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Detection of coached malingering of posttraumatic stress disorder

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Detection of Coached Malingering of Posttraumatic Stress Disorder

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Dissertation Submitted to the
Eberly College of Arts and Sciences
at West Virginia University
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in

Clinical Psychology

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Abstract

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Although assessing malingering is recognized as a challenge to mental health professionals who evaluate posttraumatic stress symptomatology, little empirical investigation into which factors may impact an individual's ability to feign symptoms of posttraumatic stress disorder (PTSD) has been conducted. This study utilized 113 undergraduate students in a simulation design to examine the effects that traumatic exposure (i.e., a history of experiencing or witnessing a traumatic event) and coaching (i.e., providing participants with information on PTSD symptoms and strategies for avoiding detection on psychological validity indices) had on the ability to feign posttraumatic stress symptoms. Vulnerability of three different types of psychological assessment instruments to malingered PTSD was analyzed. The Personality Assessment Inventory, Trauma Symptom Inventory, and Miller Forensic Assessment of Symptoms Test served as the representative for each assessment type: general multiscale self-report, trauma-specific multiscale self-report, and interview, respectively. Overall, this investigation demonstrated that providing simulators with diagnostic information on PTSD symptoms and strategies for avoiding detection on psychological validity indices was effective in assisting simulators with presenting as if they were suffering from but not significantly exaggerating posttraumatic stress symptoms. This was manifest in group mean differences between coached and naive respondents on several validity and clinical scales across measures. Trauma history, on the contrary, did not impact simulators ability to feign PTSD symptoms in any meaningful way. Participants who experienced a traumatic event were not better able to feign PTSD than were those without any history of experiencing or witnessing a traumatic event. Furthermore, a positive trauma history did not mediate the exaggerated clinical presentation commonly seen with PTSD simulation research. Also, no interactions between coaching and trauma history were detected, suggesting that coaching, alone, accounted for these differences. Despite the coaching effects, 97% of all respondents were correctly classified as malingering.

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*Jennifer Guriel Tennant
February, 2004*

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Detection of Coached Malingering of Posttraumatic Stress Disorder

During the past 20 years, research regarding the ability to detect malingering, the feigning of symptoms for secondary gain, in posttraumatic stress disorder (PTSD) claimants has grown rapidly. PTSD is an anxiety disorder resulting from exposure to a traumatic event (American Psychiatric Association [APA], 1994). It is a diagnosis particularly vulnerable to malingering because it is characterized by a number of subjective symptoms and can be associated with reinforcing financial and personal gains (e.g., disability benefits; Resnick, 1997). PTSD is also characterized by a variable symptom profile and is highly comorbid with a variety of clinical and personality disorders (e.g., depression, substance abuse), making detection of malingering a challenging endeavor (APA).

Overview and Assessment of Posttraumatic Stress Disorder

PTSD, in its current diagnostic classification (APA, 1994) is an anxiety disorder characterized by psychological and/or physical sequelae resultant from experiencing a traumatic life event. According to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; APA) criteria (Criterion A), a traumatic event can be any instance in which an individual feels helpless, fearful, or horrified while experiencing or witnessing the perceived threat of death or serious harm to oneself or others. Exposure to such a trauma is the first of six criteria required for a diagnosis of PTSD. The PTSD criteria that make up the symptom profile contain 17 symptoms across three general categories: (Criterion B) reexperiencing of traumatic events (e.g., nightmares, intrusive thoughts; (Criterion C) persistent avoidance of trauma-relevant stimuli (e.g., avoidance of the trauma scene, emotional numbing); and (Criterion D) autonomic hyperarousal (e.g., sensitized startle response). The final diagnostic criteria for PTSD require that symptoms must be present for at least one month and that the individual must be experiencing functional impairment in at least one setting.

Prevalence rates for PTSD are highly variable, ranging from 1% to 58% (APA, 1994), primarily depending on the relative risk and the type of trauma experienced for the population sampled (Breslau, Davis, Andreski, & Petersen, 1991). For example, Blanchard and Hickling (1997) reported a 9% lifetime prevalence among motor vehicle accident survivors, while Kulka et al. (1990) estimated that PTSD rates in combat veterans are as high as 15%. Breslau et al. found that PTSD was diagnosed in as many as 80% of rape survivors.

In a review of civilian-related trauma and PTSD, Resnick, Falsetti, Kilpatrick, and Freedy (1995) found that exposure to a traumatic event is relatively common (40% to 70% with subsequent PTSD prevalence rates ranging from 18% to 28%). Bernat, Ronfeldt, Calhoun, and Arias (1998) found that approximately 67% of college students had experienced at least one traumatic event. Of these, 12% met diagnostic criteria for PTSD. In the largest study to date on the prevalence of traumatic experience and PTSD (the national comorbidity survey), 60% of women and 51% of men between the ages of

15 and 54 were found to have experienced at least one traumatic event and 8% were estimated to have a PTSD diagnosis at some point during their lifetime (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

Although a universally accepted “gold standard” measure for PTSD assessment is lacking, inclusion of a structured interview is widely recognized as a standard assessment method (e.g., Keane, 1995). Furthermore, the following guidelines are recommended by experts in PTSD assessment (Keane; Resnick, 1997): First, a detailed history should be obtained to assess premorbid functioning and to identify the presence of traumatic experience(s). Secondly, corroborating data should be collected from outside sources (e.g., physicians or caregivers). Third, empirically validated measures of PTSD symptoms (as well as related clinical and personality variables) should be employed. Finally, the patient should explain how symptoms affect functioning.

The development of diagnostic and symptom-specific PTSD instruments has flourished since PTSD was first recognized as a legitimate diagnosis in 1980. PTSD assessment methods have included psychophysiological measures (e.g., Orr & Pitman, 1993), projective tests (e.g., Frueh & Kinder, 1994), and symptom checklists (e.g., Foa, Riggs, Dancu, & Rothbaum, 1993). In addition, structured interviews (e.g., Clinician-Administered PTSD Scale for DSM-IV [CAPS; Blake et al., 1997]) and uni-scale self-report measures (e.g., Mississippi Scale for Combat-Related PTSD [MS-PTSD; Keane, Caddell, & Taylor, 1988]) are currently available to assist clinicians in the assessment of individuals presenting with posttraumatic symptomatology. Finally, clinicians regularly incorporate information from multi-scale self-report instruments (e.g., MMPI-2) in PTSD assessment (e.g., Elhai, Gold, Frueh, & Gold, 2000; Keane, Malloy, & Fairbank, 1984).

Overview and Assessment of Malingering

Malingering is defined in the DSM-IV (APA, 1994) as “the intentional production of false or grossly exaggerated physical or psychological symptoms, motivated by external incentives...” (p. 683). The defining feature of malingering is the inclusion of a motivational specifier, which necessitates that an individual be consciously aware that s/he is providing deceptive information in an attempt to receive secondary gain via external incentives (APA, 1994; Cunniën, 1997; Franzen, Iverson, & McCracken, 1990).

Precise prevalence rates for malingering are not known at this time. Rogers (1997) reported that there are currently no available prevalence rates for malingering in non-forensic settings (i.e., in psychological assessment settings where there is no legal question involved). This is noteworthy because statistics from forensic evaluators may be spuriously inflated relative to those in non-forensic settings due to the adversarial nature that commonly accompanies such evaluations (e.g., Hickling, Taylor, Blanchard, & Devineni, 1999). Although reliable base rate statistics are unavailable, it is known that clinicians generally do not include formal assessments of malingering in their standard assessment protocols (e.g., Cunniën, 1997). The lack of a “gold standard” assessment instrument and the threat of client confrontation or legal consequences may be factors

that cause clinicians to be apprehensive when it comes to assessing for malingering (Hickling et al.; Koch, Shercliffe, Fedoroff, Iverson, & Taylor, 1999; McGuire, 1999; Resnick, 1997; Rose, Hall, Szalda-Petree, & Bach, 1998).

Three research methods have been most commonly applied in studying malingering: (a) simulation designs, (b) known-groups comparisons, and (c) differential prevalence designs (for a detailed description see Rogers, 1997). Simulation designs are the most convenient of these designs. Simulations generally include an analogue setting in which (presumably non-disordered) individuals are offered a small incentive to respond to assessment material in a particular manner. Simulators are then compared to control participants and/or clinical criterion groups. Simulation designs offer maximum experimental control, but questionable generalizability because they often do not include clinical comparison groups (i.e., people who have been diagnosed with a clinical syndrome) (Rogers & Cruise, 1998). Known-groups comparisons are defined by Rogers (1997) as those in which bona fide patients and malingerers are compared in terms of similarities and differences. They afford the greatest degree of generalizability to clinical settings, but are plagued by the challenge of accurately identifying and describing the known groups (i.e., persons who have responded dishonestly and those who truly have the disorder being investigated). Differential prevalence designs offer the weakest methodology by utilizing groups that are assumed to be different in their response styles (e.g., compensation-seeking veterans are often compared to non-service-connected veterans because it is assumed that applying for disability benefits increases the likelihood of malingering).

Coaching, or providing simulators with information about the disorder to be feigned and/or giving strategies to avoid detection on psychological tests, is a key element in malingering research. Traditionally, it was assumed that malingerers were naive to testing because they had not sought or been provided with information regarding psychological disorders or testing (Rogers, 1997). This notion has now been largely discounted (e.g., Elhai, Gold, Sellers, & Dorfman, 2001; Hall & Poirier, 2001). For example, Wetter and Corrigan (1995) found that nearly 50% of attorneys believe that clients should be informed about validity scales prior to psychological testing. It is now believed that persons motivated to simulate psychological symptoms may be well informed on both diagnostic symptoms and the design and scope of psychological assessment instruments (Rogers).

Empirical investigation into the effects of coaching has shown that although providing disorder-relevant information (e.g., symptoms) has little effect on performance (Lamb, Berry, Wetter, & Baer, 1994; Wetter, Baer, Berry, Robison, & Sumpter, 1993), strategies for avoiding detection (e.g., avoidance of endorsing bizarre symptoms) can be quite useful to simulators (Baer, Wetter, & Berry, 1995; Rogers, Bagby, & Chakraborty, 1993). Providing information about validity scales designed to detect malingering is generally more helpful to simulators than is simply exposing them to diagnostic criteria for the disorder they are being asked to mangle (Rogers et al.). This has been demonstrated in both of the best validated measures of malingering detection, the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemer, 1989) and the

Structured Interview of Reported Symptoms (SIRS; Rogers, 1992) (Rogers et al.; Wetter et al.). Finally, clinical judgment is not always reliable or valid in identifying coached malingerers. For instance, Hickling, Blanchard, Mundy, and Galovski (2002) found that well-trained clinicians failed to detect malingering in all cases when they were unaware of the presence of a coached malingerer in their caseload for evaluating motor vehicle accident survivors presenting with PTSD symptoms.

Importance of Assessing for Malingering in PTSD Evaluations

Malingering is an important issue in the assessment of PTSD for a variety of reasons. First, PTSD is unique with respect to most psychiatric disorders in that it requires that there be a cause and effect relation between a traumatic event and subsequent psychological symptomatology. Because the current PTSD diagnostic criteria (DSM-IV; APA, 1994) are dominated by subjective experiences (e.g., intrusive thoughts, feelings of detachment), clinicians are forced to rely heavily on client self-reports in arriving at diagnostic conclusions. This is complicated by the argument that PTSD is easily faked (Elhai et al., 2001; Frueh & Kinder, 1994; Lees-Haley, 1986). For example, Lees-Haley and Dunn (1994) found that 86% of untrained, nonclinical participants were able to endorse symptoms in a manner consistent with a PTSD diagnosis. Similarly, Hickling et al. (2002) found that 100% of professional actors, highly trained to simulate PTSD, were able to “fool” experienced clinical evaluators when the evaluators were unaware of the presence of simulators within their evaluation group. The malingering detection rate increased dramatically, however, when examiners were informed of the presence of simulators amongst their interviewees. In that case, over 91% of the feigners were identified by clinical judgment. Unfortunately, despite being acknowledged as a serious threat to accurate diagnosis, malingering is often not directly assessed in PTSD evaluations (e.g., Cunnie, 1997).

There are several reasons that an individual may be motivated to malingering PTSD. The primary motivation is to obtain financial remuneration (Lees-Haley 1992; McGuire, 1999; Resnick, 1997), from governmental agencies (i.e., Veterans or Social Security benefits; e.g., Mayers, 1995) or from civil litigation (e.g., Early, 1990). PTSD may also be feigned to receive medical or psychiatric treatment or to gain inpatient status (e.g., Elhai et al., 2001). Malingering PTSD could also allow the client to embellish victimization (e.g., Resnick) or to minimize or escape criminal liability (e.g., Baer & Miller, 2002; Melton, Petrila, Poythress, & Slobogin, 1997). Finally, the potentially large incentives (e.g., monetary or secondary gain via attention, etc.) involved with PTSD claims may increase motivation to malingering, even in a person who would not ordinarily engage in deceitful or malevolent behavior. Rogers' (1997) adaptational model of malingering in which the client has “substantial personal investment” and stands to gain considerably from feigning symptoms best describes the motivation in cases of feigned PTSD.

Malingered PTSD may occur in three different ways. Clients may completely manufacture their symptoms (i.e., pure malingering), exaggerate the extent of their injuries (i.e., partial malingering), or attribute pre-existing symptoms to the current

trauma (i.e., false imputation) (Resnick, 1997). Unfortunately, such behaviors may not be uncommon. Hall and Poirier (2001) reported that all three types of malingering might be found during PTSD evaluations. In addition, Resnick cited a study in which 40% of those considered totally disabled (resultant from PTSD) who were receiving benefits showed no indication of actual disability. Clearly, there is a need to ensure that clinicians are properly trained and equipped to detect malingering during PTSD evaluations.

