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Validity and reliability of the Spanish version of the Somatoform Dissociation Questionnaire (SDQ-20)

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Abstract

Background: The Somatoform Dissociation Questionnaire (SDQ-20) is a self-reported questionnaire measuring somatoform dissociation. The aim of this study is to analyze the psychometric properties of the Spanish version of the SDQ-20 and its short version (SDQ-5). **Methods:** Validity and reliability were examined in a sample of 360 psychiatric outpatients: 38 dissociative (conversion) disorders, 30 dissociative (psychoform) disorders, and 292 patients suffering from other disorders. Dissociative disorders were diagnosed using the SCID-D and a specific interview for conversion disorders. **Results:** Subjects meeting criteria for any dissociative or conversion disorder scored significantly higher in the SDQ-20 (criterion validity). Somatoform dissociation, psychoform dissociation and early trauma were significantly correlated (construct validity). An alpha coefficient of .866 (reliability) and a test-retest correlation of 0.91 were obtained. The cut-off score maximizing sensitivity and specificity was 27.5 for psychoform dissociative disorders (sensitivity of 81.6% and specificity of 71.0%) and 29.5 for conversion disorders (81.6% and 71.0%). For the SDQ-5, the coefficient alpha was 0.561 and the selected cut-off score was 5.5 (sensitivity of 73.33% and specificity of 70.41%). **Conclusions:** The Spanish version of the SDQ-20 presents good psychometric properties while the SDQ-5 shows worse characteristics and its use with Spanish samples is not recommended.

Keywords: Conversion disorders, dissociative disorders, stress disorders, post-traumatic, validation study.

Resumen

Validez y fiabilidad de la versión española del Somatoform Dissociation Questionnaire (SDQ-20). **Antecedentes:** SDQ-20 (Somatoform Dissociation Questionnaire) es un autoinforme que mide la presencia de disociación somatomorfa. Se analizan las propiedades psicométricas de la versión española de la SDQ-20 y su versión abreviada (SDQ-5). **Método:** su validez y fiabilidad han sido examinadas en una muestra de 360 pacientes: 38 trastorno disociativo (de conversión), 30 trastorno disociativo (psicomorfo) y 292 diagnosticados de otros trastornos. El diagnóstico de trastorno disociativo se realizó mediante la SCID-D-TR y una entrevista específica para los trastornos conversivos. **Resultados:** los sujetos que cumplieron criterios de trastorno disociativo o conversivo puntuaron significativamente más alto en la SDQ-20 (criterio de validez). La disociación psicomorfa y somatomorfa y el trauma temprano se correlacionaron significativamente (validez del constructo). Se obtuvieron un coeficiente alpha de 0.866 (fiabilidad) y una correlación test-retest de 0,91. El punto de corte para los trastornos disociativos fue 27,5 (sensibilidad 81,6% y especificidad 71%) y 29,5 para los trastornos conversivos (81,6% y 71%). En la SDQ-5 se obtuvo un coeficiente alpha de 0,561 y un punto de corte de 5,5 (sensibilidad 73,33% y especificidad 70,41%). **Conclusiones:** la versión española de la SDQ-20 presenta buenas propiedades psicométricas. La SDQ-5 muestra peores características y su uso en muestras españolas no se recomienda.

Palabras clave: trastorno conversivo, trastorno disociativo, trastorno por estrés postraumático, estudio de validación.

Dissociative disorders were initially described by Janet and Freud, but were not included in the international classification of mental diseases until the publication of the DSM-III (Nakatani, 2000). Dissociative symptoms can affect different psychopathological areas such as consciousness, memory, identity, emotion, perception, and behavior. Various authors found that dissociative patients manifest unexplained somatic symptoms more frequently than the general population (Espirito-Santo & Pio-Abreu, 2009; Öztürk & Sar, 2008; Van der Boom, Van den Hout, & Huntjens, 2010). Nijenhuis et al (1996, 2000, 2003, 2004) coined the term somatoform dissociation to emphasize the equal importance of dissociation on both psychological and somatic processes. Van der Hart, Nijenhuis and Steele (2011) also proposed that both psychoform and somatoform dissociative symptoms are manifestations of the existence of a structural dissociation of the personality. Recently, Nijenhuis reviewed current literature on somatoform (sensorimotor) dissociation and proposed that somatoform dissociation is as mental and physical ('somatic') as it is psychoform dissociation (Nijenhuis, 2015).

