

Ryan C. W. Hall,¹ M.D. and Richard C. W. Hall,² M.D.

Detection of Malingered PTSD: An Overview of Clinical, Psychometric, and Physiological Assessment: Where Do We Stand?

ABSTRACT: Posttraumatic stress disorder (PTSD) is a condition that can be easily malingered for secondary gain. For this reason, it is important for physicians to understand the phenomenology of true PTSD and indicators that suggest an individual is malingering. This paper reviews the prevalence of PTSD for both the general population and for specific events, such as rape and terrorism, to familiarize evaluators with the frequency of its occurrence. The diagnostic criteria for PTSD, as well as potential ambiguities in the criteria, such as what constitutes an exposure to a traumatic event, are reviewed. Identified risk factors are reviewed as a potential way to help differentiate true cases of PTSD from malingered cases. The question of symptom overreporting as a feature of the disease versus a sign of malingering is discussed. We then examine how the clinician can use the clinical interview (e.g., SIRS, CAPS), psychometric testing, and the patient's physiological responses to detect malingering. Particular attention is paid to research on the MMPI and the subscales of infrequency (F), infrequency-psychopathology (Fp), and infrequency-posttraumatic stress disorder (Fptsd). Research and questions regarding the accuracy of self-report questionnaires, specifically the Mississippi Scale (MSS) and the Personality Assessment Inventory (PAI), are examined. Validity, usability, and cutoff values for other psychometric tests, checklists, and physiological tests are discussed. The review includes a case, which shows how an individual used symptom checklist information to malingering PTSD and the inconsistencies in his story that the evaluator detected. We conclude with a discussion regarding future diagnostic criteria and suggestions for research, including a systematic multifaceted approach to identify malingering.

KEYWORDS: forensic science, posttraumatic stress disorder, malingering, MMPI, psychometric assessment, physiologic assessment

Psychiatry began to wrestle with the concept of psychiatric disease induced by exposure to warfare during the First World War. Terms like "shell shock," "combat neurosis," and "battle fatigue" were used to describe the long-term psychological changes produced by military action (1,2). These conditions evolved into the current concept of Posttraumatic stress disorder (PTSD), which was first codified as a psychiatric diagnosis in the DSM-III (3,4). After it achieved diagnostic legitimacy, its application to nonwar situations grew and it has since been applied to a myriad of experiences beyond the original core concepts of war, genocide/holocaust, and rape (1). As currently defined, PTSD symptoms are subjective. Individuals diagnosed with PTSD do not even have to be present at the "traumatic event" or be in physical danger to be diagnosed with the condition (1). Although there may be some validity in this flexibility of interpretation and application of criteria, it leaves the diagnosis susceptible to manipulation by unscrupulous individuals (5,6).

Prevalence of PTSD and Malingering

The estimated lifetime prevalence of PTSD in the general population ranges between 1% and 14% (3,7–12). The National Comorbidity Survey notes that 60.7% of men and 51.2% of women have been exposed to a traumatic event, but only 8.2% of the men and 20.4% of the women developed PTSD (11). Of those who develop PTSD, 59% of men and 43.6% of women will also have three or more other psychiatric diagnoses (11). Half of

the patients who develop PTSD show resolution of symptoms within 3 months (13).

There are data that show that the risk of developing PTSD is related to the type of trauma experienced. For example, many studies suggest that the occurrence rate of PTSD in patients involved in motor vehicle accidents ranges from 9% to 39%; for sexual assault/rape, up to 80%; for combat, between 15% and 35%; and when related to a terrorist attack, between 10% and 35% (1,3,7,14–21). The widely varying rates of PTSD in these situations cloud the study and diagnosis of the disorder and make it difficult to apply findings from one study/population (e.g., combat vs. civilian, male vs. female) to others.

Estimates of malingered psychological symptoms after a personal injury range from 1% to more than 50%, depending if rates are reported by psychiatric studies, insurance companies, or plaintiffs' attorneys (22). Lees-Haley (23) reported that 20–30% of personal injury claimants' psychometric testing suggested malingering. Resnick (22) noted that 1 year after being found totally disabled, 40% of individuals in a U.S. General Accounting Office follow-up study showed no disabilities. Burkett and Whitley (24) estimated that 75% of Vietnam veterans who received PTSD compensation through the VA exaggerated either their degree of impairment or outright malingered their condition.

Risk Factors

Understanding the risk factors associated with the development of PTSD aids clinicians in its diagnosis. Identified risk factors include nonspecific soft neurological signs, neurodevelopmental delays, previous childhood attention-deficit/hyperactivity disorder symptoms, neuroticism (odds ratios [OR] 1.7–2.3), severe medical injury caused by the traumatic event (OR 1.8), female gender (OR 1.5–4.87), pre-existing mental conditions (OR 2.4–14.51), lower

¹Department of Psychiatry and Behavioral Sciences, Johns Hopkins Hospital, 600 North Wolfe Street/Meyer 113, Baltimore, MD 21287-7113.

²University of Florida, 2500 West Lake Mary Boulevard, Lake Mary, FL 32746.

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levels of social support (OR 3.8), involvement in compensation claims (OR 4.0), and negativistic personality traits (OR 2.8–3.95) (Where possible, pooled ORs from multiple studies from multiple populations are included to give a general scope of potential affect. These OR may not apply to all situations or patients) (1,11,18,19,21,25–37). Other risk factors, identified mostly from retrospective self-reporting studies, include unstable families during childhood (OR 3.17–3.32), a family history of anxiety (OR 3.28) or mood disorder (OR 1.11–1.20), a history of conduct disorder (OR 1.97), sexual (OR 6.56–11.11) or physical abuse (OR 1.27–8.30) as a child, and death of a close friend or loved one (OR 2.33–4.62) (38–46).

Risk factors identified around the time of the trauma include feelings of dissociation (such as time distortions, feelings of unreality, body distortions) (OR 2.7–4.38), emotional numbing, motor restlessness, and sympathetic responses such as elevated heart rate and blood pressure in the ER posttrauma (19,32,34,47–51). Fullerton et al. (50) noted that peritraumatic dissociation occurred more often in younger individuals, when injury occurred to nearby people, and when the individual had a pre-existing major depression. Bryant and Harvey (52) also identified female gender as increasing the risk of peritraumatic dissociation. Shalev et al. (51) noted that the average heart rate of individuals who later developed PTSD when seen in an ER after trauma was 95.5 ± 13.9 compared with people who did not develop PTSD, which was 83.3 ± 10.9 .

In a study of plane crash survivors, Smith et al. (34) found that having a pre-existing psychiatric disorder predicted acute (within 6 weeks) postdisaster psychopathology (PTSD, major depression, generalized anxiety disorder, and alcohol abuse/dependence) with a sensitivity of 72% and a specificity of 90%.

Schnurr et al. (53) identified predisposing personality traits in Dartmouth College graduates who later served in Vietnam. Using preservice MMPI results, they found that those who later developed PTSD had elevations of hypochondriasis, psychopathic deviance, masculinity–femininity, and paranoia scales. A prior diagnosis of depression, hypomania, or social introversion were also found to predict those who later developed PTSD (53).