Also challenging to clinicians is the notion that it is difficult to differentiate between malingered and genuine PTSD because a grossly pathological symptom profile (which may appear to be symptom overreporting), is believed to be associated with legitimate PTSD cases (Elhai et al., 2001; Hyer, Fallon, Harrison, & Boudewyns, 1987; Resnick, 1997). The primary reason for this is the high comorbidity that PTSD shares with both clinical and personality disorders (e.g., depression, substance abuse) (Keane, 1995). Furthermore, PTSD often includes a variety of symptoms, resulting in an elevated overall symptom profile (Hyer et al.). These factors create difficulty in accurate diagnosis, particularly differential diagnoses.

Empirical research into the assessment of malingered PTSD has targeted psychophysiological (e.g., Gerardi, Blanchard, & Kolb, 1989), interview (Rogers, Kropp, Bagby, & Dickens, 1992), projective (Frueh & Kinder, 1994), and uni-scale self report inventory (Morel, 1998) assessment formats. The most commonly studied instruments, however, are multi-scale self-report inventories (e.g., the MMPI and MMPI-2; Wetter et al., 1993). Another objective, self-report, multi-scale personality inventory, The Personality Assessment Inventory (PAI; Morey, 1991), has recently gained favor for its good psychometric properties and ease of administration. To date, only three studies have examined the effectiveness of the PAI in detecting feigned PTSD.

Using a simulation design, Liljequist, Kinder, and Schinka (1998) compared PAI profiles of alcohol abusing veterans, with ($n = 20$) and without ($n = 30$) PTSD to those of undergraduates instructed to malingering PTSD ($n = 27$) or answer honestly (control) ($n = 30$). Simulators were provided with a "glossary of terms to provide them with uniform definitions of words used on adult personality inventories" and were permitted to refer to this glossary as well as a list of combat-related PTSD symptoms during testing. Veteran data were archival, collected during Veterans Affairs Medical Center (VAMC) screening. As predicted, the malingering students produced profiles with higher negative impression management (NIM) and malingering index (MI) scores than the other three groups, suggesting that these PAI validity scales may be effective in identifying individuals malingering PTSD.

Furthermore, malingerers scored higher than controls on seven PAI clinical scales and both veteran groups had higher clinical scale elevations than controls. Although malingerers scored higher than those in the PTSD group on seven clinical scales, only two were those predicted to differentiate malingerers from PTSD patients (anxiety and schizophrenia). Notably, the malingerers did not score significantly higher than the PTSD group on the anxiety-related disorders, depression, or borderline scales.

Because these scales represented the highest elevations for the PTSD group and are thought to be critical to a PTSD profile (Liljequist et al., 1998), there is concern that distinguishing true PTSD patients from malingerers would be difficult using the PAI alone.

Calhoun, Earnst, Tucker, Kirby, and Beckham (2000) extended the work of Liljequist et al. (1998) by applying PAI LOGIT diagnostic rules to determine whether individuals simulating PTSD would meet diagnostic criteria. These rules are derived from empirical algorithms of DSM-IV diagnostic criteria and are included in the PAI Software System (Morey, 1991). Calhoun et al. compared 23 veterans with combat-related PTSD (diagnosed by meeting criteria on the Clinician-Administered PTSD Scale) with 23 male undergraduates instructed to fake PTSD and avoid detection and 23 men randomly selected from the PAI standardization sample to serve as a control group. Veterans and simulators completed the PAI and Mississippi Scale for Combat-Related PTSD (MS-PTSD; Keane et al., 1988).

LOGIT diagnostic analyses correctly classified 83% of the PTSD group as meeting DSM-IV criteria. This analysis was designed to assess sensitivity, or the number of people who truly malingered and were identified as such, and specificity, or the number of people who responded honestly and were not identified as malingerers, of the PAI in malingering detection. While no control participants were classified as having PTSD, 70% of the malingerers' profiles yielded elevations sufficient to fulfill diagnostic criteria. When using the recommended cutoff score for non-clinical samples (≥ 8) the NIM scale identified 83% of malingerers. Unfortunately, it also misclassified 65% of the true PTSD group as malingerers. When the clinical cutoff was used (≥ 13) only 43.8% of malingerers were identified, but the false negative rate dropped to 35%. Liljequist et al.'s (1998) recommended ≥ 3 cutoff was used for the MI scale. This resulted in the identification of 56% of the malingerers and 22% false negatives in the PTSD patients. Nearly all (91%) of the simulators scored above 107 (suggestive of PTSD) on the MS-PTSD and no differences were detected between the PTSD and student groups on this measure, suggesting that the MS-PTSD did not differentiate malingerers from true PTSD patients.

Scragg, Bor, and Mendham (2000) reported that the PAI was useful in detecting feigned PTSD when compared to groups of true PTSD patients and controls. After reading information about PTSD, 44% of simulators were able to complete the PAI with an elevated clinical profile. However, over half of those individuals were detected by the PAI NIM scale ($T > 85$). Thus, the authors reported that, when using the $T > 85$ cutoff, the PAI was successful in identifying 80% of simulators who either failed to successfully produce a PAI profile consistent with PTSD or produced an elevated but invalid profile. In conclusion, based on these preliminary empirical investigations, the PAI may be helpful in differentiating between malingerers and honest responders, but not necessarily in distinguishing simulators from PTSD patients.

Another multiscale assessment measure that may be useful in PTSD evaluations is the Trauma Symptom Inventory (TSI; Briere, 1995). The TSI is an objective, 100-item

self-report instrument designed to assess psychological symptoms commonly associated with traumatic experiences (Briere). The TSI is unique because it is the only PTSD assessment instrument that contains scales specifically designed to appraise response style. The TSI contains ten PTSD-relevant clinical scales and three validity scales (atypical responding, inconsistency, and response level), each with a mean of 50 and standard deviation of 10. The clinical scales include anxious arousal, dissociation, depression, sexual concerns, anger/irritability, dysfunctional sexual behavior, intrusive experiences, defensive avoidance, impaired self-reference, and tension reduction behavior.

The susceptibility of the Trauma Symptom Inventory to malingering was assessed using an undergraduate simulator sample in a repeated measures design (Edens, Otto, & Dwyer, 1998). Students were asked to respond: (1) honestly; or (2) as if they had been involved in an automobile accident ($n = 36$ male; $n = 59$ female) or had been sexually assaulted ($n = 60$ females). All participants were told to assume that they were seeking civil compensation for psychological trauma and were provided with DSM-IV criteria to assist in answering TSI questions during the malingering condition. Because the order of conditions was counterbalanced to control for order effects, formal analysis of order effects was not performed.

Students with basic information about PTSD symptomatology produced elevated TSI profiles for all scales (indicative of trauma-related sequelae). When using the recommended cutoff score of $T \geq 90$ (Briere, 1995) for the Atypical Response validity scale, 73% of malingered protocols were incorrectly identified as being valid. When using a more conservative cutoff score of $T \geq 61$ (devised from distribution analysis of half of this sample), however, the following statistics were obtained: overall hit rate = 85%, negative predictive power = 81%, positive predictive power = 91%, sensitivity = 78%, and specificity = 92%. This cutoff score was cross validated and subsequently applied to a variety of clinical samples (including in- and out-patient cases with diagnoses including PTSD, mood disorders, and personality disorders) via archival data. This was done to assess the clinical false positive rates using the reduced cut-off score. Although the ATR cut-off score of $T \geq 61$ had generally good specificity in clinical populations (false positive rates ranged from 6.3% to 18.9%), with undiagnosed outpatients the false positive rate was 55.3%. The authors speculate that this may be due to the fact that ATR elevations, like F scale elevations on the MMPI-2, can indicate a "cry for help," or severe distress as well as malingering or exaggeration. In conclusion, the TSI is a promising tool in PTSD and malingering assessment, yet further research into its vulnerability to coaching is needed.

Unlike the TSI, the Miller Forensic Assessment of Symptoms (MFAST; Miller, 2001) is not limited to use with PTSD evaluations. The MFAST was empirically derived to serve as an abbreviated measure of response style. The MFAST was created to serve as an abbreviated parallel to the widely used Structured Interview of Reported Symptoms (SIRS; Rogers, 1992). Preliminary validation research on the MFAST has demonstrated that the MFAST is a tool that shows promise in accurately distinguishing between honest and dishonest response styles (Zapf & Galloway, 2002). For example,

in an initial investigation to determine the effectiveness of the MFAST in detecting malingering during disability screenings, Miller, Guy, and Davila (2000) found that malingerers (as defined by SIRS scores) earned significantly higher total MFAST scores than did honest responders.

Guriel et al. (in press) employed the TSI and the M-FAST in a simulation design with undergraduate students to assess the impact of symptom specific and malingering strategy information on the detection of malingered PTSD. Participants who were provided with symptoms and/or symptoms and strategies were found to be no more successful at malingering PTSD than were those who were not provided with this information. While only two thirds of the simulators were detected as malingering using the M-FAST total score or TSI validity scales, nearly 90% were identified when these measures were utilized together. This study demonstrated the incremental validity of using multiple forms of malingering detection for PTSD research but the results still need to be validated with a true PTSD population.

Purposes and Hypotheses

The importance of assessing malingering in PTSD evaluations has been demonstrated (e.g., Resnick, 1997) and it has been established that individuals who undergo such assessments are not likely to be naive to symptoms or psychological validity scales (Rogers, 1997). Nevertheless, there has been little empirical investigation into the impact that traumatic life experiences and coaching might have on an individual's ability to successfully mangle posttraumatic symptomatology (i.e., present with symptoms while avoiding detection).

For this study, a 2 x 2 (trauma history x coaching) design was employed. All respondents were asked to feign PTSD symptomatology, so all were attempting to mangle. A control group (comprised of honest responders) was not utilized due to the homogeneity of such a sample in this author's previous research (Guriel et al., in press). Independent variables were trauma experience history (presence or absence) and coaching (information provided or participants remained naive). Participants were divided into four groups. Two of the groups were comprised of individuals who reported having experienced a traumatic event. Those in the first group were not provided with coaching information and were labeled "trauma positive, naive." The second group included those who reported a trauma history and received coaching information. They were referred to as "trauma positive, coached." Participants in the third and fourth conditions reported a negative trauma history (i.e., never experienced an event that satisfied PTSD criterion A1). As in the trauma positive groups, half were provided with coaching information and half were not. These participants were classified as "trauma negative, coached" and "trauma negative, naive," respectively.

This study was the first to examine trauma history as an independent variable in feigned PTSD. Furthermore, traditional coaching methods were expanded upon by the inclusion of both symptom-specific information and strategies for avoiding detection by validity indices. The study was designed to empirically answer the following research

questions. When participants are presented with an instructional set and instructed to malingering:

- (1) Are there differences between those who have experienced a PTSD criterion A-1 traumatic event (i.e., experienced the trauma and those who have never experienced trauma in terms of:
 - A. the ability to present a valid clinical profile consistent with a PTSD diagnosis on a general multi-scale self-report inventory (PAI)?
 - B. the ability to present a valid clinical profile consistent with a PTSD diagnosis on a trauma-specific multi-scale self-report inventory (TSI)?
 - C. The ability to avoid detection during a malingering assessment interview (MFAST)?
- (2) Furthermore, does coaching of symptom descriptions and strategies to avoid detection of malingering affect:
 - A. the ability to present a valid clinical profile consistent with a PTSD diagnosis on a general multi-scale self-report inventory (PAI)?
 - B. the ability to present a valid clinical profile consistent with a PTSD diagnosis on a trauma-specific multi-scale self-report inventory (TSI)?
 - C. The ability to avoid detection during a malingering assessment interview (MFAST)?

Since there is not a single profile that is generally believed to indicate PTSD on either the PAI or the TSI, the following operational definitions were used for the purposes of this study. For the PAI, clinical elevation was defined as having PTSD suggested in the diagnostic constellation of the computerized scoring report and presenting with a score above 70 (i.e., two standard deviations above the mean) on the Anxiety Related Disorders, Trauma (ARD-T) scale. For the TSI, clinical elevation was defined as elevation at least one and a half standard deviations above the mean (i.e., 65 or above) on at least two scales. In order to be considered valid, a PAI or TSI profile must not have included a significant (as defined by each measure's guidelines¹) elevation on any one of the validity scales.

To maximize internal validity, a knowledge-based quiz was administered prior to the completion of the measures on which participants were asked to malingering. This quiz assessed the information comprehended by participants during the coaching video. It was expected that participants in the naive groups would score lower than people in the coached groups on the quiz. Coached individuals were predicted to score higher than naive participants, primarily because the coached participants were required to pass the test with a score of 90% or better, while the non-coached individuals did not have a requisite minimum score for the quiz. In fact, naive participants who scored above 90 on the quiz, however, were to be excluded from further participation based on the assumption that their high scores may reflect knowledge of PTSD that would render a label of naive invalid for them. None of the naive participants scored above 90 on the quiz.

Since the MFAST has accurately differentiated between honest and malingered responses in the past (Miller et al., 2000), it was expected that those in the coached groups would earn lower scores (i.e., be less likely to be classified as malingering) than those in the naive groups. It was still predicted, however, that MFAST scores would be suggestive of malingering (i.e., MFAST total score > 5) for the majority of respondents. This prediction was based on the research of Gurriel et al. (in press), in which there was a demonstrated tendency for nearly all participants asked to malingering PTSD to earn scores of above six on the MFAST.

