. Through these efforts we have data indicating that the lifetime prevalence of reported trauma exposure in the United States ranges between 40 and 70% (Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Norris, 1992; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), and lifetime prevalence of posttraumatic stress disorder (PTSD) ranges between 8 and 14% (Breslau, 2002; Kaplan, Sadock, & Grebb, 1994; Kessler et al., 1995). Furthermore, trauma and PTSD have been associated with a wide range of psychiatric comorbidity (Keane & Kaloupek, 1997; Keane & Wolfe, 1990; Kilpatrick et al., 2000, 2003), impaired functioning across the full spectrum of daily life (Jordan et al., 1992), decreased medical health status (Schnurr, Spiro, & Paris, 2000), increased medical care utilization (Calhoun, Bosworth, Granbow, Dudley, & Beckham, 2002; Deykin et al., 2001; Walker et al., 1999, 2003), and general societal costs (Kessler, 2000; Solomon & Davidson, 1997). This evidence characterizes the syndrome of PTSD as a prevalent, complex, and severe psychiatric disorder that adversely impacts the public health in diverse and costly ways.

Our knowledge and conceptual base of PTSD have grown dramatically since the disorder was first established in 1980. Nevertheless, a growing body of new evidence, and critical reconsideration of previous data, remind us that we are only beginning to understand the complexity of posttrauma reactions. Many fundamental issues, including several related to assessment, need clarification (Kroll, 2003; McNally, 2003a). A better understanding of those issues that impact our ability to accurately and reliably evaluate the psy-

chological consequences of trauma requires discussion of the phenomenology of PTSD, socio-cultural concerns, critical issues in the assessment of traumatic experiences and PTSD symptoms, the status of current assessment instruments, future research directions, and implications for clinical practice.

## PHENOMENOLOGY OF PTSD

For all domains in mental health there is a reciprocal relationship between the instruments we use to evaluate the construct and our understanding of the nature (e.g., characteristics, epidemiology) of that construct. In other words, the manner in which we characterize psychiatric domains helps shape the content of associated assessment instruments, while application of the assessment instruments influences how we characterize and refine psychiatric domains. This iterative process generally involves the incremental incorporation of new scientific findings on a constant, ongoing basis. There are several phenomenological issues that limit our ability to most effectively conduct assessments of trauma exposure and PTSD. At the same time, there are important conceptual issues that studies using various assessment strategies may help resolve.

## ASSESSING TRAUMATIC EVENTS

PTSD is nearly unique among psychiatric disorders in that the diagnostic criteria specify an etiological event (Criterion A). In the current *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; APA, 1994) Criterion A for PTSD is represented as follows: (A1) that the event involved actual or threatened death or serious injury to self or others, and (A2) that the person's response involved intense fear, helplessness, or horror (APA, 1994). In the years since 1980 when PTSD was first recognized by the DSM, boundaries for Criterion A1 (i.e., defining a potentially traumatic event) have broadened to include not only events that an individual may have experienced, but also events that have been witnessed. These extensions of Criterion A are less obviously "traumatic" than the classic A1 experiences of a violent rape or military combat. The implication of this expansion of the criteria is to effectively shift emphasis away from A1 toward the subjective reactions outlined by A2. Individuals are now considered to have experienced trauma simply by being horrified by events they merely learn about, or by events that common sense and basic human experience identify as distressing or upsetting (e.g., death of a loved one, overhearing inappropriate jokes in the workplace). For example, several reports in the wake of the terrorist attacks on September 11, 2001, imply that watching news broadcasts depicting violent and horrific events constitutes a trauma (Schuster et al., 2001; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002). McNally (2003a) has termed this broadening of the stressor criterion, "conceptual bracket creep."

The expanded definition of "trauma" reflected a deliberate effort to eliminate the phrase "outside the range of normal human experience" (DSM-III-R) because evidence had indicated that potentially traumatic experiences were widespread and relatively common (e.g., Kessler et al., 1995). Findings also demonstrated that an expansion of Criterion A increased the range and number of events that could support a PTSD diagnosis (Breslau & Kessler, 2001), without drastically affecting PTSD prevalence rates. This means that many more

people can now be considered "trauma victims," and efforts to evaluate the impact of traumas such as sexual assault or combat may be substantially diluted. The broadening of Criterion A also has important implications for litigation and disability claims, as will be discussed later.

Adding to difficulties with the current definition of the stressor criterion is the possibility that the subjective reactions contained in the A2 criterion of trauma (i.e., fear, helplessness, or horror) may not be very meaningful. Recent evidence suggests that A2 may not contribute much incremental validity to the definition of trauma or add clinically useful information (Brewin, Andrews, & Rose, 2000), because most people who meet A1 also meet A2 (Breslau & Kessler, 2001; Creamer, McFarlane, & Burgess, 2003). There also are conceptual problems with A2, including the retrospective nature of such reports, and the potential for current symptoms to influence memories of trauma reactions. Questions can be raised about how to interpret the reactions of trauma survivors who report that they dissociated and do not remember their peritraumatic emotions (reactions that occurred during the event). Finally, the suggestion has been made that A2 may be defined too narrowly, and should be broadened to include other intense emotions, such as anger or shame (Brewin et al., 2000).

