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Brief Report

The Potential for Faking on the Mississippi Scale for Combat-Related PTSD[1]

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The Mississippi Scale for Combat-Related PTSD is widely used in the assessment of post-traumatic stress disorder (PTSD). The high face-validity of the scale may make it vulnerable to faking, however. The present study found that the scores of individuals instructed to respond "as if" they had PTSD did not differ from the scores of veterans with PTSD. Furthermore, although veterans who were diagnosed as having PTSD were found to have significantly higher Mississippi Scale scores than those who did not meet diagnostic criteria for PTSD, the mean score for all groups (veteran and non-veteran) exceeded the originally recommended diagnostic cut-off score of 107. A cutoff score of 121 was found to best differentiate veterans with PTSD from veterans who did not meet diagnostic criteria for the diagnosis, with high sensitivity but relatively low specificity.

KEY WORDS: Mississippi Scale; PTSD assessment; fabricated symptoms; malingering.

INTRODUCTION

The Mississippi Scale for Combat-related PTSD (Keane *et al.*, 1988) is a widely used measure of post-traumatic stress disorder (PTSD). It yields a total score as well as scores on six factors, i.e., Intrusive Memories/De-

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pression, Interpersonal Problems, Lability/Memory, Ruminations, Other Interpersonal Problems, and Sleep Problems. The Mississippi Scale has been shown to be effective in differentiating veterans with PTSD from veterans with other diagnoses and from those with no evidence of psychiatric impairment (Keane *et al.*, 1988; Kulka *et al.*, 1988). There is concern, however, that the high face validity of the scale's items might enable individuals to fake PTSD-like responses if motivated by secondary gain.

To explore this question, the present study examines both the scale's fakability and its efficacy in diagnosing PTSD among veterans who are seeking disability compensation for the disorder. The Mississippi Scale scores of Vietnam veterans who were diagnosed as having PTSD are compared with the scores of three comparison groups who were instructed to respond "as if" they had PTSD. The PTSD group is also compared to a group of veterans who were seeking compensation for PTSD but, according to clinical interview and MMPI data, did not meet diagnostic criteria for the disorder.

METHOD

This study was conducted at the Jackson Department of Veterans Affairs Medical Center (JDVAMC). The 35-item Mississippi Scale (Keane *et al.*, 1988) was individually administered to each of the subjects. Five groups of subjects participated in the study.

The first two groups included 45 male, Vietnam combat veterans who were referred by the Compensation and Pension Office at JDVAMC for compensation exams for combat-related PTSD. Each Vietnam veteran was seen by a masters-level or doctoral-level member of the Trauma Recovery Program staff. A structured interview was conducted and the MMPI was administered. The examiner then met with the program chief, a clinical psychologist, to determine a consensus diagnosis based on the interview and MMPI data. Twenty-one of these men received a PTSD diagnosis and constitute the PTSD clinical group (PTSD). The remaining 24 veterans received diagnoses other than PTSD, and constitute the non-PTSD clinical group (Non-PTSD). Veterans in each of these two groups completed the Mississippi Scale at the time of their clinical examination. They were given no special instructions regarding the task and were not given information about PTSD diagnostic criteria during their evaluation.

The remaining three groups constitute the "faking" groups and the subjects were recruited specifically for this project. Subjects in the three groups were as follows: 26 male Vietnam-era veterans who had not served in Vietnam and had not been in combat (Noncombat), 26 male nonveterans

who were age-matched to the two clinical groups (Nonveteran), and 26 male JDVAMC employees and relative/acquaintances of employees (Employee). None of the subjects in these three groups had any specialized interest in or knowledge of PTSD (i.e., none were clinicians, veterans' counselors, service officers, etc.). Subjects in each of these three groups were read a very brief, general description of PTSD and were then instructed to respond to the items "in such a way as to convince professionals who will be scoring the questionnaire that you do, in fact, have PTSD."

The mean ages for the specific groups were as follows; PTSD = 39.4, non-PTSD = 40.6, noncombat = 33.5, nonveterans = 38.1, and employees = 39.7. The noncombat group was significantly younger than the other four groups [$F(4,118) = 7.9, p < 0.001$]. The percentage of African Americans in each of the five groups was as follows: PTSD = 33.3%, non-PTSD = 37.5%, noncombat = 61.5%, nonveteran = 15.4%, and employee = 46.2%. There were significantly more African Americans in the noncombat group than in the nonveteran group ($\chi^2 = 11.7, p < 0.001$). No other comparisons were statistically significant.

RESULTS

Means and standard deviations for all five groups on the Mississippi Scale are presented in Table I. All five groups were above the 107 cutoff score reported to be indicative of PTSD by Keane *et al.* (1988).