Participants in the trauma positive and coaching groups (i.e., all except trauma negative, naive participants) were predicted to present elevated TSI and PAI clinical profiles. Hypotheses concerning elevated PAI and TSI profiles were based on the previously summarized findings of Liljequist et al. (1998), Calhoun et al. (2000), and Edens et al. (1998). It was also hypothesized, however, that those who are classified as “trauma positive” but did not receive coaching would present elevated validity scale profiles on the TSI, suggesting that they were feigning their reported symptoms. This would be consistent with the notion that even legitimate PTSD sufferers tend to present with seemingly overreported profiles (e.g., Elhai et al., 2001). Furthermore, it was anticipated that naive malingerers would be detected as malingering via their elevated scores on the PAI negative impression management and malingering index scales (based on Liljequist et al.).

Method

Participants

113 undergraduate students from a major Mid-Atlantic university participated in this study. Fifty-four percent of the overall sample was female and 93% of all respondents were Caucasian. The only recruitment exclusion criterion was having participated in a similar study the previous spring (also conducted by this author) that may have familiarized individuals with the measures being used in this study. Participants were asked about this at the beginning of the session and were asked to leave before beginning in the event that they had participated in the aforementioned study.

Participants were divided on the basis of their experience with traumatic events (as defined by the PTSD diagnostic criterion A1 in the DSM-IV (APA, 1994). Some people who experience a traumatic event do not experience acute peritraumatic distress, whereas others have intense negative emotional reactions at the time the event (Bernat et al., 1998). Because PTSD has been shown to develop (or not manifest) in both cases, simply experiencing a traumatic event was used as an operational definition for trauma positive history in this study. Those who were described as having experienced a trauma (i.e., trauma positive history) were those who would satisfy PTSD Criterion A1. Respondents were not required to satisfy Criterion A2 of a PTSD diagnosis (i.e., experience feelings of fear, helplessness, or horror, or feel concern for the well being of self or others at the time of the event).

Participants were divided into four groups according to trauma (positive or negative history of experiencing a traumatic event, as measured by the Posttraumatic Stress Diagnostic Scale [PDS; Foa, 1995]) followed by random assignment into coached or naive conditions. Groups one and two were comprised of individuals who reported having experienced a traumatic event. Those in group one were not provided with coaching information and were labeled “trauma positive, naive.” The second group included those who reported a trauma history and received coaching information. They were referred to as “trauma positive, coached.” Participants in the third and fourth conditions reported a negative trauma history (i.e., never experienced an event that satisfied PTSD criterion A1). As in the trauma positive groups, half were provided with coaching information and half were not. These participants were classified as “trauma negative, coached” and “trauma negative, naive,” respectively.

All procedures were conducted with the approval of the West Virginia University Institutional Review Board (IRB). See IRB approved (HS# 15285) consent form in Appendix A.

Measures

Coaching Stimuli.

Coaching stimuli consisted of video taped presentation (approximately 15 minutes long) of information obtained from three sources: (a) information about PTSD and psychological test-taking strategies obtained from internet sites targeted for attorney use; (b) DSM-IV (APA, 1994) diagnostic criteria (presented in lay terms as translated by the author); and (c) specific strategies for avoiding detection as a malingerer as presented by Rogers et al. (1993). The videotape was a lecture-like format by a university professor using visual aids to present the aforementioned information. The naive groups viewed a video of equal length, but unrelated to malingering or PTSD. This was shown to control for equivalent time commitments in the naive conditions. This video showed the same professor lecturing on jobs for psychology graduates. In addition to viewing the videotape, participants were also provided with a handout summarizing the information presented. Handouts for the coached and naive groups can be found in Appendices B and C, respectively.

Quiz (knowledge test)

A quiz, developed by the author based on information included in the coaching stimuli, was administered following the video. (See Appendix D). This quiz was administered to all participants for purposes of comparing learning in the coached groups to base knowledge of PTSD symptoms and psychological test methodology in the naive groups. The quiz utilized a recall format and required participants to list, at minimum, the following PTSD diagnostic criteria: (1) trauma, (2) re-experiencing, (3) arousal, and (4) avoidance. The acronym BOSS was used to remind coached participants to avoid endorsing bizarre, obvious, stereotypical, or severe symptoms and, to pass the quiz, coached simulators had to list all four. If participants initially failed the

quiz, they were given additional time and were instructed to study from the handouts, provided by the author, summarizing the information presented in the video. They then had to re-take the quiz. This happened with only two respondents in the coached groups.

Malingering Instructional Set.

All participants were instructed to malingering and were provided with the following instructional set:

*“For the remainder of the time that you are here, you are going to be asked to **pretend that you were involved in a serious car accident.** You had no emotional problems because of the trauma, but you are trying to pretend that you are suffering from **Posttraumatic Stress Disorder (PTSD)** in order to get money in a lawsuit. Pretend that you could gain **a lot of money** (thousands to over a million dollars!!!) if you win your lawsuit. Pretend that your lawyer has sent you to have a psychological evaluation and that you will be taking some tests to see if you have PTSD. Please **pretend that you have PTSD as you answer all of the questions** that will be asked of you on these tests. **Answer as you think someone with PTSD would answer.**”*

While the Posttraumatic Stress Diagnostic Scale was used for screening purposes, all other psychological assessment instruments were utilized to obtain dependant variables. Detailed scale descriptions and psychometric information for each measure can be found in their respective manuals. Conventional cutoff scores (i.e., those recommended by the respective manuals) were utilized for all measures and scales with the exception of the TSI ATR scale. A cutoff of T>61 suggests malingering was used for that scale based on the findings of Edens et al. (1998).

Posttraumatic Stress Diagnostic Scale² (PDS; Foa, 1995).

The PDS is a 49-item, individually administered, self-report screening instrument for adults. PDS items are based on DSM-IV (APA, 1994) PTSD diagnostic criteria. The PDS was designed to assist in diagnosis as well as to quantify symptom severity and functional impairment. Sensitivity (i.e., 82% of PTSD cases were correctly identified) and specificity (i.e., the absence of PTSD was correctly identified in 76.7% of sample cases) have both been demonstrated in PDS standardization (Foa, 1995). For the purposes of this study, the PDS was used as a screening measure to determine participants' trauma history status.

Miller Forensic Assessment of Symptoms Test (MFAST; Miller, 2001).

The MFAST is a brief, structured interview designed to detect malingering via assessment of an individual's general response style. The MFAST consists of a total score and seven subscale scores. Total scores higher than five on the MFAST are suggestive of a dishonest response style. Preliminary MFAST validation studies revealed excellent sensitivity (1.00) and specificity (.93) using a 51% malingering base rate (Miller, 2001). The MFAST was utilized to assess the test's efficacy in correctly identifying malingering when coaching and trauma history challenges are present.

Trauma Symptom Inventory (TSI) (Briere, 1995).

The TSI is an objective, 100-item self-report, multiscale instrument designed to assess psychological symptoms commonly associated with traumatic experiences (Briere, 1995). All TSI items are presented in a four-point, Likert-type format ranging from *never* to *often*. The TSI contains ten clinical and three validity scales, each with T-scores more than one and a half standard deviations above the mean ($T > 65$) suggestive of clinical elevation. High internal consistency has been demonstrated with the TSI, with the median alpha coefficient for all scales at .86 (Briere, 1995). Discriminant function analysis revealed that all TSI scales were associated with PTSD and that an optimally weighted combination of TSI scales yielded a positive predictive power of 92% and a negative predictive power of 91%. The TSI was used here in an attempt to collect more data to better understand the strengths and limitations of this relatively new measure of trauma symptomatology.

Personality Assessment Inventory (PAI) (Morey, 1991).

The PAI is a multiscale, objective personality inventory containing a total of 22 non-overlapping clinical, treatment, interpersonal, and validity scales (Morey, 1991). The PAI is comprised of 344 items, each scored on a four-point, Likert-type scale (*not at all true* to *very true*). All PAI scales use a T-score profile system. Elevations more than two standard deviations above the mean ($T > 70$) are considered significantly elevated. Initial validation revealed that the overall psychometric properties of the PAI are sound, with a median alpha for the clinical and validity scales being .81 (Morey). More specifically, alpha coefficients for the anxiety related disorders (ARD) scale and ARD-trauma subscale are .76 and .81, respectively (Morey). The PAI was included because of its growing use in both inpatient and outpatient psychological assessment.

Procedures

Recruitment and Screening.

Participants were recruited via television advertisement, memos posted at the university, and from undergraduate psychology courses. (See advertisement in Appendix E). Participants were invited to participate in a one- to two-hour research study to earn extra course credit with the potential to earn up to \$50.00 via the cash lottery. Interested persons called or emailed the author to schedule a participation appointment.

Laboratory Participation Phase.

The laboratory phase was conducted within the psychology department on the campus of a major mid-Atlantic university. The procedure was similar with regard to time and effort required of each participant. Participation duration was approximately two hours. Each student received extra course credit points for participation. Although participants were told that only “successful malingerers” would be eligible for an additional cash prize (i.e., cash prize was used as an incentive), all who participated were entered into a lottery for one of four \$50.00 cash prizes. Winners came to claim their prize, in cash, from the author. Each was provided with a receipt.

The laboratory phase consisted of six distinct tasks: (1) explanation of study and provision of informed consent; (2) completion of the Posttraumatic Stress Disorder Diagnostic Scale [PDS]; (3) viewing of a videotaped presentation (either coaching instructions or the time-matched, irrelevant substitute); (3) successful completion of the quiz (i.e., internal validity check to ensure that coached participants attended to the coaching stimuli); (4) completion of the Trauma Symptom Inventory (TSI); (5) completion of the Personality Assessment Inventory (PAI); and (6) Participation in the Miller Forensic Assessment of Symptoms Test (MFAST) interview. Tasks four through six were counterbalanced to minimize order effects. Specifically, an equal number of participants from each group completed the M-FAST, TSI, or PAI first, second, or third with the other two tests alternated to include all six possible order combinations.

For the purpose of group assignment, all prospective participants were assessed to determine whether they met PTSD criterion A1 (i.e., experienced a traumatic event). This was done via the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995). All participants completed at least a portion of the PDS. If an individual satisfied PTSD criterion A1 (based on their answers to the initial question set), the measure was completed in the usual manner to further assess for trauma-related symptomatology. Individuals who did not satisfy PTSD criterion A (i.e., answered “no” to all events in the initial question set) did not complete PDS questions about symptom presence or severity or impairment. After completing the PDS, participants were randomly assigned to either the informed or naive coaching conditions.

Participation occurred in a small group format and was coordinated by the author with the assistance of two undergraduate research assistants. Participants provided consent, completed the PDS, viewed the videotape, and completed self-report measures in the group format. MFAST interviews were conducted individually in an adjacent room within the laboratory proper. Occasionally, the M-FAST interviewer may have been aware of the participant’s trauma history or coaching status. For this reason, it cannot be said that interviewers were masked to independent variable conditions.

Following completion of all tasks participants were provided with extra credit slips. Cash lottery prizes were awarded after each quarter of the data had been collected (i.e., one prize was awarded after 25% of the data were collected, another after 50%, etc.).

Planned Analyses

Data collected from this 2 x2 design (trauma exposure x coaching) was analyzed using SPSS software (version 11). Each of the four groups was compared to one another on the following categories of dependent measures: (1) PAI clinical and validity scale scores, (2) TSI clinical and validity scale scores, and (3) MFAST total and subscale scores. Multivariate analyses of variance (MANOVAs) were used for continuous data, while Pearson's χ^2 analyses³ were conducted for dichotomous variables. Data were analyzed for main effects and interactions. To determine if several important demographic characteristics, including type of trauma experienced and frequency and severity of reported symptoms (where applicable) had an impact on the results, MANOVA and Pearson's χ^2 analyses were performed on these data as well. Variables analyzed in this manner included: (1) PDS diagnosis (presence or absence of PTSD), severity, and impairment; (2) Demographic variables; and (3) nature (i.e., what type) and time (i.e., how long ago) of traumatic event. If omnibus differences emerged, subsequent Analyses of Covariance (ANCOVAs) were to be performed.

Specific analyses are described below:

To test the hypothesis that trauma positive participants would score higher than trauma negative participants on subscale ARD-T of the PAI, the percentage of those above $T = 70$ were compared to the percentage of those below $T = 70$ using a Pearson's χ^2 analysis. To test the hypothesis that trauma positive participants would be suggested for an Axis I PTSD diagnosis by the PAI interpretive report more often than would trauma negative participants, the percentage of those who had PTSD suggested in the diagnostic constellation was compared to the percentage of those who did not have PTSD suggested as a diagnosis using a Pearson's χ^2 analysis. To test the hypothesis that trauma positive participants would be more likely than trauma negative participants to present at least two clinical scale elevations on the TSI, the percentage of those scoring above $T = 65$ on at least two clinical scales was compared to the percentage of those who failed to present at least two clinical scale elevations on the TSI using a Pearson's χ^2 analysis.

To test the hypothesis that coached participants would be better able to present with valid profiles than naive participants on the MFAST, the percentage of those who scored below 6 on the MFAST total (classified as "honest" responders) was compared to the percentage of those who scored above 5 on the total score (suggesting malingering) using a Pearson's χ^2 analysis. To test the hypothesis that coached participants would be better able to present with valid profiles than naive participants on the PAI, the percentage of those who did not present with any validity scale elevations above suggested cutoffs was compared to the percentage of those who scored above suggested cutoffs on any of the PAI validity indices (suggesting malingering) using a Pearson's χ^2 analysis. To test the hypothesis that coached participants would be better able to present with valid profiles than naive participants on the TSI, the percentage of those who failed to present with any validity scale elevations above suggested cutoffs was compared to the percentage of those who scored above

suggested cutoffs on any of the TSI validity indices (suggesting malingering) using a Pearson's χ^2 analysis.

