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Assessing post-traumatic stress symptoms in a Latino prison population

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Abstract

Purpose—The purpose of this paper is to assess the reliability and validity of the Spanish version of the Davidson trauma scale (DTS-S) and to determine the prevalence and correlates of post-traumatic stress disorder (PTSD) symptoms in a non-clinical random sample of prison inmates.

Design/methodology/approach—Probabilistic samples of 1,179 inmates from 26 penal institutions in Puerto Rico were selected using a multistage sampling design. Population estimates and correlations were obtained for PTSD, generalized anxiety and depression. The reliability, factor structure, and convergent validity of the DTS-S were assessed. Cross-validation was employed to confirm the results of the factor analyses.

Findings—Using the cut-offs adopted by the scale's author, 136 (13.4 percent) of the inmates are likely to have current PTSD and 117 (11.6 percent) reach the cut-off for sub-threshold PTSD. Confirmatory factor analysis generated two factors explaining 53 percent of the variance. High reliabilities were obtained for the total scale ($\alpha = 0.95$) and for the frequency and severity scales ($\alpha = 0.90$ and 0.91). Significantly higher DTS-S scores were found for females ($t = 2.26$, $p<0.025$), for inmates diagnosed with depression or anxiety ($t = 2.02$, $p<0.05$), and those reporting suicide attempts ($t = 4.47$, $p<0.0001$).

Originality/value—Findings support that the DTS-S is a reliable and valid measure to assess PTSD symptoms in Latino inmate populations and to identify individuals at risk for the disorder that require confirmatory diagnosis and clinical interventions.

Keywords

Criminal Justice System; Public health; Health promotion; Mental health; Correctional health care; Psychological health

The USA has the highest rate of prisoners to general population worldwide (Walmsley, 2009). During mid year of 2007 Latinos comprised 18 percent of all US inmates (Sabol and

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Couture, 2007). A substantial proportion of incarcerated individuals in US correctional facilities, regardless of age or sex, have one or more psychiatric illnesses (Lamb and Weinberger, 1998). A report on the prevalence of psychiatric illnesses in prisons showed rates of 14.5 and 31 percent of male and female inmates, respectively (Steadman *et al.*, 2009). A chart review of all detainees in a Swiss remand prison during 2007 found clinical evidence of psychological symptoms, independent of substance abuse, in 45.3 percent of male and 56.5 percent of female inmates (Eytan *et al.*, 2011).

Among these mental illnesses, post-traumatic stress disorder (PTSD) has been present in incarcerated individuals. Whereas the lifetime rates of PTSD in the general US population affects an estimated 7-9 percent (Bohnert and Breslau, 2011; Kessler *et al.*, 2005; Norris and Slone, 2007), higher proportions (over 20 percent) have been encountered among incarcerated individuals (Gibson *et al.*, 1999; Goff *et al.*, 2007; Steiner *et al.*, 1997; Teplin *et al.*, 1996; Zlotnick, 1997; Bosgelmez *et al.*, 2010) with higher prevalence reported for female inmates. The public health consequences of PTSD are substantial (Roberts *et al.*, 2011), and include co-occurring psychiatric illnesses, substance dependence (Breslau, 2002; Breslau *et al.*, 2003), and suicide (Kessler, 2000). Failure to identify and treat PTSD among prisoners could be a factor predisposing to suicide and self-harming behavior in prison and, indeed, to recidivism (Bolton and Robinson, 2010).