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Psychoform dissociation includes amnesia, depersonalization, derealization, and identity confusion and alteration, which may be experienced as Schneiderian symptoms (auditory hallucinations, passive control phenomena, etc.). Somatoform dissociation refers to somatic symptoms that cannot be explained by a medical condition (anesthesia or analgesia, pain, loss of mobility, pseudo-seizures, etc.). International classifications of mental diseases differ when considering psychoform and somatoform manifestations from a unitary perspective. In the *DSM-5,* dissociation manifested by psychological symptoms (psychoform dissociation) and dissociation with somatic symptoms (somatoform dissociation) are separated in different chapters (American Psychiatric Association, 2013). In the *ICD-10*, conversion disorders and dissociative disorders are included in the same group (World Health Organization, 1992), using the term "dissociative disorders of movement and sensation" instead of the term "conversion".

Regarding the origins of dissociation, many studies have found that it is strongly related to traumatic experiences, especially when they are severe, chronic, linked to interpersonal trauma and when they take place during childhood (Briere, 2006; Hulette, Freyd, & Fisher, 2011; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1998; Watson, Chilton, Fairchild, & Whewell, 2006). The relationship between traumatic experiences and somatoform dissociation has also been observed by other authors (Hingray et al., 2011; Kaplan et al., 2013; Roelofs, Spinhoven, Sandijck, Moene, & Hoogduin, 2005).

Nijenhuiset al. (1996) developed the Somatoform Dissociation Questionnaire (SDQ-20), a 20-item self-rating instrument that measures somatoform dissociation. The original SDQ-20 items were derived from a pool of 75 items describing somatoform dissociative symptoms usually present in patients with dissociative disorders. The original Dutch questionnaire exhibited good psychometric characteristics with good internal consistency, concurrent validity, and convergent validity (Nijenhuis et al., 1996; Sweere et al., 1998). The SDQ-20 is available in different languages: English (Waller et al., 2000), Turkish (Sar, Kundakci, Kiziltan, Bakin, & Bozkurt, 2001), French (Hage, 2004), Portuguese (Espirito Santo & Pio-Abreu, 2007), Swedish (Nilsson, Lejonclou, Svedin, Jonsson, & Holmqvist, 2015) and German (Muller-Pfeiffer et al., 2010). The results of these studies have evidenced that the scalability, reliability, and validity of the instrument are satisfactory in different countries and cultures.

Based on the data obtained in the SDQ-20 validation study, Nijenhuis et al. developed a brief scale, which proved to be useful for screening dissociative disorders. By using regression analysis methods, they identified five SDQ-20 items (items 4, 8, 13, 15, and 18) that provided optimal discrimination between dissociative disorders and other mental disorders, constituting the SDQ-5. A cut-off score of 8 was recommended to distinguish dissociative from other patients (sum scores range from 5 to 25). In their study, this cut-off point yielded sensitivity of 94%, specificity of 96-98%, corrected positive predictive value of 72-84%, and corrected negative predictive level of 99% at an estimated prevalence rate of 10% (Nijenhuis et al., 1997; Nijenhuis, 2010).

The Dissociative Experiences Scale (DES) (Bernstein & Putnam, 1986) is a self-report questionnaire measuring psychoform dissociation that has been validated in Spain (Icaran, Colom, & Orengo García, 1996). Nevertheless, there is no validated Spanish instrument suitable for assessing somatoform dissociation. Based on previous research, somatoform and psychoform dissociation measured with the SDQ-20 and the DES should be highly correlated, but should behave as different constructs. It would also be expected for patients with diagnosed dissociative disorders to present higher levels of somatoform dissociation than patients without this diagnosis.