Furthermore, to test the hypothesis that coached participants would score higher than naive participants on subscale ARD-T of the PAI, the percentage of those who scored above $T = 70$ was compared to the percentage of those who scored below $T = 70$ using a Pearson's χ^2 analysis. To test the hypothesis that coached participants would be suggested for an Axis I PTSD diagnosis by PAI scoring interpretation more often than would naive participants, the percentage of those who had PTSD suggested in the diagnostic constellation was compared to the percentage of those who did not have PTSD suggested as a diagnosis using a Pearson's χ^2 analysis. To test the hypothesis that coached participants would be more likely than naive participants to present with at least two clinical scale elevations on the TSI, the percentage of those who scored above $T = 65$ on at least two clinical scales was compared to the percentage of those who failed to present at least two clinical scale elevations on the TSI using a Pearson's χ^2 analysis. Finally, the η^2 correlation ratio was used to assess the strength of the experimental effect by controlling to error and bias.

Results

Results of Demographic Data

Simulators ($N = 113$) were undergraduate students enrolled in psychology courses ($n = 31$ trauma positive, coached, $n = 35$ trauma positive, naive, $n = 25$ trauma negative, coached, and $n = 22$ trauma negative, naive). Fifty-four percent of the overall sample was female and the majority (93%) of all respondents were Caucasian. No differences were found on demographic variables and randomly assigned coaching status, so demographic data did not impact later parametric or nonparametric analyses.

Results of Trauma History Data

The Posttraumatic Stress Diagnostic Scale (PDS) was used to confirm trauma experience history. Those who endorsed experiencing at least one traumatic event on the PDS were considered to be trauma positive. To be labeled trauma negative, a respondent must have endorsed no traumatic event experience on either the demographic or PDS screeners.

For those who were trauma positive, PDS symptom and severity answers were recoded and assessed in terms of: (1) the nature of the event, (2) the time frame for when the event had occurred, (3) whether or not they met criterion B (re-experiencing) of PTSD diagnostic criteria, (4) whether or not they met criterion C (avoidance) of PTSD diagnostic criteria, (5) whether or not they met criterion D (arousal) of PTSD diagnostic criteria, (6) whether or not they met all three criteria (B, C, and D) of PTSD diagnostic criteria, (7) whether or not they endorsed at least one impairment item to suggest that their symptoms affected their daily functioning, (8) whether or not the PDS would be suggestive of PTSD (i.e., meeting all three criteria and having at least one

area of impairment), and (9) for those who did have PTSD suggested, what the severity of their symptoms was.

These nine recoded data were then compared to coaching status using Pearson's χ^2 analyses. This was done to ensure that there were no differences within the trauma positive group that might confound subsequent analyses. No differences were found and it was concluded that trauma positive, coached individuals were not significantly different from trauma positive, naive participants based on PDS variables. Of the trauma positive individuals, 41% listed an accident as the event that "bothers you the most" and six months to three years was the most frequently endorsed time frame (44%) when asked "how long ago did the traumatic event happen?"

Sixty-one percent of trauma positive, naive participants satisfied criterion B (re-experiencing), while 59% of trauma positive, coached respondents did the same. For criterion C (avoidance), the percentages of those satisfying diagnostic requirements were as follows: trauma positive, naive 46% and trauma positive, coached 42%. For arousal (criterion D), 52% of the trauma positive, naive and 47% of the trauma positive, coached participants met diagnostic standards. When examining which trauma positive respondents would meet diagnostic criteria for PTSD (as defined by meeting criteria B, C, and D and endorsing some level of impairment from these symptoms), 33% of the naive and 21% of the coached participants were found to be endorsing symptoms which might warrant a PTSD diagnosis.

In order to determine if differences in severity of PTSD symptoms within the trauma positive groups were significant, the trauma positive participants were divided into three groups based on their PDS Total score (determined by adding responses for all items for which respondents rated their problems [items 22-38]). Those with scores of 0 to 2 were considered mildly bothered by their symptoms. Those with scores between 3 and 8 were considered moderate and those with scores above 9 were labeled as severely disturbed by posttraumatic stress symptoms. For trauma positive, naive respondents' classifications, 34% were mild, 23% were moderate, and 43% were severe. Trauma positive, coached respondents were classified as follows: 45% mild, 39% moderate, and 16% severe. Pearson's χ^2 analyses were not significant when comparing these groups.

Interrater Reliability and Internal Validity Analyses

Analyses were conducted to ensure reliable administration of the M-FAST. Interrater reliability was assessed for 10 (across groups and M-FAST administrators) of the 113 M-FAST protocols. To examine inter-rater reliability, the administrator scored the M-FAST in the room with the participant, while an independent observer scored the M-FAST from behind a one-way mirror. Pearson product moment correlations were conducted for the M-FAST Total score yielding a perfect inter-rater reliability of 1.0. Furthermore, every score was a match, yielding absolute scoring agreement.

Furthermore, a Pearson's χ^2 analysis was conducted to determine whether the

M-FAST administrator (there were four different administrators) had any effect on scores or malingering classification. Although the administrator did affect some individual scales, who gave the M-FAST interview did not have an impact on the likelihood for malingering success or the final malingering classification. Because the assignment of administrators to participants was done in a non-random sequence (i.e., there was no attempt to insure that all administrators interviewed equal numbers of respondents from each group) and because there was perfect inter-rater reliability for the M-FAST, it is believed that these were spurious differences.

Given that participants were given the TSI, PAI, and M-FAST in a counterbalanced manner (i.e., one third of the participants in each of the four groups completed the TSI, M-FAST, or PAI first, second, or third in alternating fashion), no formal testing for order effects was performed.

Finally, in order to insure that naive simulators did not have any substantial knowledge of PTSD, their quiz scores were examined. None of these simulators scored well enough to meet the quiz criteria that the coached participants were held to (e.g., scoring 90% or better). More specifically, the highest score quiz from any naive participant was six (trauma positive, naive $M = 2.54$, $SD = 1.36$; trauma negative, naive $M = 1.77$, $SD = 1.23$), whereas the lowest score for any coached individual was ten (trauma positive, coached $M = 10.55$, $SD = .51$; trauma negative, coached $M = 10.60$, $SD = .50$). Therefore, the participants who did not receive coaching were considered psychiatrically naive, or unfamiliar with PTSD symptomatology, and none had to be excluded from subsequent analyses.

Analyses of Validity Scales

Validity scale scores for the M-FAST, TSI, and PAI are summarized in Table 1. Omnibus differences are reported in Table 1, while main effect results for coaching are summarized in Table 2. Means are shown in Figure 1. There were no main effects for trauma history or interactions of coaching and trauma history for any of the validity scales. Multivariate analyses of variance were conducted to examine differences between groups on all TSI, PAI, and M-FAST validity and total scores. Because there were unequal numbers of participants in each cell, the general linear model (GLM) was utilized for all multivariate analyses.

A significant effect was found for the M-FAST total score indicating omnibus differences among the groups, $F(3, 112) = 5.82$, $p < .01$. It is noteworthy that although the coached participants had lower M-FAST Total scores than did the naive simulators, mean scores for all four groups were above the M-FAST cutoff (5), indicating that malingering would have been suggested by the M-FAST for most respondents. This indicates that the M-FAST was effective in correctly classifying malingerers, even when presented with a coaching challenge.

Significant omnibus differences also occurred for TSI Atypical Responding (ATR) and Response Level (RL) validity scale scores: $F(3, 112) = 9.59$, $p < .001$, and $F(3, 112)$

= 6.76, $p < .001$, respectively. There were no omnibus differences for the TSI Inconsistency (INC) scale. Coached simulators produced lower group mean scores than naive participants on the TSI ATR scale, $F(1, 112) = 27.57$, $p < .001$, suggesting those who received information about PTSD and psychological validity indices were less likely to report atypical PTSD symptoms than were those who did not have access to this information. On the TSI RL scale, on the other hand, naive respondents had lower group means than did the coached participants, $F(1, 112) = 17.39$, $p < .001$.

For the PAI validity scales, omnibus differences were present for the Negative Impression Management, $F(3, 112) = 8.03$, $p < .001$, Positive Impression Management, $F(3, 112) = 7.40$, $p < .001$, and Malingering Index, $F(3, 112) = 6.30$, $p < .001$, scales. No omnibus differences emerged for the PAI Inconsistency or Infrequency scales. Coached simulators scored lower than naive participants on the NIM and MI scales: [$F(1, 112) = 23.06$, $p < .001$ and $F(1, 112) = 18.06$, $p < .001$]. Naive respondents had lower group mean scores than coached, however, on the PAI PIM scale, $F(1, 112) = 17.18$, $p < .001$.

Analyses of TSI Clinical Scales

A multivariate analysis of variance (MANOVA) was conducted to examine differences with regard to the TSI clinical scales. Overall differences were detected for coaching, $F(3, 112) = 3.842$, $p < .001$ ($\text{Eta}^2 = .340$), but not for trauma or the interaction of coaching and trauma. Omnibus differences are reported in Table 3 and means are displayed in Figure 2. Significant omnibus differences were found for all ten TSI clinical scales. Furthermore, subsequent One-way Analyses of Variance (ANOVAs) revealed that for each of the TSI clinical scales, coached participants produced significantly lower group means than did naive simulators. Main effect results for TSI clinical scales by coaching are shown in Table 4. No main effects for trauma history or interactions were found. This indicates that not only did coaching lead to lower TSI clinical elevations but also that trauma history did not have any impact on TSI clinical scores.

In order to compare how likely groups were to have significantly elevated TSI clinical scales, data were recoded and categorized as either above or below clinical cutoffs ($T=65$). The percentage of those who produced elevations in the coached group was then compared the percentage of those who produced elevations in the naive group using Pearson's Chi^2 analyses. These results are summarized in Table 5.

Consistent with the TSI main effects results, a lower percentage of those in the coached group had TSI clinical scale elevations than did naive simulators for the following clinical scales: Anxious Arousal, Depression, Anger/Irritability, Intrusive Experiences, Defensive Avoidance, Dissociation, Sexual Concerns, Impaired Self-Reference, and Tension Reduction Behavior. The same procedure was repeated to compare those in the trauma positive and trauma negative groups but no differences were present for these comparisons. (See Table 6).

Analyses of PAI Clinical, Treatment, and Interpersonal Scales

A multivariate analysis of variance (MANOVA) was also conducted to examine differences with regard to PAI clinical, treatment, and interpersonal scales. Similar to the TSI results, overall differences were detected for coaching, $F(3, 112) = 2.047, p < .01$ ($\text{Eta}^2 = .364$), but not for trauma or the interaction of coaching and trauma. These results can be found in Table 7 and means can be seen in Figure 3. No omnibus differences were detected for PAI Alcohol Problems or Drug Problems clinical scales, Treatment Rejection treatment scale, or Dominance or Warmth interpersonal scales. Differences were present for all other scales: Somatic Complaints, Anxiety, Anxiety Related Disorders, Anxiety Related Disorders, Trauma Subscale, Depression, Mania, Paranoia, Schizophrenia, Borderline Features, Antisocial Features, Aggression, Suicidal Ideation, Stress, and Nonsupport.

Corresponding ANOVAs revealed that for each of the following PAI clinical scales, coached participants had significantly lower group mean scores than did naive simulators: Somatic Complaints, Anxiety, Anxiety Related Disorders, Anxiety Related Disorders, Trauma Subscale, Depression, Mania, Paranoia, Schizophrenia, Borderline Features, Antisocial Features, Alcohol Problems, Drug Problems, Aggression, Suicidal Ideation, Stress, and Nonsupport. Naive participants had lower group means than did coached students on the PAI Warmth interpersonal scale. No main effects for trauma or interactions were found for any of the PAI clinical, treatment, or interpersonal scales.

In order to compare how likely groups were to have significantly elevated PAI clinical scales, data were recoded and categorized as either above or below clinical cutoffs ($T=70$). The percentage of those who produced elevations in the coached group was then compared the percentage of those who produced elevations in the naive group using Pearson's Chi^2 analyses. These results are summarized in Table 9. Similar to the PAI main effects results, naive participants were generally more likely than coached simulators to have elevated responses on several PAI clinical, treatment, and interpersonal scales.

No differences were found for the Mania or Antisocial clinical scales or for the Treatment Rejection treatment scale or the Dominance or Warmth interpersonal scales. Differences were present for all other scales: Somatic Complaints, Anxiety, Anxiety Related Disorders, Anxiety Related Disorders, Trauma Subscale, Depression, Paranoia, Schizophrenia, Borderline Features, Alcohol Problems, Drug Problems, Aggression, Suicidal Ideation, Stress, and Nonsupport.

The same procedure was repeated to compare the elevations for those in the trauma positive and trauma negative groups. Again consistent with PAI main effects results, there were no differences in the likelihood that trauma positive or trauma negative participants produced elevated PAI clinical, treatment, and interpersonal scales and no interactions were significant. See Table 10. It can be concluded, then, that trauma history did not impact the occurrence of PAI elevations.

Analyses of M-FAST Total Score and Subscales

Like the TSI and PAI, a MANOVA with follow-up ANOVAs was used to detect group mean differences on the M-FAST. Again, overall differences for coaching were revealed for coaching, $F(3, 112) = 3.969, p < .001$ ($\eta^2 = .237$), but not for trauma or the interaction of coaching and trauma. Omnibus differences were found for the M-FAST Total score, $F(3, 112) = 5.82, p < .01$. Differences were also shown for the following M-FAST subscales: Reported/Observed, Extreme Symptomatology, Rare Symptom Combination, Unusual Hallucinations, Negative Self-image, and Suggestibility. There were no between-groups differences for the M-FAST Unusual Symptom Course subscale. Main effects revealed that coached simulators produced lower group mean scores than naive participants on each of the M-FAST Total and subscales Reported/Observed, Extreme Symptomatology, Rare Symptom Combination, Unusual Hallucinations, Negative Self-image, and Suggestibility. No main effects for trauma or interactions were significant for any of the M-FAST scales. See Tables 11 and 12 and Figure 4.