Estimation of PTSD and its comorbidities is a topic of growing interest in the mental health field (Keane and Barlow, 2002; Keane *et al.*, 2000; Weathers *et al.*, 2001; Wilson and Keane, 2004). Several symptom scales have been developed to aid clinicians in assessing the likelihood of PTSD and its severity that are generally more time and cost-efficient than structured diagnostic interviews. These include the distressing event questionnaire (Kubany *et al.*, 2000a), impact of event scale (Horowitz *et al.*, 1979), Minnesota multiphasic personality inventory PTSD scale (Keane *et al.*, 1984), Mississippi scale for PTSD (Keane *et al.*, 1988), Penn inventory for PTSD (Hammarberg, 1992), post-traumatic diagnostic scale (Foa *et al.*, 1997), Davidson trauma scale (DTS; Davidson *et al.*, 1997), PTSD checklist (Weathers *et al.*, 1993) traumatic life events questionnaire (Kubany *et al.*, 2000a, b). However, few screening instruments for PTSD have been reliably translated for use with Puerto Ricans and those available to date, such as the trauma symptom inventory (Briere *et al.*, 1995), have not yet been validated. Clinicians and researchers would benefit from the availability of a practical and applicable brief instrument that is supported by appropriate validity and reliability studies to identify Latino individuals at risk for PTSD and to monitor treatment outcomes in this population.

The present study examines the prevalence of PTSD symptomatology in a Latino prison population measured with the Spanish version of the Davidson trauma scale (DTS-S). The DTS is a 17-item self-report screening measure that is extensively used to examine the presence, frequency, and severity of all core symptoms corresponding to PTSD (intrusive re-experiencing of the trauma, avoidance of people, or places that remind the traumatic experience, and numbing and hyperarousal).

In practice, the DTS has been demonstrated to be sensitive to treatment effects (Davidson *et al.*, 1997, 2001a, b). The effect sizes reported with the DTS are equal to or larger than those

obtained with other widely used measures of PTSD, including the impact of events scale, clinician administered PTSD scale (CAPS), and structured interview for PTSD (Davidson *et al.*, 2002). One of the most important advantages of the DTS is that it does not take more than 10 minutes to administer, enhancing its utility for the rapid assessment of persons who may be at risk of the disorder or need careful clinical monitoring (Davidson *et al.*, 2002).

The DTS was developed by Jonathan Davidson *et al.* (1997) as a self-rating scale for PTSD that is reliable, valid, and sensitive to treatment effects in a variety of trauma survivors. Its internal consistency and factorial structure was assessed by Davidson *et al.* (1997) in a series of four clinical studies totaling 353 subjects that included war veterans, survivors of rape or hurricane, and a mixed trauma group. Values for Cronbach's α were 0.99 for the total scale, 0.98 for the frequency subscale, and 0.97 for the severity subscale. The test-retest correlation over a two-week interval was 0.86 for the multicenter drug trial sample ($n = 21$). Similar internal consistency values were obtained by Zlotnick *et al.* (1996) with a sample of survivors of childhood sexual assault. Davidson *et al.* (1997) also reported a two-factor structure for the DTS for a sample consisting of war veterans, rape victims, and individuals exposed to Hurricane Andrew ($n = 241$). The first factor was interpreted as a severity factor that accounted for 20 percent of the variance. The second factor consisted of intrusive items with positive loadings, and avoidance and numbing items with negative loadings, which accounted for a small amount of variance. A factor analysis using only respondents with current PTSD diagnosis yielded six factors, the largest being similar to the severity factor discussed above. Convergent validity was assessed with the same sample. Individuals diagnosed with PTSD on the basis of a structured clinical interview scored significantly higher than those without PTSD. A score of 40 on the DTS was associated with a sensitivity of 69 percent, specificity of 95 percent, and an overall efficiency of 83 percent.

Various studies have examined the psychometric properties of the DTS for subjects of different cultures and languages other than English. Bobes *et al.* (2000) developed a DTS-S with a sample of Spaniards while maintaining its basic structure. The scale showed good internal consistency (Cronbach's $\alpha = 0.89$) and test-retest reliability after a two-week interval ($r = 0.87$). The scores of frequency and severity of PTSD symptoms on the DTS-S were consistent with the results from the clinical global impression scores. The Chinese version of the Davidson trauma scale (DTS-C) was developed to evaluate the reliability and validity of DTS-C on the samples exposed to earthquake trauma in Taiwan (Chen *et al.*, 2001). The scale showed good internal consistency ($\alpha = 0.97$) and test-retest reliability ($r = 0.88$). The authors concluded that the DTS-C is reliable and valid for the screening of Chinese subjects with possible diagnosis of PTSD. Recently, Seo *et al.* (2008) developed a Korean version of the DTS (DTS-K). The DTS-K showed good internal consistency ($\alpha = 0.97$) and test-retest reliability after a two-week interval ($r = 0.93$). The measure showed a significant positive correlation with CAPS, which is accepted as a standard criterion measure of PTSD ($r = 0.94$, $p<0.001$) (Blake *et al.*, 1995). The highest diagnostic efficiency of the DTS-K was attained with a total score of 47, with sensitivity and specificity of 0.87 and 0.84, respectively.

