

Validity of The PTSD Symptoms Scale Self Report (PSS-SR) in Iran

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Objective: Since 1980, when Post-traumatic Stress Disorder (PTSD) was officially recognized as a unique diagnostic entity and was included in the Diagnostic and Statistical Manual-III, a large body of research has been done in the assessment of this disorder. This study investigated the applicability of the Persian form of the Post-traumatic Stress Disorder Symptom Scale Self Report (PSS-SR) in a group of Iranians who had been directly involved in a disaster in Iran (from May 4th 2002 to 20 April 2005).

Method: The participants were 109 individuals who had been directly involved in one of the three disasters which happened in Iran: A- 20 adolescents who survived the boat sinking or witnessed it in Tehran's city park on May 4th 2002; B- 50 persons who survived the Bam earthquake; C- 39 persons who survived the accident in Tehran's airport on April 20th 2005. The assessment measures used were the Post-traumatic Stress Disorder Symptom Scale Self Report (PSS-SR) and psychiatric interview based on DSM-IV-TR.

Results: 90 participants (81%) were diagnosed with PTSD using the PSS-SR and 93 (83.8%) were diagnosed with PTSD by psychiatric interview. Correlation coefficients between the PSS-SR and the psychiatric interviews were significant ($r = .62, p < .001$).

Conclusion: The PSS-SR appears to be an effective and efficient method of screening for PTSD.

Key Words:

Disaster, Post traumatic Stress Disorde, Questionnaires, Reproducibility of Results

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Since 1980, when Post-traumatic Stress Disorder (PTSD) was officially recognized as a unique diagnostic entity and was included in the Diagnostic and Statistical Manual-III (1), a large body of research has been done in the assessment of this disorder (2). Now, in 2007, to further the diagnostic certainty, patients suspected of manifesting PTSD may be administered various psychological assessments, including structured clinical interviews, questionnaires, and psycho physiological procedures (3-6). Traditional batteries of tests can provide information overlooked or missed during the structured interview and mental status examination. Of course, the use of multiple instruments provides converging evidence that increases confidence in diagnostic decision making and treatment planning (7).

The assessment of trauma victims can be enhanced greatly through the use of standardized instruments and methods such as questionnaires. There are several questionnaires in this field that have been developed and psychometrically evaluated, such as the Impact of Event Scale (8), Minnesota Multiphasic Personality Inventory (MMPI), Symptom Check List-90 (9,10) and MMPI-2 (11). These types of measures of PTSD are easy to administer and score, and they are useful to

screen for the presence of PTSD. In this section, related literature will be reviewed and some questionnaires explained.

The PTSD Symptom Scale, Self-Report version (PSS-SR) contains 17 items that diagnose PTSD according to the DSM III R (and DSM-IV-TR, 12 & 14) criteria. These items also assess the severity of PTSD symptoms (14). Foa, et al. examined the psychometric properties of the two versions of the PSS: 1) an interview version of the PSS, and 2) a self-report version. These two versions of the PSS were administered to a sample of 118 recent rape and non-sexual assault victims. The results showed that the both versions of the PSS had satisfactory internal consistency, good concurrent validity, and high test-retest reliability (14).

In a research by Stiegartz, et al. (15) the psychometric properties of the PSS-SR were evaluated in a clinical sample of severely injured inpatients after a traffic accident (N = 123). The results indicate that the PSS-R has satisfactory internal reliability and external validity.

The validity of the Impact of Event Scale (IES) and the PSS-SR was examined among crime victims (16). Both instruments performed well as screens for PTSD. For

the IES, sensitivity ranged between 0.93 and 1.00; for the PSS-SR, sensitivity ranged between 0.80 and 0.90. Specificity for the IES ranged between 0.78 and 0.84 and for the PSS-SR ranged between 0.84 and 0.88. The authors conclude that either of these short self-report instruments or their individual items are suitable as screens for PTSD, specially in settings where mental health professionals are unavailable (16).

In another study the psychometric properties of the PSS-SR were examined in a group of treatment-seeking substance use disorder patients ($N = 118$). The PSS-SR demonstrated good internal consistency reliability and was correlated with other self-report measures of trauma-related symptomatology. Comparisons between a structured PTSD diagnostic interview and the modified PSS-SR indicated that 89% of the PTSD positive patients were correctly classified by the modified PSS-SR (17).

In a research, the psychometric properties of the PSS-SR were evaluated in a sample of 19 adolescents who had survived a boat sinking in Tehran's city park. The results indicated that the PSS-SR has satisfactory reliability and validity (internal and external) (18).

The purpose of the current study was to investigate the applicability of the PSS-SR in a group of Iranians who had been directly involved in one of the three disasters which happened in Iran. It was predicted that the PSS-SR could be applicable for screening PTSD in Iran.

Materials and Methods

Participants

The participants were 109 individuals who had been directly involved in one of the three disasters which happened in Iran:

Tehran's city park disaster: This group of participants included adolescents who had survived the boat sinking in Tehran's city park on May 4th 2002. They were a part of a group of 57 schoolgirls from Taha secondary school in Tehran. This group asked their teacher to let them to sit on the boat after an educational cruise of Post museum which is not far from the city park. One of the boats sank while carrying a group of 15 schoolchildren and sank with the schoolchildren and a boatman still on board. The boat sank very quickly and the others witnessed it. Six schoolgirls and one boatman died in this disaster (18).

The second group included 50 persons who survived the Bam earthquake.

Bam earthquake: A powerful earthquake measuring 6.3 on the Richter scale struck the city of Bam in the southeast of Iran on the 26th of December 2003 at 5.26 a.m. The earthquake was devastating: 40,000 died and around 30,000 were injured (19).

