BRIEF REPORT: Utility of a Short Screening Scale for DSM-IV PTSD in Primary Care

Rachel Kimerling, PhD,[1] Paige Ouimette, PhD,[2] Annabel Prins, PhD,[3] Patrick Nisco, PhD,[1] Casey Lawler, MS,[4] Ruth Cronkite, PhD,[5] Rudolf H. Moos, PhD[5]

[1]VA Palo Alto Health Care System, Palo Alto, CA, USA; [2]Syracuse VA Medical Center, Syracuse, NY, USA; [3]San Jose State University and VA Palo Alto Health Care System, Palo Alto, CA, USA; [4]Washington State University, Pullman, WA, USA; [5]VA Palo Alto Health Care System and Stanford University School of Medicine, Palo Alto, CA, USA.

OBJECTIVE: To evaluate Breslau's 7-item screen for posttraumatic stress disorder (PTSD) for use in primary care.

DESIGN: One hundred and thirty-four patients were recruited from primary care clinics at a large medical center. Participants completed the self-administered 7-item PTSD screen. Later, psychologists blinded to the results of the screen-interviewed patients using the Clinician Administered PTSD Scale (CAPS). Sensitivity, specificity, and likelihood ratios (LR) were calculated using the CAPS as the criterion for PTSD.

RESULTS: The screen appears to have test-retest reliability ($r=.84$), and LRs range from 0.04 to 13.4.

CONCLUSIONS: Screening for PTSD in primary care is time efficient and has the potential to increase the detection of previously unrecognized PTSD.

KEY WORDS: PTSD; primary care; screening; detection; diagnosis.

Posttraumatic stress disorder (PTSD) is a serious and often chronic response to overwhelmingly stressful events. The disorder is associated with increased rates of medical morbidity, poor health-related quality of life, and functional impairment.[1,2] PTSD is prevalent in primary care settings, where approximately 12% to 25% of patients meet diagnostic criteria for the disorder.[3,4] Despite the development of a number of efficacious behavioral and pharmacological treatments,[5,6] only a minority of patients with PTSD receive mental health services.[7] PTSD is the most frequently underrecognized and untreated anxiety disorder in primary care settings.[8] Attention to PTSD in medical settings is key to providing treatment to this population, because primary care, rather than specialty mental health services, is the point of contact with the health care system for the majority of individuals with PTSD.[9]

Improving detection of PTSD is a necessary first step to addressing the health and mental health burden experienced by these patients. Several approaches to screening have recently been proposed, ranging from the use of full-length psychometric self-report measures[10,11] to the development of brief, stand-alone screening instruments.[4,12] Ideally, a screen for PTSD would balance the ability to detect cases with the resources required to evaluate and treat cases that screen positive. The current study focuses on a 7-item screen for DSM-IV PTSD developed by Breslau et al.[13] We evaluate the utility of the Breslau screen to identify PTSD in primary care settings.

Breslau et al.[13] proposed a 7-item, empirically derived screening scale from interview items that best discriminated individuals with a diagnosis of PTSD in a large epidemiological telephone survey. The screen was designed to follow an event checklist or other assessment of trauma exposure. Their data indicated that cutoff scores of 4 or 5 (the authors' recommend 4) best balanced the screen's sensitivity, the ability to detect patients with PTSD, and specificity, the ability to detect patients who do not have PTSD. Providing follow-up referrals or evaluations to individuals with screen scores of 4 and higher would maximize the number of PTSD cases identified while minimizing the resources allocated to false positive cases. The authors suggest that future studies evaluate the screen using direct comparisons with clinical assessments and populations that include patients over 45 years of age. We investigate the utility of the Breslau screen by direct comparisons with clinical assessments in a VA primary care population with an unrestricted age range. Furthermore, we eliminate the need for a separate assessment of trauma exposure by adding an introductory stem that is brief and reliable as a general reference for exposure.[4] Thus, the screen, as used in the current study, may be administered to patients as a brief stand-alone self-report instrument to identify those who may have PTSD.