The present study examines the reliability, factor structure, and convergent validity of the DTS-S to address the need for valid and reliable screening tools for PTSD among Latino's

in US correctional facilities and provides data on prevalence and correlates of PTSD symptomatology among male and female prison inmates. Untreated PTSD is highly prevalent among prison inmates (Gibson *et al.*, 1999; Steiner *et al.*, 1997; Teplin *et al.*, 1996; Zlotnick, 1997). Identification of individuals likely to have a diagnosis of PTSD should improve the planning and provision of appropriate treatment services as part of the efforts designed to address the rehabilitation of offenders with a mental illness.

Method

Participants

This study uses data obtained from a cross-sectional study that surveyed sentenced inmates in the state prisons of Puerto Rico in 2005 (Albizu-García *et al.*, 2005). The sample for this study consisted of 1,331 inmates (1,095 adult, 84 juvenile, and 220 women) in 26 penal institutions, out of 39 existent in the Puerto Rico prison system during 2004, representing 13 percent of the total inmate population. A complex probabilistic, multistage sampling design was developed that has been previously reported (Albizu-Garcia *et al.*, 2009). A total of 1,179 individuals participated in the study for an 89 percent response rate. For the analysis in this study we considered only the 1,012 cases that provided complete data in the DTS. The study was approved by the University of Puerto Rico Medical Sciences Campus' IRB Committee, which includes a prisoners' representative to safeguard protections pertaining to research involving prisoners.

Measures

Experienced interviewers administered all measures using the computer-assisted personal interview modality. The Questionnaire Development System version 2.1 was used to program the computerized questionnaires. Data were transported using the Statistical Analysis System (SAS, 2004).

PTSD

To obtain a more reliable and valid measure (criteria A of DSM-IV for PTSD), the current study administered a questionnaire to assess personal or vicarious experience with 15 specific traumatic events that include rape or sexual assault, assaultive violence (e.g. shot, stabbed), witnessing trauma to others, and non-violent trauma (e.g. serious accident, sudden death of a loved one). The traumatic events were assessed using closed-ended questions (e.g. Have you ever been raped or sexually assaulted?) with nominal response options (i.e. yes or no). Participants were asked to select the most distressing event and were subsequently evaluated for symptoms of PTSD. A diagnosis of PTSD was dependent on criterion A, which required intense fear, helplessness, or horror in association with the most distressing event within the previous week.

The Spanish translation of the DTS (Bobes *et al.*, 2000) was purchased from Multi-Health System Inc. As in the original scale, it consists of 17 symptoms grouped in three clusters (intrusion, avoidance/numbing, and hyper vigilance) corresponding to Diagnostic and Statistical Manual of Mental Disorders diagnostic criteria (American Psychiatric Association, 1994). A five-category Likert scale is used to score symptom frequency and

severity during the preceding week with values ranging from 0 to 4. The sum of both subscales is used to compute the total DTS score, which can range from 0 to 136. The DTS was translated to Spanish and then to English by two experts (back translation). A panel of experts evaluated the translation and solve any discrepancies between the original and the back-translated version.

Major depression and generalized anxiety

The Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977) was used to assess the presence of depressive symptoms during the previous week. The CES-D consists of 20 questions chosen to reflect various aspects of depression, including depressed mood, feelings of guilt and worthlessness, helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. This is a non-diagnostic checklist, which has been widely used in surveys of Hispanic groups (Guarnaccia *et al.*, 1989; Rivera-Medina *et al.*, 2010; Sheenan *et al.*, 1995). A test of the scale's reliability in a previous sample of Puerto Ricans showed a Cronbach's α coefficient of 0.91. The Spanish version of the generalized anxiety disorder and major depression disorder modules of the University of Michigan version of the Composite International Diagnostic Interview (UM CIDI) (Andrews and Peters, 1998) were administered to diagnose lifetime and last year prevalence of these conditions.