## ASSESSING THE SYMPTOM CRITERIA

According to the current DSM (DSM-IV; APA, 1994) the symptoms of PTSD are listed in three categories (i.e., clusters B-D), that include reexperiencing (cluster B), avoidance and emotional numbing (cluster C), and symptoms of hyperarousal (cluster D). There is only limited support for this three-factor model of the syndrome, a finding that calls into question our very definition of the construct. Recent studies using factor analyses have found best fit models ranging from 2 to 5 factors (Buckley, Blanchard, & Hicking, 1998; Cordova, Studts, Hann, Jacobsen, & Andrykowski, 2000; King, Leskin, King, & Weathers, 1998; Simms, Watson, & Doebbeling, 2002; Taylor, Kuch, Koch, Crockett, & Passey, 1998). The issue of the structure of PTSD remains unsettled, in part because no two studies have used the same methods with the same population. Therefore, we cannot know whether structural differences represented across studies are related to use of different measures, different analytic approaches, different populations, or error variance. What is clear is that the structure represented in DSM is open to question.

A related issue concerns a lack of clarity regarding PTSD subtypes. A number of recent cluster analytic studies have shown that there is significant heterogeneity in the manifestation of posttrauma responses among trauma survivors, including different patterns of symptom manifestation and severity (Elhai, Frueh, Davis, Jacobs, & Hamner, 2003b; Elhai, Klotz-Flinter, Gold, & Sellers, 2001; Folllette, Naugle, & Folllette, 1997), mediated perhaps by personality style (Miller, Greif, & Smith, 2003). At this point, no subtypes have been consistently recognized, again partly due to limited research and lack of uniformity with respect to measures, samples, and statistical approaches. Heterogeneity in PTSD presentations is potentially important for both classification and intervention purposes. In particular, it will be interesting to determine whether certain clusters or subtypes of PTSD are more responsive to specific treatment components (e.g., exposure therapy, social skills training, psychiatric medication), with the goal of developing treatment matching strategies.

Another issue related to lack of clarity in the factor structure of PTSD is that many of the defining symptoms overlap with other Axis I psychiatric disorders. Sleep disturbance, impaired concentration, social isolation, loss of interest in activities, restricted affect, anger and irritability all may represent symptoms of depression, while cued reactivity to salient environmental cues and avoidance may represent symptoms of other anxiety disorders. The extent to which evaluating these symptoms adds clarity to a differential diagnosis of PTSD is unclear at this point. A recent factor analysis of PTSD symptoms among Gulf War veterans illustrates the issue (Simms et al., 2002). In this study, a four-factor solution provided the best fit. One of the identified factors was a broad “dysphoria” that included several symptoms of numbing/hyperarousal and was highly correlated with depressive symptoms. Convergent and discriminant validity correlations further suggested that reexperiencing symptoms were relatively specific to PTSD (Simms et al., 2002). These findings supported earlier work that suggested reexperiencing, along with physiological and emotional reactivity, best distinguished PTSD from other affective or anxiety disorders (Foa & Riggs, 1995; Orr et al., 1990). However, these findings are not replicated, and it is not clear exactly which symptoms should be evaluated, or how they should be weighted to establish a diagnosis of PTSD. This means that the sensitivity and specificity of PTSD measures, along with our ability to make differential diagnoses and accurately recognize comorbid psychiatric disorders, are reduced.

Yet another issue of relevance to the factor structure of PTSD is that it is not clear whether the latent structure of the disorder is categorical (taxonic) or continuous (dimensional). Just as recent research has suggested that depression is dimensional in nature (Franklin, Strong, & Greene, 2002; A. M. Ruscio & J. Ruscio, 2002; J. Ruscio & A. M. Ruscio, 2000), at least one study has demonstrated that the latent structure of PTSD also is dimensional (A. M. Ruscio, J. Ruscio, & Keane, 2002). This suggests that what is often recognized as “PTSD” is not a discrete clinical syndrome, but rather the high end of an acute stress response continuum. Such findings argue against the use of instrument cut-points to classify individuals as having, or not having, a diagnosis of PTSD. A dimensional view of PTSD also has implications for matching an assessment approach to the latent structure of the construct, perhaps incorporating dimensional scaling models such as item response theory (see J. Ruscio & A. M. Ruscio, 2002, for a comprehensive discussion of this issue). Otherwise, there is a potential mismatch between a categorical diagnostic system (DSM) and the continuum that better fits the latent structure of posttrauma reactions.

In summary, although we have made great progress since 1980 in refining the construct of PTSD, at this point there remains disagreement about the most suitable definition of “trauma,” and uncertainty about the factor structure and latent structure of this disorder. There also remains a limited understanding regarding symptom overlap with other psychiatric disorders and limited progress toward identifying subtypes within the PTSD domain. Thus, we cannot say that we understand the syndrome of PTSD as well as we need, in order to evaluate and diagnose as accurately and reliably as one might wish. This statement has several implications. Most importantly, our understanding of the phenomenological characteristics of PTSD, as with virtually all psychiatric disorders, must be considered tentative; our current acceptance of PTSD prevalence rates must be considered preliminary; and our reliance on PTSD assessment instruments must be tempered with

cautious skepticism and awareness that these measures are inherently developmental in nature.