Analyses of Malingering Detection

The primary purpose of this study was to compare the ability of participants to malingering PTSD. In order to conduct this comparison, simulators had to be categorized by malingering status. Because, in clinical practice a successful malingerer would present with an honest response style and clinically significant elevation to suggest psychological distress, successful malingering was narrowly defined. First, no elevated validity scales were allowed because these could lead a clinician to conclude that a respondent was malingering. Therefore, validity scale scores on all tests were required to be below clinical cutoffs. Given the paucity of research on the M-FAST subscales, only the M-FAST Total score was used for this categorization. Secondly, if no clinical elevations were present, then an evaluator would be unlikely to label someone as having PTSD. Without any symptoms, there could be no impairment as required by diagnostic criteria. Because the TSI lacks specific cutoffs for consideration of PTSD, a clinically elevated profile was operationally defined as two or more clinical scale elevations. Two criteria were utilized for indicating PTSD symptomatology via the PAI: (1) elevation on the trauma subscale of the Anxiety Related Disorders clinical scale ("ARDT"), and (2) PTSD suggested as an Axis I diagnosis by the computer scored PAI interpretive report.

In summary, successful malingering was operationally defined by the following criteria: (1) no elevations on M-FAST total score; (2) no elevations on TSI ATR, INC, or RL scales; (3) no elevations on PAI INC, INF, NIM, PIM, or MI, scales; (4) at least two elevations on TSI clinical scales [represented by variable "TSI PTSD"]; (5) an elevated PAI ARDT scale; and (6) PTSD suggested as an Axis I diagnosis by PAI interpretive report [represented by variable "PAI PTSD"]. If all of these criteria were satisfied, a participant was labeled as a successful malingerer. This occurred with only four individuals (3.5%) in the entire sample ($N=113$). Therefore, 97% of participants were accurately classified as malingering.

To evaluate these criteria, scores for all involved scales had to be recoded in a manner similar to that used with the TSI and PAI clinical scales for categorization as either above or below clinical cutoffs. The percentage of those who produced elevations in the coached groups was then compared the percentage of those who produced elevations in the naive groups and this was repeated for the trauma positive and negative groups using Pearson's χ^2 analyses. Results are summarized in Tables 13 and 14, respectively. The percentages of malingering success or failure rates can be seen in Figures 4 and 5.

When looking at coaching status, a pattern of coached participants presenting with a lower percentage of elevations than naive simulators emerged for each of the following variables: M-FAST Total, TSI ATR, TSI PTSD, PAI ARDT, PAI NIM, PAI MI, and PAI PTSD. The opposite (coached>naive) occurred for TSI RL. All χ^2 values are shown in Table 13. There were no differences in the percentages of clinical elevations by coaching status for the TSI INC, PAI INC, PAI INF, or PAI PIM scales. No differences emerged for any of the aforementioned variables when trauma positive and negative groups were compared.

Simulators who failed to meet the malingering criteria were categorized by what aspect of the data prevented their success. For example, participants who were unsuccessful malingerers were divided into two categories: (1) those who had invalid response styles as evidenced by one or more validity scale elevations, and (2) those who presented with a valid profile but failed to have clinical elevation suggesting requisite psychological distress. These three groups (i.e., successful, unsuccessful because invalid, and unsuccessful because no elevation; this variable was labeled "malingering status") were then compared with one another using Pearson's χ^2 analyses. As with TSI and PAI χ^2 analyses, these malingering groups were compared based on coaching status and trauma history. Results are summarized in Tables 13 and 14, respectively.

A difference was present for malingering status by coaching, $\chi^2(1, 112) = 8.24, p < .05$, suggesting that coached participants were more likely to be successful malingerers than were naive respondents. The pattern of proportion of successful: unsuccessful because invalid: unsuccessful because no elevation, however, was similar for the coached and naive groups. Specifically, the majority of individuals in each group (77% for coached and 95% for naive) were unsuccessful malingerers because they presented with at least one elevated validity scale. Although no differences were present for malingering status by trauma history, the same pattern was repeated there as well.

To examine the unsuccessful malingerers on a more detailed level, all possible combinations of reasons for being unsuccessful were explored. Differences were found for coaching [$\chi^2(1, 112) = 26.88, p < .01$] but not for trauma. It was shown that the most common reason for individuals to be unsuccessful due to presenting with invalid profiles was that they had elevations on at least one validity scale on all three (M-FAST, TSI,

and PAI) instruments (32% for coached, 68% for naive, 50% for trauma positive, and 51% for trauma negative participants). The specifics of all other unsuccessful percentages can be found as “Detailed Malingering Status” in Tables 13 and 14.

Individual Scale Analyses

Finally, in an attempt to determine the effectiveness of validity scales at identifying malingered responses, all of the aforementioned recoded validity indices were examined across coaching and trauma groups. Because all participants were attempting to malingering, perfect detection rates would be 100% for each scale. The M-FAST total score, PAI NIM, TSI ATR, PAI MI scales were the most effective in correctly classifying simulators. These scales, when analyzed independently, correctly categorized 68%, 59%, 58%, and 55% of simulators, respectively. The PAI INF scale accurately classified 23% of simulators. The TSI INC scale correctly labeled 13%, while the PAI INC scale categorized 9.7%. The TSI RL only identified 3.5% of feigners and the PAI PIM scale did not classify any respondent as malingering. Clearly, false negative rates (i.e., a lack of validity scale elevation with simulated responses) are of concern with each of these indices when analyzed independently.

Discussion

Summary of Results

This is one of the few studies to employ a coaching design in PTSD simulation research. It is also the first to examine the potential impact of trauma history on feigning posttraumatic stress symptoms. Overall, this investigation demonstrated that providing simulators with diagnostic information on PTSD symptoms and strategies for avoiding detection on psychological validity indices (i.e., coaching) was effective in assisting simulators with presenting as if they were experiencing but not significantly exaggerating posttraumatic stress symptoms. This was manifest in group mean differences between coached and naive respondents on several validity and clinical scales across measures. Trauma history, on the other hand, did not impact simulators ability to feign PTSD symptoms in any meaningful way. Participants who experienced a traumatic event were not better able to feign PTSD than were those without any history of experiencing or witnessing a traumatic event. Furthermore, a positive trauma history did not mediate the exaggerated clinical presentation commonly seen with PTSD simulation research (e.g., Liljequist et al., 1998). Also, no interactions between coaching and trauma history were detected, suggesting that coaching, alone, accounted for these differences.

Coached participants had lower group mean scores and rates of being above clinical cutoffs than did naive simulators for the M-FAST Total, TSI ATR scale, and PAI NIM and MI scales. Despite these differences, coached participants were still not significantly better at avoiding malingering detection than were naive simulators. No differences were found between coached and naive simulators for the TSI INC, PAI INC, or PAI INF scales. Specifically, naive and coached feigners were equally able to

present relatively consistent clinical profiles without endorsing different rates of symptoms so rare they are not often endorsed, even by persons with legitimate pathology. This is an important finding because an inconsistent profile can be a hallmark for suggesting malingering and few of these simulators would have been detected in this manner.

Mean scores for all four groups were above the M-FAST cutoff (5), indicating that malingering would have been suggested by the M-FAST for over two thirds of all respondents. This provides evidence that the M-FAST can be an effective screening tool for malingering detection when PTSD symptoms are being presented. These results are consistent with previous research in which a coaching challenge was used with the M-FAST (e.g., Guriel et al., in press).

Despite the differences between the coached and naive participants on validity and clinical scales, 97% of all simulators were correctly classified as malingering. Even respondents who were provided with PTSD symptom information and strategies for avoiding detection via psychological validity indices were no more successful in malingering PTSD than those who were given no such information. It should be acknowledged that using lower cut scores on M-FAST total or TSI or PAI subscales could increase the sensitivity of each measure in the detection of malingered PTSD. In clinical practice, however, this would also yield decreased specificity (i.e., higher false positive rates).

Presenting with elevated validity indicators was the most common reason participants were classified as unsuccessful feigners (77% for the coached groups and 95% for the naive). This is a testament to the inclusion of measures of response style within multiscale, self-report assessment measures.

These results support the idea of using a multi-method assessment approach when conducting forensic PTSD evaluations (e.g., Guriel & Fremouw, 2003). By combining a malingering specific interview with multi-scale inventories of posttraumatic and related clinical symptoms, clinicians may be able to correctly classify a large percentage of all feigning clients. This provides a useful framework from which forensic PTSD assessment might be effectively approached.

Limitations

Although this is one of the few studies to employ a coaching design in PTSD simulation research, several limitations must be acknowledged. First, this relatively small, homogeneous sample of college students provides limited generalizability. A larger, more heterogeneous sample, particularly of persons diagnosed with PTSD, may yield different results. Utilizing such a clinical comparison group may also account for the differences in test results between coached and naive groups. One way to test this would be to employ a mixed group validation procedure (i.e., validation groups are comprised of both individuals with and without pathology) as suggested by Frederick (2000). In addition to using a known PTSD group, comparison of simulators to a known

malingering group (as identified by the Structured Interview of Reported Symptoms [SIRS; Rogers, 1992] or a similar measure of response style) would allow for analysis of the differences between true malingerers and simulators. Similarly, no honest responders were included in this study. This type of control group would provide a baseline of response for which comparison to the simulation groups could be made. Also, it is possible that there was at least some degree of experimenter bias because the examiners were aware that all participants were being asked to mangle.

No attempt was made to verify participants' self-reported trauma history. As a result, it is possible that some of the trauma positive respondents did not actually experience traumatic events. Likewise, trauma negative individuals could have experienced an event that was not reported. Verification of the reported trauma should be attempted whenever possible, particularly in true clinical or forensic settings (Pankratz, 2003). Even those who reported experiencing a traumatic event were relatively unlikely to endorse clinically significant impairment as a result of the trauma (as measured by the PDS screener; 26% for naive and 9% for coached respondents). This might indicate that these traumatic events were not particularly salient for respondents or that enough time had elapsed since the event (44% reported 6 months to 3 years) for posttraumatic symptoms to remit without intervention. Requiring participants to have fulfilled both criteria A1 and A2 (experiencing the event and feeling fear, helplessness, or horror, or concern for the well being of self or others at the time of the event) may have yielded different results for these trauma positive individuals.

In addition to the coaching instructional set, extra course credit and the chance at a \$50 cash prize lottery were used as incentives for successful malingering. This methodology is similar to that of others who have used students with simulation designs (e.g., Edens et al., 1998; Liljequist et al., 1998; Storm & Graham, 2000). Still, these incentives are not an equivalent to more realistic settings in which incentives might include such salient reinforcers as lifetime disability benefits, public notoriety, or large financial settlements. The relative lack of incentive may have affected the motivation of participants, potentially resulting in a lower effort being put forth than what would be expected in a bona fide litigation situation. For a detailed discussion of the limitations of using coaching in simulation designs with a relative lack of incentives, see Rogers and Cruise (1998).

Also, though the coaching material was ecologically valid because part of it was obtained from the internet, a medium easily available to many PTSD litigants, the overall degree of coaching (approximately 15 minutes) was likely less than what would be found in a situation where respondents were more motivated to present with a PTSD profile. Tan, Slick, Strauss, and Hultsch (2002) caution that motivated malingerers do have access to information helpful to feigning psychopathology. More specifically, Wetter and Corrigan (1995) found that nearly 50% of attorneys and law students feel that they have a responsibility to inform their clients of the validity scales on psychological tests. It is unclear, however, how many actually provide their clients with any information about psychological assessments.

This is the one of the few studies to use PTSD symptom coaching with the PAI (Calhoun et al., 2000; Liljequist et al., 1998; Scragg et al., 2000). Given that these studies used different levels and methods of coaching and different cutoff scores for validity indices, further investigation is warranted before the implications of such results can be extended outside a research context. Furthermore, this is the first study to use validity scale coaching with the PAI. Most have involved the MMPI-2 (Bury & Bagby, 2002; Lamb et al., 1994; Rogers et al., 1993; Storm & Graham, 2000). The MMPI-2 validity scale coaching research has been inconsistent, making generalizations inappropriate and further investigation even more necessary. Because only a small number of empirical studies have tested the effects of validity scale coaching, further research must be conducted before findings can be generalized to any degree.

Moreover, aside from Edens et al. (1998) and Guriel et al. (in press), few researchers have employed coached simulation designs with either the M-FAST or the TSI, so replication and extension are clearly warranted. Because both of these measures are still being validated, it is important to assess their vulnerability to challenges such as coaching and trauma history. This may be done by replicating earlier findings or by expanding the breadth of the results with research conducted by investigators other than the authors of these measures. It would also be useful to repeat these investigations with clinical populations including persons diagnosed with PTSD. Furthermore, investigation into whether using lower cutoff scores for forensic evaluations (as opposed to presumably less adversarial clinical assessments) would yield different results would be beneficial.

Although participant knowledge was tested after coaching using a pre-test quiz, no post-test quiz was administered after completion of the M-FAST, TSI, and PAI. This leaves open the possibility that participants misunderstood the test instructions or forgot the coaching information while answering the TSI, PAI, and M-FAST. Inclusion of both pre- and post-test quizzes may have better addressed this concern. Similarly, assessing participants' motivation to feign following completion of all measures could have provided more empirical evidence of the effort put forth during this simulation study.

Although M-FAST administrators were generally not aware of the coaching or trauma history status of respondents, it is possible that the M-FAST interviewer may have been inadvertently aware of this because of their involvement with the entire laboratory phase process. For this reason, it cannot be said that interviewers were fully masked to independent variable conditions. Perfect inter-rater reliability on the M-FAST, however, suggests that this did not affect results. It would have been preferable for M-FAST administrators to be completely unaware of trauma history or coaching status.