METHOD

Participants were recruited from general medical and women's health clinics at a Veterans Affairs Healthcare System for a study of physical and mental health responses to stressful life events.[2] Exclusion criteria included obvious cognitive impairment; preferred language other than English; invalid phone number; and participation in another research project that precluded their participation in the current study.

A convenience sample of 258 individuals was approached in clinic waiting areas, provided written informed consent, and then self-administered Breslau's short screening scale for PTSD[13] (Table 1), which was completed in approximately 5 minutes. Exclusion criteria were met by 25 patients, and of the remaining 237 patients (96%), a total of 134 (57%) returned to the VA for a research follow-up approximately 1 month later ($M=32.14$ days, SD $=27.86$). Clinic records indicated that participants did not differ from nonparticipants in terms of age; presence of PTSD, mental health, or medical diagnosis at the index visit; or past-year outpatient visits (primary care, PTSD, mental health, and total) or inpatient hospitalizations. A higher proportion of participants than nonparticipants were women (61% vs 41%, respectively; $\chi^2=6.13$, $P<.05$). At this second visit, participants completed the Breslau screen a sec-

Table 1. Short Screening Scale for PTSD

Item	Test-retest κ
In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, *in the past month . . .*	
1. Did you avoid being reminded of this experience by staying away from certain places, people, or activities?	0.54
2. Did you lose interest in activities that were once important or enjoyable?	0.72
3. Did you begin to feel more isolated or distant from other people?	0.81
4. Did you find it hard to have love or affection for other people?	0.50
5. Did you begin to feel that there was no point in planning for the future?	0.74
6. After this experience were you having more trouble than usual falling asleep or staying asleep?	0.78
7. Did you become jumpy or get easily startled by ordinary noises or movements?	0.63

Responses are YES=1 or NO=0. The scale is scored by summing all responses. Scale scores may range from 0 to 7.
PTSD, posttraumatic stress disorder.

ond time and were interviewed using the Clinician-Administered PTSD Scale (CAPS)[14] by trained masters' and doctoral-level psychologists blind to screen results. Participants were paid $15.00 for their participation. The Stanford University panel on medical human subjects approved this project.

The screen is scored by summing the positive responses with scores ranging from 0 to 7. A Spearman's rank correlation was calculated to assess test-retest reliability for an ordinal scale, while κ coefficients were used to determine agreement for individual items. We calculated sensitivity, the proportion of all cases that were detected (detected true positives/prevalence), and specificity, the proportion of all negative cases that were detected (detected true negative cases/(1-prevalence)) for each possible score. To determine the optimal cut score for follow-up, we calculated quality indices for sensitivity and specificity, weighted κ coefficients that reflect the accuracy of the test (or optimal point on the receiver operating characteristic curve) while accounting for the influence of the prevalence of the disorder.[15,16] We used a coefficient weighted equally for sensitivity and specificity to determine the optimal cut score. In addition, we calculated likelihood ratios (LR) (ratio of the proportion of people with and without PTSD within a stratum of the screen results) for scores ranging from 0 to 2, 3 to 5, and 6 to 7. Likelihood ratios measure the power of a screen result to change the prescreen into the postscreen probability of PTSD being present.[17]

Table 2. Sensitivity and Specificity of the 7-Item PTSD Screen at Different Cutoff Scores (N=134)

PTSD Screen Cutpoints	Sensitivity (95% CI)	Specificity (95% CI)
≥ 1	0.97 (0.91, 1.0)	0.49 (0.39, 0.59)
≥ 2	0.97 (0.91, 1.0)	0.62 (0.52, 0.71)
≥ 3	0.97 (0.91, 1.0)	0.78 (0.69, 0.86)
≥ 4	0.85 (0.73, 0.97)	0.84 (0.77, 0.91)
≥ 5	0.76 (62, 0.90)	0.91 (0.85, 0.97)
≥ 6	0.67 (0.50, 0.80)	0.95 (0.89, 0.98)
≥ 7	0.33 (0.19, 0.49)	0.97 (0.92, 0.99)

The base rate of PTSD was 25%.
PTSD, posttraumatic stress disorder; CI confidence interval.