## SOCIO-CULTURAL ISSUES

The formal recognition of PTSD as a syndrome in DSM had its genesis in the aftermath of the wars of the twentieth century (for historical reviews see Burkett & Whitley, 1998; Shephard, 2001), particularly the Vietnam War when returning US soldiers were exhibiting a range of troublesome behaviors and symptoms. Since 1980, the socio-cultural role of trauma reactions and PTSD has evolved, as a large number of diverse groups—such as clinicians, investigators, politicians, victim advocates, human rights activists, and lawyers, to name but a few—have contributed and competed to shape what it means to be a trauma survivor. Perhaps more than any other psychiatric disorder, PTSD has a personal and political valence that influences how mental health professionals and society view the construct and respond to those who carry the diagnosis.

Recent years have seen an expansion of trauma-related disability-seeking and litigation. Because defining criteria include an etiological component (i.e., trauma exposure), PTSD is particularly well suited as a basis for seeking disability compensation or pursuing litigation. Although there are many possible instances of this growing trend throughout the United States, there are two recent examples that illustrate the point well. With regard to disability-seeking, evidence from the Veterans Affairs (VA) system indicates that PTSD disability claims among veterans reporting combat exposure has risen dramatically since 1985 (Murdoch, Nelson, & Fortier, 2003), reporting the largest number of claims for any psychiatric condition (Oboler, 2000). Furthermore, 69–94% of veterans seeking treatment within VA specialty PTSD mental health clinics apply for psychiatric disability (Fontana & Rosenheck, 1998; Frueh, Smith, & Barker, 1996; Frueh et al., 2003a). With regard to litigation, a multitude of lawsuits has been brought against Catholic churches in the United States (McNally, 2003b). Starting with a number of alleged childhood sexual abuse cases against members of the Boston archdiocese, a strategic effort by a relatively small number of tort lawyers sought out new claimants at the national level. It is expected now that hundreds of millions of dollars will be paid out over the next decade in legal settlements. The lesson has quickly been picked up by tort lawyers for other victim segments across the country, including those who claim to have been psychologically harmed by asbestos exposure, the fast food industry, harassment in the workplace, etc. Financial incentives for those who demonstrate they have been unfairly harmed, and have suffered deleterious post-traumatic reactions (i.e., PTSD), likely have important implications for our ability to assess PTSD symptoms in the individual case. These same considerations also could impact the scientific literature, possibly inflating PTSD prevalence rates in some studies. Accordingly, there has been a recent call for journal editors to require investigators to document and report the disability-seeking and litigation status of their subjects when studies pertain to trauma and PTSD (Rosen, 2004).

It may not be a coincidence that much of the expanding definition of trauma involves events or situations that have significant socio-cultural, legal, or political dimensions (e.g., sexual harassment, exposure to hazardous materials, coping with AIDS/HIV, vicarious trauma among care providers, and slavery reparations). This is not to say

that these experiences cannot be traumatic (indeed, many clearly have the potential to meet DSM Criterion A for PTSD). At the same time, when non-scientific considerations weigh more heavily than research evidence, there is a risk to the integrity of the field.

#### TRENDS TOWARD PATHOLOGIZING NORMAL REACTIONS TO STRESS, ADVERSITY, AND TRAUMA

There appears to be a growing socio-cultural expectation that individuals who have experienced extreme stress, adversity, or trauma will suffer significant psychological reactions. Nowhere was this more poignantly illustrated than in New York in the aftermath of the September 11, 2001, terrorist attacks. Several large survey studies conducted soon after the attacks reported high rates of PTSD (Delisi et al., 2003; Galea et al., 2002; Schlenger et al., 2002). "Project Liberty" was initiated as a part of New York State's response to the attacks, funded by the Federal Emergency Management Agency. Evidently, initial expectations and concerns were exaggerated. Several subsequent studies showed that initial spikes in PTSD symptoms among New Yorkers were soon followed by a sharp drop in post-incident reactions (Silver et al., 2002), and the dramatic need for counseling services anticipated via Project Liberty never materialized (Boscaino, Galea, Ahern, Resnick, & Vlahov, 2002; Satel, in press). Such findings raise the concern that we should not rush to apply psychiatric labels to what may be relatively brief and normal human reactions in the face of tragic events. Put another way: most humans appear to be far less fragile than many mental health professionals anticipate (see Satel, in press, for a discussion of this issue).

#### ISSUES IN THE ASSESSMENT OF TRAUMA EXPOSURE AND PTSD SYMPTOMS

Given that the first element in providing a diagnosis of PTSD is a history of exposure to traumatic events (Criterion A), it seems clear that assessment of this etiological event is of critical importance. There are several unresolved issues that suggest this assessment may be problematic. First, as noted earlier, there are concerns regarding the broadened definition of "trauma," as well as inherent ambiguities in the definition. These issues make it difficult for clinicians and investigators to determine what "counts" as a traumatic event. For example, does a military veteran meet Criterion A for PTSD if his only experience in the field was to hear the sounds of combat from a distance, accompanied by the fear that the battle could move closer? How does this compare to the experience of a veteran involved directly in combat and wounded under fire? What about the trauma potential for a Midwestern American watching the evening news on September 11, 2001, as compared to the New York City resident who directly survived the terrorist attacks of that day?