There have been several studies that have identified lower pre-event intelligence as a risk factor for developing PTSD (1,26,46,54,55). Macklin et al.'s (55) data on Vietnam combat vets found that the mean predeployment IQ for individuals who were later diagnosed with PTSD was 106.3, while individuals who did not develop PTSD had an average IQ of 119. Silva et al. (46) reported similar findings in a study population of inner-city children and adolescents, where *c.* 6% of individuals with above-average IQ, roughly 30% of subjects with normal IQ, and 33% of individuals with below-average IQ met criteria for a diagnosis of PTSD. They found above-average IQ to be the strongest predictor of resilience for the development of the condition.

Why PTSD is Susceptible to Malingering

PTSD is particularly vulnerable to malingering because the diagnosis relies heavily on subjective symptoms and a patient-driven history (3,6,56,57). Because of its subjective nature, the DSM-IV requires malingering to be considered before a diagnosis of PTSD is made in situations where secondary gain exists (3,13,58). Factitious PTSD, where symptoms are intentionally feigned in order to assume the sick role, also needs to be considered in the differential diagnosis of PTSD.

Resnick (22) describes three types of malingering in PTSD. The first is *pure malingering*, where every aspect of the symptomatology is factitious. The second is *partial malingering*, where existing symptoms are overreported or remitted symptoms are reported as persistent. The third is *false imputation*, where symptoms due to another condition are attributed to a new cause.

It is critical that clinicians understand the phenomenology of a disease if they hope to detect malingering, especially in the Internet age, where information about diseases and how to feign them is readily available (59) (Table 1). In a recent Google search, more than 2,900,000 websites were found for “PTSD.” These websites ranged from those giving legitimate information concerning the history, symptoms, treatment, and how to find support groups to a series of sites which provided information on how to fake the disorder (i.e., what symptoms to report and how to answer questions to obtain disability).

The first requirement (criteria A) for the diagnosis of PTSD in DSM-IV is *exposure* to a traumatic event. An exposure has been broadly defined in DSM-IV as experiencing, witnessing, or being confronted with (i.e., third-person recounting) an event that involved injury or death (actual or threatened) to self or others, which induced intense fear, helplessness, or horror in the person witnessing (1,3,6,13). This was a change from the DSM-III criteria of trauma exposure that indicated the need for a horrific event, which most people, not just the participant, would find distressing. Breslau and Kessler (60) noted that the broadening of the definition of exposure to trauma to the current subjective and individualized criteria has led to a 59% increase in the number of events meeting criteria and a 39% increase in the number of people who meet diagnostic criteria. This definition is problematic in that it is all-encompassing, impossible to assign a minimal severity of exposure, nonspecific, and open to wide patient and clinician interpretation. For example, every American who witnessed televised coverage of the World Trade Center attack can claim exposure to such a traumatic event (1,61,62).

There is debate over the presence of symptom elaboration in patients with PTSD. Some investigators postulate that a feature of PTSD is for its sufferers to overreport their symptoms, with no overt intent to malingering, because of the high comorbidity of PTSD with personality disorder, other psychiatric disorders, and substance abuse that lead to elevated levels of reported distress (3,63–67). Other explanations for this tendency focus on neurological changes and memory imprinting that occur due to the trauma (3,64). It is important to remember that for a diagnosis of malingering to be made by DSM-IV standards, a “gross exaggeration” of symptoms has to occur. This wording is intentionally used because there are many reasons and conditions where individuals may be prone to mild to moderate exaggeration with no overt intent to deceive (13,68).

Interview Observations

Interview Observations

An interview is required to make the diagnosis of PTSD. It allows for first-hand observation and the ability to correlate what is reported by psychometric testing. When comparing the interview with test data, points to look for to help detect malingering include: Does the patient do poorly on every task including simple ones? Is there a lack of retesting improvement? Is there great variability between different types of activities relying on the same basic functions (e.g., able to drive to office by self but not able to find the bathroom with directions)? Does the individual perform worse than chance for tasks? (68,69).

Although this may seem self-explanatory, it is important for clinicians, especially in a forensic situation, to take steps to verify the historical data obtained during interviews, such as school,

TABLE 1—Synopsis of diagnostic criteria for PTSD (4).

Criteria A: exposure (directly experienced, witnessed or confronted with) to a traumatic event that involves death or serious injury were the individual experiences intense fear, horror, or helplessness
Criteria B: persistent re-experiencing (intrusive thoughts, images, dreams, dissociative flashbacks, illusions, hallucinations)
Criteria C: persistent avoidance (avoiding of thoughts, feelings, conversations, topics, locations, activities, people, inability to recall information, senses of foreshortened future, feelings of detachment or estrangement, restricted affect)
Criteria D: persistent hyperarousal (difficulties sleeping, irritability, hypervigilance, decreased concentration, exaggerated startle response)
Criteria E: symptoms last longer than a month
Criteria F: symptoms cause clinical impairment in social, occupational, and/or other areas of functioning
Time course: acute PTSD if last less than 3 months, chronic PTSD if last longer than 3 month, delayed-onset PTSD symptoms present 6 months post event
Exclusion of diagnosis: Symptoms occurring before trauma better explained by another diagnosis and an individual is not reporting symptoms for secondary gain

employment and service records, and police reports. In *Stolen Valor*, when the authors checked the historical accuracy of applications to the American POW Association, they discovered that nearly 30% of members claiming to have been held captive by the North Vietnamese were never POWs (24). Additional anecdotal case reports and medical studies report similar events where patients blatantly misrepresent their involvement in a trauma (70,71).

In addition to the standard psychiatric interview, there are several structured interviews that trained professionals can administer. The Structured Interview of Reported Symptoms (SIRS) is one such test. This instrument contains validity scales helpful for detecting malingering (Table 2). The validity of the SIRS interview was tested by Rogers et al. (72) using prison inmates coached with the DSM-III-R and patients with four psychiatric conditions including PTSD. In that study, the RS, IA, SC, BL, SU, SEL, SEV, and RO scales of the SIRS distinguished simulators from patients with known pathology. The scales that did not distinguish PTSD simulators included the OS, SO, and INC scales. PTSD simulators scored lower on the RO scale than did other disease simulators.

The Clinician-Administered PTSD Scale (CAPS), developed by the Department of Veterans Affairs, is another structured interview useful for assessing the global validity and severity of PTSD. It consists of 17 items rated on a 0–4 point scale. It is one of the more common instruments used in the assessment of PTSD and usually takes about 1 h to complete (58,73–75). It is considered by many to be the gold standard for diagnosing PTSD and the one against which other psychometric assessments and self-report tests are compared (73). Shalev et al. (74) report a CAPS sensitivity of 48% with a specificity of 96% when a cutoff value of 71 is used, based on a general population study without an intentional malingering study group.

Psychometric Tests

Since the creation of the PTSD diagnosis in the 1980s, multiple diagnostic tests and scales have been developed for detecting

PTSD and potential malingerers (76). Unfortunately, it is beyond the scope of this paper to include a thorough review of every psychometric test that could be used and its ability to detect the malingering of PTSD symptoms (Table 3). We will, however, review a few of the most useful and relevant tests available and define some commonly used tests and checklists that are poorly predictive or easily malingered instruments for the diagnosis of PTSD.

One of the most objective, informative, and relatively easy to administer psychometric test used to look for psychiatric illness, personality makeup, severity of pathology, and malingering is the Minnesota Multiphasic Personality Inventory (MMPI) (3,68,69,77). This test has multiple validity scales and subscales, which can be beneficial in detecting malingering (Table 4).

