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Psychometric Properties of the Modified Posttraumatic Stress Disorder Symptom Scale among Women with Posttraumatic Stress Disorder and Substance Use Disorders Receiving Outpatient Group Treatments

Lesia M Ruglass[1,*], **Santiago Papini**[1], **Leora Trub**[2], and **Denise A Hien**[1,3]

[1]*The City College of New York of CUNY, USA*

[2]*Pace University, USA*

[3]Columbia University College of Physicians and Surgeons, USA

Abstract

Objective—The use of psychometrically sound measures to assess and monitor PTSD treatment response over time is critical for better understanding the relationship between PTSD symptoms and Substance Use Disorder (SUD) symptoms throughout treatment. We examined the psychometric properties of the Modified Posttraumatic Stress Disorder (PTSD) Symptom Scale, Self-Report (MPSS-SR).

Methods—Three hundred fifty three women diagnosed with co-occurring PTSD (full or sub-threshold) and SUD who participated in a multisite treatment trial completed the MPSS-SR at pre-treatment, weekly during treatment, and posttreatment. Reliability and validity analyses were applied to the data.

Results—Internal consistency was excellent throughout the course of the trial demonstrating the MPSS-SR's high reliability. Strong correlations between MPSS-SR scores and the Brief Symptom Inventory and the Clinician Administered PTSD Scale (CAPS) severity scores demonstrated the MPSS-SR's convergent and concurrent validity. We conducted a classification analysis at posttreatment and compared the MPSS-SR at various cutoff scores with the CAPS diagnosis. A cutoff score of 29 on the MPSS-SR yielded a sensitivity rate of 89%, a specificity rate of 77%, and an overall classification rate of 80%, indicating the measure's robust ability to accurately identify individuals with PTSD in our sample at posttreatment.

Conclusions—Findings support the use of the MPSS-SR as a reliable and valid tool to assess and monitor changes in PTSD symptoms over the course of treatment and as an alternative to structured clinical interviews to assess PTSD symptoms among populations with SUDs.

[*]**Corresponding author:** Lesia M. Ruglass, Department of Psychology, The City College of New York of CUNY, 160 Convent Avenue, NAC Building, Rm 7/120, New York, NY 10031, Tel: 212.650.7821; Fax: 212.650.7025; ruglass.ccny@gmail.com.

Keywords

Reliability; Validity; Trauma; PTSD; Substance use disorders; Treatment outcomes

Introduction

Posttraumatic Stress Disorder (PTSD) is often a chronic and debilitating condition that can develop after exposure to a single traumatic event or series of ongoing traumatic events. Epidemiological survey estimates indicate that 6.8% of the general population has met criteria for PTSD in their lifetime [1]. PTSD is often considered a risk factor for the development of a substance use disorder (SUD; [2,3]). Yet, there is often a failure to adequately screen for trauma/PTSD among SUD populations, which may result in inadequate or inappropriate treatment or worsening of trauma-related symptomatology [4]. Studies indicate a high co-occurrence of PTSD and SUD [3]. Estimates from the National Epidemiological Survey on Alcohol and Related Conditions indicate that among individuals with PTSD, 46% had a SUD diagnosis, and an additional 22% had symptoms of a SUD [5]. Further, individuals with PTSD who seek treatment are more than 14 times more likely to have SUD compared to those without PTSD [5].

Given the severe clinical profile that characterizes individuals with both disorders, the treatment of individuals with co-occurring PTSD and SUD tends to be more complicated than treating either disorder alone and poses significant challenges for the treating clinicians [6]. In addition to a broad range of symptoms that can be pervasively and unpredictably triggered, additional risk factors implicated in the association between patients with PTSD-SUD and poorer treatment outcomes include deficits in coping skills, low self-efficacy, decreased expectations of the benefits of quitting substance use, and increased expectations that alcohol will ameliorate PTSD symptoms [7]. This has necessitated the development of integrated treatments that target both diagnostic categories [3]. Emerging research suggests that when PTSD symptoms improve after receiving an integrated treatment such as Seeking Safety [8], this improvement has an ameliorative effect on substance use symptoms [9,10]. Relatedly, research suggests that the failure to target PTSD symptoms early in treatment increases risk of relapse [11]. The use of psychometrically sound measures to assess, track, and monitor PTSD treatment response over time is critical for better understanding the relationship between PTSD symptoms and SUD symptoms throughout treatment.