A second unresolved issue in the assessment of trauma exposure concerns the fallibility of memory (King et al., 2000; Krinsky, Gallagher, Weathers, Kutter, & Kaloupek, 2003; Roemer, Litz, Orsillo, Ehlich, & Friedman, 1998; Southwick, Morgan, Nicolaou, & Chaney, 1997). Interviewers are usually reliant on the retrospective reports of trauma survivors as the basis for identifying and quantifying the intensity of a traumatic stressor. Yet,

#### ISSUES IN ASSESSMENT

there is evidence that individuals have difficulty providing accurate and reliable accounts of potentially traumatic experiences, especially when subjected to a heightened state of psychological distress (Lofthus, 2003; McNally, 2003a, 2003b). For example, in a study of Gulf War veterans, close to 90% of the participants recounted aspects of their combat experiences differently over two points in time (Southwick et al., 1997). Two years after their initial evaluation, 70% described a traumatic combat event that they had not previously reported, while 46% failed to include a traumatic combat event that had been reported initially. Furthermore, PTSD severity at the time of the second evaluation was correlated with the number of newly reported traumatic events. The issue that human memory for traumatic events is fallible and influenced by current clinical status lies at the heart of controversies surrounding repressed and recovered memories of childhood sexual abuse (Brown, Scheffin, & Whitfield, 1999; Loftus, 2003; McNally, 2003a, 2003b; McNally, Clancy, Schacter, & Pitman, 2000; Pope, Hudson, Bodkin, & Oliva, 1998).

Inaccuracies in an individual's recall of past events highlights a need to objectively corroborate verbal reports. Unfortunately, this is not always possible. Individuals seen in clinical settings and PTSD research studies frequently report trauma histories that occurred in the distant past. Often, the reported events are so personal and private that they cannot be verified via historical records. As a consequence, it can be extremely difficult to detect not only benign memory distortion, but also intentional efforts to exaggerate or fake traumatic reports. A specific example of this problem is the contention that there are bogus combat veterans who have defrauded the VA system and distorted published research findings on PTSD (Burkett & Whitley, 1998). Frueh and colleagues demonstrated that such concerns are warranted (Frueh et al., 2003b). A request was filed under the Freedom of Information Act to obtain military records from the National Military Personnel Records on 100 consecutive veterans who reported Vietnam combat during their evaluations at a VA PTSD specialty clinic. Results from this preliminary study showed that 93% of the sample had special documentation of having military service in Vietnam, but only 40% of the sample had clear evidence of combat exposure. Because military personnel records are an imperfect historical record, it is not possible to make definitive statements regarding the percentage of veterans who exaggerated or were untruthful about their combat experiences. Nevertheless, these findings speak to the challenge of validating verbal reports when exposure to traumatic events can weigh so heavily in decisions about mental health and disability compensation.

#### CONTEXT AND THE ASSESSMENT OF PTSD SYMPTOMS

As with the stressor criterion, assessment of PTSD symptoms can be compromised by context, with forensic settings being one of the most common and important contextual factors. As noted earlier, PTSD commonly serves as cause for disability compensation-seeking in both civilian and military domains. Further, there is evidence that financial incentive may influence the presentation of posttrauma symptomatology (Frueh et al., 2003a; Rosen, 1995), with civilian personal injury litigants demonstrating symptom over-reporting (Fox, Gerson, & Lees-Haley, 1995; Rothke et al., 1994), potential malingering (Lees-Haley, 1997), and bias in self-reported trauma exposure history (Lees-Haley, Williams, & English, 1996).

Data from studies conducted within the VA system also strongly suggest that the

availability of disability benefits influences the way in which veterans present their difficulties with symptoms and functioning. First, studies conducted within the VA consistently demonstrate that veterans evaluated for combat-related PTSD exhibit extreme and diffuse levels of psychopathology across domains of mental illness, along with elevations on the validity scales of the Minnesota Multiphasic Personality Inventory (MMPI) in a "fake-bad" direction (Fairbank, Keane, & Malloy, 1983; Frueh, Hamner, Cahill, Gold, & Hamlin, 2000). Next, several studies attempting to clarify this issue have found that compensation-seeking veterans, as compared to veterans not seeking compensation, produce significantly more pathological scores on clinical measures, while also obtaining higher elevations on validity scales associated with malingering (Frueh, Smith, & Barker, 1996; Frueh et al., 2003a). Differences on most indices exceeded effect sizes of 1.0, even when controlling for the effects of income, global functioning, and clinician-rated severity of PTSD. It also is the case that extreme overreporters on the MMPI-2 ( $F-K \geq 22$ ;  $Fp \geq 7$ ) are over-represented among compensation-seeking veterans (Frueh et al., 2003a; Gold & Frueh, 1999).

Treatment outcome studies provide additional evidence that contextual factors are of great relevance to any discussion of assessment. Evaluation of treatment effects depends, of course, upon the accurate and reliable assessment of psychiatric symptoms and associated functioning. Assessment of treatment outcome can be influenced by many of the unresolved issues discussed earlier, particularly in samples where disability compensation and litigation are involved (Kimbrell & Freeman, 2003). Consider, for example, the general lack of successful treatment efficacy data for combat-related PTSD, and the finding that PTSD treatment effect sizes have been smaller for samples of veterans, as compared to non-veterans (Hidalgo et al., 1999). This pattern of findings raises the possibility that evidence for treatment efficacy is skewed by a symptom-reporting pattern that reflects reluctance on the part of some veterans to acknowledge therapeutic gains due to concern about losing disability payments.