The validity of the MMPI has been confirmed by multiple studies (3,78–90). One of the first studies, carried out in 1985 by Fairbank et al. (82) found that using the F scale with cutoffs of 88 allowed investigators to identify malingering of PTSD more than 90% of the time. Similar results were reported by McCaffrey and Bellamy-Campbell (83). Using the F scale and the PTSD subscale, they were able to correctly identify 91% of a population consisting of Vietnam veterans with PTSD, Vietnam veterans who were intentional malingering, and mental health professionals who were also Vietnam veterans who were intentionally malingering. However, their results varied from those of Perconte and Goreczny's (91) study of Vietnam veterans, which found the F scale and the PTSD subscale scores correctly identifying only 43.59% of a mixed population of malingerers and actual PTSD diagnosed veterans.

A study by Lees-Haley (87) using both the MMPI and the MCMI-II on pseudo-PTSD patients and on a control population of personal injury claimants, recommends cutoffs of $F \geq 62$, $F-K$ (raw) ≥ -4 , $Es \geq 30$, $O-S \geq 90$, FBS (raw) ≥ 24 (men), FBS (raw) ≥ 26 (women), total obvious minus subtle ≥ 90 , MCMI-II disclosure (DIS) ≥ 60 , and MCMI-II debasement (DEB) ≥ 60 in a population which already had a score $T = 65$ or higher on both PK and PS scales. Cutoff scores were determined for the greatest accuracy of classification of controls.

TABLE 2—Structured interview of reported symptoms (SIRS) scales.

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| 1. Blatant Symptoms (BL): obvious indicators of mental problems may be elevated in malingerers and true patients |
| 2. Direct Appraisal of Honesty (DA): observer-assessed honesty |
| 3. Defensive Symptoms (DS): high score indicates a minimization of pathology (fake good, portraying favorability) |
| 4. Improbable and Absurd (IA): symptoms not typically endorsed by patients |
| 5. Inconsistency (INC): inconsistent answers between similar content items. Elevation suggests poor attention, random answers, lying |
| 6. Overly Specified (OS): degree of detail provided |
| 7. Reported vs. Observed (RO): level of functioning and distress reported do not match observed |
| 8. Rare Symptoms (RS): symptoms not typically endorsed by patients, but possible |
| 9. Selectivity of Symptoms (SEL): ratio of symptoms endorsed vs. not endorsed |
| 10. Severity of Symptoms (SEV): suggests distress or symptom exaggeration |
| 11. Subtle Symptoms (SU): common normal complaint elevation |
| 12. Symptom Combination (SC): atypical clustering of symptoms |
| 13. Symptom Onset (SO): onset and course difficulty |
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TABLE 3—Commonly used psychological tests which can aid in making a diagnosis of PTSD vs. malingering.

1. Childhood Incest Questionnaire (RCIQ)
2. Clinician-Administered PTSD Scale (CAPS)
3. Davidson Trauma Scale (DTS)
4. Impact of Event Scale-Revised (IES-R)
5. Life Events Checklist
6. Mississippi Scale for Combat-Related PTSD (MSS)
7. Morel Emotional Numbing Test for PTSD (MENT)
8. Millon Clinical Multiaxial Inventory (MCMI-II or III)
9. Minnesota Multiphasic Personality Inventory (MMPI-2)
10. Peritraumatic Dissociation Experiences Questionnaire (PDEQ)
11. Personality Assessment Inventory (PAI)
12. Post Traumatic Stress Diagnostic Scale (PDS)
13. Post Traumatic Symptom Scale-Self Report (PPS-SR)
14. PTSD Checklist
15. State Trait Anxiety Inventory (SANX-State)
16. Structured Interview of Reported Symptoms (SIRS)
17. Test of Memory Malingering (TOMM)
18. Trauma Symptom Checklist-40 (TSC-40)
19. Trauma Symptom Checklist for Children
20. Trauma Symptom Inventory (TSI)

Elhai et al. (85) found the F, F-Fb, F-K, Ds₂, O-S, and OT to be the best subscales on the MMPI for predicting PTSD malingering in veterans. With these scales, they had 80% sensitivity and 86% specificity in the recognition of malingering. They found cutoffs of F-K (raw) ≥ 17 , F ≥ 120 , and Ds₂ ≥ 97 to be most beneficial for balance between positive predictive power and negative predictive power.

A meta-analysis of 73 studies using the MMPI-2 as a tool to detect psychiatric malingering found the Fp scale to have the best value across differing diagnostic categories with malingerers scoring a mean value of 86.41 ± 1 SD 25.22 (Table 5). This meta-analysis also noted that most genuine PTSD sufferers had slight elevation for most scales compared with other genuine conditions except for the Fb scale, where there was “very extreme elevation,” and the F scale, where there was “extreme elevation” (90).

A relatively new MMPI scale for the detection of malingering in veterans groups is the infrequency-posttraumatic stress disorder scale (Fptsd), which was based on infrequently endorsed items

from male combat veterans seeking treatment at VA medical centers. Initial studies indicated that the Fptsd was better at discriminating simulated from genuinely reported PTSD compared with older scales such as the F, Fb, Fp (89). In a later study by Elhai et al. (84) looking to validate the Fptsd subscale for civilian PTSD, it was found to have incremental validity over F, but was not as good as Fp. Elhai felt that although the Fptsd scale was potentially useful with civilians, the Fp scale was still better at detecting malingering in a civilian population.

Several studies looking at PTSD and malingering recommend caution in relying on strict cutoff values due to the potential that some people suffering from PTSD may produce legitimately exaggerated MMPI profiles (64–66,85,89–93). Studies such as the one carried out by Franklin et al. (65) try to address this issue by looking at multifactorial patterns to determine the cause of elevation. In their study of compensation-seeking veterans with elevated F scores but normal VRIN and TRIN, they found that using an Fp score > 7 was helpful in distinguishing elevated profiles due to distress from overreporting (65).

Another issue with cutoff scores, as shown by the Fairbank, Lees-Haley, and Elhai studies, is that there are several different cutoff scores available with no standardized values as of yet (81,82,84,87). An explanation for the different cutoffs could be varying responses among differing populations (29). For example, in a study of childhood sexual abuse survivors, Elhai et al. (81) found the Fp, F-K, and O-S scales to be the best predictors of malingering, where most studies with veterans find F and Fp to be the best predictors. Fairbank et al.’s (82) cutoff score of 88 for the F scale, derived from the average score of the veteran PTSD group (76.1) plus one standard deviation (SD = 11.6), also demonstrates how the population of one study may not be generalized to other patients, even those who are in the same group. This is evident from Perconte’s study, where Fairbank’s cutoff of 88 was well within Perconte’s veteran F scale mean plus standard deviation (mean $81.2 \pm$ SD 15.4) (91).

Wetter and Corrigan (94) found that *c.* 50% of attorneys and 33% of law students felt their clients should be informed about validity scales before taking psychological tests. In a study by Rogers et al. (95) looking at faking the symptoms of schizophrenia on the MMPI-2, they found that one-third of people were able to

TABLE 4—MMPI scales and subscales which may be helpful for detection of malingering.