The third group included 39 persons who survived the accident in Tehran's airport on April 20th 2005.

Plane crash: on 20 April 2005, a 707 Boeing carrying 157 passengers caught fire after making a crash landing at Tehran's Mehrabad International Airport. The aircraft's landing gear failed to deploy on arrival, forcing the aircraft to make a hard landing, which

caused the nose and the wing to strike the runway. The aircraft then skidded off of the runway into a nearby river. Several passengers jumped into the river. The accident caused dozens of injuries and two deaths (20). The 109 participants had a minimum age of 12 and a maximum age of 70 years. The mean age of the participants was 22.9 ± 12.3 . Separate demographic data for each group is demonstrated in Table 1.

Instruments

The PSS-SR (14): The PSS-SR contains 17 items that diagnose PTSD according to the Diagnostic and DSM-III-R (and DSM-IV-TR) criteria. These items also assess the severity of PTSD symptoms (14). The questionnaire contains three groups of items including: Re experiencing, Avoidance, and Increased Arousal. Total PTSD severity for each symptom group was calculated by summing the item scores in each symptom cluster. Overall severity is the sum of the symptom group scores (the rating scale range was 0 to 51). For a diagnosis of PTSD score 1 or more is needed: for one of re-experiencing questions (questions 1-5), 3 of avoidance questions (6-12), and for 2 arousal questions (13-17). PSS-SR has been translated in to Persian by a bilingual translator. The Persian form was compared to the original by a colleague, and after that a back translation to English was done by another bilingual colleague. The two forms were compared and satisfied the both translators. The final form was given to 5 schoolgirls to be completed, to ensure it can be used easily (21).

Psychiatric interview: The second assessment tool was a structured psychiatric interview based on DSM-IV-TR criteria for PTSD. This interview was conducted by the second author, a professor of psychiatry.

Result

The results of the PSS-SR and psychiatric interview indicate that 90 of the participants (81.1%) were diagnosed with PTSD using the PSS-SR and 93 (83.8%) by psychiatric interview.

The results of the PSS-SR and psychiatric interview for all the 3 different groups ,using DSM-IV-TR criteria, are shown in Table 2.

A Cronbach alpha of 0.84 was calculated for the 17 items in the Symptom Severity score .

Ten to 22 days after the first administration of the PSS-SR, it was re-administered to the sample. 109 valid retests were collected with an average interval between administrations of 14 days. The subjects were instructed to complete the PSS-SR about the same traumatic incident as the first time.

Table 1. Separate demographic data for each group

Groups	sex		Age range	Age mean \pm SD
	Female	male		
School disaster	20	0	13-15	13.8 ± 0.6
Earthquake	29	23	12-27	18.3 ± 4.5
Airplane crash	31	8	17-70	34.4 ± 14.6
Total	80	31	12-70	22.9 ± 12.3

Table 2. Diagnoses of PTSD in participants of all groups using PSS-SR and psychiatric interview

Groups	PTSD		Not PTSD	
	PSS-SR	interview	PSS-SR	interview
School disaster	17 (85%)	18 (90%)	3 (15%)	2 (10%)
Earthquake	47 (90.4%)	46 (88.46%)	5 (9.6%)	6 (11.54%)
Airplane crash	26	29	13	10
Total	90 (81.1%)	93 (83.8%)	21 (18.9%)	18 (16.2%)

The test-retest reliability of PTSD diagnoses obtained from the PSS-SR was assessed ($\kappa=0.76$ $P<0.001$); there was 92% diagnostic agreement between the two administrations. This data provides good support for the internal consistency and stability of scores.

Measure of agreement between the two instruments was significant using Kappa agreement coefficient ($\kappa=0.534$, $p<.0001$).

Discussion

The PSS-SR appears to be an effective and efficient method of screening PTSD. The PSS-SR is a self-report instrument, which does not incorporate any formal scales to detect faking and formal validity scales, therefore, it is susceptible to malingering.

Studies exploring the psychometric properties of the PSS-SR point to some concerns, which could compromise its potential for use in the general population. Additional validation research utilizing a larger and wider demographic sample needs to be conducted to provide a normative sample adequately representing a population.

Another potential problematic issue is the fact that there are no reverse-scored questions on the PSS-SR. This may lead to the tendency for over-reporting symptoms due to a propensity to respond 'Yes'. Reverse-scored questions ought also compensate for malingering.

The other useful result of the present research could be the prevalence of PTSD in the group of survivors. Eighty one percent of the subjects were diagnosed with PTSD. This could be important, indicating that the group of children who witnessed the disaster need mental health care and it seems they need more social support and treatment compare to adults.

It seems that the prevalence of PTSD in this group is higher compare to the other survivor groups (22). It should be mentioned that most of these groups of participants have received less care, treatment and social support. This could be due to a higher prevalence of PTSD in the present study. In this study, we tried to emphasize the needs of individuals after a disaster. One previous study indicated that aftermath care and social support could be helpful for recovery from PTSD (22).

The effects of disaster in different countries may be similar, but the severity and quantity of aftermath disorders depends on the aftermath care and support, which could vary in different countries. The investigated schoolgirls had not received any care or treatment until the time of the interview (18 months after the disaster), though most of them needed treatment. Moreover, the 8-year-war in Iran may have caused a higher prevalence of PTSD in the present study since everyone in this country had experienced different military attacks, which may have caused PTSD in most people around the country.

Much of the research done on the disasters has been related to the psychological problems of victims following the disaster. It is important to consider who is likely to be affected by a disaster and, consequently, what sort of recovery operation needs to be done, and what services need to be offered or set up.

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