The present study investigated the validity of the Spanish version of the Somatoform Dissociation Questionnaire SDQ-20 and its short version (SDQ-5). The main aim of the study is to establish the cross-cultural validity of the Spanish version of the SDQ-20 and SDQ-5, allowing research on somatoform dissociation in Spanish-speaking populations. Taking into account previous literature, we expected that somatoform dissociative symptoms would be positively related to psychoform dissociative symptoms and that somatoform dissociative symptoms would be high both in psychoform and somatoform (conversion) dissociative disorders. We also expected that those patients who reported more childhood traumatic events, especially childhood abuse, would score higher on somatoform dissociation than patients with less self-reported early trauma.

Methods

Participants

A sample of 360 psychiatric outpatients was recruited from psychiatric healthcare services in different areas of A Coruña, Spain. Patients with psychoform dissociative disorders were selected from a sample of 322 psychiatric outpatients from different psychiatric and psychologist consultations presenting any kind of mental disorder and they were specifically evaluated for dissociative symptoms. As conversion disorders were not represented in the initial sample and they were a relevant target population to evaluate a somatoform dissociation symptoms scale, a second group of 38 patients who were specifically referred because they have been diagnosed of conversion disorder was added. All these patients were screened for dissociative symptoms and those with relevant dissociative symptomatology were interviewed and classified in three sub-samples. From the total, 298 subjects were considered general psychiatric outpatients without a dissociative disorder, 30 patients were diagnosed with psychoform dissociative disorder including dissociative identity disorder (DID) and dissociative disorder not otherwise specified (DDNOS) and 38 patients met criteria for a conversion disorder. The presence of a DSM-IV-TR dissociative disorder was evaluated with the SCID-D-TR and a specific interview for conversion disorder. Patients diagnosed as suffering a dissociative disorder under DSM-IV-TR criteria were afterwards confirmed using DSM-5 criteria.

Exclusion criteria were: younger than 18 or older than 65 years old, serious cognitive impairment or mental retardation, severe active psychopathology that may interfere with the interview or the presence of difficulties in understanding the questionnaires for any other reason.

Instruments

The Somatoform Dissociation Questionnaire (SDQ-20) includes 20 items, rated on a 5-point Likert scale ranging from 1 to 5, so that a minimum score of 20 and a maximum score of 100 maybe attained. Higher total scores indicate greater levels of somatoform dissociation. The SDQ-20 has been culturally

adapted based on the norms of the International Test Comission (Hambleton, 2005; Muñiz, Elosúa, & Hambleton, 2013). The instrument was translated into Spanish and back-translated by bilingual Spanish and English native speakers respectively. A panel of PhD, psychologists and psychiatrists checked the translation and resolved any discrepancies to obtain the final version used.

The DES (Bernstein & Putnam, 1986) is a self-rating scale with excellent psychometric properties, which is widely used for the assessment of psychoform dissociative symptoms (Carlson & Putnam, 1993). The 28 items of the DES are rated on an 11-point Likert scale that ranges from 0 ("never") to 100 ("always"). The overall DES score is obtained by adding the scores of the 28 items and dividing the total by 28. This yields a final score ranging from 0 to 100. The higher the score is, the greater the experience of dissociative symptoms can be considered. Appropriate cut-off scores are not well established for the DES and vary from 15 to 35 in various prevalence studies (Carlson & Putnam, 1993; Draijer & Boon, 1993; Mueller-Pfeiffer, Moergeli, Assaloni, Schneider, & Rufer, 2007; Rodewald, Gast, & Emrich, 2006)

The Trauma Questionnaire (TQ) (Davidson, Hughes, & Blazer, 1990) is an18-item self-scored instrument assessing the presence of stressful events across the lifespan. Each item is scored either 0 = "No" or 1 = "Yes," so that the total score is the result of the sum of all affirmative answers. Post-traumatic Stress Disorder (PTSD) symptoms are scored for the event considered by the patient as the worst one. This scale has proved to have good psychometric properties (Davidson et al., 1990) and has been validated in the Spanish population (Bobes et al., 2000).