1. Cannot Say (? Or CS): number left unanswered or answered as both true and false
2. Correction or Defensiveness (K): attempts to portray oneself favorably, but more subtle than L
3. Deceptive Subtle (DS): subset of the subtle questions noted for high face validity, but minimal predictive value for pathology
4. Ego Strength (ES): original indicated prognosis for psychotherapy, extremely low (ES with normal mental status suggests over-reporting psychopathology)
5. Fake Bad (FBS): designed to detect simulated emotional stress in personal injury claimants, obvious items endorsed vs. more subtle items not listed
6. Back F (FB): infrequently endorsed items, indicating extreme pathology, cry for help, symptom exaggeration (questions 280 on)
7. F-FB: consistency of answers for first half of test and second half
8. Gough Dissimulation Index (F-K): high scores correlate with over-reporting, low scores with under-reporting
9. Gough Dissimulation Scale for the MMPI-2 (Ds2): infrequently endorsed affective items
10. Infrequency (F): infrequently endorsed items, indicating extreme pathology, cry for help, symptom exaggeration (first 361 questions)
11. Infrequency-Psychopathology (Fp): infrequent responses in a psychiatric population
12. Infrequency-Posttraumatic Stress Disorder (Fptsd): infrequently endorsed responses in sample of veterans diagnosed with PTSD
13. Lie (L): unsophisticated attempt to portray favorable impression
14. Keane Post-Traumatic Stress Disorder (PK): combat-related PTSD, (norm vs. treatment-seeking vets)
15. Obvious Items (Ob): selections with high face value of pathology
16. Obvious Minus Subtle (OS): index of symptom exaggeration
17. Other Subtle (Os): subset of subtle questions more predictive of pathology
18. Schlenger Post-traumatic Stress Disorder (PS): difference between subtle and obvious, suggests over-reporting combat-related PTSD (norm vs. untreated vets)
19. Subtle items (Su): 100-question subscale
20. Superlative Self-Presentation (S): test of defensiveness for people presenting self in highly virtuous manner
21. Total Obvious (OT): obvious symptoms associated with pathology reported
22. True Response Inconsistency (TRIN): 20 pairs of questions to which same response is inconsistent
23. Variable Response Inconsistency (VRIN): sum of inconsistent responses

TABLE 5—Mean score of MMPI results from meta-analysis study by Rogers et al. (90).

Presumptively genuine PTSD patients	Feigners of all conditions
L scale 52.67 ± 1 SD 9.31	L scale 49.42.67 ± 1 SD 11.47
F 86.31 ± 1 SD 21.58	F 108.09 ± 1 SD 23.82
K 38.30 ± 1 SD 7.31	K 38.24 ± 1 SD 7.90
FB 92.31 ± 1 SD 24.55	FB 107.52 ± 1 SD 25.50
F-K 8.70 ± 1 SD 10.60	F-K 25.49 ± 1 SD 20.55
Fp 69.02 ± 1 SD 21.00	Fp 86.41 ± 1 SD 25.22
O-S 182.24 ± 1 SD 71.79	O-S 200.84 ± 1 SD 73.77
Ds 68.40 ± 1 SD 14.60	Ds 87.49 ± 1 SD 15.70
FBS 80.36 ± 1 SD 14.51	FBS 80.71 ± 1 SD 16.43

elude detection of malingering when coached about validity scales. In Rogers's (95) study, knowledge and strategies about avoiding detection on validity scales led to a higher success rate of malingering than coaching on the condition itself.

Checklists/Questionnaires

Much research has been done on creating self-reporting checklists to help with diagnosing, rating the severity of PTSD, and assessing validity and reliability when compared with other measures (74,76,96–99). Shalev et al. (74) found that the checklists used in their study (IES, MIS, SANX-State, PDEQ) were better than chance at predicting who would develop PTSD, but were not as accurate as the CAPS. They found the checklists greatest utility was in predicting who would not develop or meet the criteria for the disorder later (74).

In a recent study of individuals with traumatic brain injury (TBI), 59% of those given the Post-Traumatic Diagnostic Scale and 44% of those given the Impact of Events Scale fulfilled criteria for PTSD (96,97). When the same population was later assessed by the CAPS, only 3% met criteria for a diagnosis of PTSD. The authors felt the large difference was due to the checklists' inability to correctly differentiate symptoms caused by TBI, such as insomnia, irritability, social withdrawal, and impaired concentration from PTSD. The authors also noted that several of the checklists' statements were answered incorrectly due to TBI concentration errors (96,97).

The Mississippi Scale (MSS), developed by Trencé Keane and collaborators, is a 35-question self-report scale with veteran and civilian versions (100–102). A score of 107 is supposed to be indicative of PTSD in Vietnam veterans. Lyons et al. (103) found the MSS to have high sensitivity and low specificity. They felt it was easy to malingering. They suggested a cutoff score of 121 instead of the original 107. Shalev (74) found an MSS cutoff score of 120 to have 95% specificity in his study.

Calhoun et al. (104) found that, after reviewing the DSM-IV, 70% of individuals were able to successfully malingering PTSD when being assessed by the Personality Assessment Inventory (PAI). The Negative Impression Management (NIM) scale of the PAI, with a cutoff ≥ 8 , was 75% effective in detecting malingering but also suggested malingering in 65% of the control PTSD group.

Lees-Haley and Dunn conducted a study evaluating the ability of naive college students to successfully report symptoms of varying psychiatric conditions using checklists. In their study, 86% of the subjects were able to successfully produce profiles to meet criteria for PTSD. Lees-Haley and Dunn (105) then further broke down their study to look at being able to fake individual components of the disease. They found that 98.9% could meet

requirements for criterion B, 89.2% for criterion C, and 95.7% for criterion D. Their conclusion was that the lay public had enough knowledge or that symptom checklists were leading/prompting enough in nature so that the symptoms of PTSD could be successfully generated by individuals with no specific training in mental health (105).

Burges and McMillan (56) conducted a similar study using the posttraumatic symptom scale-self report (PPS-SR), which is a 17-question PTSD checklist. The purpose of their study was to see if the results of Lees-Haley and Dunn's (105) study were reproducible in a general naive population. Based on a story vignette without the checklists, on average only 2.29 out of 17 symptoms for PTSD were generated, with only one out of 134 participants meeting criteria for a PTSD diagnosis. With the PPS-SR, 13 of the 17 symptoms on average were generated and more than 90% of the participants satisfied the DSM-IV criteria for the diagnosis of PTSD (56).

Physiological Responses

As one of the common symptoms of PTSD is a state of hyperarousal, there has been hope that an accurately reproducible physiological response would be found to help diagnose PTSD. Many studies looking at physiological measurements such as blood pressure, heart rate, peripheral surface temperature, forehead EMG, and skin electronic resistance have been undertaken (3,51,106–110). Although various studies show promise for finding physiological markers for PTSD, there is currently no gold standard of physiological change (3,22). In an early study, Blanchard et al. (106) found that heart rate was the most reliable indicator of physiological response to a previous traumatic exposure, with 95.5% of individuals with PTSD versus controls being identified when challenged with an auditory stimulus. Keane et al. (109) found that by using a combination of heart rate, skin conductance, left lateral frontalis electromyogram, and systolic and diastolic blood pressure they were able to correctly identify 64% of a population made up of current PTSD- and non-PTSD-diagnosed veterans with a sensitivity of 81% and specificity of 31%. In the Keane et al. (109) study, heart rate with a change of greater than two beats per minute was the best single physiologic predictor of current PTSD followed by skin conductance changes. The Keane et al. (109) study concluded that individuals suffering from more severe symptoms of PTSD are more responsive to stimulus challenge testing.