Table 3. Likelihood Ratios for the 7-Item PTSD Screen

PTSD Screen Result	Posttraumatic Stress Disorder (Based on CAPS)		Likelihood Ratio (95% CI)
	Present *n* (%)	Absent *n* (%)	
6–7	22 (66.67)	5 (4.95)	13.47 (5.53, 32.8)
3–5	10 (30.3)	17 (16.83)	1.8 (0.91, 3.55)
0–2	1 (3.03)	79 (78.22)	0.04 (0.01, 0.28)
Totals	33 (100)	101 (100)	

PTSD, posttraumatic stress disorder; CAPS, Clinician Administered PTSD Scale; CI, confidence interval.

RESULTS

The average age of the 134 participants was 51.7 years (SD=15, range 22 to 85), and 82 (61%) were women. Participants' racial/ethnic identity generally reflected those of the VA primary care patients: 68% white, 18% African American; 5% Hispanic; 5% Asian/Pacific Islander; 1% Native American; and 3% other.[18] Most participants had some college education (68%; *n*=91); 44% (*n*=59) were married and 59% (N=79) were employed.

The prevalence of PTSD as identified by the CAPS was 25%, 29% among men and 22% among women. Of patients diagnosed according to the CAPS, 38% had a diagnosis of PTSD in the medical chart. The median number of items endorsed on the screen was 1 at Time 1 and 2 at Time 2 administration; the range was 0 to 7 for both administrations, and test-retest reliability was .84, *P*<.001. Test-retest κ's for individual items ranged from 0.50 to 0.81 (Table 1); the mean κ across the 7 items was 0.67.

Table 2 summarizes the operating characteristics of the screen completed at the second interview. Quality indices for cut scores of 4 (6.2), 5 (6.6), and 6 (6.6) were nearly identical, indicating that these scores maximized both sensitivity and specificity. Operating characteristics calculated separately for men and women were similar. Likelihood ratios were 0.04, 1.28, and 13.4 for scores of 0 to 2, 3 to 5, and 6 to 7, respectively (Table 3).

DISCUSSION

Our results extend those obtained from epidemiological research and suggest that Breslau's 7-item PTSD scale may be a reliable and valid screen for PTSD in primary care settings. The screen can be administered as a stand-alone self-report instrument. The screen provides an efficient method to identify patients who may benefit from additional evaluation and management within the medical visit or referral to specialty mental health services.

While quality indices were similar for cut scores of 4, 5, and 6, using a cut score of 4 would be the most sensitive option, as well as consistent with prior epidemiological research.[13] This cut score yielded positive screens for 85% of PTSD cases. Another approach would be to use LR. If time and resources for follow-up are scarce, patients with scores of 6 and 7 (LR=13.4) should be targeted first for further evaluation. Scores of 6 or 7 significantly increase the probability of PTSD (e.g., at a pretest probability of 10%, these scores would increase that probability to 60%). For patients with scores of 3 to 5, evaluation would depend on the patients' pretest probability of PTSD, and those with scores of 0 to 2 would not need further evaluation (e.g., even at a pretest probability of 50%, scores of 0 to 2 would result in a posttest probability of less than 5%).

Using either approach, the screen is likely to improve detection of PTSD compared with current practice: chart diagnoses of PTSD were present for only 38% of cases identified by the CAPS.

Brief, self-administered PTSD screens, such as this one, can identify patients with probable PTSD without a lengthy or specific trauma assessment and help clinicians avoid the "Pandora's Box"[19] of trauma assessment. This screening process is free of unnecessary detail linked to potentially upsetting or overwhelming material. The operating characteristics obtained are comparable with other, recently developed screens evaluated in primary care.[4] Additional research is needed to determine the generalizability of the results of this screen to populations outside the VA and its relative merits compared with other primary care PTSD screens, but our results were similar to those obtained in prior studies.[13] It should be noted that the items in this scale are not representative of all domains of PTSD (e.g., re-experiencing symptoms), and cannot be used to indicate severity of symptoms. However, brief screens, such as this one, that do not pose an undue burden on clinic resources or clinician time are practical methods for improving the detection of PTSD.