The Structured Clinical Interview for the Diagnosis of Dissociative Disorders (SCID-D) is the gold standard for the diagnosis of dissociative disorders (psychoform dissociation), and has shown excellent reliability and discriminating validity in different contexts and populations (Draijer & Boon, 1993; Steinberg & Steinberg, 1995; Steinberg, 2000). The SCID-D uses open-ended questions, and diagnoses are established using the information provided and taking into account symptom severity and frequency. Data were initially evaluated following DSM-IV-TR criteria, but cases were further reviewed to adapt it to the DSM-5. In the present study, the reviewed version of the SCID-D-TR has been used (Steinberg, 2000), considering Cardeña's Spanish translation.

Procedure

The research protocol was approved by the local ethics committee. Patients were proposed to participate in the study by their main therapist and they were informed about the research characteristics and requirements. The first group of patients came from a systematic random sample of psychiatric outpatients. The conversion disorders group was recruited later every time a patient was identified. Those subjects who agreed to participate in the study signed an informed consent.

All patients were contacted and interviewed individually. Interviews were conducted by clinicians (psychiatrists and/or psychologists) experienced in dissociative disorders and familiar with these instruments. Sociodemographic data were collected using a specifically designed instrument. The other scales were applied to every subject.

Test-retest measurements were only accomplished in a sub-sample of the patients.

Data analysis

ANOVA tests were used to examine group differences in test scores.

Pearson correlation coefficients were calculated to measure associations between SDQ-20 and other scores.

Criterion validity was determined by the group differences in mean scores.

Construct validity was assessed by the correlations between the DES with the SDQ-20 and TQ scores and mean differences (ANOVA) in patients reporting childhood sexual and physical abuse.

Reliability of the SDQ-20 was evaluated by test-retest correlation and internal consistency by using Cronbach's alpha.

In order to analyze dimensionality of the SDQ-20, a factorial analysis was performed. The correlation matrix of all questions included in the questionnaire was calculated. Barlett´s test of sphericity and Kaiser-Meyer-Olking(KMO) index were used to contrast variables' inter-correlations. An orthogonal (Varimax) method was performed to assess factor rotation.

Bayesian statistics were used to determine the test performance of the SDQ-5 in detecting dissociative disorders.

Statistical analyses were performed using the statistics software SPSS 21. The level of significance was set at 0.05 (two tailed).

Results

All patients were recruited from psychiatric services in the area of A Coruña. Age of patients ranged from 18 to 65 years (M = 39.44; SD= 10.21 years). Most patients were women (76.6%) and 38.4% were men. Anxiety and depressive disorders were the most prevalent diagnose sin general psychiatric patients (60.8%), followed by psychotic/bipolar disorders (17.1%) and personality disorders (11.1%).

The distribution of the sample SDQ-20 scores was analyzed (M= 28.02; SD= 9.76). SDQ-20 scores were significantly different in men and women (M= 26.04; SD= 8.34 vs. M= 28.65; SD= 10.10; p= .04). There was no significant linear correlation between patients' age and SDQ-20 scores (r= .09; p= .09).SDQ-20 scores were higher in patients with psychoform dissociative disorders (M= 40.57;SD= 14.64) and conversion disorders (M= 37.18;SD= 9.43) than in patients with other mental disorders (M= 27.03;SD= 8.40), reaching statistical significance (F= 37.073; p< .01).

Correlation between *psychoform dissociation* (DES scores) and somatoform dissociation (SDQ-20 scores) was statistically significant (r= .64; p<.01), as well as correlation between SDQ-20 scores and *number of traumas* measured with the TQ (r= 0.32; p<.01). SDQ-20 scores were higher in people suffering from *childhood sexual abuse* (M= 31.75; SD= 11.18) than in those who did not refer sexual abuse (M= 27.68; SD= 10.24). These differences showed statistical significance (F= 6.64; p= .01). SDQ-20 scores were also higher in people referring *physical abuse* (M= 33.74; SD= 14.43) than in those who did not (M= 27.33; SD= 8.37), and these differences were statistically significant (F= 15.08; p<.01).