A study conducted by Orr and Pitman found that three-fourth of known simulators were not able to generate multiple physiological changes to the same extent as veterans with a known PTSD diagnosis even though the simulators could produce heart rate elevations consistent with PTSD (107). They also found that 28% of previously diagnosed PTSD individuals were not identified by the physiological measures used in their study (107). A later study done by Veazey et al. (108) looking at PTSD in motor vehicle accidents also found that about 23% of individuals with a PTSD diagnosis did not have a physiological response by their primary marker of heart rate. Two explanations put forth to explain these findings are that (1) that there is a sub-group of patients who are physiologically nonreactive by certain measures to traumatic reminders, or (2) the PTSD group who did not show physiological changes were misdiagnosed and actually did not have PTSD (1).

Similar issues arise with various polygraph tests. Even though the techniques have been used for years, they are not reliable enough to be submitted as evidence in most courts. The false positive rate, depending on the type of polygraph test used, varies

from 30% to 50% (68). There have also been well-documented cases where people have been able to defeat polygraph tests through training designed to alter autonomic responses (68).

Considerable research has been undertaken to (1) define the effects of stress on various hormone levels and relate them to mechanisms producing PTSD, (2) review biologic predisposition to the development of PTSD, and (3) define tests as posttrauma diagnostic tools. Specific hormones and neurotransmitters of interest have included cortisol, cortisol releasing factor (CRF), neuropeptide Y, and norepinephrine levels (111–113). Although there have been several studies demonstrating neuroendocrine changes in individuals with PTSD, at this time there are no specific findings considered reliable for diagnostic purposes.

Case Study

The second author of this report reviewed a case of a 50-year-old Vietnam veteran, which illustrates the ease by which one can malingering PTSD. The veteran in question applied for a service-connected rating for PTSD shortly after his discharge from the Army and was initially denied. After a minor traffic accident (no injury or obvious threat to life) many years after his discharge, he again applied for VA benefits, claiming the accident had activated a delayed PTSD related to his military service. On this attempt, he received a 50% disability rating and an explanation, in writing, as to why he did not qualify for 70% disability.

A higher evaluation of 70% impairment is not warranted unless there are deficiencies in most areas such as work, school, or family relations; judgment, thinking, or mood due to such symptoms as: suicidal ideation; obsessive rituals, which interfere with routine activities; speech intermittently illogical, obscure, or irrelevant; near-continuous panic or depression affecting the ability to function independently, appropriately and effectively; impaired impulse control (such as unprovoked irritability with periods of violence); spatial disorientation; neglect of personal appearance and hygiene; difficulty in adapting to stressful circumstances (including work or a work-like setting); inability to establish and maintain effective relationships.

After receiving the above information, the veteran presented to a VA hospital and reported that he had not shaved for the last 2 weeks; that he was having crying spells; was irritable, hyper-vigilant; had low frustration tolerance; had difficulty sleeping; felt suicidal; was having flashbacks (not dissociative in nature), heard voices, and had nightmares; could not communicate at work or with family; felt distant; could not remember things; had to keep checking for weapons; and had continuous panic attacks. He also reported that his wife told him that he did not make sense intermittently. On appeal of his second PTSD disability claim, he was approved for 70% disability.

After receiving the additional disability, he filed a civil suit claiming the minor accident had caused *de novo* PTSD. The civil case was dismissed when it became apparent that he had lied about his previous medical history, records, and disability status; that he had psychometric testing suggestive of malingering; that he had extreme and inconsistent symptoms at the time of his evaluation, which were out of proportion to the level of trauma he experienced; and that he did not have commonly seen risk factors preceding the event or at the time of the event. This case demonstrated the patient-driven subjective nature of the symptoms of

PTSD; clear secondary gain as motivation for malingering; the ease with which additional symptoms were generated from a prompting/symptom check list; the importance of verifying the history; and the importance of the clinician's understanding of the symptoms which usually occur in true PTSD and how they differ from those seen in malingering, as well as the ambiguity of what constitutes a traumatic event.

Discussion

It will be interesting to see how the *Diagnostic and Statistical Manual-V* (DSM-V) addresses the diagnosis of PTSD and if the new criteria will be susceptible to being malingered. The soon-to-be-released updated diagnostic criteria will have to address such issues as whether to broaden the definition of "exposure" to specifically include images from television or to restrict the exposure criteria and return to a definition closer to the more restrictive one used in DSM-III. An additional question which will have to be answered by the DSM-V PTSD workgroup is whether the diagnosis of PTSD will be subdivided into distinct subcategories, such as terroristic PTSD, accident-related PTSD, or rape-related PTSD, all with varying patterns of prevalence, symptom severity, prognosis, and individual risk factors. As long as these questions remain, so will the diagnostic ambiguity we currently address, which will be exploited by individuals looking for financial gain. The more outrageous their exploits become, the harder it will be for legitimate patients to receive the treatment, benefits, and compensation that they are entitled to. Misuse of current lax criteria causes the general public and the legal system to be skeptical of PTSD and its sufferers and to often see PTSD litigation as frivolous.

Additional research will be helpful in maintaining the clinical validity of the diagnosis of PTSD. Further validating the Clinician-Administered PTSD Scale with known simulators, as has been done with the MMPI, will add an important diagnostic tool. The authors of this paper were unable to find any simulator/validity studies involving the CAPS. Such studies using the "gold standard" of the CAPS for validation are truly useful for both the clinician and the forensic researcher/examiner.

If the DSM-V does subdivide the diagnosis of PTSD, it will be critical to develop new and more accurate cutoff scores for the various assessment instruments. Research on future cutoff values will need to account for factors such as gender, age, number of psychiatric diagnoses, type of comorbid psychiatric diagnoses, and type of trauma experienced to make the new cutoff scores generalizable to specific treatment groups and individuals.

Additional research is also required to define the physiological measures associated with PTSD if they are to become a common instrument for clinical and forensic evaluation. In terms of using physiological measurements for the detection of malingering, it will be important to study individuals believed to have true PTSD without heart rate elevation on stimulus exposure. Their lack of response could be caused by many different factors including genetic differences (e.g., cardiac receptor differences, brain pathway differences), as a sign of treatment effectiveness, or as a common symptom pattern of another psychiatric disorder frequently superimposed upon or misdiagnosed as PTSD. Being able to identify these individuals ahead of time would greatly diminish the false negative rate associated with physiological measurements and increase their value as tools useful to make the affirmative diagnosis of PTSD or to reveal signs of malingering.

Conclusion

Unfortunately, at this time, there is no sure way to diagnose or detect malingered PTSD. The best way to approach PTSD is similar to that proposed by Hall and Pritchard (114) with their Forensic Distortion Analysis. The first thing to look for is the potential benefit or "target" for why an individual would lie or misrepresent. The second is to look critically at the history, interviews, and responses of the individual (i.e., faking bad). The third is to have a detection strategy, such as obtaining collateral information, historical records, structured interviews, and psychometric testing. It is important to remember that there is no source of data that cannot be manipulated or faked by a determined individual (3). As there is no one way to identify the malingering of PTSD, it is critical to examine multiple sources of data and to use sound clinical judgment when determining if a patient's symptoms are those of true PTSD or are malingered.