There are multiple instruments that can serve as brief screening and treatment monitoring tools for PTSD including the Posttraumatic Diagnostic Scale (PDS; [12]), the PTSD Checklist (PCL; [13])and the Modified PTSD Symptom Scale Self-Report [14]. The Modified PTSD Symptom Scale-Self-Report (MPSS-SR; [14]) was selected for evaluation as it was utilized in one of the largest multi-site randomized clinical trials (“The Women and Trauma Study”) examining treatments for women with co-occurring PTSD and SUD [15] and thus provided a unique opportunity to examine its psychometric properties among a population with co-occurring disorders.

The MPSS-SR is a widely used, brief instrument that assesses the frequency and severity of the 17 PTSD symptoms as outlined in the DSM-IV. Falsetti et al. [16] examined the

psychometric properties of the MPSS-SR in both treatment seeking and community samples with previous exposure to traumatic events. Results indicated very good internal consistency (alpha = .96 - .97) and good concurrent validity with the Structured Clinical Interview for DSM-III-R, PTSD module [17], with sensitivity of .68, specificity of .81, and an overall correct classification rate of 72%. Internal consistency of the MPSS-SR was also good (alpha = .97) in a sample of 118 patients with SUD who were victims of violent crime and given this measure one week after alcohol or drug detoxification [18]. With a cutoff total score of 28 (calculated by summing the frequency and severity ratings for each of the 17 items) MPSS-SR demonstrated good concurrent validity with the National Women Study PTSD module (NWS-PTSD; [19]). The NWS-PTSD assesses PTSD according to DSM-IV diagnostic criteria. The MPSS-SR correctly classified 74% of individuals with PTSD and had a sensitivity rate of 89% and a specificity rate of 65%. The authors thus proposed that the MPSS-SR be used as a tool for screening PTSD in individuals with SUD. While these findings support the use of the MPSS-SR as an initial screening tool for SUD patients seeking treatment, the study had several limitations. The participants in the study were recently hospitalized and had gone through detoxification the week prior to assessment, which may have impacted their physiological state in ways that overlapped with PTSD symptoms, such as physiological arousal or emotional reactivity. Also, because many of the patients were hospitalized for a short time, neither inter-rater reliability nor test-retest reliability were assessed. It remains unknown whether the measure would maintain the same level of validity in PTSD-SUD populations in different treatment settings.

It also remains unclear whether the MPSS-SR can reliably track symptom change over time in addition to being used as a screening measure. Once diagnosis is established, it is important to track PTSD symptoms through the course of treatment, during which repeated administration of structured clinical interviews is inefficient. Despite the availability of several screening and self-report measures of PTSD symptoms, their use to track symptom change is questionable. A recent review [20] of the psychometric properties of the PTSD Checklist (PCL; [21]) underscored the lack of studies examining the measurement of symptomatic change through treatment. In their analysis of 72 studies the authors found only 3 that investigated the PCL's reliability in measuring symptom change, which had conflicting results, highlighting the need for further research in this area.

The current study aims to extend previous findings related to the MPSS-SR by evaluating the psychometric properties of this measure in an independent sample of women with co-occurring PTSD and SUD receiving community-based outpatient (non-detoxification) treatment over an extended period of time, where assessment and monitoring of PTSD symptoms occurred weekly during the course of six weeks of treatment and several times after treatment was completed. Given the fact that patients with co-occurring substance use and psychiatric disorders (including PTSD) often receive treatment in primary substance abuse programs, studying the MPSS-SR in a treatment sample represents a scenario in which such an instrument would likely be used. The capacity to diagnose PTSD in a substance user would enable the implementation of a more appropriate treatment that would be of greater value in preventing relapse than substance use treatment alone. We also assessed the MPSS-SR's convergent validity with the Brief Symptom Inventory (BSI; a general measure of psychological distress) and concurrent validity with the Clinician

Administered PTSD Scale (CAPS). While the CAPS is considered the gold-standard measure for the assessment of PTSD, it is time-consuming and costly for clinicians to administer over time, thus necessitating reliable and cost-effective self-report measures. This study makes use of data from the largest, regionally diverse multi-site randomized clinical trial examining treatments for women with co-occurring PTSD and SUD [15].