Several studies have presented results that add to current concerns. In one investigation, veterans classified on the MMPI as "symptom overreporters" were less likely to manifest improvement after six weeks of partial hospitalization, even though clinicians did not view them as more dysfunctional at pre-treatment (Perconte & Griger, 1991). Other treatment outcome studies have found prominent disparities between veterans' extreme self-reported symptom patterns and data collected via clinician ratings, psychophysiological measures, and daily symptom frequency counts (Frueh, Turner, Beidel, Mirabella, & Jones, 1996; Piman et al., 1996; Reist et al., 1989). Data from a study of veterans treated for PTSD within the VA system found compensation-seeking status associated with treatment effectiveness for inpatient veterans, but not for outpatients (Fontana & Rosenheck, 1998). Finally, there is evidence to suggest that motor vehicle accident victims with PTSD show less improvement in treatment when they are involved in litigation (Blanchard et al., 1998).

Apart from forensic contexts, primary medical care and public mental health systems are two clinical settings in which assessment of trauma and posttraumatic reactions is extremely important. For example, research suggests that 12–20% of patients in VA primary care clinics meet PTSD diagnostic criteria (Hankin, Spiro, Miller, & Kazis, 1999; Magruder et al., in press). At the same time, the disorder is not assessed routinely in most VA primary care settings so that a large percentage of patients go undiagnosed, and there-

fore untreated (Magruder et al., in press; Spiro, Miller, Lee, & Kazis, 2001). Similar findings have been obtained in public mental health clinics, which serve populations at high risk for trauma exposure. One multi-site study conducted within community mental health centers across four states (Mueser et al., 1998) found that 42% of the sample met diagnostic criteria for PTSD, while only 2% of the sample were assigned the diagnosis in their clinic record. Survey results from another study indicated that virtually no community mental health centers in a state system routinely administered reliable and valid measures of general trauma exposure or PTSD symptoms during intake interviews with new patients (Frueh et al., 2002). These findings are particularly unfortunate because a growing body of data supports the reliability of posttrauma assessment methods among persons with severe mental illness (Mueser et al., 2001). Routine administration of appropriate measures in these settings could identify those individuals most severely affected by trauma, thereby increasing the likelihood that treatment would be offered.

## TRAUMA AND PTSD ASSESSMENT INSTRUMENTS

A variety of self-report instruments and structured clinical interviews have been developed to assess a history of exposure to traumatic events and PTSD symptoms. These measures can be classified within the following categories:

- (1) trauma exposure measures, such as the Traumatic Life Events Questionnaire and Traumatic Stress Schedule, which assess trauma exposure only;
- (2) symptom-referenced PTSD measures, such as the PTSD Symptom Scale and PTSD Checklist, which assess the symptoms of PTSD but not trauma history;
- (3) PTSD diagnostic measures based on standard interview formats, such as the Structured Clinical Interview for DSM-IV (SCID) PTSD Module, and the Clinician-Administered PTSD Scale (CAPS), that assess the formal PTSD criteria, including symptoms and trauma exposure;
- (4) psychometrically derived PTSD measures, such as the Mississippi Combat PTSD Scale and the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), which do not necessarily assess symptoms of PTSD, but do discriminate between those with and without the diagnosis.

## TRAUMA EXPOSURE MEASURES

Most measures that assess exposure to traumatic events have significant limitations. First, their items often are not behaviorally specific when asking about traumatic events. For example, a recently published study (Fricker, Smith, Davis, & Hanson, 2003) found that asking a general question about sexual abuse exposure ("Before the age of 18, were you ever sexually abused?") yielded lower (and presumably less accurate) sexual abuse prevalence rates than asking several behaviorally-specific questions (e.g., "Before the age of 18, did anyone, male or female, ever make you touch their genitals or (for women) breasts when you didn't want them to?"). A second problem with most methods for assessing trauma exposure is their failure to include preparatory statements that demonstrate acceptance and normalization of a respondent's potentially traumatic experiences. Such prepa-

Many trauma history measures are limited by their narrow focus: addressing only a particular type of experience (childhood sexual assault); failing to cover the full range of experiences that meet DSM-IV Criterion A1 (indirect exposure, witnessing events); serving essentially as event checklists that do not inquire about other potentially important characteristics (age at onset, duration, number of episodes); or attempting to document the traumatic event without reference to PTSD's Criterion A2 (the individual's emotional response of fear, helplessness, or horror). These common instrument limitations reflect the ambiguity and complexity of the trauma construct itself.

Trauma exposure methods are limited further by their failure to require respondents to identify an index traumatic event. This omission makes it impossible to link a reported symptom to a specific event, or even to determine when the symptom appeared temporally in relation to the event. Some measures, including the Trauma Assessment for Adults (TAA), and the Traumatic Events Questionnaire (TEQ), now require respondents to nominate a "worst," or "most recent," traumatic event. But these instruments are the exception.

