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Published in:
Violence and Victims

1997

Violence and Victims, Vol. 12, No. 1, 1997

Brief Report

Validation of the Keane MMPI–PTSD Scale Against DSM–III–R Criteria in a Sample of Battered Women

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The Keane, Malloy, & Fairbank (1984) MMPI-PTSD Scale has proven to be a reliable and valid measure of posttraumatic stress disorder (PTSD) in combat veterans. However, few studies have examined the MMPI-PTSD Scale's validity in civilian trauma victims, including battered women. In the present study, 46 battered women who completed the MMPI-PTSD Scale were assigned to PTSD-Positive and PTSD-Negative groups based on a structured diagnostic interview and then contrasted on the MMPI-PTSD Scale. Significantly higher scores on the scale were found in the PTSD-Positive group. Also, a cutoff score of 22 on the MMPI-PTSD Scale correctly classified 80.4% of the sample. Correlations between the MMPI-PTSD and DSM-III-R criteria suggest that the scale is moderately sensitive to many of the symptoms particularly those involving intrusion and psychological arousal, comprising the diagnosis of PTSD. This investigation provides further support for the validity of the MMPI-PTSD Scale and its utility in screening battered women for PTSD.

Studies using structured diagnostic interviews based on DSM-III-R criteria (APA, 1987) have found high rates of Posttraumatic Stress Disorder (PTSD) in both clinic and shelter samples of battered women (45-84%) (Astin, Lawrence, & Foy, 1993; Gleason, 1993; Houskamp & Foy, 1991; Kemp, Rawlings, & Green, 1991; Saunders, 1994). As such, battered women should be considered at risk and appropriately assessed for PTSD (Dutton, 1992; Walker, 1991). Brief, easily administered, and valid screening measures, suitable to community-based clinics and shelters are needed in this regard.

One such potential measure is the 49-item Keane MMPI-PTSD Scale (Keane, Malloy, & Fairbank, 1984). This widely used scale (Watson, Juba, Anderson, & Manifold, 1990)

has proven to be both reliable and valid when measured against DSM-III-R criteria for PTSD in combat veterans (Cannon, Bell, Andrews, & Finkelstein, 1987; Gayton, Burchstead, & Matthews, 1986; Hyer et al., 1986; Keane et al., 1984; Query, Megran, & McDonald, 1986; Watson et al., 1990; Watson, Kucala, & Manifold, 1986). More recently, it has also been shown to correlate well with other standardized measures of PTSD in a sample of battered women (Perrin, Van Hasselt, Basilio, & Hersen, in press). However, it has not been validated against DSM-III-R criteria for PTSD in this population. Given the MMPI's widespread use in clinical settings, the MMPI-PTSD Scale may be an accessible screen for PTSD for those working with battered women. In the present study, we examined the relationship between the MMPI-PTSD Scale and DSM-III-R criteria for PTSD in clinically referred battered women.

METHOD

Subjects

Subjects were 46 women clinically referred to an outpatient clinic specializing in the assessment and treatment of domestic violence. Subjects ranged in age from 17 to 57 years (*mean* = 34.2, *SD* = 9.6). The majority were Caucasian (76.1%) with at least a high school diploma (84.8%). Most were unemployed (63.0%) and reported an annual family income ≤$10,000 (54.3%). More than two thirds (67.3%) were divorced, single, or widowed with the remainder being married to their current battering partner (32.6%). Two thirds (66.7%) were not residing with their battering partners at intake. Five subjects (10.9%) were court-ordered to treatment. Inclusion criteria for the study were: (1) completion of the MMPI and (2) the occurrence of at least one violent incident by the current partner. All subjects reported a high frequency (>10 incidents) of physical abuse (e.g., punches, slaps, kicks, hit with objects) from their current partner.

Measures

All measures were completed at intake prior to the onset of treatment. Subjects completed the 595-item version of the MMPI (Hathaway & McKinley, 1951), including the 49-item MMPI-PTSD Scale (Keane et al., 1984). Violence and abuse history were assessed via a structured interview for domestic violence originally adapted from the Conflict Tactics Scale (Strauss, 1979) by Douglas(1986). DSM-III-R criteria for PTSD were assessed via the PTSD Interview (PTSD-I) (Watson, Juba, Manifold, Kucala, & Anderson, 1991). The PTSD-I is an 18-item, clinician-administered scale that assesses the frequency of all DSM-III-R PTSD symptoms. This interview has been used in previous studies of combat veterans and crime victims, and demonstrates high internal consistency (alpha=.92), test-retest reliability (total=.95), and diagnostic agreement (87%) with other structured clinical interviews (Watson, et al., 1991). Subjects were assigned a diagnosis of PTSD if they currently met DSM-III-R criteria as based on the PTSD-Interview.

RESULTS

Twenty-eight of the 46 battered women in the study met criteria for a current diagnosis of PTSD based on structured interview data, a base rate of 60.9%. Further, MMPI-PTSD scores

in this PTSD-Positive group (*mean* = 29.7, *SD* = 7.8) were significantly higher than those observed for the remaining 18 women without PTSD (*mean* = 17.2, *SD*=8.3) (t(44) = 5.17, $p < .0001$). By examining the distribution of MMPI-PTSD scores in the PTSD-Positive and PTSD-Negative groups, a cutoff score of 22 was chosen to maximize sensitivity and specificity of diagnosis. Using this empirically derived cutoff of 22, 85.7% of the sample was correctly classified as having a current diagnosis of PTSD (PTSD-Positive) and 72.2% classified as PTSD-Negative, yielding an overall hit-rate of 80.4%. Positive and negative predictive values for the MMPI-PTSD Scale were 64.7% and 76.5%, respectively. Maximally sensitive PK cutoff scores for PTSD have varied considerably in previous studies (14-30), dependent upon the nature of the patient and control groups (Watson et al., 1990). The present cutoff falls clearly within this range and is comparable to that observed (19) in a previous study of crime victims (cf., Koretzky & Peck, 1990).