Data analysis

Structural equation modeling (SEM) was followed to conduct factor analyses of the DTS and implemented using the Mplus v5.1 software (Arbuckle, 2007). Model parameters were obtained by minimizing the robust maximum likelihood fit function (Asparouhov and Muthén, 2007). We were particularly interested in assessing the fit of the data to three models: a one factor solution, a three factor solution based on the conceptual dimensions of the DTS, and a best-fitting solution based on an exploratory factor analysis ("empirical" model). To assess the fit of the models the Tucker-Lewis index (TLI), the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) were used (Schreiber *et al.*, 2006). To compare the three models we used the Akaike information criteria (AIC).

We followed usual cross-validation procedures to assess the fit of the three models previously described. The original data set was randomly split into two evenly sized sets; a learning and a test set. For the first two models, and using the learning data set, an initial factor structure (one-factor or three-factors) with no covariances between the error terms was specified. Modification indices were then used as a guide to modify the initial models. All modifications with modification index equal or greater than ten were incorporated into the model. Modifications consisted of adding covariances between error terms. Finally, confirmatory factor analysis (CFA) was then performed using the test data set. A similar strategy was used with the empirical model, except that the initial model was developed by means of EFA with geomin rotation.

In the absence of an external diagnostic clinical criterion against which to validate the concurrent validity of the DTS scale, a series of hypothesis were stated based on empirical evidence that identifies the major predictors of PTSD in response to trauma. These were:

1. higher scores in the DTS will be observed for female inmates than for males;
2. inmates with a depression diagnosis assessed with the UM CIDI will score higher on the DTS than those without;
3. inmates with a generalized anxiety diagnosis assessed with the UM CIDI will score higher on the DTS than those without;
4. higher scores in the DTS will be observed for inmates that have attempted suicide; and
5. a positive correlation exists between the DTS scores and depression symptom scores measured with CES-D.

Results

Participant characteristics

Table I presents the socio-demographic and health characteristics of the sample. Participants for this study were 1,012 inmates (82.1 percent males, 17.9 percent females) from 26 of the 39 penal institutions in Puerto Rico. The participant's age ranged from 18 to 74 years, with a mean age of 30.9 (SD = 8.9) years. We classified all inmates using the criteria established by Davidson *et al.* (1997) for likely PTSD and Davidson (1996) for sub-threshold and no PTSD. It was found that 136 (13.4 percent) of the inmates are likely to have PTSD, while 117 (11.6 percent) have sub-threshold PTSD, and 759 (75 percent) do not report PTSD symptoms. Prevalence of likely PTSD, using the cut offs recommended by the scale's author of 40 (Davidson *et al.*, 1997), is higher for women (16.0 percent) than for men (12.9 percent).

Factor analysis

The results for the EFA for the empirical model showed that the seventeen items loaded to one of two factors, which explained 53 percent of the total variance. The first factor consisted of 16 items, the first eight items of both the severity and frequency subscales of the DTS. The second factor included the remaining 18 items. Furthermore, the analysis conducted using Mplus showed that all the factor loadings were statistically significant, and that a model in which the two obtained factors were correlated ($r = 0.66$) provided excellent fit indices (GFI = 0.952, TLI = 0.957, RMSEA = 0.033, SRMR = 0.048).

Table II presents the fit indices for the three models considered for both the EFA (learning data set) and CFA (test data set). For the CFA, neither the one factor model nor the three factor (conceptual) model attained the cutoff values of close to 0.95 for the TLI and CFI, $\leqslant 0.06$ for the RMSEA, and $\leqslant 0.08$ for the SRMR (Hu and Bentler, 1999). For the empirical (two-factor) model we obtained excellent values for the RMSEA (0.045) and the SRMR (0.055), and good values for the TLI (0.92) and CFI (0.91). Also, the AIC has the lowest value for the empirical model. Thus, our analyses indicate that the best fitting model for our

data is the two-factor model described above. Table III presents the estimated factor loadings for this model.

