



Regional update

The Japanese version of the Posttraumatic Diagnostic Scale: Validity in participants with and without traumatic experiences



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ABSTRACT

The Posttraumatic Diagnostic Scale (PDS) is a brief, self-report questionnaire developed for the diagnostic screening and assessment of the severity of posttraumatic stress disorder (PTSD); the PDS is based on the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (4th edition; DSM-IV). We investigated the validity and reliability of the Japanese version of the PDS in a clinical ($n = 109$) and a non-clinical ($n = 116$) sample, recruited from an outpatient psychiatric facility and a university student population, respectively. The Japanese versions of the PDS and the Clinician-Administered PTSD Scale (CAPS/DSM-IV) were administered to the participants. The Japanese PDS's diagnostic sensitivity and specificity exceeded 90%. The correlation between the severity scores assessed by the Japanese PDS and the CAPS was also high ($r = 0.92$). The findings suggest that the Japanese version of the PDS is useful for diagnostically screening PTSD and assessing symptom severity.

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1. Introduction

Posttraumatic stress disorder (PTSD) is a chronic mental disease that occurs after traumatic events, impairing quality of life and resulting in an economic burden to society (Greenberg et al., 1999; Kessler, 2000). When diagnosed through the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 1994, 1987), it is estimated that the lifetime prevalence rate of PTSD is between 6.8 (Kessler et al., 2005) and 7.8% (Kessler et al., 1995) among individuals in the United States. The lifetime prevalence rate of PTSD in Japan has been cited as 1.3% (Kawakami et al., 2014). Since extreme natural disasters are some of the major traumatic events associated with PTSD onset, this figure has presumably increased in the Tohoku

area after the 311 Tsunami and Earthquake disaster, where 15,894 died and 2557 are still missing (The National Police Agency, 2016).

For PTSD to be effectively treated, adequate diagnosis and severity evaluation thereof are crucial; however, there are few precise and convenient diagnostic tools available in Japanese. The Posttraumatic Diagnostic Scale (PDS) (Foa, 1995; Foa et al., 1997) is a validated and widely used self-report, diagnostic measure of PTSD; its criteria are based on the DSM-IV. It is also used to assess the number of symptoms and severity of PTSD, and the onset pattern and the level of social functioning within 10–15 min of questionnaire completion (Norris and Hamblen, 2004; Reardon et al., 2014). Despite the DSM's revision in 2013 (American Psychiatric Association, 2013), the PDS seemingly remains appropriate for screening for PTSD, because the clinical efficacy of cognitive-behavioral therapy (e.g., prolonged exposure therapy) and drugs (e.g., paroxetine and sertraline) for treating PTSD has largely been based on the diagnostic criteria for PTSD, as outlined in the DSM-IV (Brady et al., 2000; Davidson et al., 2001; Marshall et al., 2001; Powers et al., 2010; Tucker et al., 2001).

The present study aimed to examine the validity and reliability of the Japanese version of the PDS. Previous research in Japan has

Abbreviations: PTSD, posttraumatic stress disorder; PDS, Posttraumatic Diagnostic Scale; CAPS, Clinician-administered PTSD Scale; ROC, receiver-operating characteristic; AUC, area under the curve.

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suggested that the Japanese version of the PDS has high validity; the compatibility between the Japanese version of the PDS and the Clinician-Administered PTSD Scale (CAPS/DSM-IV; Blake et al., 1995) was 98.27%, $\kappa=0.74$, with the sensitivity of the Japanese version of the PDS at 100%, specificity at 98%, positive predictive value at 60%, and negative predictive value at 100% among university students (Nagae et al., 2007). Its reliability (test-retest over 2 weeks was 96.55%, $\kappa=0.58$) was also high among this sample. While this initial study demonstrates the measure's reliability and validity, only three participants were diagnosed with PTSD with the CAPS in that study (Nagae et al., 2007). Thus, it is still unclear if the Japanese version of the PDS is valid for use with individuals who have been exposed to traumatic stress, and with non-clinical university students. In the present study, we report the validity and the internal consistency of the Japanese version of the PDS in both the clinical and non-clinical samples.

2. Methods

2.1. Participants

Participants included 225 adults (109 clinical participants, 116 non-clinical participants). The clinical group was recruited from an outpatient clinic at the Institute of Women's Health, Tokyo Women's Medical University. The participants were primarily women who had been victims of domestic violence or sexual assault. A subset of the sample ($n=48$) participated in this research study as part of a randomized controlled trial study on PTSD therapy, and others ($n=61$) as part of a clinical case. Ethical clearance was obtained from the ethics committee of Tokyo Women's Medical University. The non-clinical sample was drawn from existing data on university students, that was reported in a previous study (Nagae et al., 2007).