To further examine the relationship between the MMPI-PTSD Scale and DSM-III-R criteria for PTSD, correlations between the scale and individual symptom severity ratings from the PTSD-Interview were examined. Total PTSD symptom severity was significantly correlated with total scores on the MMPI-PTSD Scale ($r = .69$, p.001). Correlations between the scale and symptom severity ratings under *Criterion-B* for PTSD ranged from .35 ($p = .016$) for nightmares to .58 ($p < .001$) for intrusive memories. Under *Criterion-C,* only two symptoms significantly correlated with the scale: diminished interest in previously enjoyable activities ($r = .42$, $p = .004$) and avoidance of trauma-related activities ($r = .46$, $p = .001$). The severity of avoidance of trauma related thoughts ($r = .27$, $p = .075$) and failure to recall significant aspects of the trauma ($r = .14$, $p = .34$) were not significantly correlated with MMPI-PTSD scores. Finally, all of the individual symptoms under *Criterion-D* were significantly correlated with MMPI-PTSD scores and ranged from .46 for exaggerated startle responses to .63 for sleep difficulties (all p's $< .001$).

To more fully examine the relationship between the MMPI-PTSD Scale and DSM-III-R criteria for the disorder, individual symptom frequency and severity ratings were compared in the two groups. With the exception of intrusive memories, where all battered women in both groups reported this symptom, the pattern of differences was in the expected direction. The frequency of other individual symptoms in the PTSD-Positive group ranged from 75% to 96%. By contrast, symptom frequency ranged from 56% to 89% in the PTSD-Negative group. A series of 2x2 chi-square analyses found significant differences between the two groups on all symptoms (data available upon request) except for those found under *Criterion-B,* and avoidance of trauma-related thoughts and activities, amnesia, restricted affect, and sense of a foreshortened future *(Criterion-C),* and irritability *(Criterion-D).* However, symptom severity ratings for individual symptoms under all criteria were rated significantly higher (all t-tests significant at $p < .05$). Furthermore, the total severity rating for all symptoms was significantly higher in the PTSD-Positive than the PTSD-Negative group (*mean* = 86.4, *SD* = 15.4 vs. *mean* = 55.3, *SD* = 21.1; $t(44) = 5.78$, $p < .0001$).

DISCUSSION

The purpose of the present study was to evaluate the validity of the MMPI-PTSD Scale against DSM-III-R criteria for PTSD in a sample of battered women. Overall, the scale proved to be a valid and moderately sensitive measure of PTSD in this population. Consistent with previous investigations (Keane et al., 1984; Koretzky & Peck, 1990; Query et al., 1986; Watson et al., 1986), the scale correctly classified 80.4% of the battered women in this study

using a cutoff score of 22. While this cutoff is lower than the cutoff score of 30 originally recommended by Keane et al. (1984), it is only slightly higher than the range of cutoff scores (i.e., 14.5 to 19) reported in subsequent studies using large cross-validation samples (Koretzky & Peck, 1990; Watson, Kucala, & Manifold, 1986). Further, a significant but moderate correlation was found between PTSD status and the MMPI-PTSD Scale with a PTSD diagnosis accounting for 38% of the total variance in MMPI-PTSD Scale scores.

Consistent with previous investigations with combat veterans (Watson et al., 1990), significant correlations were obtained between the MMPI-PTSD Scale and the individual criteria comprising the PTSD diagnosis as well. In our study, the strongest correlations were observed between the MMPI-PTSD Scale and intrusive thoughts, feelings of detachment, a sense of a foreshortened future, and the majority of symptoms comprising *Criterion-D* (physiological arousal). Only avoidance of trauma-related thoughts and amnesia for the trauma failed to correlate significantly with the MMPI-PTSD Scale. However, correlations with avoidance items in general were low. Thus, it appears that the MMPI-PTSD Scale is moderately sensitive to a majority of the PTSD criteria in battered women (but not all) particularly avoidance-related symptoms.

The present findings must be interpreted in light of certain methodological limitations. First, data were obtained from a clinic sample and may not generalize to battered women in the community or in shelters. Second, a nonbattered, psychopathological control group was not included in this study. Thus, we were not able to determine if the results were specific to battered women only. Third, no reliability data were available for the PTSD Interview, although the measure itself has proven to be reliable in previous studies (cf., Watson et al., 1990, Watson, Juba, Manifold, Kucala, & Anderson, 1991). Finally, a complete diagnostic evaluation was not conducted. Consequently, the contribution of other comorbid diagnoses to the variance in MMPI-PTSD scores could not be considered. The presence of comorbid conditions may account, in part, for the moderate level of correlations observed in this study. While additional research employing the MMPI-PTSD Scale is needed, the present investigation provides preliminary support for this measure as a quick screening device for PTSD in battered women. However, it should not be used as the sole measure for determining the presence/absence of PTSD in battered women.

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