References

- McNally R. Progress and controversy in the study of posttraumatic stress disorder. *Annu Rev Psychol* 2003;54:229–52.
- Wilson J. The historical evolution of PTSD diagnostic criteria: from Freud to DSM-IV. *J Trauma Stress* 1994;7(4):681–98.
- Guriel J, Fremouw W. Assessing malingered posttraumatic stress disorder: a critical review. *Clin Psychol Rev* 2003;23(7):881–904.
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 3rd ed. Washington, DC: APPI, 1980.
- Sparr L. Post-traumatic stress disorder. Does it exist? *Neurol Clin* 1995;13(2):413–29.
- Sparr L. Mental defenses and posttraumatic stress disorder: assessment of criminal intent. *J Trauma Stress* 1996;9(3):405–25.
- A National Center for PTSD Fact Sheet: What causes Posttraumatic Stress Disorder? How common is it? Who gets it? Epidemiological Facts about PTSD. http://www.ncptsd.va.gov/facts/general/fs_epidemiological.html.
- Medina-Mora IM, Borges-Guimaraes G, Lara C, Ramos-Lira L, Zambrano J, Fleiz-Bautista C. Prevalence of violent events and post-traumatic stress disorder in the Mexican population. *Salud Publica Mex* 2005;47(1):8–22.
- Hoven C, Duarte C, Lucas C, et al. Psychopathology among New York city public school children 6 months after September 11. *Arch Gen Psychiatry* 2005;62(5):545–52.
- Breslau N, Davis G, Peterson E, Schultz L. Psychiatric sequelae of post-traumatic stress disorder in women. *Arch Gen Psychiatry* 1997;54(1):81–7.
- Kessler R, Sonnega A, Bromet E, Hughes M, Nelson C. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 1995;52(12):1048–60.
- Kessler R, Berglund P, Demler O, Jin R, Merikangas K, Walters E. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry* 2005;62(6):593–602.
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: APPI, 1994.
- Hall R, Hall R, Chapman M. Effects of terrorist attacks on the elderly, part 2: PTSD, acute stress disorder and affective disorders. *Clin Geriatr* 2006;14:17–24.
- Hall R, Hall R, Chapman M. Medical and psychiatric casualties caused by conventional and radiological (dirty) bombs. *Gen Hosp Psychiatry* 2006;28:242–48.
- North C, Nixon S, Shariat S, et al. Psychiatric disorders among survivors of the Oklahoma City bombing. *JAMA* 1999;282(8):755–62.
- Abenham L, Dab W, Salmi L. Study of civilian victims of terrorist attacks (France 1982–1987). *J Clin Epidemiol* 1992;45(2):103–9.
- Blanchard E, Hickling E, Taylor A, Loos W, Forneris C, Jaccard J. Who develops PTSD from motor vehicle accidents? *Behav Res Ther* 1996;34(1):1–10.
- Mayou R. Psychiatric consequences of motor vehicle accidents. *Psychiatr Clin North Am* 2002;25(1):27–41.
- Mayou R, Bryant B, Ehlers A. Prediction of psychological outcomes one year after a motor vehicle accident. *Am J Psychiatry* 2001;158(8):1231–8.
- Ehlers A, Mayou A, Bryant B. Psychological predictors of chronic post-traumatic stress disorder after motor vehicle accidents. *J Abnorm Psychol* 1998;107(3):508–19.
- Resnick P. Malingering of posttraumatic disorders. In: Rogers R, editor. *Clinical assessment of malingering and deception*. 2nd ed. New York: Guilford Press, 1997:130–52.
- Lees-Haley P. MMPI-2 base rates for 492 personal injury plaintiffs: implications and challenges for forensic assessment. *J Clin Psychol* 1997;53(7):745–55.
- Burkett BG, Whitley G. Valor: how the Vietnam generation was robbed of its heroes and its history. Dallas: Verity, 1998.
- McFarlane A. The aetiology of post-traumatic morbidity: predisposing, precipitating and perpetuating factors. *Br J Psychiatry* 1989;154:221–8.
- McNally R, Shin L. Association of intelligence with severity of post-traumatic stress disorder symptoms in Vietnam combat veterans. *Am J Psychiatry* 1995;152(6):936–8.
- Gurvits T, Gilbertson M, Lasko N, et al. Neurologic soft signs in chronic posttraumatic stress disorder. *Arch Gen Psychiatry* 2000;57(2):181–6.
- Breslau N, Davis G. Posttraumatic stress disorder in an urban population of young adults: risk factors for chronicity. *Am J Psychiatry* 1992;149(5):671–5.
- Breslau N, Davis G, Andreski P, Peterson E. Traumatic events and post-traumatic stress disorder in an urban population of young adults. *Arch Gen Psychiatry* 1991;48(3):216–22.
- Bramsen I, Dirkzwager A, Van der Ploeg H. Predeployment personality traits and exposure to trauma as predictors of posttraumatic stress symptoms: a prospective study of former peacekeepers. *Am J Psychiatry* 2000;157(7):1115–9.
- Bromet E, Sonnega A, Kessler R. Risk factors for DSM-III-R post-traumatic stress disorder: findings from the National Comorbidity Survey. *Am J Epidemiol* 1998;147(4):353–61.
- Tucker P, Pfefferbaum B, Nixon S, Dickson W. Predictors of post-traumatic stress symptoms in Oklahoma City: exposure, social support, peritraumatic responses. *J Behav Health Serv Res* 2000;27(4):406–16.
- Keane T, Scott W, Chavoya G, Lamparski D, Fairbank J. Social support in Vietnam veterans with posttraumatic stress disorder: a comparative analysis. *J Consult Clin Psychol* 1985;53(1):95–102.
- Smith E, North C, McCool R, Shea J. Acute postdisaster psychiatric disorders: identification of persons at risk. *Am J Psychiatry* 1990;147(2):202–6.
- Brewin C, Andrews B, Valentine J. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *J Consult Clin Psychol* 2000;68(5):748–66.
- Gurvits T, Metzger L, Lasko N, Cannistrano P, Tarhan A, Gilbertson M, et al. Subtle neurologic compromise as a vulnerability factor for combat-related posttraumatic stress disorder: results of a twin study. *Arch Gen Psychiatry* 2006;63(5):571–6.
- Brady K, Killeen T, Brewerton T, Lucerini S. Comorbidity of psychiatric disorders and posttraumatic stress disorders. *J Clin Psychiatry* 2000;61(Suppl 7):22–30.
- King D, King L, Foy D, Gudanowski D. Prewar factors in combat-related posttraumatic stress disorder: structural equation modeling with a national sample of female and male Vietnam veterans. *J Consult Clin Psychol* 1996;64(3):520–31.
- Davidson J, Swartz M, Storck M, Krishnan R, Hammett E. A diagnostic and family study of posttraumatic stress disorder. *Am J Psychiatry* 1985;142(1):90–3.
- Katerndahl D, Burge S, Kellogg N. Predictors of development of adult psychopathology in female victims of childhood sexual abuse. *J Nerv Ment Dis* 2005;193(4):258–64.
- Huang G, Zhang Y, Momartin S, Cao Y, Zhao L. Prevalence and characteristics of trauma and posttraumatic stress disorder in female prisoners in China. *Compr Psychiatry* 2006;47(1):20–9.
- Engel C Jr, Engel A, Campbell S, McFall M, Russo J, Katon W. Posttraumatic stress disorder symptoms and precombat sexual and physical abuse in Desert Storm veterans. *J Nerv Ment Dis* 1993;181(11):683–8.
- Nishith P, Mechanic M, Resick P. Prior interpersonal trauma: the contribution to current PTSD symptoms in female rape victims. *J Abnorm Psychol* 2000;109(1):20–5.
- Bremner J, Southwick S, Johnson D, Yehuda R, Charney D. Childhood physical abuse and combat-related posttraumatic stress disorder in Vietnam veterans. *Am J Psychiatry* 1993;150(2):235–9.
- Koenen K, Fu Q, Lyons M, et al. Juvenile conduct disorder as a risk factor for trauma exposure and posttraumatic stress disorder. *J Trauma Stress* 2005;18(1):23–32.