Methods

Procedures and participants

This multi-site, randomized, clinical trial was conducted through the National Drug Abuse Treatment Clinical Trials Network at seven community-based substance abuse treatment programs in geographically diverse locations across the United States. All procedures were reviewed and approved by Institutional Review Boards associated with the lead research team and at each treatment site, and all participants gave written informed consent. Because participating counselors and supervisors at each site were selected and randomly assigned to conduct one of the two treatment conditions, they were also considered research participants and provided written informed consent. A Certificate of Confidentiality, issued by NIDA, was obtained for all sites participating in the study (For a full description of the study design and procedures, see Hien et al.'s report [15]).

Interested participants completed a brief in-person or telephone screen to ascertain likely eligibility, followed by an in-person screening assessment to confirm eligibility. Participants were eligible for study entrance if they had at least one lifetime traumatic event and met DSM-IV criteria for either full or subthreshold PTSD in the past 30 days. Trauma exposure and PTSD assessments were conducted utilizing the Life Events Checklist and the Clinician-Administered PTSD Scale (see measures section below). Sub-threshold PTSD differed from full PTSD only in the number of symptom clusters that needed to be present; that is, in addition to meeting criterion B (re-experiencing the trauma), they only had to meet either criterion C (avoidance of trauma reminders) or D (hyperarousal) instead of both. Other inclusion criteria were: 1) being a female; 2) English-speaking; 3) 18-65 years of age; 4) using alcohol or illicit substances within the past six months; and 5) meeting DSM-IV diagnostic criteria of current drug or alcohol abuse or dependence within the prior year. Women were excluded if they had: 1) impaired mental cognition; 2) significant risk of suicidal/homicidal behavior; 3) history of schizophrenia-spectrum diagnosis; or 4) active psychotic symptoms in the prior two months. Independent assessors who remained unaware of randomization assignment performed all baseline and posttreatment assessments

One hundred seventy-one women were found ineligible based on exclusion criteria. Eligible women (N = 353) were randomized to one of two group interventions: Seeking Safety (SS; [8]) or Women's Health Education (WHE; [22]). Both groups also received standard substance abuse treatment from their treatment programs. Recruitment occurred over a 21-month period in 2004-2005. Treatment consisted of two group sessions per week over approximately 6 weeks.

Seeking Safety (SS; [8]) is a manualized integrated cognitive-behavioral treatment designed to reduce co-occurring PTSD and SUDs. *Women's Health Education* (WHE, [22]) is a

psychoeducational comparison intervention focused on general health topics pertinent to women (e.g., female anatomy and nutrition). Adherency to the manual and competency in delivering the interventions were excellent. For a full description of the adherence measures and procedures see Hien et al. [15].

Measures

The Life Events Checklist (LEC; [23]), a 17-item self-report measure, was utilized to assess exposure to a variety of potentially traumatic events (PTEs). Participants are asked whether a PTE happened to them, or they witnessed it happen to someone else, and how many times the PTEs have occurred in their lifetime. The LEC was administered before the Clinician-Administered PTSD Scale (CAPS) at pre-treatment, posttreatment, and all follow-up time-points, and CAPS questions were asked in relation to up to three PTEs identified in the LEC.