Reliability

We calculated Cronbach's α coefficient for the total scale, for the frequency and the severity scales, and the intrusion, avoidance/numbing, and hyperarousal subscales using only complete cases (n = 1,012). A value of 0.95 was obtained for the total scale and 0.90 and 0.91 for the frequency and severity scales. The item-total correlations range between 0.43 and 0.71 (see Table IV). These values are similar to those reported by (Davidson, 1996). For the three subscales, the reliabilities were 0.95 (intrusion), 0.90 (avoidance/numbing), and 0.89 (hyperarousal). Finally we computed the reliability for the two factors obtained in the empirical model: 0.94 for Factor 1, and 0.92 for Factor 2.

Convergent validity

To ascertain the convergent validity of the DTS-S we assessed the relationship between the DTS score and sex, depression symptoms (CES-D), depression diagnosis (UM CIDI), general anxiety diagnosis (UM CIDI), and self-reported history of suicide attempt. A significant moderate and positive correlation between the DTS-S and the CES-D was obtained (r = 0.56, p<0.001). Table V summarizes the results of the t-test between the DTS-S and the variables considered to be associated to post-traumatic stress. We found significant higher DTS-S scores for females than males, for inmates diagnosed with depression or anxiety, and for inmates that have attempted suicide.

Discussion

The obtained results are indicative that the DTS-S has a high internal consistency. High reliabilities were obtained for the total scale, the frequency and severity scales, and the intrusion, avoidance/numbing, and hyperarousal subscales. These values are similar or somewhat higher than those reported elsewhere (Zlotnick *et al.*, 1996).

The results from the factor analysis indicate that the DTS-S factor structure for our non-clinical sample of inmates is composed of two factors, the first one comprising items 1 through 8 from both the severity and frequency scales, and the second one comprising items 9 through 17 of both scales. Factor 1 contains the intrusive and avoidant items (i.e. thoughts, memories, images, and dreams), while Factor 2 includes numbing, withdrawal, and hyperarousal items. However, there is one item misclassified into the first factor (item 7), which is the only item that examines avoidance of places, and activities that recall the traumatic experience. The DTS-S factor structure did not correspond to group clusters of DSM-IV. It should be noted that the first factor contains intrusive and avoidant items that are asked with reference to the event, while the numbing, withdrawal, and hyperarousal items that correspond to the second factor are rated as present or absent without direct linking to the event (Davidson *et al.*, 1997), which may explain our results. Also, Chen *et al.* (2001) have pointed out that the DTS-S, as well the DTS-C, measures each DSM-IV symptoms of PTSD on five-point frequency, and severity scales rather than dichotomous scales. In comparing the factor structure of the DTS between clinical and non-clinical samples,

Davidson found that for a sample that includes both PTSD diagnosed and non-diagnosed subjects (mixed sample) the factor structure was different than for a PTSD diagnosed-only sample. For the first mixed sample, the factor structure was composed of two factors whereas for the PTSD diagnosed-only sample six factors were obtained. The DTS-C developed by Chen *et al.* (2001) also exhibited good reliability and a factor structure that was different for samples that included PTSD diagnosed and PTSD non-diagnosed subjects with that of PTSD diagnosed only subjects. The analysis of the PTSD diagnosed-only sample produced a factor structure consisting of four factors that closely resembled the DSM-IV grouping of PTSD symptoms. The mixed sample produced a sample structure that consisted of two factors.

To assess the validity of the DTS-S with the inmate population we hypothesized that higher scores in the DTS-S would be obtained by women as compared to men, and among those that have at least one suicide attempt as compared to those with no suicide attempts. Likewise, we hypothesized that inmates with higher levels of depression, and/or general anxiety, would also tend to score higher in the DTS-S. Our results support these hypotheses, which are consistent with those reported in the literature. An association between PTSD symptoms and increased rates of affective disorders such as major depression and anxiety disorders, as well as substance abuse has been reported by Breslau *et al.* (1998, 1991), J.R. Davidson *et al.* (1991), and Kessler *et al.* (1995). Data from the National Comorbidity Survey (Kessler *et al.*, 1995) indicate that at least one additional psychiatric disorder is present in 88.3 percent of men and 79.0 percent of women who have a history of PTSD.