46. Silva R, Alpert M, Munoz D, Singh S, Matzner F, Dummit S. Stress and vulnerability to posttraumatic stress disorder in children and adolescents. *Am J Psychiatry* 2000;157(8):1229–35.
47. Shalev A, Peri T, Canetti L, Schreiber S. Predictors of PTSD in injured trauma survivors: a prospective study. *Am J Psychiatry* 1996;153(2):219–25.
48. Birmes P, Carreras D, Ducasse J, Charlet J, Lecoules N, Olivier M, et al. Victims of general crimes. Prospective and longitudinal assessment of psychological injuries. *Ann Med Interne (Paris)* 2001;152(7):446–51.
49. Ursano R, Fullerton C, Epstein R, et al. Peritraumatic dissociation and posttraumatic stress disorder following motor vehicle accidents. *Am J Psychiatry* 1999;156(11):1808–10.
50. Fullerton C, Ursano R, Epstein R, et al. Peritraumatic dissociation following motor vehicle accidents: relationship to prior trauma and prior major depression. *J Nerv Ment Dis* 2000;188(5):267–72.
51. Shalev A, Sahar T, Freedman S, et al. A prospective study of heart rate response following trauma and the subsequent development of post-traumatic stress disorder. *Arch Gen Psychiatry* 1998;55(6):553–9.
52. Bryant R, Harvey A. Gender differences in the relationship between acute stress disorder and posttraumatic stress disorder following motor vehicle accidents. *Aust NZ J Psychiatry* 2003;37(2):226–9.
53. Schnurr P, Friedman M, Rosenberg S. Premilitary MMPI scores as predictors of combat-related PTSD symptoms. *Am J Psychiatry* 1993;150(3):479–83.
54. Vasterling J, Duke L, Brailey K, et al. Attention, learning, and memory performances and intellectual resources in Vietnam veterans: PTSD and no disorder comparisons. *Neuropsychology* 2002;16(1):5–14.
55. Macklin M, Metzger L, Litz B, et al. Lower precombat intelligence is a risk factor for posttraumatic stress disorder. *J Consult Clin Psychol* 1998;66(2):323–6.
56. Burges C, McMillan T. Brief report: the ability of naïve participants to report symptoms of post-traumatic stress disorder. *Br J Clin Psychol* 2001;40(Part 2):209–14.
57. Appelbaum P, Jick R, Grisso T, Givelber D, Silver E, Steadman H. Use of posttraumatic stress disorder to support an insanity defense. *Am J Psychiatry* 1993;150(2):229–34.
58. Rosen G, Powel J. Use of a symptom validity test in the forensic assessment of posttraumatic stress disorder. *J Anxiety Disord* 2003;17(3):361–7.
59. Resnick P. Defrocking the fraud: the detection of malingering. *Isr J Psychiatry Relat Sci* 1993;30(2):93–101.
60. Breslau N, Kessler R. The stressor criterion in DSM-IV posttraumatic stress disorder: an empirical investigation. *Biol Psychiatry* 2001;50(9):699–704.
61. Ahern J, Galea S, Resnick H, Vlahov D. Television images and probable posttraumatic stress disorder after September 11: the role of background characteristics, event exposures, and perievent panic. *J Nerv Ment Dis* 2004;192(3):217–26.
62. Elhai J, Kashdan T, Frueh B. What is a traumatic event? *Br J Psychiatry* 2005;187:189–90.
63. Frueh B, Smith D, Barker S. Compensation seeking status and psychometric assessment of combat veterans seeking treatment for PTSD. *J Trauma Stress* 1996;9(3):427–39.
64. Frueh B, Hamner M, Cahill S, Gold P, Hamlin K. Apparent symptom overreporting among combat veterans evaluated for PTSD. *Clin Psychol Rev* 2000;20(7):853–85.
65. Franklin C, Repasky S, Thompson K, Shelton S, Uddo M. Differentiating overreporting and extreme distress: MMPI-2 use with compensation-seeking veterans with PTSD. *J Pers Assess* 2002;79(2):274–85.
66. Hyer L, Fallon J, Harrison W, Boudewyns P. MMPI overreporting by Vietnam combat veterans. *J Clin Psychol* 1987;43(1):79–83.
67. Hyer L, Boudewyns P, Harrison W, et al. Vietnam veterans: overreporting versus acceptable reporting of symptoms. *J Pers Assess* 1988;52(3):475–86.
68. Wiley S. Deception and detection in psychiatric diagnosis. *Psychiatr Clin North Am* 1998;21(4):869–93.
69. Cunnen A. Psychiatric and medical syndromes associated with deception. In: Rogers R, editor. *Clinical assessment of malingering and deception*. 2nd ed. New York: Guilford, 1997:23–46.
70. McGrath J, Frueh B. Fraudulent claims of combat status in the VA? *Psychiatr Serv* 2002;53(3):345.
71. Frueh B, Elhai J, Grubaugh A, et al. Documented combat exposure of US veterans seeking treatment for combat-related post-traumatic stress disorder. *Br J Psychiatry* 2005;186:467–72.
72. Rogers R, Kropp P, Bagby R, Dickens S. Faking specific disorders: a study of the Structured Interview of Reported Symptoms (SIRS). *J Clin Psychol* 1992;48(5):643–8.
73. Weathers F, Keane T, Davidson J. Clinician-administered PTSD scale: a review of the first ten years of research. *Depress Anxiety* 2001;13(3):132–56.
74. Shalev A, Freedman S, Peri T, Brandes D, Sahar T. Predicting PTSD in trauma survivors: prospective evaluation of self-report and clinician-administered instruments. *Br J Psychiatry* 1997;170:558–64.
75. Clinician-administered PTSD Scale (CAPS). In: Sajatovic M, Ramirez L, editors. *Rating scales in mental health*. 2nd ed. Cleveland: Lexi-Comp, 2003:67–8.
76. Elhai J, Gray M, Kashdan T, Franklin C. Which instruments are most commonly used to assess traumatic event exposure and posttraumatic effects. A survey of traumatic stress professionals. *J Trauma Stress* 2005;18(5):541–5.
77. Rosman J, McDonald J Jr. Forensic aspects of sexual harassment. *Psychiatr Clin N Am* 1999;22(1):129–45.
78. Elhai J, Frueh B. Subtypes of clinical presentations in malingerers of posttraumatic stress disorder: an MMPI-2 cluster analysis. *Assessment* 2001;8(1):75–84.
79. Cabarkapa M, Markovic N, Popovic L. The psychological profile using the Minnesota Multiphasic Personality Inventory and the value of this test in the evaluation of post-traumatic stress disorder in combat participants. *Vojnosanit Pregl* 1997;54(6):549–54.
80. Scheibe S, Bagby R, Miller L, Dorian B. Assessing posttraumatic stress disorder with the MMPI-2 in a sample of workplace accident victims. *Psychol Assess* 2001;13(3):369–74.
81. Elhai J, Gold S, Sellers A, Dorfman W. The detection of malingered posttraumatic stress disorder with MMPI-2 fake bad indices. *Assessment* 2001;8(2):221–36.
82. Fairbank J, McCaffrey R, Keane T. Psychometric detection of fabricated symptoms of posttraumatic stress disorder. *Am J Psychiatry* 1985;142(4):501–3.
83. McCaffrey R, Bellamy-Campbell R. Psychometric detection of fabricated symptoms of combat-related post-traumatic stress disorder: a systematic replication. *J Clin Psychol* 1989;45(1):76–9.
84. Elhai J, Naifeh J, Zucker I, Gold S, Deitsch S, Frueh B. Discriminating malingered from genuine civilian posttraumatic stress disorder: a validation of three MMPI-2 Infrequency scales (F, Fp, and Fptsd). *Assessment* 2004;11(2):139–44.
85. Elhai J, Gold P, Frueh B, Gold S. Cross-validation of the MMPI-2 in detecting malingered posttraumatic stress disorder. *J Pers Assess* 2000;75(3):449–63.
86. Munley P, Bains D, Bloem W. Post-traumatic stress disorder and the MMPI-2. *J Trauma Stress* 1995;8(1):171–8.
87. Lees-Haley P. Efficacy of MMPI-2 validity scales and MCMI-II modifier scales for detecting spurious PTSD claims: F, F-K, Fake Bad Scale, ego strength, subtle-obvious subscales, DIS, and DEB. *J Clin Psychol* 1992;48(5):681–9.
88. Bagby R, Nicholson R, Buis T. Utility of the deceptive-subtle items in the detection of malingering. *J Pers Assess* 1998;70(3):405–15.
89. Elhai J, Ruggiero K, Frueh B, Beckham J, Gold P, Feldman M. The Infrequency-Posttraumatic Stress Disorder scale (Fptsd) for the MMPI-2: development and initial validation with veterans presenting with combat-related PTSD. *J Pers Assess* 2002;79(3):531–49.
90. Rogers R, Sewell K, Martin M, Vitacco M. Detection of feigned mental disorders: a meta-analysis of the MMPI-2 and malingering. *Assessment* 2003;10(2):160–77.
91. Perconte S, Goreczny A. Failure to detect fabricated posttraumatic stress disorder with the use of the MMPI in a clinical population. *Am J Psychiatry* 1990;147(8):1057–60.
92. Pope K, Butcher J, Seelen J, editors. *Assessing malingering and other aspects of credibility*. In: *The MMPI, MMPI-2 & MMPI-A in Court*. Washington, DC: American Psychological Association, 1993:123–50.
93. Franklin C, Thompson K. Response style and posttraumatic stress disorder (PTSD): a review. *J Trauma Dissoc* 2005;6(3):105–23.
94. Wetter M, Corrigan S. Providing information to clients about psychological tests: a survey of attorneys' and law students' attitudes. *Prof Psychol Res Pr* 1995;26:474–7.
95. Rogers R, Bagby R, Chakraborty D. Feigning schizophrenic disorders on the MMPI-2: detection of coached simulators. *J Pers Assess* 1993;60(2):215–26.
96. Sumpter R, McMillan T. Errors in self-report of post-traumatic stress disorder after severe traumatic brain injury. *Brain Inj* 2006;20(1):93–9.