***Clinician Administered PTSD Scale* (CAPS; [24])—**The CAPS is a structured clinical interview used to determine DSM-IV PTSD diagnosis. It begins with an assessment of selected LEC events followed by an examination of symptoms related to up to three traumatic events that meet Criterion A. Per DSM-IV diagnostic criteria, symptoms are grouped along three clusters: re-experiencing, avoidance/numbing, and hyperarousal. A symptom is considered present if it has a frequency rating of at least one (“once or twice” in the past 30 days) and an intensity of at least two (“moderate”). A PTSD diagnosis requires the presence of a Criterion A trauma, at least one re-experiencing symptom, three avoidance/numbing symptoms, and two hyperarousal symptoms. PTSD symptom cluster severity scores are calculated by summing the frequency and intensity scores obtained from each subscale items; a total PTSD severity score is obtained by summing the subscale scores. The range of possible scores on the CAPS is from 0-136, and PTSD symptom severity can be categorized as asymptomatic (0-19), mild/subthreshold (20-39), moderate/threshold (40-59), severe (60-79), or extreme when CAPS scores are greater than 80 [25]. The CAPS has demonstrated excellent inter-rater reliability ranging from .92 to 1.0, test-retest reliability ranging from .90 to .98, and excellent internal consistency of .94 [24]. Strong convergent validity has also been demonstrated when compared to other clinician-rated and self-report measures of PTSD [25,26].

The CAPS was administered at pre-treatment, posttreatment, and all follow-up time-points. Clinical assessors in this trial received formal training from a doctoral-level psychologist in administering the CAPS. Weekly conference calls were held with the assessors to maintain competency, interrater reliability, and discuss challenging clinical issues. Diagnostic reliability checks were conducted on 18% of the audiotaped assessments. Based on 62 baseline assessments, percent agreement between two raters for current PTSD diagnosis was 94%.

***Modified PTSD Symptom Scale, Self-Report* (MPSS-SR; [14])—**The MPSS-SR is a 17 item self-report inventory that assesses the frequency and intensity of PTSD symptoms. The MPSS-SR was used to assess self-reported PTSD symptom severity throughout the study. Each item of the MPSS-SR corresponds to one of the 17 DSM-IV [27] diagnostic criteria for PTSD. Frequency of symptoms is rated on a 4-point scale (0 = not at all to 3 =

five or more times per week).Severity of symptoms is rated on a 5-point scale (0 = not at all distressing to 4 = extremely distressing). Total scores can range from 0-119; the difference in range with CAPS score is that frequency in the latter measure is on a 5-point scale, which raises the maximum possible score to 136. A tentative diagnosis of PTSD can be derived from the MPSS-SR by determining the presence or absence of a symptom and then following the standard PTSD diagnostic criteria coding (i.e., dichotomous scoring). For example, a PTSD symptom is considered present if there is a frequency score of one (i.e., "once a week") or higher and a severity score of two (i.e., "a little bit") or higher. If an individual endorsed 1 or more re-experiencing symptoms, 3 or more avoidance/ numbing symptoms, and 2 or more arousal symptoms, a diagnosis of PTSD can be tentatively assigned [16]. The psychometric properties of the MPSS-SR have been investigated in both treatment seeking and community samples with previous exposure to traumatic events [16]. Overall internal consistency was found to be excellent ranging from .96 to .97 [16]. In the present study the MPSS-SR was administered at pre-treatment, weekly during treatment, posttreatment, and all follow-up time-points. At pre-treatment and follow-up time-points, participants were asked to report on their symptoms in the past seven days. During the treatment phase, participants were asked to report on their symptoms since their last visit.

***Brief Symptom Inventory* (BSI; [28])—**The BSI is a 53-item self-report questionnaire that measures the extent to which a participant is "distressed or bothered" by psychological symptoms in the past seven days. We selected the BSI because it is a measure of psychological distress that should be positively associated with MPSS-SR symptom severity and thus would allow for examination of convergent validity. For the BSI, the frequency of each item is measured on 5-point scale (0 = not at all to 4 = extremely).Nine primary symptom dimensions (somatization, obsessive-compulsive behavior, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) are assessed. Three indices can be derived from the BSI: the Global Severity Index (GSI), Positive Symptom Total (PST), and the Positive symptom Distress Index (PSDI). The psychometric properties of the BSI have been well established, with good internal consistency and test-retest reliability, and strong convergent validity with related psychiatric symptom measures [29,30]. In the present study the BSI was administered at pre-treatment, posttreatment, and at all follow-up time-points.