In addition to the above concerns, there is the more general issue that the psychometric validity of trauma exposure measures has not been formally established, again due, in part, to the ambiguous and complex nature of the trauma construct.

#### PTSD SELF-REPORT INVENTORIES

Objective psychometric inventories have a number of general strengths. They:

- (1) are usually easy to administer;
- (2) do not require a great deal of time to score or interpret;
- (3) allow for standardized assessment procedures across multiple patients and sites;
- (4) allow for comparison of individual patients or clinical populations;
- (5) offer known, and usually adequate, reliability and validity coefficients; and
- (6) allow patients to complete testing procedures and represent their affective experience at their own pace, without influence from examiners.

There also are several drawbacks to self-report inventories. Many PTSD self-report measures have limited psychometric validation, as they may have only been studied with one type of trauma population (e.g., combat veterans) and generalizability to other trauma populations is unknown. Other widely used PTSD measures lack sufficient criterion validity in that they yield poor sensitivity and specificity (e.g., Impact of Event Scale; see review by Newman, Kaloupek, & Keane, 1996). An additional psychometric limitation of self-report measures is that the consolidation of items into one scale means that equivalent scores by different respondents may be achieved for very different reasons. Scale scores on self-report inventories may call attention to a general domain, but more specific assessment of actual behaviors, antecedent situations, and the function of the behavior may be more relevant, particularly when developing treatment plans aimed at targeting specific areas of concern. This points to the importance of examining "critical items" to refine interpretation of general scale scores.

Validity of symptom reporting also is an important issue with self-report measures. Many trauma survivors evaluated for PTSD exhibit extreme and diffuse levels of psychopathology across instruments measuring different domains of mental illness. These individuals also can obtain extreme elevations on the validity scales of the MMPI in a "fake-bad" direction (Frueh et al., 2000). The occurrence of disability compensation-seeking and litigation highlights the importance of strategies for the detection of malingered PTSD (Hickling, Blanchard, Mundy, & Galovski, 2002; Resnick, 1998). The vast majority of PTSD-specific measures do not include validity scales to assess test-taking attitude, even though face-valid instruments have been shown to be extremely vulnerable to intentional feigning efforts (Lyons, Caddell, Pitman, Rawls, & Perrin, 1994). The one stand-alone PTSD measure that does contain validity scales, the Trauma Symptom Inventory (TSI), and its related measure, the Trauma Symptom Checklist for Children, have not had their validity scales empirically validated. Recent research on the TSI suggests that the proposed validity cut-points for malingering do not perform well (Rosen et al., 2004).

#### PTSD-STRUCTURED INTERVIEWS

The structured interview is the most frequently used assessment strategy for evaluating trauma survivors for PTSD. Interviews such as the Clinician Administered PTSD Scale (CAPS; Blake et al., 1990), and the PTSD module of the Structured Clinical Interview for DSM (SCID; First, Spitzer, Gibbon, & Williams, 1994), provide a strategy for assessing a range of relevant experiences and symptoms. These standardized interview formats allow the clinician to query the patient, and sometimes collateral sources, about functioning across a number of relevant areas. Clinical ratings can be made based not only on patient report, but also on behavioral observations. These interviews also help discipline clinicians by requiring them to obtain information on all symptom clusters. A systematic review of all symptom criteria decreases the likelihood that a clinician will improperly diagnose PTSD when a more focused problem, such as specific phobia, is presenting. By allowing for standardized assessment, structured interviews generally offer known reliability and validity coefficients.

Structured interviews also have important limitations. First, they may be vulnerable both to a negative reporting bias and to symptom overreporting or malingering. Second, there exist several problems with coding and scoring. Many interview-based PTSD diagnostic measures are scored dichotomously, in Yes/No fashion, instead of on a continuum. A dichotomous approach to posttrauma reactions portrays symptoms and diagnoses simplistically and fails to provide severity ratings that can track change over time. Some measures address this issue by querying on a continuous scale the frequency of symptoms (e.g., PTSD Symptom Scale), or by asking directly about the intensity of symptoms (e.g., CAPS). While these efforts are conceptually appealing, the relative importance of separating symptom frequency and intensity in relation to either the diagnosis or severity of PTSD has not been established.

#### PSYCHOMETRICALLY DERIVED PTSD MEASURES

In recent years, several studies have used more general clinical personality assessment instruments to discriminate between PTSD patients and individuals instructed to feign

the disorder. Most of these studies have used the MMPI-2 (Bury & Bagby, 2002; Elhai, Gold, Sellers, & Dorfman, 2001; Lees-Haley, 1992; Wetter & Deitsch, 1996). A note of caution related to limitations in the MMPI validity scales is warranted. Several studies have demonstrated that although symptom overreporting is indeed high in compensation seeking, as well as general samples of trauma victims, such elevations do not rule out the presence of genuine trauma-related symptoms (Franklin, Repasky, Thompson, Shelton, & Uddo, 2002, 2003; Klotz-Filter, Elhai, & Gold, 2003). Even with the otherwise robust-performing *F* and *Fp* MMPI-2 fake-bad scales, sensitivity and specificity rates in detecting malingered PTSD have not been impressive. In fact, a recent malingering meta-analysis demonstrated that studies examining differences on the MMPI validity scales between PTSD patients and PTSD simulators yielded lower effect sizes than studies assessing other types of malingered psychopathology (Rogers, Sewell, Martin, & Vitacco, 2003).