2.2. Posttraumatic Diagnostic Scale (PDS)

The PDS is a self-rating inventory that corresponds with the diagnostic criteria of adult PTSD (DSM-IV). The Japanese version of the PDS was developed in 2007 and was used in the current study (Nagae et al., 2007). The PDS consists of four parts. In the first part, participants are asked to mark all the traumatic events that they have experienced or witnessed on the checklist. In the second part, the participants are asked to indicate which event disturbed them the most, indicating whether the specified event involved (1) physical injury or threat of death and (2) the subjective feeling of helplessness or terror (questions for criterion A). In the third part of the PDS, the participants rate the frequency (4-point scale, 0 = "not at all or only one time" to 3 = "five or more times a week/almost always") of each of the 17 symptoms of PTSD in the past month (questions for criteria B, C, and D; the symptom clusters are re-experiencing, avoidance, and hyper-arousal). Therefore, the total range of the severity score is 0 to 51. Frequency ratings of 1 or higher for at least one re-experiencing symptom, three avoidance symptoms, and two arousal symptoms are needed for a diagnosis of PTSD. In the fourth part of the PDS, participants are asked if their symptoms have impaired ("yes" or "no") their functioning in several domains of life (e.g., job, housework).

2.3. Clinician-Administered PTSD Scale (CAPS)

The CAPS (Blake et al., 1995) is a standardized, semi-structured diagnostic interview. The Japanese version of the CAPS (Asukai et al., 2003) was used in the present study as the criterion for evaluating the validity of the Japanese version of the PDS. The CAPS was designed to assess the frequency and intensity of each of the 17 DSM-IV symptoms, and the associated features of PTSD. A severity

score for each symptom is calculated by summing up the frequency (0 = "none of the time" to 4 = "most or all of the time") and intensity (0 = "none" to 4 = "extreme") scores. Thus, the range of the severity total score is 0 to 136. Blake et al. (1995) recommended that a frequency score of "1" and an intensity score of "2" are required for a particular symptom to meet the DSM-IV diagnostic criteria of PTSD; we followed that recommendation in the present study.

2.4. Procedure

First, the clinical participants answered the PDS, then the CAPS, individually. This order was aimed at eliminating the potential influence of the CAPS interview on the PDS. The non-clinical participants answered the PDS in a group setting and underwent the CAPS interview individually.

All the CAPS interviewers (clinical psychologists or graduate students majoring in clinical psychology) received specialist training on the administration of the CAPS.

3. Results

3.1. Characteristics of the study participants

The mean age of the participants was 27.95 years ($SD=9.82$; range: 18–54). Seventy-two percent of the sample was female and 28% was male. The index traumas identified on the PDS were as follows (some participants indicated that more than one event disturbed them the most): nonsexual assault by known assailant ($n=63$, 35.2% of all the traumas reported), sexual assault by known assailant ($n=29$, 16.2%), sexual assault by unknown assailant ($n=20$, 11.2%), accident or fire ($n=14$, 7.8%), natural disaster ($n=7$, 3.9%), sexual abuse ($n=7$, 3.9%), imprisonment ($n=5$, 2.8%), nonsexual assault by unknown assailant ($n=3$, 1.7%), life-threatening illness ($n=2$, 1.1%), torture ($n=1$, 0.6%), or other ($n=28$, 15.6%).

3.2. Validity of PTSD symptom severity

There was a strong positive correlation between PTSD total symptom severity, as assessed through the PDS and through the CAPS (Pearson's $r=0.92$, $p<0.01$). There were also positive correlations between three core symptom scores assessed through the two measures (Pearson's $r=0.87$ for re-experiencing, $r=0.90$ for avoidance, and $r=0.89$ for hyper-arousal, $ps<0.01$). The means of PTSD total symptom severity and the three core symptom severity scores assessed through the PDS were calculated separately for participants who met CAPS-diagnosed PTSD criteria (PTSD+) and those who did not (PTSD-). Group means were compared through the t -test, and the means of PTSD+ participants

Table 1

Symptom severity scores assessed by the Japanese version of the PDS for participants who were diagnosed with PTSD (PTSD+) and for those who were not diagnosed with PTSD (PTSD-) via the CAPS.

PDS	CAPS						t value
	Overall ($N=225$)		PTSD+ ($n=100$)		PTSD- ($n=125$)		
	M	SD	M	SD	M	SD	
PTSD Total Symptom	18.54	17.93	35.96	8.74	4.60	8.95	26.26 **
Re-experiencing	5.04	5.19	9.82	3.28	1.21	2.64	21.20 **
Avoidance	7.88	7.82	15.32	4.24	1.94	4.00	24.18 **
Hyper-arousal	5.62	5.52	10.82	3.12	1.46	2.85	23.37 **

PDS, Posttraumatic Diagnostic Scale; PTSD, posttraumatic stress disorder; CAPS, Clinician-Administered PTSD Scale (for the Diagnostic and Statistical Manual of Mental Disorders, 4th ed.). Means of PTSD+ and PTSD- were compared by t -tests. ** $p<0.01$.

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