Cronbach's alpha for the SDQ-20 was .87. Pearson's test-retest reliability coefficient was 0.91 (p<.01).

The principal component factor analysis (PCA) of the SDQ-20 ratings yielded a 1-factor solution, which explained 30.13% of the total variance and included all SDQ-20 items. Other factors explained little variance and did not have clinical relevance. These

results confirm the unidimensionality of the scale. The KMO calculated was .831 and Barlett's sfericity test showed statistical significance ($\div^2$= 1737.83; *fd*= 190; *p*<.01).

Cut-off

The most suitable cut-off point in the SDQ-20 for the screening of conversion disorders was 29.5. At this point, the scale shows 81.6% sensitivity and 71.0% specificity (Table 1).

The best cut-off score for screening psychoform dissociative disorders was 27.5. At this point, the scale achieved 80% sensitivity and 63% specificity. The positive predictive value was 28.24%, and the negative predictive value was 94.74% (Table 2).

As commented in the initial validation of the SDQ-20 (Dutch version), items discriminating the existence or not of an organic cause for the symptom do not offer any advantage compared to the original items. Cut-off score was 24.5, achieving at this point a sensitivity of 80% and a specificity of 59.17%, with a positive predictive value of 25.81% and a negative predictive value of 94.34% (Table 3).

Regarding the SDQ-5, the cut-off score maximizing sensitivity (73.33%) and specificity (70.41%) was 5.5, with a positive predictive value of 30.56% and a negative predictive value of 93.7% (Table 4).

Table 1
Conversive disorders according to screening and clinical interview

Diagnostic test	Conversive disorder	No conversive disorder	Total
Positive(SDQ20≥29.5)	31	49	80
Negative (SDQ20<29.5)	7	120	127
Total	38	169	207
Sensitivity (95%CI)		81.58% (67.94%; 95.22%)	
Specificity (95%CI)		71.01% (63.87%; 78.14%)	
PPV (95%CI)		38.75% (27.45%; 50.05%)	
PNV (95%CI)		94.49% (90.13%; 98.85%)	

Reference test = Conversive symptoms clinical interview
Sensitivity, specificity and predictive values at the optimal cut-off value are shown

Table 2
Psychoform dissociative disorders, according to screening and SCID-D-R (DMS-IV-TR)

Diagnostic test	Dissociative disorder	No dissociative disorder	Total
Positive (SDQ20≥27.5)	24	61	85
Negative (SDQ20<27.5)	6	108	114
Total	30	169	199
Sensitivity (95%CI)		80.00% (64.02%; 95.98%)	
Specificity (95%CI)		63.91% (56.37%; 71.44%)	
PPV (95%CI)		28.24% (18.08%; 38.39%)	
PNV (95%CI)		94.74% (90.20%; 99.27%)	

Reference test = SCID-D-R (DMS-IV-TR)
Sensitivity, specificity and predictive values at theoptimal cut-off value

Table 3
Cut-off point and statistical parameters to identify dissociative disorders, using SDQ20 items as a gold standard

Diagnostic test [1]SDQ items	Dissociative disorder	No dissociative disorder	Total
Positive (SDQ20≥24.5)	24	69	93
Negative (SDQ20<24.5)	6	100	106
Total	30	169	199
Sensitivity (95%CI)		80.0% (64.02%; 95.98%)	
Specificity (95%CI)		59.17% (51.47%. 66.88%)	
PPV (95%CI)		25.81% (16.38%; 35.24%)	
PNV (95%CI)		94.34% (89.47%; 99.21%)	

Reference test = SCID-D-R (DMS-IV-TR)
[1]SDQ items without any organic cause are considered