Because of problems with MMPI-2 fake-bad scales in detecting malingered PTSD, a new scale was recently constructed, the Infrequency-PTSD scale (*Fptsd*). *Fptsd* is based on MMPI-2 items that were infrequently endorsed by nearly 1,000 PTSD-diagnosed combat veterans (Elhai et al., 2002). In a preliminary study, *Fptsd* demonstrated superior performance to previously established malingering scales (*F* and *Fp*) in discriminating PTSD simulators from PTSD patients. Although these results are promising, research in this area is under-developed, and major questions remain on how to detect malingering with current self-report instruments. A key unresolved question is the base-rate for malingering; a necessary benchmark for evaluating psychometric detection strategies.

Evidence from civilian sexual trauma research (Carlin & Ward, 1992; Elhai et al., 2001; Follert et al., 1997), and combat trauma research (Elhai et al., 2003b; Forbes et al., 2003), suggests that trauma survivors do not constitute a homogeneous group. For example, previous work with cluster analysis (Elhai et al., 2003b) demonstrated that PTSD-diagnosed combat veterans could be statistically classified into four clusters/groups based on their MMPI-2 profiles, with groups described as nonpathological, extremely disturbed, and two moderately symptomatic groups. Further, studies on the MMPI and the MMPI-2 have demonstrated that there is significant heterogeneity of PTSD symptom profiles. For example, US veterans of the Vietnam and Gulf Wars diagnosed with PTSD have produced significantly different MMPI profiles (Glenn et al., 2002), while profiles for US and Australian Vietnam veterans are not meaningfully different (Elhai, Forbes, Creamer, McHugh, & Frueh, 2003a). Other studies have suggested that veterans exposed to combat often demonstrate high elevations on MMPI scales 2 and 8 (see Wise, 1996, for a review), while the majority of MMPI/MMPI-2 investigations of sexual assault and abuse survivors indicate primary elevations on scales 8 and 4. These findings on the absence of a consistent MMPI "trauma profile," and findings on the heterogeneity of trauma responses, reflect the complexity of the PTSD construct and the socio-cultural contexts within which it is evaluated.

One problem with personality assessment in trauma survivors and PTSD patients is that resulting test scores often inaccurately identify psychosis (Briere, 1997; Briere & Elliott, 1997). For example, results from one recent study indicate that genuine trauma-related difficulties in PTSD, depression, and dissociation accounted for a relatively large amount of variance in MMPI-2 scale 8 scores among a sample of adult survivors of child sexual abuse (Elhai, Gold, Mateus, & Astaphan, 2001). These findings caution the clinician

against assuming that a trauma survivor, or PTSD patient, is experiencing a psychotic disorder based solely on personality inventory scores.

#### ADDITIONAL STRATEGIES FOR ASSESSING PTSD

A range of other measurement strategies offer promise for assessment of posttrauma reactions. Among these is psychophysiological challenge testing, a procedure based on the finding that cues associated with traumatic experiences can trigger autonomic (sympathetic) activation. In essence, physiological response to trauma reminders is compared with physiological response to affectively neutral cues in order to determine whether the former are differentially greater.

There is a substantial body of evidence demonstrating the utility of psychophysiological measures (e.g., heart rate, blood pressure) in the assessment of PTSD (e.g., Blanchard, Kollb, & Pritts, 1991; Orr, Pitman, Lasko, & Herz, 1993; Pitman, Orr, Forgue, de Jong, & Claiborn, 1987). The prominence of autonomic symptoms and heightened reactivity in persons with PTSD has been consistently documented in studies of psychophysiological responding (Keane et al., 1998; Orr et al., 1990; Pitman et al., 1987). In these studies, persons with PTSD have significantly larger blood pressure and heart rate responses during traumatic cue exposure than do those without PTSD, with sensitivity and specificity ranging from .70-.90 and .80-1.00, respectively. There also is preliminary evidence suggesting that reduced physiological reactivity is associated with improvements in both PTSD symptoms and areas of social adjustment (Boudewyns & Hyer, 1990). Another strength of psychophysiological measures is that they may provide relatively good discrimination even when individuals attempt to exaggerate or disguise their responses (Gerardi, Blanchard, & Kollb, 1989; Orr & Pitman, 1993). At the same time, this assessment modality is limited by a large number of non-responders, thereby raising questions as to how the PTSD construct should be defined (Orr, McNally, Rosen, & Shaley, 2004).

Obtaining daily patient ratings of relevant social behaviors, activities, and problems is a data-collection strategy that is linked to specific and quantifiable behaviors and events. Although such reports can be feigned and there is no pre-trauma baseline data, this assessment approach has advantages over most alternative self-report methods because it is not retrospective, and the obtained data spans a specified period of time rather than providing only cross-sectional information. Patient ratings also can be developed for just about any behavior, tailored to an individual's needs, and expanded to include relevant antecedents, cognitions, and consequences, so as to provide more information about symptoms and social functioning. The approach, therefore, is not limited to targets that are represented by nomothetically derived instruments. One limitation of patient ratings, however, is that they require time (albeit only 2-5 minutes a day) and patient compliance with the procedure.