The prevalence of likely PTSD among inmates obtained in this study is lower than the rates of PTSD reported in previous studies (Gibson *et al.*, 1999; Steiner *et al.*, 1997; Teplin *et al.*, 1996; Zlotnick, 1997). This is probably due to differences in measurement strategies (Collins and Bailey, 1990). The DTS uses the past week as the time frame for experiencing the symptoms for the disorder in contrast with previous studies that examine lifetime, six months and one-month prevalence rates of PTSD. Prevalence rates are also likely affected by issues related to PTSD course, chronicity, and comorbidity; symptom overlap with other psychiatric disorders; and cultural factors that may vary over time (Richardson *et al.*, 2010). This study does not pretend to report prevalence of the disorder but to explore if PTSD symptoms are currently prevalent among inmates and raise awareness of the need to improve our understanding and develop appropriate interventions to address this disorder in the correctional setting. The availability of a valid and reliable screening tool contributes to the assessment and management of PTSD, a condition that represents a significant and costly illness to inmates, their families, and society as a whole. Further carefully conceptualized research, is needed to advance our understanding of disorder prevalence, as well as associated information on course, phenomenology, protective factors, and treatment. The DTS provides a valid measure to monitor symptom reduction in trauma informed interventions targeting female inmates since a history of trauma and childhood victimization appear to play a greater role in women's risk of incurring in criminalized behaviors (Tripodi and Pettus-Davis, 2013; Moloney *et al.*, 2009). The impairment associated with PTSD is comparable to other seriously impairing mental disorders, such as major depression, and can lead to significant difficulties in education and employment, adversely affect marital relationships, and other role functions (Kessler, 2000) for which appropriate performance is

required for successful social reintegration. In addition, the rate of attempted suicide in patients with PTSD is estimated at 20 percent (Davidson *et al.*, 1991). Many mental illnesses are undetected during incarceration (Olley *et al.*, 2009). The DTS-S provides a brief screening tool applicable to Latino inmates in US correctional institutions.

The following limitations should be noted: we cannot establish causal relationships of PTSD with other mental health conditions; we do not have a clinically diagnosed sample to allow us to assess the convergent validity of the DTS-S or the factorial structure with such a subpopulation; and a study to assess the sensitivity, specificity, and predictive validity of the measure is needed to corroborate whether the cut-offs adopted in the original study apply as well to this population. On the other hand, due to the large sample size, we were able to propose and validate a factorial model using an independent sample for the Puerto Rican inmate population using structural equations modeling that provided fit indices to assess the model's fit to the data and to compare and evaluate the fit of various competing models.

The cross-validation procedure employed reduces the likelihood that the fit indices are over optimistic due to chance. Although the values for the fit TLI and CFI indices are somewhat low, in the published literature of the DTS we found no other study using SEM methodology to compare our results. The RMSEA and SMRS indicate excellent fit of the two-factor model to our data, and the AIC points to the fact that the two-factor model is superior to the three factor conceptual model or a one-factor model. Thus, the present study provides data that may serve as benchmarks for other researchers performing CFA on the DTS using SEM methodology. It also contributes to highlight the need for appropriate identification of inmates with high PTSD symptomatology by mental health services provided in the correctional setting.