Statistical analyses

Internal consistency of the MPSS-SR was examined at all time-points of the trial (pre-treatment, weekly during treatment, posttreatment, and 3-months, 6-months, and 12-months posttreatment). Convergent validity was assessed by correlating the MPSS-SR total score with the GSI, PSDI, and PST subscales of the BSI, which includes symptoms related to PTSD such as anxiety and emotional distress. Concurrent validity was assessed by correlating the total scores as well as the frequency, severity, and symptom subscales scores of the MPSS-SR and CAPS. The CAPS and BSI were administered at pre-treatment and posttreatment follow-up time-points. As a result, the relationship between the MPSS-SR and each of these instruments was evaluated at those two time-points. A classification analysis was only conducted at posttreatment sessions because at baseline all participants met diagnostic criteria for either full or subthreshold PTSD. Participants were excluded from a

particular analysis when their data were incomplete (e.g., leaving an item blank on any instrument) or when they missed a session, resulting in samples ranging from 157 to 353 on any given measure. Although these attendance patterns are not uncommon in this treatment population, it is unclear how participants who did not return for their follow-up visits would have affected the results of the validity analyses. However, there was no evidence of statistically significant differences between participants who attended at least one follow-up session (n = 289) and those who did not attend any follow-up sessions (n = 64) in their baseline MPSS-SR total scores t (347) = .40, p = .69, CAPS severity scores, t(351) = 1.24, p = .22 and GSI scores, t(347) = 1.23, p = .22.

Results

Participant characteristics

The sample consisted of 353 women who were randomized into the study after meeting all eligibility criteria. Demographic and trauma-related characteristics of the sample are presented in Table 1. The average ageof the sample was 39.2 years. Forty five percent were Caucasian, 34% African American, and 13.3% were multi-racial. Approximately 37% were single and most (55%) were unemployed. Cocaine dependence was the most frequent SUD diagnosis (70.5%), followed by alcohol dependence (56.1%). The most prevalent type of traumatic experiences in adulthood was physical abuse (84.8%) and in childhood was child sexual abuse (70.1). Participants met either full (80.4%) or subthreshold (19.6%) PTSD criteria and had an average total CAPS score of 62.9 (SD = 19.4), indicating severe levels of PTSD symptoms at baseline [24]. There were no significant differences between the two treatment groups on any demographic or baseline diagnostic characteristics. Among participants who attended follow up assessments, the proportion who met PTSD criteria was 27.6% at posttreatment, 22.4% at 3-months, 22.7% at 6-months, and 14.9% at 12-months and the proportion who met subthreshold criteria was 15.7% at posttreatment, 14.8% at 3-months, 13.9% at 6-months, and 13.0% at 12-months. Most participants (56.7% at posttreatment, 62.9% at 3-months, 63.4% at 6-months, and 72.1% at 12-months) no longer met criteria for full or subthreshold PTSD.

Reliability and validity

Internal consistency of the MPSS-SR was good at all time-points of the study. Chronbach's alpha values ranged from .94 - .97 for total score, .88 - .94 for the frequency subscale score, .90 - .94 for the severity subscale score, .90 - .94 for intrusive recollection symptoms subscale score (i.e., Criterion B), .89 - .94 for avoidance symptoms subscale score (i.e., Criterion C), and .85 - .92 for hyperarousal symptoms subscale score (i.e., Criterion D).

Convergent validity was assessed by correlating the MPSS-SR total score with the GSI, PSDI, and PST subscales of the BSI, which includes symptoms related to PTSD such as anxiety and emotional distress. Pearson's correlation coefficients across subscales ranged from .47 to .82 and were strongest with the GSI where r = .74 (n = 353) at baseline assessment, .78 (n = 221) at 1-week posttreatment, .81 (n = 211) at 3-month follow-up, .80 (n = 217) at 6-month follow-up, and .82 (n = 212) at 12-month follow-up (all significant at the .01 level).