REFERENCES

1. **Frayne SM, Seaver MR, Loveland S, et al.** Burden of medical illness in women with depression and posttraumatic stress disorder. Arch Int Med. 2004;164:1306–12.
2. **Ouimette P, Cronkite R, Henson BR, Prins A, Gima K, Moos RH.** Posttraumatic stress disorder and health status among female and male medical patients. J Trauma Stress. 2004;17:1–9.
3. **Stein MB, McQuaid JR, Pedrelli P, Lenox R, McCahill ME.** Posttraumatic stress disorder in the primary care medical setting. Gen Hosp Psychiatry. 2000;22:261–9.
4. **Prins A, Ouimette PC, Kimerling R, et al.** The primary care PTSD screen: development and operating characteristics. Primary Care Psychiatry. 2004;9:9–14.
5. **Foa EB.** Psychosocial treatment of posttraumatic stress disorder. J Clin Psychiatry. 2000;61(suppl 5):43–8; discussion 49–51.
6. **Marmar CR, Neylan TC, Schoenfeld FB.** New directions in the pharmacotherapy of posttraumatic stress disorder. Psychiatr Quart. 2002;73:259–70.
7. **Kessler RC.** Posttraumatic stress disorder: the burden to the individual and to society. J Clin Psychiatry. 2000;61(suppl 5):4–14.
8. **Schonfeld WH, Verboncoeur CJ, Fifer SK, Lipschutz RC, Lubeck DP, Buesching DP.** The functioning and well-being of patients with unrecognized anxiety disorders and major depressive disorder. J Affect Disord. 1997;43:105–9.
9. **Samson AY, Bensen S, Beck A, Price D, Nimmer C.** Posttraumatic stress disorder in primary care. J Fam Pract. 1999;48:222–7.
10. **Franklin CL, Sheeran T, Zimmerman M.** Screening for trauma history, posttraumatic stress disorder (PTSD) and subthreshold PTSD in psychiatric outpatients. Psychol Assess. 2002;14:467–71.
11. **Mori DL, Lambert JF, Niles BL, Orlander JD, Grace M, LoCastro JS.** The BAI-PC as a screen for anxiety, depression, and PTSD in primary care. J Clin Psychol Med Settings. 2003;10:187–92.
12. **Brewin CR, Rose S, Andrews B, et al.** Brief screening instrument for post-traumatic stress disorder. Br J Psychiatry. 2002;181:158–62.
13. **Breslau N, Peterson EL, Kessler RC, Schultz LR.** Short screening scale for DSM-IV posttraumatic stress disorder. Am J Psychiatry. 1999;156:908–11.
14. **Weathers FW, Keane TM, Davidson JR.** Clinician-administered PTSD scale: a review of the first ten years of research. Depres Anxiety. 2001;13:132–56.
15. **McNeil BJ, Keller E, Adelstein SJ.** Primer on certain elements of medical decision making. N Engl J Med. 1975;293:211–5.
16. **Kraemer HC.** Evaluating Medical Tests. Newbury Park, CA: Sage; 1992.
17. **Sackett DL, Straus S.** On some clinically useful measures of the accuracy of diagnostic tests. ACP J Club. 1988;129:A17–9.
18. **Perlin J, Kazis LE, Skinner KM, et al.** Health status and outcomes of veterans: physical and mental health computational summary scores of the veterans SF-36 1999 targeted health survey of veteran enrollees. Department of Veterans Affairs, Veterans Health Administration, Office of Quality and Performance, Washington, DC, May 2000.
19. **Sugg NK, Inui T.** Primary care physicians' response to domestic violence: opening Pandora's box. JAMA. 1992;267:3157–60.