Very little research has been conducted to date on the use of patient ratings with trauma survivors. Frueh et al. (1996) used daily ratings as an outcome measure in evaluating the efficacy of a multicomponent behavioral treatment package. Veterans were asked to keep a daily log of relevant symptoms (e.g., nightmares, flashbacks) and social activities, for one-week periods, at three separate assessment points (pre-, mid-, and post-treatment). Results showed that patients reported significant symptom reductions, such as fewer

nightmares, and increased social activities, despite the fact that no such changes were noted on more global self-report inventories administered at the same assessment points (e.g., Beck Depression Inventory, Mississippi Scale). Similar results were found in another study (Pitman et al., 1996) in which 20 Vietnam veterans with chronic PTSD reported decreased intrusive thoughts, even though the sample reported no symptom improvement on measures such as the Impact of Events Scale, SCL-90, or the CAPS. When these patients counted and recorded the number of intrusive combat memories for carefully timed intervals, they showed a 26% symptom reduction at posttreatment. However, these same veterans reported a 14% *increase* in symptoms at posttreatment interviews. This evidence suggests that daily patient ratings of specific symptoms provide very different information than more global, retrospective measures.

Finally, a number of other strategies including neuroimaging, neuropsychiatric assessment, stroop test paradigms (e.g., Buckley, Galovski, Blanchard, & Hickling, 2003), monitoring of visual eye-tracking and acoustic startle response, and even blood tests, may hold promise for improving our ability to evaluate posttraumatic reactions among trauma survivors (Frueth et al., 2000). A great deal of additional research is needed to understand how and when these strategies may prove useful, especially in discriminating genuine PTSD from feigned presentations of the disorder. Applied research in this area is scant, and there have been only limited attempts to apply standard malingering measures used in other fields. Rosen and Powell (2003) provide an example of how a Symptom Validity Test may be used in the forensic assessment of PTSD, and preliminary research with the Structured Interview of Reported Symptoms (SIRS) is under way (e.g., Kimbrell & Freeman, 2003).

## RESEARCH DIRECTIONS AND IMPLICATIONS FOR CLINICAL PRACTICE

Although progress has been made in the assessment of trauma exposure and posttraumatic reactions, a number of important issues remain unresolved. Further research is needed in each of the four broad areas discussed in this chapter. With regard to the phenomenology of PTSD, the field needs to address unresolved questions related to the definition of "trauma," whether PTSD is a continuous or categorical construct; the factor structure of the clinical syndrome; overlap with other psychiatric disorders (especially major depression and other anxiety disorders); subtypes of the disorder; and varied prevalence estimates as a function of defining features. Socio-cultural influences remain important topics of concern as related to the changing definitions of trauma, interpretation of reactions to major disasters and societal trauma, and the expanding number of trauma-related disability and litigation cases.

As regards general issues in the assessment of trauma exposure and PTSD symptoms, research is needed to improve our ability to evaluate trauma and PTSD in a variety of contexts, including forensic and medical care settings, as well as in treatment outcome research. Questions concerning the fallibility of memory and the impact of these concerns on measurement instruments require further study. Research also is needed to assist with translation and dissemination, so that appropriate state-of-the-art assessment strategies are implemented across a range of settings, including primary care and

community mental health centers, thereby ensuring that treatment reaches genuine PTSD cases.

Finally, there remain a host of unresolved issues with available assessment instruments and the manner in which they are commonly used. These critical issues include: (1) developing and psychometrically validating trauma exposure indices that capture the complexity of traumatic experiences; (2) addressing a range of psychometric limitations of specific measures; (3) improving our ability to detect symptom overreporting and malingering across a range of contexts; (4) improving the sensitivity and specificity of measures as our conceptualization of the disorder evolves; and (5) better incorporating structured interviews and self-report instruments with data from alternative assessment strategies, such as psychophysiological assessment and neuroimaging.

Clinicians working with trauma survivors can be alert to a host of unresolved issues related to the phenomenology of the PTSD syndrome. These issues include concerns about the definition of trauma, factor structure of PTSD, overlap with other Axis I disorders, and whether the syndrome is continuous or categorical in nature. Clinicians also can pay careful attention to the context within which evaluations are conducted, including disability or litigation status of patients.

Because the syndrome of PTSD comprises a complex set of multidimensional domains, it seems improbable that any single measure will be sufficient to provide a comprehensive evaluation of posttrauma reactions. Clinicians should consider the benefits of not relying solely on self-report or structured interview measures. Instead, clinicians might consider relying on the "funnel" metaphor of assessment (see Hawkins, 1979). Within this metaphor, the global assessment provided by structured interviews and self-report inventories can identify general domains of reported psychopathology and interpersonal maladjustment. More specific behavioral assessments and patient ratings then can be used to identify specific behaviors and their antecedents and functions, after which a treatment plan can be formulated. Objective efforts to verify trauma exposure (e.g., police reports, military personnel records) and assess cue reactivity (e.g., psychophysiological assessment) may be indicated when disability compensation or litigation applies to the case, particularly when psychological tests (e.g., MMPI-2) demonstrate overreporting, or other findings question the validity of symptom reports.

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