Concurrent validity was assessed by correlating the total scores as well as the frequency, severity, and symptom subscales scores of the MPSS-SR and CAPS (Table 2). Correlations were strong (.57 - .87) and significant at the .01 level at baseline and all follow-ups.

Additionally, preliminary diagnoses based on cutoff total scores and dichotomous scoring of the MPSS-SR were compared to the diagnostic outcomes of the CAPS interviews in an analysis of overall correct classification, sensitivity, specificity, positive predictive power, and negative predictive power at the posttreatment follow-up sessions (Table 3). Although dichotomous scoring yields the highest overall correct classification rate (86%), it results in a much higher false negative rate (32%) than the cutoff scores' false negative rates (10 – 11%). A MPSS-SR cutoff score of 29 yielded a sensitivity rate of 89%, a specificity rate of 77%, and an overall classification rate of 80%, indicating the measure's robust ability to accurately identify individuals meeting full PTSD criteria in our sample.

In addition to determining PTSD diagnosis, CAPS total scores have been used to categorize symptom severity along 5-levels: asymptomatic, mild/subthreshold, moderate/threshold, severe, or extreme [25]. The latter three categories can be collapsed for a 3-level categorization of full, subthreshold, or no PTSD. In order to examine whether the MPSS-SR can be utilized to derive these categories reliably, total scores were first converted to percentages since the MPSS-SR has a lower maximum total score than the CAPS. The ranges described in Weathers et al., [25] were used to rank severity. Utilizing a 5-level ranking system, the MPSS-SR correctly classified 36% of the participants at baseline, and 57- 71% of the participants at follow-up time-points (Table 4). Utilizing a 3-level ranking system, the MPSS-SR correctly classified 72% of the participants at baseline, and 69 – 79% of the participant and follow-up time-points. Inter-rater reliability in all cases ranged from fair to good (kappa .21 - .62).

Discussion

The aim of this study was to examine the psychometric properties of the MPSS-SR in a sample of women with co-occurring PTSD and SUD receiving community-based outpatient (non-detoxification) treatment over time, where assessment and monitoring of PTSD symptoms occurred weekly during the course of treatment and several times posttreatment. This repeated assessment of PTSD during treatment was a significant strength of this study as it allowed for the examination of the MPSS-SR's reliability as a measure of PTSD symptoms and symptom change over time.

The results indicated the MPSS-SR is a highly reliable and valid measure of PTSD symptoms, with excellent internal consistency throughout the course of treatment and over time (one year in total). A strong correlation with scores on the CAPS, a clinician-administered assessment tool of PTSD, and scores on the Brief Symptom Inventory demonstrated the MPSS-SR's strong concurrent and convergent validity. The strong association between self-reported ratings of PTSD symptoms and clinician-rated PTSD symptoms suggest high concordance between patient and clinician reports. This correlation is strong at baseline (.68) and very strong at posttreatment (.82 - .87), suggesting that the MPSS-SR is a useful self-report measure of PTSD symptom and symptom change after

treatment. The increase in the strength of the correlation from baseline to posttreatment suggests that patients may have become more accurate reporters of their symptoms. These findings are consistent with those of other screening or self-report PTSD measures [12,13,21,31].

The CAPS, widely considered the gold standard in PTSD assessment, requires a clinical interview conducted by a trained assessor and can take up to an hour to complete [24]. Research trials or treatment sites may have limited resources available to conduct a full PTSD diagnostic assessment. In attempt to maximize the chance of correctly diagnosing PTSD, we compared the number of patients correctly classified with PTSD using various cutoff scores on the MPSS-SR, and found that at a cut-off score of 29, there was a sensitivity rate of 89% and specificity rate of 77%.These findings are consistent with those reported by Falsetti et al. [14] and Coffey et al. [18], indicating that the MPSS-SR could be used as an efficient and cost-effective assessment tool in PTSD research and treatment settings. Our specificity rate of 77% suggests the MPSS-SR will falsely categorize 23% of participants as having PTSD. Although this false positive rate can be reduced by raising the cut-off score value, this would result in an increased false negative rate. If treatment or inclusion in a study hinges on the PTSD diagnosis, then the trade-off made between sensitivity and specificity is a worthwhile one, especially among vulnerable populations such as those with the dual-diagnosis of PTSD and SUD.