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Table I

Sample characteristics

Variables	n (%)
Socio-demographic	
Gender	
Male	831 (82.1)
Female	181 (17.9)
Age	
18-24	232 (22.9)
25-34	491 (48.5)
>34	289 (28.6)
Education	
9th grade or less	372 (36.8)
10th-12th grade	485 (47.9)
More than 12th grade	155 (15.3)
Civil status	
Married or living together	634 (62.7)
Widow, divorced, or separated	236 (23.4)
Never married	142 (14.0)
Health history	
Co-occurring mental condition	
Depression	393 (38.8)
Generalized anxiety lifetime	22 (2.2)
PTSD symptoms	136 (13.4)

Table II

Fit indices for the EFA's and CFA's for the three models considered

		n	χ^2 *	df	RMSEA	CFI	TLI	AIC	SRMR
One-factor model	Learning	506	6,841.7	561	0.044	0.924	0.914	36,948.9	0.076
	Test	506	6,690.5	561	0.057	0.865	0.847	37,058.9	0.088
Three-factor model	Learning	506	6,841.7	561	0.042	0.929	0.919	36,891.8	0.072
	Test	506	6,690.5	561	0.055	0.876	0.860	36,917.8	0.088
Empirical model	Learning	506	6,841.7	561	0.033	0.952	0.957	36,540.3	0.048
	Test	506	6,690.5	561	0.045	0.908	0.918	36,407.7	0.055

* **Note:** $p<0.000$. df, degrees of freedom

Table III

Factor loadings for the two-factor model

Frequency	Factor loadings	Severity	Factor loadings
Factor 1			
Painful images	0.78	Painful images	0.73
Nightmares	0.74	Nightmares	0.69
Flashbacks	0.76	Flashbacks	0.68
Upset by reminders	0.81	Upset by reminders	0.81
Physically upset by reminders	0.77	Physically upset by reminders	0.74
Avoiding thoughts of trauma	0.78	Avoiding thoughts of trauma	0.73
Avoiding situational reminders	0.65	Avoiding situational reminders	0.58
No memory of trauma	0.46	No memory of trauma	0.43
Factor 2			
Loss of interest	0.66	Loss of interest	0.60
Detachment	0.66	Detachment	0.64
Restricted affect	0.63	Restricted affect	0.59
Sense of foreshortened future	0.57	Sense of foreshortened future	0.46
Sleep disturbances	0.62	Sleep disturbances	0.59
Increased irritability	0.60	Increased irritability	0.66
Concentration difficulties	0.71	Concentration difficulties	0.69
Hypervigilance	0.67	Hypervigilance	0.64
Excessive startle reactivity	0.60	Excessive startle reactivity	0.61

Table IV

Item-total correlations for each item and the total DTS-S score[a]

Frequency	Corrected item-total correlation	Severity	Corrected item-total correlation
Painful images	0.61	Painful images	0.62
Nightmares	0.63	Nightmares	0.64
Flashbacks	0.67	Flashbacks	0.68
Upset by reminders	0.71	Upset by reminders	0.67
Physically Upset by reminders	0.68	Physically Upset by reminders	0.65
Avoiding thoughts of trauma	0.67	Avoiding thoughts of trauma	0.60
Avoiding situational reminders	0.57	Avoiding situational reminders	0.60
No memory of trauma	0.43	No memory of trauma	0.47
Loss of interest	0.57	Loss of interest	0.60
Detachment	0.57	Detachment	0.59
Restricted affect	0.55	Restricted affect	0.55
Sense of foreshortened future	0.48	Sense of foreshortened future	0.53
Sleep disturbances	0.54	Sleep disturbances	0.58
Increased irritability	0.56	Increased irritability	0.50
Concentration difficulties	0.61	Concentration difficulties	0.62
Hypervigilance	0.56	Hypervigilance	0.59
Excessive startle reactivity	0.57	Excessive startle reactivity	0.55

Notes: n = 1,012.

[a]Correlations between each item and the remaining 33 items in the scale

Table V

Results of the *t*-test between the DTS score and variables hypothesized to be related to post-traumatic stress

Variable	n	Mean	SD	t	p
Sex					
Male	831	15.2	21.29	2.256	0.025
Female	181	19.7	25.11		
Depression diagnostic					
Yes	176	27.2	19.7	6.100	0.000
No	836	13.6	28.3		
Anxiety diagnostic					
Yes	22	25.4	25.8	2.025	0.043
No	990	15.6	21.9		
Suicide attempt					
Yes	81	25.4	30.6	4.467	0.000
No	931	15.6	14.7		