Journal of Psychosomatic Research 97 (2017) 9–17

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

journal homepage: www.elsevier.com/locate/jpsychores

The Somatic Symptom Disorder - B Criteria Scale (SSD-12): Factorial structure, validity and population-based norms

Anne Toussaint[a,*], Bernd Löwe[a], Elmar Brähler[b], Pascal Jordan[a]

[a] Department of Psychosomatic Medicine and Psychotherapy, University Medical Center Hamburg-Eppendorf and Schön Klinik Hamburg Eilbek, Hamburg, Germany
[b] Department of Psychosomatic Medicine and Psychotherapy, University Medical Center of the Johannes Gutenberg University Mainz, Mainz, Germany

ARTICLE INFO

Keywords:
Somatic symptom disorder
DSM criteria
General population
Reference scores

ABSTRACT

Purpose: The Somatic Symptom Disorder - B Criteria Scale (SSD-12) assesses the psychological features of DSM-5 Somatic Symptom Disorder (SSD). The present study investigates the dimensionality and psychometric properties in a general population sample and provides norm values.

Method: Test dimensionality was evaluated via confirmatory factor analysis and nonparametric item response theory. Correlational analyses and logistic regression models based on related measures (SSS 8, PHQ-2, GAD-2, Health Care Utilization) were used to derive predictive validity. Age and gender specific norms were derived via quantile regression.

Results: The SSD-12 has good item characteristics and excellent reliability (Cronbach's $\alpha = 0.95$). Confirmatory factor analyses revealed a high correlation between the three proposed psychological subscales interpreted as cognitive, affective and behavioral aspects, indicating a general factor model of the SSD-12 in the general population ($n = 2362$, CFI = 0.99, TLI = 0.998, RMSEA = 0.09, 90% CI: 0.09–0.1). SSD-12 total sum-score was significantly associated with somatic symptom burden ($r = 0.73$, $p < 0.001$), general anxiety ($r = 0.63$, $p < 0.001$) and depressive symptoms ($r = 0.64$, $p < 0.001$). Patients with a higher SSD-12 symptom burden reported higher general physical and mental health impairment and a significantly higher health care use.

Conclusion: The SSD-12 is a reliable and valid self-report measure of the psychological characteristics of DSM-5 Somatic Symptom Disorder. The provided norms enable researchers and clinicians to compare SSD-12 scores with reference values of a general population sample.

1. Introduction

In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5 [1]) somatization disorder, undifferentiated somatoform disorder, hypochondriasis and the three variants of pain disorder were regrouped into Somatic Symptom Disorder and Illness Anxiety Disorder. Somatic Symptom Disorder (SSD) is defined by one or more persistent somatic symptoms that are distressing or result in significant disruption of daily life. Thereby, the somatic symptoms may or may not be medically explained. Due to these conceptual changes, the authenticity of the patient's symptoms is no longer questioned. The new criteria additionally require the patient to show psychological features like abnormal and excessive thoughts, feelings, and behaviors which are associated with his or her bothersome somatic symptoms, meaning that the patient's life is somehow dominated by the symptoms in a way that pervades his or her thoughts, feelings, and behaviors.

The impact these changes will have on the diagnostic process of somatoform disorders in clinical practice is still unclear [2]. However, the new criteria offer the opportunity to an earlier detection of patients with increased psychosomatic demands and to an improvement of thus far often unsatisfactory management procedures with the longer term aim to prevent chronification processes in physical complaints [3].

At the same time, these central changes of the diagnostic criteria call the applicability of current assessment instruments into question [4]. It therefore seems crucial to support the establishment of well-founded diagnostic strategies for the new diagnosis of Somatic Symptom Disorder.

1.1. The Somatic Symptom Disorder Scale (SSD-12)

Self-report questionnaires support physicians and other health care providers when considering a somatic symptom disorder, they can save considerable time within the diagnostic process and represent an additional and valuable source of information by capturing the patients' own perspectives of their symptoms. There are several standardized and validated instruments which effectively measure the patients' burden

* Corresponding author at: Department of Psychosomatic Medicine and Psychotherapy, University Medical Center Hamburg-Eppendorf, Martinistr. 52, 20246 Hamburg, Germany.
E-mail addresses: a.toussaint@uke.de (A. Toussaint), b.loewe@uke.de (B. Löwe), Elmar.Braehler@medizin.uni-leipzig.de (E. Brähler), p.jordan@uke.de (P. Jordan).

http://dx.doi.org/10.1016/j.jpsychores.2017.03.017
Received 23 January 2017; Received in revised form 21 March 2017; Accepted 25 March 2017

Table 1
Demographic characteristics of the study sample.