For settings in which distinctions based on symptom severity are desirable, we examined the MPSS-SR's reliability in ranking severity using 5- and 3-level categorization systems analogous to those derived from CAPS total scores. Overall classification was 36% in the 5-level system and 72% in the 3-level system, suggesting that the MPSS-SR should not be used to categorize severity beyond 3 levels (i.e., full, subthreshold, and no PTSD). Consistent with our other findings, the self-report measure's accuracy increased posttreatment, where overall correct classification ranged from 57- 71% in the 5-level rankings, and 69 – 79% in the 3-level ranking.

The MPSS-SR also demonstrated good internal consistency when examined as a measure of PTSD symptom reduction over time, which provides additional support for the utility of the measure. This measure also offers a practical and efficient way to further examine previous findings of an association between PTSD severity reduction and SUD improvement over the course of treatment, which have been used to support the self-medication model of coping and the resulting need for integrative treatments to target substance use in patients with severe symptomatology [10].

This study has several limitations. First, CAPS interviews were only administered at baseline assessment and follow-up time-points; therefore, concurrent validity with the MPSS-SR was only examined before and after treatment. Moreover, the CAPS scoring rule utilized is one of several possible scoring systems for the CAPS [25] and is generally more lenient than the others, which may generate higher PTSD prevalence estimates in clinical samples. Convergent validity between the BSI and MPSS-SR was only assessed during the sessions where both instruments were administered, which also did not include the treatment sessions.

Second, the sample was entirely comprised of women with co-occurring disorders, which may limit the generalizability of the findings. Studies should determine the reliability and validity of this measure with a sample that includes male participants, individuals without co-occurring disorders, and a sample with low attrition rates over time. Finally, while the MPSS-SR functions well psychometrically in our sample, this particular self-report measure does not require the identification of a Criterion A traumatic stressor (in contrast to the CAPS which requires the linking of a Criterion A traumatic event to the symptoms), which precludes the linking of self-reported PTSD symptoms to a specific traumatic event. Moreover, while the MPSS-SR would allow for a diagnosis of PTSD according to the new DSM-5 diagnostic criteria [32], the measure does not include the newly included cognitive symptoms of PTSD (e.g., persistent and distorted negative beliefs and expectations about the self and the world).

This study has important implications for clinical work and research. The option of using a self-report measure that can accurately identify PTSD symptoms and provide an estimate of diagnosis increases the opportunity to engage in trauma-related research in an efficient and cost-effective fashion. Such a measure can help clinicians quickly identify patients who are likely to be suffering from PTSD in order to obtain proper treatment. A two-step approach can be utilized whereby the patient is first administered the self-report measure. If the patient meets or exceeds the pre-determined cutoff score, a clinical interview can then be conducted to confirm or disconfirm a diagnosis of PTSD.

Given the high co-morbidity rates between PTSD and SUD, and the growing body of evidence supporting the efficacy of treatments that address both PTSD and substance use symptoms, an accurate measure of PTSD is important when assessing patients with substance use in community treatment settings. The MPSS-SR does not require extensive training or a high level of clinical experience to administer, which facilitates its dissemination and implementation. Finally, the MPSS-SR can be used by researchers and clinicians to track changes in PTSD symptom frequency and severity during treatment.

The changes in PTSD criteria in DSM-5 [32] necessitate the development, testing, and validation of a new structured clinical interview to serve as the standard not only for diagnosing PTSD but also for evaluating new self-report measures. Some of the strengths of the MPSS-SR, such as its one-to-one correspondence of questions to DSM-IV symptoms, its measure of both frequency and severity, and its relative simplicity in administering and scoring may serve as guidelines in the development of a measure based on DSM-5 criteria. Some of its weaknesses, such as its use of a time frame and range of frequency ratings that differ from the CAPS may delineate areas of improvement for future instruments so that scores align with the clinician-administered interview for easier interpretation. As new self-report measures of DSM-5 criteria are developed, researchers should go beyond an examination of their utility as screening tools and also examine whether the instruments monitor changes in symptoms reliably through the course of treatment and beyond.