A further limitation of these results stems from the narrow, conservative definition of successful malingering used in this study. In order to be labeled a successful malingerer in this study, a participant had to avoid significant elevation on any of nine validity scales and present with clinical elevation on both the PAI and TSI. As a result, this may be overly restrictive in defining malingering in a clinical or forensic setting. For example, in an evaluation where a clinical interview and behavioral observations were

afforded a single validity scale elevation may be explained by reasons other than pure feigning. This is a particular concern since it is difficult to differentiate between malingered and genuine PTSD because an apparent overreporting of symptoms is thought to be associated with legitimate PTSD cases (Elhai et al., 2001; Hyer et al., 1987; Resnick, 1997). This happens because PTSD has a high comorbidity with both clinical and personality disorders, making differential diagnosis a challenge (Keane, 1995); and because PTSD, like other severe pathologies, may include a number of symptoms resulting in an elevated overall symptom profile (Hyer et al.).

Finally, as mentioned in the introduction, accurate estimates of the base rates of malingering are generally not known (Rogers, 1997). Making any comparisons or statistical estimates is a difficult endeavor when no empirical base rate exists. Further investigation into the base rates of malingering among PTSD claimants is needed.

Implications and Future Directions

Malingering is a critical issue in the assessment of posttraumatic stress disorder (PTSD) for several reasons. First, unlike most psychiatric conditions, PTSD requires that there be a cause and effect relation between a traumatic event and subsequent psychological sequelae. Given that clinicians are forced to rely heavily on subjective client self-reports in diagnosing PTSD (because the DSM criteria are dominated by subjective experiences), it has been argued that PTSD is easily faked (Elhai et al., 2001; Frueh & Kinder, 1994; Lees-Haley, 1986). In attempting to feign posttraumatic stress symptomatology, clients may completely fabricate their symptoms, exaggerate the extent of their injuries, or attribute pre-existing symptoms to the current trauma. Unfortunately, such behaviors are not uncommon (e.g., Resnick, 1997).

Secondly, as previously mentioned, it is difficult to differentiate between malingered and genuine PTSD because endorsement of many different symptoms may be reflective of legitimate posttraumatic stress or comorbid Axis I and/or Axis II psychopathology (e.g., Keane, 1995). People may be motivated to feign PTSD to obtain financial compensation (McGuire, 1999; Lees-Haley 1992; Resnick, 1997), to receive treatment or gain inpatient status (e.g., Elhai et al., 2001), to embellish victimization (e.g., Resnick), or to reduce or avoid criminal liability (e.g., Baer & Miller, 2002; Melton et al., 1997). Finally, the potentially large incentives (monetary or otherwise) involved with PTSD claims may serve to increase motivation in a would-be malingerer or even in someone who would not ordinarily engage in such deceitful behavior.

Coached participants were better able than naive respondents to present as if they were experiencing but not significantly exaggerating posttraumatic stress symptoms. Still, they were relatively ineffective at discriminating when to endorse or avoid symptoms in an attempt to produce a successfully malingered profile. This may be because the assessment measures used in this study are effective in identifying feigned psychopathology. It could also be accounted for, however, by the relative paucity of coaching. More intense, ecologically valid coaching (likely to be sought out by

more motivated simulators such as would likely be seen practice) may enable more successful malingerers.

Use of a larger, more heterogeneous sample is also warranted for future research. It would be especially interesting to compare results on the measures used in this study for individuals who have experienced a single, time limited traumatic event, (e.g., one motor vehicle accident) with those who have repeatedly been traumatized (i.e., multiple events across time) and with those who have experienced a prolonged victimization (e.g., survivors of years of ongoing physical, sexual, or emotional abuse).

Utilization of different cutoff scores for the scales and indices examined in this study may also produce different results. Cutoffs different from those suggested in respective test manuals may yield the best positive and negative predictive power (and subsequently overall classification rate) for malingering detection. Further research into this area is strongly encouraged. Results must be well disseminated, however, because most clinicians are likely to rely on procedures recommended in test manuals unless they are aware of the utility of alternate procedures.

Analysis of the incremental validity of using these measures alone or in conjunction with one another may assist clinicians in deciding which assessments to use and in what order. It may be that using two of the three measures is equally effective to using all three in discriminating malingered PTSD. It is also possible that order in which these measures are used could impact the efficacy of identifying malingered PTSD.

Lastly, this is one of only a few studies to employ a multi-assessment coaching design in PTSD simulation research and is the first to examine the potential impact of trauma history on malingered PTSD. Replication and extension are clearly needed. Similar investigation with other self-report measures of non-combat PTSD such as the recently validated PTSD Checklist-Civilian Version (see Ruggiero, Del Ben, Scotti, & Rabalais, 2003) is warranted. Similarly, replication of the coaching paradigm with other types of PTSD assessment measure (e.g., psychophysiological) are also necessary.

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Appendix A

Institutional Review Board Approved Consent Form

CONSENT AND INFORMATION FORM

Title: Detection of Coached Malingering of Posttraumatic Stress Disorder.

Investigators: Jennifer Guriel, M.A., and William Fremouw, Ph.D., West Virginia University

Introduction: I, _____ have been invited to participate in this research study, which has been explained to me by _____. I have been informed that this research is being conducted as a doctoral research project in the Department of Psychology at West Virginia University.

Purposes of the Study: This study is designed to examine the ability of individuals with and without a trauma history (e.g., surviving or witnessing a car accident, flood, assault, etc.) to fake Posttraumatic Stress Disorder when given coached instructions.

Description of Procedures: This study involves answering questionnaires after watching an instructional film regarding symptoms of Posttraumatic Stress Disorder. I will also be asked to complete questionnaires regarding general psychological symptoms that I may or may not be experiencing. This procedure will take approximately one to two hours to complete. I understand that I am not required to answer all questions and that I may view the questions before signing this consent form if I request to do so. Approximately 125 participants will be involved in this study. This phase of the study will take place in the laboratory of Dr. William Fremouw on the downtown campus of West Virginia University.

Risks and Discomforts: There are no known or expected risks from participating in this phase of the study, aside from the time associated with completing the questionnaire and mild discomfort that may arise in response to being asked about psychological symptoms and personal experiences.

Alternatives: I may choose not to participate in this study. Payment, class standing or grades will not be affected by my refusal to participate or withdrawal from this study. I understand that there are other methods of obtaining extra credit in my introductory psychology class. I understand that these opportunities are listed on the Subject Recruitment Board near the main office in the Life Sciences Building and that my instructor can offer even more opportunities.

Benefits: I understand that this study is not expected to be of direct benefit to me, but the knowledge gained may be of benefit to others. I understand that, for participating, I will be paid \$10.00 or receive two extra credit points in my introductory psychology class, but I understand that other options are available for earning extra credit.

Participant's Initials

Date

Title: Detection of Coached Malingering of Posttraumatic Stress Disorder.

Financial Considerations: I understand that I will be paid \$10.00 for participation in this phase of the study unless I am a student, in which case I will receive two extra course credit points. I also understand that if I successfully fake that I have Posttraumatic Stress Disorder I will be entered into a drawing for an additional \$50 cash prize.

Contact Persons: For more information about this research I can contact Jennifer L. Guriel, M.A. or her supervisor, William Fremouw, Ph.D., at 293-2001 ext. 662. For more information on my rights as a research participant, I may contact the Executive Secretary of the Institutional Review Board of West Virginia University at (304) 293-7073.

Confidentiality: I understand that any information about me obtained as a result of my participation in this research will be kept as confidential as legally possible. I understand also that my research records, just like hospital records, may be subpoenaed by court order or may be inspected by federal regulatory authorities. In any publications that result from this research, neither my name nor any information from which I might be identified will be published without my consent.

Voluntary Participation: Participation in this study is completely voluntary. I understand that I am free to withdraw my consent to participate in this study at any time. I also understand that refusal to participate or withdrawal will involve no penalty or loss of benefits and will not affect my grades or class standing. I have been given the opportunity to ask questions about the research, and I have received answers concerning the areas I did not understand.

Upon signing this form, I will receive a copy.

I willingly consent to participate in this research.

Signature of Participant

Date

Time

Signature of Investigator or
Investigator's Representative

Date

Time

Because completion of surveys, such as the ones you just did, may make **some** persons realize that they are experiencing an uncomfortable level of worry or depression, the investigators in this study are providing **all** participating students this information form which lists several local mental health and counseling services that are available to them if they feel that they would like to talk with someone about their feelings.

Additionally, participants may contact Jennifer Guriel, M.A. or William Fremouw, Ph.D. at 293-2001 x 31662 for a copy of this list.

This is a partial list of services in this area (Morgantown, WV) in case you feel that you need assistance. Inclusion on this list does **NOT** imply endorsement of the agency by the investigators in this study, nor does it in any way imply that the investigators are financially responsible for any services requested or received as a result of participation in this study.

Carruth Center for Counseling and Psychological Services*

Student Services Center

West Virginia University
Morgantown, WV 26506
(304) 293-4431

Chestnut Ridge Hospital

930 Chestnut Ridge Road

Morgantown, WV 26505
(304) 293-4000

The Quin Curtis Center, Department of Psychology

West Virginia University
Morgantown, WV 26506
(304) 293-2001, ext 31671

Valley Comprehensive Community Mental Health Center

301 Scott Avenue

Morgantown, WV 26505
(304) 296-1731

The Vet Center (military veterans only)

Greenbag Road
Morgantown, WV 26505
(304) 291-4303

* Students who have paid WVU tuition and fees may receive services free of charge at this agency

Appendix B

Coaching Materials Handout

Posttraumatic Stress Disorder "PTSD"

T = Trauma
R = Reliving
A = Arousal
A = Avoidance

T = Trauma

- Experiencing or witnessing an event in which you perceive that your own or someone else's life may be in danger
- Examples include motor vehicle accidents, natural disasters, rape, assault, serious illness, etc.

R = Reliving

- Experiencing the feelings that you had during the event again
- Examples include acting or feeling as if it were happening all over again, having dreams or nightmares about the event, having upsetting thoughts or images come into your head, feeling scared, angry, sad, or guilty, etc.

A = Arousal

- Experiencing physical reactions when you think of the event, being nervous or jumpy, having trouble sleeping, feeling mad or irritated
- Examples include sweating, feeling like your heart is racing/pounding, feeling angry for no reason, having trouble falling asleep or waking up in the middle of the night, being jumpy or easily startled, feeling like you have to check to see who is behind you, feeling scared or uncomfortable to be alone, etc.

A = Avoidance

- Trying to stay away from people, places, or things that remind you of the event or trying not to remember things about the event
- Examples include feeling alone or cut off from people around you, feeling like you cannot cry or have loving feelings, not being able to remember details of the event, having trouble concentrating, feeling hopeless about the future, trying not to think about or talk about the event, changing your routine so will not have to see people, places or things that remind you of the event, etc.

Strategies for Beating Psychological Tests

- B** = Bizarre
- O** = Obvious
- S** = Stereotypical
- S** = Severe

B = Bizarre

- Do Not endorse overly BIZARRE or unusual symptoms
- For example, do not say that you feel or do things that you have never heard of anyone doing or that sound really weird or crazy to you

O = Obvious

- Do Not endorse too many OBVIOUS items
- For example, do not say that you experience every item that sounds like it would be related to posttraumatic stress disorder (PTSD).

S = Stereotypical

- Do Not endorse only items that are STEREOTYPICAL of PTSD
- For example, do not endorse only things that most people think of when they hear PTSD (like having nightmares or avoiding the scene of the event). Instead, endorse these AND some of the PTSD symptoms that are not as well known (like not being able to cry or feel love).

S = Severe

- Do Not endorse too many SEVERE problems
- For example, do not say that you have every bad symptom that is listed. Most people have one or two severe symptoms and the rest of their symptoms are minor.
Do Not endorse too many SEVERE problems

Appendix C

Naive Materials Handout

Hot Jobs in Psychology

New Trends and Areas
You Might Not Think of

FBI Agent

- Research studies include interviewing perpetrators and victims of violent crime to increase knowledge and lead prevention programs
- Salary range: \$43,000 – \$79,000

Microsoft

- Research into the usability and “friendliness” of software and operating systems. Also employed by IBM, EBay, etc.
- Salary range: “Very Competitive”

Armed Forces

- Assessment and treatment of military personnel and their families. Also includes research into the policies and procedures that the military develops and uses
- Salary range: \$30,000 – \$40,000

Preventative Medicine

- Development of materials and campaigns designed to inform the general public about disease and prevention. Also, consultation to help doctors learn how to relate to their patients
- Salary range: "Competitive"

Marketing

- Research and design of marketing campaigns to inform the public and increase a company's sales
- Salary range: \$80,000 – \$115,000 (Bayer)

Congress

- Counsel to Senator or Congressional representative. Meets with lobbyists, researches current issues, drafting legislation, writing speeches. Ideal for a J.D., Ph.D.
- Salary range: "Competitive"

Grant Writing

- Writing of grants to get highly competitive federal and private research funding
- Salary range: \$75,000 – \$97,000 (Nat'l. Inst. of Child Health & Human Development)

Internet Analyst

- Research and Design of websites that are visually appealing and user friendly. Creation of icons and animated "helpers".
- Salary: \$70,000+

Technical Writing

- Editing and writing for scientific journals and magazines. Allows for many brief projects and a wide exposure to what's new in science
- Salary: \$40,000 (*Science*)

Multi-tasking

- Combination of research and/or teaching with clinical practice
- Salary range: "Competitive"

Appendix D

Quiz

Participant# _____

Quiz

1. Complete the following summary of PTSD criteria:

T _____
R _____
A _____
A _____

2. Name 4 symptoms of PTSD:

1. _____
2. _____
3. _____
4. _____

3. Name 3 of the 4 strategies for beating psychological tests:

1. _____
2. _____
3. _____

Please read the statement and circle whichever is appropriate for you:

I have been instructed to:

- (A) Answer honestly during the psychology tests and interview
- (B) Pretend that I suffer from PTSD from a motor vehicle accident during the psychology tests and interview

Appendix E

Recruitment Advertisement

Recruitment Ad #3 for HS# 15285

NEED EXTRA CREDIT ???