	No. (%)					
	Total (n = 2524)		Male (n = 1145)		Female (n = 1379)	
Age: Mean (SD)	48.84 (18.18)		48.44 (18.28)		49.17 (18.09)	
Age groups	n	%	n	%	n	%
14–24 years	282	11.2	138	12.1	144	10.4
25–34 years	366	14.5	168	14.7	198	14.4
35–44 years	373	14.8	163	14.2	210	15.2
45–54 years	488	19.3	223	19.5	265	19.2
55–64 years	462	18.3	196	17.1	266	19.3
65–74 years	335	13.3	171	14.9	164	11.9
> 74 years	218	8.6	86	7.5	132	9.6
Marital status						
Married (living together)	1040	41.3	501	43.9	539	39.2
Married (living apart)	54	2.1	23	2.0	31	2.3
Single	776	30.8	407	35.6	369	26.8
Divorced	391	15.5	140	12.3	251	18.3
Widowed	256	10.2	71	6.2	185	13.5
Education						
No qualifications	59	2.3	26	2.3	33	2.4
< 10 years	763	30.2	351	30.7	412	29.9
10 years of education	1004	39.8	427	37.3	577	41.8
> 10 years	621	24.6	297	25.9	324	23.5
Students	77	3.1	44	3.8	33	2.4

due to specific somatic complaints (e.g. PHQ-15 [5], SSS-8 [6] or SOMS-7 [7]), but yet there are no valid instruments to explicitly cover the cognitive, affective and behavioral aspects (B criteria) of SSD as described in DSM-5. The Somatic Symptom Disorder – B Criteria Scale (SSD-12) was developed as a direct measure of the new B criteria of SSD [8]. The scale was developed in several steps and is composed of 12 items which were derived from a large initial item pool of 98 items via a mixture of qualitative (focus groups involving researchers and clinicians) and quantitative methods (psychometric analysis). Each of the three psychological sub-criteria is measured by four items with all item scores ranging between 0 and 4. In a cross-sectional study, the SSD-12 was administered to 698 patients in a psychosomatic outpatient clinic. It could be shown that the scale has good item characteristics and excellent reliability (Cronbach's $\alpha = 0.95$). Using confirmatory factor analyses, a three-factorial structure which reflects the three psychological criteria interpreted as cognitive, affective and behavioral aspects of the SSD B criteria fitted the data of the clinical sample well (n = 663, CFI > 0.99, TLI > 0.99, RMSEA = 0.06, 90% CI: 0.01–0.08). SSD-12 total sum-score was closely associated with somatic symptom burden as measured by the Patient Health Questionnaire-15 [5] (r = 0.47) and health anxiety as measured by the Whiteley Index-7 [9] (r = 0.72). It was moderately associated with the 7-item Generalized Anxiety Disorder Scale [10] (r = 0.35) and the Patient Health Questionnaire 9-item depression scale [11] (r = 0.22). Patients with a higher SSD-12 symptom burden reported higher general physical and mental health impairment and a significantly higher health care utilization. Please see Appendix A for an English version of the SSD-12.

1.2. Aims of the study

Initial assessment indicated that the SSD-12 has sufficient reliability and validity in a clinical setting, yet a psychometric evaluation in a large sample from the general population is lacking to date. Therefore, the main subject of the present study was to assess the factor structure, reliability and convergent validity of the SSD-12 and provide norm values for the German general population that enable comparisons of SSD-12 scores with representative data. The ultimate goal was to provide a useful scale to evaluate and monitor psychological burden associated with somatic symptoms in research and clinical practice. The study protocol was approved by the ethics board of the Medical Faculty of the University of Leipzig.

2. Methods

2.1. Sampling strategy and subjects

The study was part of a German representative general-population survey that approached people aged at or above 14 years who were able to read and understand the German language. Data were collected in two waves between January and March 2016 with the assistance of 228 professionals from a demographic consulting company (Unabhängige Serviceeinrichtung für Umfragen, Methoden und Analysen (USUMA), Berlin, Germany). 258 sample points representing the different regions of Germany were used and 4902 households were selected for a first attempt, following a random-route sampling procedure. Of these, 4830 households were found to be eligible to participate (i.e., were not vacant or without individuals who met the inclusion criteria). A maximum of 4 contact attempts per household was made, but some of the selected persons could not be reached, were out of town at the date of the investigation, suffered from severe health problems or refused to participate (systematic failures). In total, 2544 participants (age between 14 and 93 years) agreed to participate (participation rate: 52.7%). All subjects were visited by trained face-to-face interviewers who informed about the investigation, recorded the participants' demographic information and presented various self-rating questionnaires – including the SSD-12 - in a paper/pencil setting. Written informed consent was obtained from all participants. Twenty interviews were invalid, so that in the end 2524 participants completed the self-rating questionnaires. A total of 2362 (93.6%) persons provided complete data on the SSD-12. Table 1 reports the demographic characteristics of the study sample.

2.2. Instruments

To examine the construct validity of the SSD-12, participants also completed the Somatic Symptom Scale-8 (SSS-8) [6] which is an abbreviated 8-item version of the Patient Health Questionnaire-15 (PHQ-15) [5]. The PHQ-15 scale assesses the presence and severity of common somatic symptoms and is among the most widely used and best-validated self-report measures of somatic symptom burden [12]. A 5-point response option (0–4) for each SSS-8 item and a 7-day time frame are used. We chose this measure because we expect patients with a higher physical symptom load (SSS-8) to report a higher symptom