97. Sumpter R, McMillan T. Misdiagnosis of post-traumatic stress disorder following severe traumatic brain injury. *Br J Psychiatry* 2005;186:423–6.
98. Gold J, Cardena E. Convergent validity of three posttraumatic symptoms inventories among adult sexual abuse survivors. *J Trauma Stress* 1998;11(1):173–80.
99. Elhai J, Gray M, Naifeh J, et al. Utility of the trauma symptom inventory's atypical response scale in detecting malingered post-traumatic stress disorder. *Assessment* 2005;12(2):210–9.
100. Keane T, Caddell J, Taylor K. Mississippi scale for combat-related post-traumatic stress disorder: three studies in reliability and validity. *J Consult Clin Psychol* 1988;56(1):85–90.
101. Norris F, Perilla J. The revised Civilian Mississippi Scale for PTSD: reliability, validity, and cross-language stability. *J Trauma Stress* 1996;9(2):285–98.
102. Keane T. Mississippi scale. In: Sajatovic M, Ramirez L, editors *Rating scales in mental health*. 2nd ed. Cleveland: Lexi-Comp, 2003:72–6.
103. Lyons J, Caddell J, Pittman R, Rawls R, Perrin S. The potential for faking on the Mississippi Scale for combat-related PTSD. *J Trauma Stress* 1994;7(3):441–5.
104. Calhoun P, Earnst K, Tucker D, Kirby A, Beckham J. Feigning combat-related posttraumatic stress disorder on the Personality Assessment Inventory. *J Pers Assess* 2000;75(2):338–50.
105. Lees-Haley P, Dunn J. The ability of naïve subjects to report symptoms of mild brain injury, post-traumatic stress disorder, major depression, and generalized anxiety disorder. *J Clin Psychol* 1994;50(2):252–6.
106. Blanchard E, Kolb L, Pallmeyer T, Gerardi R. A psychophysiological study of post-traumatic stress disorder in Vietnam veterans. *Psychiatr Q* 1982;54(4):220–9.
107. Orr SP, Pitman RK. Psychophysiological assessment of attempts to simulate posttraumatic stress disorder. *Biol Psychiatry* 1993;33(2):127–9.
108. Veazey C, Blanchard E, Hickling E, Buckley T. Physiological responsiveness of motor vehicle accident survivors with chronic posttraumatic stress disorder. *Appl Psychophysiol Biofeedback* 2004;29(1):51–62.
109. Keane TM, Kolb LC, Kaloupek DG, et al. Utility of psychophysiological measurement in the diagnosis of posttraumatic stress disorder: results from a Department of Veterans Affairs Cooperative Study. *J Consult Clin Psychol* 1998;66(6):914–23.
110. Blanchard EB, Kolb LC, Prins A. Psychophysiological responses in the diagnosis of posttraumatic stress disorder in Vietnam veterans. *J Nerv Ment Dis* 1991;179(2):97–101.
111. Rasmusson A, Hauger R, Morgan C, Bremner J, Charney D, Southwick S. Low baseline and yohimbine-stimulated plasma neuropeptide Y (NPY) levels in combat-related PTSD. *Biol Psychiatry* 2000;47(6):526–39.
112. Morgan CA III, Wang S, Rasmusson A, Hazlett G, Anderson G, Charney D. Relationship among plasma cortisol, catecholamines, neuropeptide Y, and human performance during exposure to uncontrollable stress. *Psychosom Med* 2001;63(3):412–22.
113. Morgan CA III, Rasmusson AM, Wang S, Hoyt G, Hauger R, Hazlett G. Neuropeptide-Y, cortisol, and subjective distress in humans exposed to acute stress: replication and extension of previous report. *Biol Psychiatry* 2002;52(2):136–42.
114. Hall H, Pritchard D, editors *Detecting malingering and deception: forensic distortion analysis*. Delray, FL: St. Lucie, 1996.

Additional information and reprint requests:
 Richard C. W. Hall, M.D. P.A.
 2500 West Lake Mary Boulevard, Ste. 219
 Lake Mary, FL 32746
 E-mail: dr.rcwhall@att.net