If you are over 18 and have some free time, you may qualify to participate in a research study and be eligible to earn extra credit for your psychology class and be entered into a cash lottery.

Participation in this research study is voluntary and will involve meeting with a psychology student for approximately 1-2 hours. During this time, you will watch a videotape and be asked to answer a number of questions.

If you would like to learn more about this research study and how you can participate, please contact the principle investigator,

Jennifer Gurriel, M.A., at:

(304) 293-2001 x 31662 or jgurriel@mix.wvu.edu

Revised October 25, 2002

Footnotes

¹Though previous researchers have discussed results regarding the PAI Malingering Index (PAI MI) in terms of raw scores, this study utilized T-Scores (with $T > 70$ indicating elevation) for all analyses. This was done because the MI is now included in the LOGIT scoring program and no longer has to be calculated by hand.

²The PDS uses a one-month time specifier. For the purposes of this study, this constraint was waived and participants were asked to report on symptoms that were experienced any time over one month post-event. This was done to increase the attainability of the sample, while ruling out acute stress disorder.

³For χ^2 analyses, raw data were used as the expected values for all calculations. Percentages are presented in the results section and in tables and figures for clarification and ease of interpretation purposes.

Table 1
Validity Scores Across Conditions

Scale	Trauma Positive, Naive <i>n</i> =35	Trauma Positive, Coached <i>n</i> =31	Trauma Negative, Naive <i>n</i> =22	Trauma Negative, Coached <i>n</i> =25	<i>F</i> (3,112)	Partial Eta ²
M-FAST Total	13.4	6.42	11.0	6.92	5.82**	.138
TSI ATR	(12.02) 80.9	(4.27) 60.8	(5.66) 80.2	(3.95) 61.1	9.59***	.209
TSI INC	(18.97) 53.3 ^a	(19.06) 54.7 ^a	(21.85) 53.2 ^a	(18.66) 56.7 ^a	.632	.017
TSI RL	(10.77) 44.3	(9.05) 48.0	(11.56) 44.2	(10.16) 51.5	6.76***	.157
PAI INC	(5.59) 56.3 ^a	(7.21) 56.8 ^a	(5.15) 56.2 ^a	(9.03) 55.4 ^a	.148	.004
PAI INF	(9.66) 61.0 ^a	(8.30) 56.0 ^a	(7.56) 63.6 ^a	(6.56) 59.2 ^a	1.72	.045
PAI NIM	(11.28) 87.46	(11.81) 65.90	(15.86) 87.14	(12.47) 67.12	8.03***	.181
PAI PIM	(24.59) 34.83	(17.35) 44.03	(30.28) 38.32	(17.08) 43.24	7.40***	.169
PAI MI	(7.76) 82.26	(9.86) 63.39	(9.90) 81.18	(8.24) 63.12	6.30**	.148
	(25.73)	(17.02)	(29.73)	(16.49)		

Note. M-FAST = Miller Forensic Assessment of Symptoms Test; TSI = Trauma Symptom Inventory; ATR = Atypical Responding; INC = Inconsistency; RL = Response Level; PAI = Personality Assessment Inventory; INC = Inconsistency; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; MI = Malingering Index.

M-FAST scores are reported as Raw Scores; All others are T-Scores

Means in the same row that do not share superscripts differ.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 2
Validity Scale Main Effects

Scale	Coached <i>n</i> =56	Naive <i>n</i> =57	<i>F</i> (1,112)	Partial Eta ²
M-FAST	6.64	12.47	14.02 ^{***}	.114
Total	(4.10)	(10.05)		
TSI ATR	60.95 (18.71)	80.63 (19.94)	27.57 ^{***}	.202
TSI INC	55.55 ^a (9.53)	53.28 ^a (10.98)	1.46	.013
TSI RL	49.54 (8.19)	44.26 (5.38)	17.39 ^{***}	.138
PAI INC	56.18 ^a (7.54)	56.26 ^a (8.84)	.010	.000
PAI INF	57.41 ^a (12.11)	61.98 ^a (13.16)	3.753	.033
PAI NIM	66.45 (17.09)	87.33 (26.66)	23.06 ^{***}	.175
PAI PIM	43.68 (9.10)	36.18 (8.73)	17.18 ^{***}	.136
PAI MI	63.27 (16.63)	81.84 (27.08)	18.06 ^{***}	.142

Note. M-FAST = Miller Forensic Assessment of Symptoms Test; TSI = Trauma Symptom Inventory; ATR = Atypical Responding; INC = Inconsistency; RL = Response Level; PAI = Personality Assessment Inventory; ARDT = Anxiety Related Disorders, Trauma; INC = Inconsistency ; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; MI = Malingering Index. M-FAST scores are reported as Raw Scores; All others are T-Scores

Means in the same row that do not share superscripts differ.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3

TSI Clinical Subscale Mean Scores Across Conditions

TSI Scales	Trauma Positive, Naive <i>n</i> =35	Trauma Positive, Coached <i>n</i> =31	Trauma Negative, Naive <i>n</i> =22	Trauma Negative, Coached <i>n</i> =25	<i>F</i> (3, 112)	Partial η^2
AA	69.54 (10.62)	62.58 (10.90)	67.36 (11.40)	59.12 (8.74)	5.74**	.136
DEP	68.43 (9.72)	56.87 (10.34)	65.45 (12.47)	54.88 (10.32)	11.22***	.236
ANG	65.37 (10.51)	57.35 (11.95)	62.59 (11.30)	54.04 (12.21)	5.75**	.137
INTR	73.60 (11.62)	66.06 (10.65)	71.36 (13.78)	61.84 (8.55)	6.30**	.148
DA	66.77 (9.17)	60.06 (8.78)	66.27 (10.19)	58.28 (8.61)	6.20**	.146
DISS	73.86 (11.39)	60.42 (12.18)	69.14 (14.59)	58.20 (8.73)	11.64***	.243
SEXC	63.89 (12.14)	53.65 (11.06)	64.77 (13.65)	54.32 (14.21)	6.26**	.147
DYSSEX	70.57 (16.50)	62.45 (16.68)	70.41 (18.64)	58.12 (16.18)	3.59*	.090
ISR	67.31 (9.33)	56.10 (9.13)	66.23 (11.49)	55.64 (9.09)	12.23***	.252
TRB	75.09 (15.17)	66.03 (16.03)	74.64 (15.55)	62.88 (14.67)	4.41**	.108

Note. TSI = Trauma Symptom Inventory; AA = Anxious Arousal; DEP = Depression; ANG = Anger/Irritability; INTR = Intrusive Experiences; DA = Defensive Avoidance; DISS = Dissociation; SEXC = Sexual Concerns; DYSSEX = Dysfunctional Sexual Behavior; ISR = Impaired Self Reference; TRB = Tension Reduction Behavior.

All reported scores are T-Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Means in the same row that do not share superscripts differ.

Table 4
TSI Clinical Subscale Main Effects

TSI Scales	Coached <i>n</i> =56	Naive <i>n</i> =57	<i>F</i> (1,112)	Partial Eta ²
AA	61.04 (10.06)	68.70 (10.88)	14.40 ^{***}	.117
DEP	55.98 (10.28)	67.28 (10.85)	29.82 ^{***}	.215
ANG	55.88 (12.07)	64.30 (10.81)	14.31 ^{***}	.116
INTR	64.18 (9.91)	72.74 (12.43)	15.79 ^{***}	.127
DA	59.27 (8.67)	66.58 (9.49)	17.64 ^{***}	.139
DISS	59.43 (10.75)	72.04 (12.81)	29.20 ^{***}	.211
SEXC	53.95 (12.45)	64.23 (12.63)	18.29 ^{***}	.144
DYSSEX	60.52 (16.45)	70.51 (17.20)	9.95 ^{**}	.084
ISR	55.89 (9.03)	66.89 (10.13)	34.68 ^{***}	.241
TRB	64.63 (15.38)	74.91 (15.18)	12.52 ^{**}	.103

Note. TSI = Trauma Symptom Inventory; AA = Anxious Arousal; DEP = Depression; ANG = Anger/Irritability; INTR = Intrusive Experiences; DA = Defensive Avoidance; DISS = Dissociation; SEXC = Sexual Concerns; DYSSEX = Dysfunctional Sexual Behavior; ISR = Impaired Self Reference; TRB = Tension Reduction Behavior.

All reported scores are T-Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5

Percent of Participants with Elevated TSI Clinical Scales by Coaching

TSI Scales (65+)	Coached <i>n</i> =56	Naive <i>n</i> =57	χ^2	Eta
AA	30%	70%	17.92 ^{***}	.398
DEP	27%	67%	18.04 ^{***}	.400
ANG	25%	51%	8.02 ^{**}	.266
INTR	50%	74%	6.72 [*]	.244
DA	30%	65%	13.52 ^{***}	.346
DISS	34%	77%	21.43 ^{***}	.436
SEXC	21%	49%	9.47 ^{**}	.290
DYSSEX	43%	58%	2.56	.150
ISR	20%	54%	14.60 ^{***}	.359
TRB	46%	72%	7.61 ^{**}	.260

Note. TSI = Trauma Symptom Inventory; AA = Anxious Arousal; DEP = Depression; ANG = Anger/Irritability; INTR = Intrusive Experiences; DA = Defensive Avoidance; DISS = Dissociation; SEXC = Sexual Concerns; DYSSEX = Dysfunctional Sexual Behavior; ISR = Impaired Self Reference; TRB = Tension Reduction Behavior.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Percent of Participants with Elevated TSI Clinical Scales by Trauma

TSI Scales (65+)	Trauma Positive <i>n</i> =66	Trauma Negative <i>n</i> =47	χ^2	Eta
AA	56%	43%	2.00	.133
DEP	52%	40%	1.36	.110
ANG	41%	34%	.549	.070
INTR	68%	53%	2.62	.152
DA	53%	40%	1.75	.124
DISS	61%	49%	1.52	.116
SEXC	35%	36%	.021	.014
DYSSEX	53%	47%	.425	.061
ISR	38%	36%	.034	.017
TRB	61%	57%	.114	.032

Note. TSI = Trauma Symptom Inventory; AA = Anxious Arousal; DEP = Depression; ANG = Anger/Irritability; INTR = Intrusive Experiences; DA = Defensive Avoidance; DISS = Dissociation; SEXC = Sexual Concerns; DYSSEX = Dysfunctional Sexual Behavior; ISR = Impaired Self Reference; TRB = Tension Reduction Behavior.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7
PAI Clinical, Treatment, and Interpersonal Subscale Mean Scores Across Conditions

PAI Scales	Trauma Positive, Naive <i>n</i> =35	Trauma Positive, Coached <i>n</i> =31	Trauma Negative, Naive <i>n</i> =22	Trauma Negative, Coached <i>n</i> =25	<i>F</i> (3, 112)	Partial Eta ²
SOM	77.54 (14.70)	61.42 (14.18)	76.32 (18.96)	61.56 (10.97)	10.51***	.224
ANX	82.74 (14.06)	69.90 (13.53)	79.95 (16.45)	73.72 (12.39)	5.33**	.128
ARD	82.11 (15.36)	69.06 (13.33)	82.18 (17.01)	69.48 (13.79)	7.11***	.164
ARDT	83.83 (14.33)	72.03 (13.81)	81.23 (16.16)	71.28 (11.10)	6.18**	.145
DEP	85.97 (14.39)	69.71 (14.17)	82.55 (17.79)	70.96 (12.31)	9.37***	.205
MAN	57.91 (9.28)	49.74 (12.57)	58.09 (9.35)	52.40 (14.50)	3.76*	.094
PAR	78.71 (14.53)	64.52 (12.13)	74.55 (17.93)	66.04 (13.97)	6.74***	.156
SCZ	80.89 (17.86)	62.90 (12.43)	78.50 (20.07)	64.00 (15.27)	9.66***	.210
BORD	76.69 (10.79)	65.45 (9.29)	74.23 (11.93)	65.16 (8.72)	10.07***	.217
ANT	70.31 (14.22)	60.55 (12.23)	64.18 (13.85)	59.68 (13.52)	4.10**	.101
ALC	74.80 ^a (15.20)	65.90 ^a (17.69)	69.09 ^a (17.35)	64.96 ^a (17.60)	2.21	.057
DRG	73.66 ^a (19.04)	64.90 ^a (18.63)	73.45 ^a (21.64)	64.32 ^a (17.12)	2.07	.054
AGG	68.17 (11.37)	58.84 (14.78)	66.09 (14.92)	58.08 (14.78)	3.98*	.099
SUI	78.26 (23.20)	60.29 (14.13)	76.82 (24.10)	60.40 (15.76)	7.32***	.168
STR	69.69 (13.40)	61.48 (11.40)	69.36 (13.09)	58.60 (12.63)	5.41**	.130
NON	72.37 (14.98)	61.23 (13.49)	70.18 (19.21)	60.16 (13.92)	4.79**	.116
RXR	40.69 ^a (7.87)	45.61 ^a (8.06)	43.41 ^a (9.47)	43.12 ^a (7.88)	1.97	.051
DOM	39.03 (12.12)	41.84 ^a (14.88)	41.50 ^a (12.63)	43.56 ^a (13.81)	.591	.016
WRM	30.11 ^a (12.42)	37.35 ^a (12.09)	33.73 ^a (16.20)	38.80 ^a (15.52)	2.42	.063

Note. PAI = Personality Assessment Inventory; SOM = Somatic Complaints ANX = Anxiety; ARD = Anxiety Related Disorders; ARDT = Anxiety Related Disorders, Trauma; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BORD = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG= Drug Problems; AGG = Aggression ; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; Dom = Dominance; WRM = Warmth.