Table 4
Dissociative disorders, according to SDQ-5 and SCID-D

Diagnostic test	Disociativedisorder	No disociativedisorder	Total
Positive(SDQ5≥5.5)	22	50	72
Negative(SDQ5<5.5)	8	119	127
Total	30	169	199
Sensitivity (95%CI)		73.33% (55.84%; 90.82%)	
Specificity (95%CI)		70.41% (63.24%; 77.59%)	
PPV (95%CI)		30.56% (19.01 %; 41.89%)	
PNV (95%CI)		93.70% (89.08%; 98.32%)	

Reference test= SCID-D-R (DMS-IV-TR)
Sensitivity, specificity and predictive values at the optimal cut-off value

Discussion

The aim of the present study was to determine the psychometric properties of the SDQ-20 and to accomplish a cross-cultural validation of the Spanish version of the questionnaire. Criterion validity was supported by the finding that patients with dissociative and conversion disorders attained significantly higher SDQ-20 scores than comparison patients. Convergent validity was corroborated by the significant inter-correlations between SDQ-20 scores, DES scores (*p*<.01), and TQ scores (*p*<.01). SDQ-20 scores were higher in people referring *childhood sexual abuse* (*p*= .01) and *physical abuse* (*p*<.01).

The study's cut-off point for psychoform dissociative disorders was two points lower than the one Nijenhuis proposed in the original validation study (27.5 vs. 29.5 points).

For the SDQ-5, the coefficient alpha was 0.561 and the selected cut-off point was 5.5 (sensitivity 73.33% and specificity 70.41%), very close to the minimum score of the scale (5), and far from the cut-off point of 8 suggested by Nijenhuis et al (1996,1997). Sensitivity and specificity are low in this version and the cut-off point is very close to the minimum of the scale (= 5). Based on these characteristics, SDQ-5 does not meet adequate psychometric properties to be used with Spanish samples.

The Spanish version of the SDQ-20 presents good psychometric properties, and the concept of somatoform dissociation is found relevant in the study of dissociative disorders.

The principal component factor analysis (PCA) yielded a single factor and confirmed the one-dimensional structure found in the original Dutch version of the SDQ-20 (Nijenhuis et al., 1996).

Our findings about age having no effect on SDQ-20 scores are consistent with previous studies (Hage, Darves Bornoz, Allilaire, & Gaillard, 2002; Maaranen et al., 2005; Nijenhuis et al., 2003; Waller et al., 2003). Women reached higher scores than men. Some authors have described the same findings in their samples (Hage, Darves Bornoz, Allilaire, & Gaillard, 2002; Mueller-Pfeiffer et al., 2007; Nijenhuis, Van der Hart, & Kruger, 2002), while others have obtained different results in this particular subject (Spitzer et al., 2003).

Cross-cultural validity is supported by the similar amount of somatoform dissociative symptoms reported by patients with dissociative disorders (*M*= 40.57; *SD*= 14.64) and conversion disorders (*M*= 37.18; *SD*= 9.43) compared to previous research in other countries, such as Germany (Mueller-Pfeiffer et al., 2007) (M = 48.4; SD = 15.3), the Netherlands (*M* = 49.4; *SD* = 15.0) (Nijenhuis et al., 1996; 1998), Turkey (*M* = 52.5; *SD* = 18.0) (Sar et al., 2001) and Portugal (*M* = 39.3; *SD* = 11.9) (Espirito-Santo & Pio-Abreu, 2009).

Our results showing the relationship between somatoform dissociation and trauma conform to empirical evidence (Briere, 2006; Draijer & Langeland, 1999; Glenn Waller et al., 2000; Näring & Nijenhuis, 2005; Teicher, Samson, Polcari, & McGreenery, 2006; Watson et al., 2006).

In summary, this study revealed good psychometric properties and cross-cultural validity of the Spanish version of the SDQ-20 scale, as well as a strong relationship with psychoform dissociation and trauma. Based on our data, SDQ-5 is not an adequate instrument for Spanish samples.

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