In the first set of analyses, the PTSD clinical group was contrasted with the three "faking" groups. Mean scores for the PTSD group and all

Table I. Means and Standard Deviations for the Mississippi Scale for Combat-Related PTSD

	Clinical Groups		"PTSD-Faking" Groups		
Mississippi Scale	PTSD	Non-PTSD	Noncombat Veterans	Nonveterans	JDVAMC Employees
Total	136(15)[a]	125(21)[a]	134(27)	145(11)	134(18)
Factors					
I	3.6(0.6)	3.3(0.8)	3.8(0.9)	4.0(0.5)	3.9(0.7)
II	4.1(0.5)	3.7(0.9)	3.8(0.9)	4.3(0.5)	4.0(0.6)
III	3.5(0.9)	3.5(0.9)	3.4(0.9)[a]	4.0(0.5)[a]	3.6(0.7)
IV	4.4(0.5)[a]	3.9(0.7)[a]	4.1(0.9)	4.4(0.5)	4.0(0.7)
V	3.8(0.6)[a]	3.1(0.6)[a]	3.7(0.9)	3.9(0.6)	3.4(0.9)
VI	4.1(0.8)	4.2(0.7)	4.1(0.7)	4.1(0.6)	3.5(1.1)

[a]Similar superscripts indicate significant pairwise comparisons at or below $p = 0.05$. Standard deviations appear in parentheses.

three of the "faking" groups exceeded the average PTSD score of 130 reported by Keane *et al.* (1988). There were no significant differences among these groups on the total scale score, F (3,95) = 1.88, $p > 0.10$. The groups differed on two of the six factors on the Mississippi Scale, Factor III [Lability/Memory, F (3,95) = 3.48, $p < 0.05$] and Factor VI [Sleep Problems, F (3,95) = 2.88, $p < 0.05$]. However, *post-hoc* analyses failed to identify any pattern of factors which consistently differentiated the PTSD patients from the "faking" groups.

In the second set of analyses, the PTSD clinical group was contrasted with the non-PTSD clinical group. The reader is reminded that both these groups completed the questionnaire within the context of a diagnostic assessment for compensation purposes. Men diagnosed as having PTSD were found to have significantly higher Mississippi Scale scores than those who did not meet diagnostic criteria for PTSD [$t(43) = 2.05$, $p < 0.05$]. However, the scores of both groups were high and above the Keane *et al.* cutoff (PTSD = 136.4; non-PTSD = 124.9). The Keane *et al.* cut-off score of 107 yielded excellent sensitivity (0.95) but poor specificity (0.21) and a hit rate of only 0.57 due to 19 false positives and 1 false negative. Maximal prediction was obtained when the cut-off score was raised to 121, but efficiency remained marginal (sensitivity = 0.95; specificity = 0.42; hit rate = 0.67, with 14 false positives and 1 false negative). The PTSD and non-PTSD groups differed on two of the six factors on the Mississippi Scale, Factor IV [Ruminations, $t(43) = 2.44$, $p < 0.05$] and Factor V [Other Interpersonal Problems, $t(43) = 3.36$, $p < 0.01$].

MMPI F scale scores also were high for both groups (PTSD: mean = 87.2, SD = 15.3; non-PTSD: mean = 84.2, SD = 19.6). The total Mississippi Scale score correlated significantly with both the MMPI F scale ($r = .52$, $p < 0.001$) and the F-K index ($r = .50$, $p < 0.001$). Mean MMPI-Keane PTSD Scale scores (Keane *et al.*, 1984) were high for both the PTSD (mean = 36.6, SD = 7.0) and non-PTSD (mean = 33.2, SD = 9.6) groups.

DISCUSSION

Keane *et al.* (1988) demonstrated that the Mississippi Scale has high sensitivity and specificity when administered to veterans with a range of diagnoses and when subjects are not necessarily seeking a PTSD diagnosis. Findings of the National Vietnam Veterans Readjustment Study further support the utility of the Mississippi Scale as a measure for screening for PTSD symptoms within the general veteran population (Kulka *et al.*, 1988). However, specificity may suffer dramatically in situations where respondents are motivated to purposely fake PTSD-like responses. The present

study raises serious questions about the utility of the Mississippi Scale for the diagnosis of PTSD in cases involving compensation or other potential secondary gain. The average scores for all groups studied were above the 107 diagnostic cutoff for PTSD. Additionally, all except the non-PTSD clinical group scored above the mean PTSD score of 130 cited in Keane *et al.* (1988). The fact that the three "faking" groups obtained total scores on the Mississippi Scale that were indistinguishable from the PTSD group mean indicates that individuals who are even superficially familiar with PTSD symptomatology can fake PTSD-like responses on the scale. The Mississippi Scale significantly differentiated the PTSD clinical group from the non-PTSD clinical group. However, a high number of false positives was found even when the cut-off was raised from 107 to 121. Correlations of Mississippi Scale scores with *F* and *F-K* indices suggest the possibility that response set has a strong influence on psychometric data when measures are completed as part of a compensation and pension evaluation.

Results of this investigation highlight the need for a multimodal approach to diagnosis and the need for further examination of psychometric response patterns of veterans diagnosed with PTSD. Clearly, clinicians must use caution when interpreting Mississippi Scale scores as supporting a diagnosis of PTSD in evaluations in which financial compensation and other secondary gain issues are salient.

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