All reported scores are T-Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Means in the same row that do not share superscripts differ.

Table 8

PAI Clinical, Treatment, and Interpersonal Subscale Main Effects

PAI Scales	Coached <i>n</i> =56	Naive <i>n</i> =57	<i>F</i> (1,112)	Partial η^2
SOM	61.48 (12.74)	77.07 (16.32)	29.85 ^{***}	.215
ANX	71.61 (13.06)	81.67 (14.95)	12.56 ^{**}	.103
ARD	69.25 (13.41)	82.14 (15.87)	20.60 ^{***}	.159
ARDT	71.70 (12.57)	82.82 (14.97)	16.67 ^{***}	.133
DEP	70.27 (13.27)	84.65 (15.72)	24.76 ^{***}	.185
MAN	50.93 (13.40)	57.98 (9.23)	9.84 ^{**}	.083
PAR	65.20 (12.88)	77.11 (15.91)	16.68 ^{***}	.133
SCZ	63.39 (13.65)	79.96 (18.07)	26.62 ^{***}	.196
BORD	65.32 (8.96)	75.74 (11.20)	27.04 ^{***}	.199
ANT	60.16 (12.71)	67.95 (14.27)	7.67 ^{**}	.066
ALC	65.48 (17.50)	72.60 (16.16)	4.08 [*]	.036
DRG	64.64 (17.81)	73.58 (19.89)	6.02 [*]	.052
AGG	58.50 (14.65)	67.37 (12.77)	10.74 ^{**}	.090
SUI	60.34 (14.74)	77.70 (23.34)	20.76 ^{***}	.160
STR	60.20 (11.94)	69.56 (13.16)	15.38 ^{***}	.124
NON	60.75 (13.57)	71.53 (16.61)	13.10 ^{***}	.107
RXR	44.50 ^a (8.00)	41.74 ^a (8.55)	2.16	.019
DOM	42.61 ^a (14.31)	39.98 ^a (12.27)	.903	.008
WRM	38.00 (13.62)	31.51 (13.97)	5.40 [*]	.047

Note. PAI = Personality Assessment Inventory; SOM = Somatic Complaints ANX = Anxiety; ARD = Anxiety Related Disorders; ARDT = Anxiety Related Disorders, Trauma; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BORD = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG= Drug Problems; AGG = Aggression ; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; Dom = Dominance; WRM = Warmth.

All reported scores are T-Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Means in the same row that do not share superscripts differ.

Table 9

Percent of Participants with Elevated PAI Clinical, Treatment, or Interpersonal Scales by Coaching

PAI Scales (70+)	Coached <i>n</i> =56	Naive <i>n</i> =57	χ^2	Eta
SOM	27%	74%	24.85 ^{***}	.469
ANX	57%	81%	7.333 ^{**}	.255
ARD	46%	81%	14.35 ^{***}	.356
ARDT	52%	75%	6.84 ^{**}	.246
DEP	52%	79%	9.22 ^{**}	.286
MAN	11%	11%	.001	.003
PAR	38%	63%	7.44 ^{**}	.257
SCZ	30%	68%	16.37 ^{***}	.381
BORD	32%	74%	19.57 ^{***}	.416
ANT	30%	47%	3.44	.174
ALC	46%	70%	6.56 [*]	.241
DRG	41%	60%	3.90 [*]	.186
AGG	20%	47%	9.73 ^{**}	.293
SUI	25%	63%	16.67 ^{***}	.384
STR	20%	56%	15.96 ^{***}	.376
NON	27%	47%	5.12 [*]	.213
RXR	0%	0%	N/A	N/A
DOM	5%	0%	3.14	.167
WRM	0%	0%	N/A	N/A

Note. PAI = Personality Assessment Inventory; SOM = Somatic Complaints ANX = Anxiety; ARD = Anxiety Related Disorders; ARDT = Anxiety Related Disorders, Trauma; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BORD = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG= Drug Problems; AGG = Aggression ; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; Dom = Dominance; WRM = Warmth.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 10

Percent of Participants with Elevated PAI Clinical, Treatment, or Interpersonal Scales by Trauma

PAI Scales (70+)	Trauma Positive <i>n</i> =66	Trauma Negative <i>n</i> =47	χ^2	Eta
SOM	55%	45%	1.07	.097
ANX	65%	74%	1.11	.099
ARD	64%	64%	.000	.002
ARDT	67%	60%	.597	.073
DEP	67%	64%	.098	.029
MAN	9%	13%	.391	.059
PAR	53%	47%	.425	.061
SCZ	52%	47%	.243	.046
BORD	59%	45%	2.29	.142
ANT	44%	32%	1.67	.122
ALC	62%	53%	.901	.089
DRG	52%	49%	.073	.025
AGG	35%	32%	.106	.031
SUI	47%	40%	.477	.065
STR	38%	38%	.002	.004
NON	36%	38%	.044	.020
RXR	0%	0%	N/A	N/A
DOM	3%	2%	.087	.028
WRM	0%	0%	N/A	N/A

Note. PAI = Personality Assessment Inventory; SOM = Somatic Complaints ANX = Anxiety; ARD = Anxiety Related Disorders; ARDT = Anxiety Related Disorders, Trauma; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BORD = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG= Drug Problems; AGG = Aggression ; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; Dom = Dominance; WRM = Warmth. All reported scores are T-Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 11
Mean M-FAST Scales by Condition

M-FAST Scale	Trauma Positive, Naive <i>n</i> =35	Trauma Positive, Coached <i>n</i> =31	Trauma Negative, Naive <i>n</i> =22	Trauma Negative, Coached <i>n</i> =25	F (3,112)	Partial Eta ²
Total	13.40	6.42	11.00	6.92	5.82**	.138
Reported/ Observed	(12.02) 1.77	(4.27) 1.29	(5.66) 1.68	(3.95) 1.20	2.88*	.073
Extreme	(.808) 2.03	(1.006) .97	(.945) 2.09	(.816) 1.36	6.75***	.157
Symptomatology	(1.10)	(1.05)	(1.48)	(.860)		
Rare Symptom	3.89	2.29	3.64	2.12	6.45***	.151
Combination	(1.875)	(1.657)	(2.460)	(1.740)		
Unusual	2.00	.65	1.64	.88	8.65***	.192
Hallucinations	(1.21)	(1.08)	(1.47)	(1.05)		
Unusual	.74 ^a	.55 ^a	.77 ^a	.68 ^a	1.22	.033
Symptom Course	(.505)	(.506)	(.429)	(.476)		
Negative Self	.83	.65	.86	.56	2.93*	.075
Image	(.382)	(.486)	(.351)	(.507)		
Suggestibility	.31	.03	.32	.12	4.09**	.101
	(.471)	(.180)	(.477)	(.332)		

M-FAST = Miller Forensic Assessment of Symptoms Test

All reported scores are Raw Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. Means in the same row that do not share superscripts differ.

Table 12

M-FAST Main Effects

	Coached <i>n</i> =56	Naive <i>n</i> =57	<i>F</i> (1,112)	Partial η^2
M-FAST Scale				
Total	6.64	12.47	14.02 ^{***}	.114
	(4.10)	(10.05)		
Reported/ Observed	1.25	1.74	7.91 ^{**}	.068
	(.919)	(.856)		
Extreme	1.14	2.05	17.40 ^{***}	.138
	(.980)	(1.25)		
Symptomatology				
Rare Symptom	2.21	3.79	17.96 ^{***}	.141
	(1.68)	(2.10)		
Combination				
Unusual	.75	1.86	21.18 ^{***}	.163
	(1.07)	(1.32)		
Hallucinations				
Unusual	.61 ^a	.75 ^a	2.395	.021
	(.493)	(.474)		
Symptom Course				
Negative Self Image	.61	.84	8.49 ^{**}	.072
	(.493)	(.368)		
Suggestibility	.07	.32	10.79 ^{**}	.090
	(.260)	(.469)		

M-FAST = Miller Forensic Assessment of Symptoms Test

All reported scores are Raw Scores.

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. Means in the same row that do not share superscripts differ.

Table 13

Percent of Participants with Elevated Scales by Coaching Condition

Scale Elevation or Classification	Coached <i>n</i> =56	Naive <i>n</i> =57	χ^2	Eta
M-FAST Total (6+)	52%	84%	13.68***	.348
TSI ATR (61+)	32%	82%	29.27***	.509
TSI INC (65+)	13%	14%	.058	.023
TSI RL (65+)	7%	0%	4.22*	.193
TSI PTSD (2+ elevations)	64%	86%	7.12**	.251
PAI ARDT (70+)	52%	75%	6.84**	.246
PAI INC (70+)	7%	12%	.849	.357
PAI INF (70+)	20%	26%	.710	.399
PAI NIM (70+)	43%	75%	12.42***	.332
PAI PIM (70+)	0%	0%	N/A	N/A
PAI MI (70+)	39%	70%	10.88**	.310
PAI PTSD (Diagnosis Suggested)	39%	68%	9.65**	.292
Malingering Status	7% S 77% I 16% NE	0% S 95% I 5% NE	8.24*	.270
Detailed Malingering Status	7% S 5% IPT 11% IM 0% ITM 9% IT 9% IPM 11% IP 32% IPTM 2% NET 9% NEP 5%NETP	0% S 9% IPT 5% IM 4% ITM 4% IT 4% IPM 0% IP 68% IPTM 0% NET 2% NEP 4%NETP	26.88**	.488

Note. M-FAST = Miller Forensic Assessment of Symptoms Test; TSI = Trauma Symptom Inventory; ATR = Atypical Responding; INC = Inconsistency; RL = Response Level; TSI PTSD = At least two clinical scale elevations on TSI; PAI = Personality Assessment Inventory; ARDT = Anxiety Related Disorders, Trauma; INC = Inconsistency ; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; MI = Malingering Index; PAI PTSD = PTSD was suggested in the diagnostic constellations of the PAI interpretive report; S = Successful Malingerer; I = Invalid on at least one validity scale; NE = No elevations to suggest PTSD symptomatology; IPT = Invalid PAI + TSI; IM = Invalid M-FAST; ITM = Invalid TSI + M-FAST; IT = Invalid TSI; IPM = Invalid PAI + M-FAST; IP = Invalid PAI; IPTM = Invalid PAI + TSI + M-FAST; NET = No Elevations on TSI; NEP = PAI does not suggest PTSD; NETP = No Elevations on TSI + PAI does not suggest PTSD.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 14

Percent of Participants with Elevated Scales or Who Meet Criteria by Trauma

Scale Elevation or Classification	Trauma Positive <i>n</i> =66	Trauma Negative <i>n</i> =47	χ^2	Eta
M-FAST	70%	66%	.177	.040
Total (6+)				
TSI ATR (61+)	61%	53%	.618	.074
TSI INC (65+)	11%	17%	.981	.093
TSI RL (65+)	3%	4%	.121	.033
TSI PTSD (2+ elevations)	80%	68%	2.199	.139
PAI ARDT (70+)	67%	60%	.597	.073
PAI INC (70+)	14%	4%	2.75	.156
PAI INF (70+)	20%	28%	.983	.093
PAI NIM (70+)	64%	53%	1.24	.105
PAI PIM (70+)	0%	0%	N/A	N/A
PAI MI (70+)	59%	49%	1.14	.101
PAI PTSD (Diagnosis Suggested)	52%	57%	.389	.059
Malingering Status	3% S 88% I 9% NE	4% S 83% I 13% NE	.542	.069
Detailed Malingering Status	3% S 8% IPT 6% IM 3% ITM 6% IT 9% IPM 6% IP 50% IPTM	4% S 6% IPT 11% IM 0% ITM 6% IT 4% IPM 4% IP 51% IPTM	4.99	.210

2% NET	0% NET
5% NEP	6% NEP
3%NETP	6%NETP

Note. M-FAST = Miller Forensic Assessment of Symptoms Test; TSI = Trauma Symptom Inventory; ATR = Atypical Responding; INC = Inconsistency; RL = Response Level; TSI PTSD = At least two clinical scale elevations on TSI; PAI = Personality Assessment Inventory; ARDT = Anxiety Related Disorders, Trauma; INC = Inconsistency ; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; MI = Malingering Index; PAI PTSD = PTSD was suggested in the diagnostic constellations of the PAI interpretive report; S = Successful Malingerer; I = Invalid on at least one validity scale; NE = No elevations to suggest PTSD symptomatology; IPT = Invalid PAI + TSI; IM = Invalid M-FAST; ITM = Invalid TSI + M-FAST; IT = Invalid TSI; IPM = Invalid PAI + M-FAST; IP = Invalid PAI; IPTM = Invalid PAI + TSI + M-FAST; NET = No Elevations on TSI; NEP = PAI does not suggest PTSD; NETP = No Elevations on TSI + PAI does not suggest PTSD.

* $p < .05$, ** $p < .01$, *** $p < .001$

Figure Captions

Figure 1. Mean T scores (M-FAST raw scores) of validity indices across conditions.

Figure 2. Mean T scores of TSI clinical scales across conditions.

Figure 3. Mean T scores of PAI clinical, treatment, and interpersonal scales across conditions.

Figure 4. Mean M-FAST raw scores across conditions.

Figure 5. Malingering status percentages for trauma positive groups.

Figure 6. Malingering status percentages for trauma negative groups.

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6