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Table 1

Baseline participant and diagnostic characteristics for the intention-to-treat sample (N=353)

Variables	Mean (SD) or percentage
Age (years)	39.2 (9.3)
Race/Ethnicity	
African American/Black	34.00%
Caucasian	45.60%
Latina	6.50%
Other/Multi-racial	13.90%
Marital Status	
Married	17.60%
Single	36.80%
Divorced/Separated	45.60%
Education (years)	12.5(2.4)
Employment Status	
Employed	40.20%
Unemployed	55.00%
Student/Retired/Disabled	4.80%
PTSD Diagnosis (% full)	80.40%
CAPS Severity (Total)	62.9 (19.4)
MPSS-SR (Total)	50.2 (25.6)
Lifetime Traumatic Experiences	
Child Physical Abuse	58.70%
Adult Physical Abuse	84.80%
Child Sexual Abuse	70.10%
Adult Sexual Abuse	67.60%
Transportation Accident	72.70%
Life Threatening Illness	39.80%
Exposed to Violent Death	19.30%

Table 2

Convergent Validity: MPSS-SR correlations with CAPS at various time-points of study

	Baseline assessment	Posttreatment follow-up	3 month follow-up	6 month follow-up	12 month follow-up
Scale	**(N =352)**	**(N =217)**	**(N =209)**	**(N =215)**	**(N =214)**
CAPS TS	0.68	0.82	0.85	0.87	0.87
CAPS F	0.67	0.83	0.85	0.87	0.87
CAPS S	0.63	0.78	0.81	0.84	0.85
Cluster B	0.57	0.76	0.78	0.84	0.83
Cluster C	0.59	0.76	0.76	0.82	0.75
Cluster D	0.61	0.81	0.8	0.76	0.82

Note: MPSS-SR : Modified Posttraumatic Symptom Scale - Self Report; CAPS : Clinician Administered PTSD Scale; TS : Total Score; F : Frequency; S : Severity; Cluster B : re-experiencing symptoms; Cluster C : avoidance/numbing symptoms; Cluster D : hyperarousal symptoms; All correlations are significant at the 0.01 level.

Table 3

Concurrent validity of MPSS-SR with CAPS at different cutoff scores across all follow-up time-points.

	26	27	28	29	30	Dichotomous Scoring
Sensitivity	91%	90%	89%	89%	88%	68%
Specificity	74%	75%	76%	77%	78%	92%
Positive Predictive Power	50%	51%	52%	53%	53%	71%
Negative Predictive Power	96%	96%	96%	96%	96%	91%
False Positive Rate	26%	25%	24%	23%	22%	8%
False Negative Rate	9%	10%	11%	11%	12%	32%
Overall Correct Classification	78%	78%	79%	80%	80%	86%
Kappa	0.504	0.509	0.525	0.528	0.531	0.608

Note: MPSS-SR : Modified Posttraumatic Symptom Scale - Self Report; CAPS : Clinician Administered PTSD Scale.

Table 4

Severity classification outcomes of MPSS-SR and CAPS at baseline and follow-up time-points

	Baseline assessment	1 week follow-up	3 month follow-up	6 month follow-up	12 month follow-up
Category	**(n=349)**	**(n=217)**	**(n=209)**	**(n=215)**	**(n=214)**
Five-level ranking					
Overall correct	36%	57%	58%	68%	71%
Kappa	0.209	0.417	0.394	0.519	0.507
Three-level ranking					
Overall correct	72%	69%	69%	75%	79%
Kappa	0.211	0.519	0.52	0.587	0.62

Note: MPSS-SR : Modified Posttraumatic Symptom Scale - Self Report; CAPS : Clinician Administered PTSD Scale; 5-way categorization is asymptomatic, mild/subthreshold, moderate/threshold, severe, or extreme (Weathers et al., 2001); 3-way categorization is asymptomatic, mild/subthreshold, and collapses threshold, severe, and extreme into a full PTSD category.