Journal of Psychosomatic Research 101 (2017) 44–50

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

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

Comparing the Patient Health Questionnaire – 15 and the Somatic Symptom Scale – 8 as measures of somatic symptom burden

Anne Toussaint[a,*], Kurt Kroenke[b,c,d], Fitsum Baye[e], Spencer Lourens[e]

[a] Department of Psychosomatic Medicine and Psychotherapy, University Medical Center Hamburg-Eppendorf and Schön Klinik Hamburg Eilbek, Hamburg, Germany
[b] VA HSR & D Center for Health Information and Communication, Roudebush VA Medical Center, Indianapolis, IN, United States
[c] Department of Medicine, Indiana University School of Medicine, Indianapolis, IN, United States
[d] Regenstrief Institute, Inc., Indianapolis, IN, United States
[e] Department of Biostatistics, Indiana University School of Medicine, Indianapolis, IN, United States

ARTICLE INFO

Keywords:
PHQ-15
SSS-8
Somatic symptom burden
Psychometrics

ABSTRACT

Purpose: The Patient Health Questionnaire – 15 (PHQ-15) and the Somatic Symptom Scale – 8 (SSS-8) are self-report measures which assess somatic symptom burden. The present study investigates whether the two measures are comparable in terms of their psychometric properties and estimates of symptom burden.
Method: Item characteristics, reliability, symptom severity and construct validity with regard to other relevant psychological, health-related quality of life and disability measures were compared for the PHQ-15m and the SSS-8 in 294 primary care patients who participated in a randomized comparative effectiveness trial targeting pain and mood symptoms.
Results: The reliabilities of the PHQ-15m and the SSS-8 were $\alpha = 0.66$ and $\alpha = 0.72$, respectively. Both measures were highly correlated ($r = 0.79$). All item characteristics were comparable and both instruments showed the same pattern of correlations with instruments measuring depression, anxiety, pain, quality of life and impairment ($r = 0.25$ to 0.53). A 1-point score increase (worsening of somatic symptoms) on either instrument resulted in a 3.7% to 3.9% increase in the number of disability days reported for the last four weeks. Using the same severity thresholds (5: low, 10: medium, 15: high), both measures identified nearly identical subgroups of patients with regard to health-related quality of life and disability.
Conclusion: The PHQ-15m and the SSS-8 are comparable measures in terms of reliability and validity and severity classifications. These findings are in line with previous results and support the use of the SSS-8 as a valuable and short alternative to the original PHQ-15 in settings with limited assessment time.

1. Introduction

Somatic symptoms are ubiquitous in the general population; an estimated 80% of individuals will experience one or more somatic symptoms in any given month [1]. Symptoms may include pain as well as digestive, cardiovascular, pulmonary, urological, neurological, or sensory complaints. Many symptoms are neither exclusive correlates of an organic disease (e.g. cancer or coronary heart disease) nor exclusive symptoms of a psychiatric condition (e.g. depression or anxiety disorders) [2–4]. Somatic symptoms which are either part of a functional somatic syndrome, or otherwise unexplained by pathology, are the reason for at least 33% of primary care consultations and between 15 and 54% of specialist referrals across many medical disciplines. Usually, only those individuals who are actually distressed or impaired by their somatic symptoms present to clinical practice. About one fourth of all patients develops persistent symptoms [5].

Persistent somatic symptoms usually represent a substantial burden, they significantly impair patients' quality of life and level of functioning. Psychological factors like depression or anxiety as well as symptom-specific concerns or expectations are important contributors to high levels of health care use in these patients [6]. Repeated investigations and hospital treatment are frequent consequences and lead to high socio-economic costs. The health care burden due to persistent somatic symptoms is comparable to anxiety and depressive disorders, and there is a high co-morbidity between these disorders [7,8]. Strategies to improve the early recognition and identification of patients with high somatic symptom burden is important to initiate adequate treatment [9].

Standardized patient-reported outcome measures like self-report questionnaires are a good option to assess, quantify, and monitor

* 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), kkroenke@regenstrief.org (K. Kroenke), fbaye@iu.edu (F. Baye), slourens@iu.edu (S. Lourens).

http://dx.doi.org/10.1016/j.jpsychores.2017.08.002
Received 3 July 2017; Received in revised form 1 August 2017; Accepted 1 August 2017

common conditions in clinical, and especially in general practice. A frequent challenge in this context is to make precise assessments within a limited amount of time. Additionally, self-report represents a complementary source of information by capturing the patients' own perspectives of their symptoms [10].

From a research perspective, it is important to assess the number, type and severity of somatic symptoms as change in symptoms will continue to be a central outcome feature of treatments for patients and physicians/therapists alike [11]. There are several standardized and validated instruments which effectively measure the patients' burden due to specific somatic complaints (e.g. PHQ-15 [12], SSS-8 [13], SCL-90R or BSI [14]).

The Patient Health Questionnaire PHQ-15 is one of the most frequently used instruments to identify people at risk for somatization. It has well-established psychometric properties, is available in multiple languages and has been recommended for use in large-scale studies [15]. The PHQ-15 assesses the presence and severity of common somatic symptoms in primary care, such as fatigue, gastrointestinal, musculoskeletal, pain, and cardiopulmonary symptoms within the last four weeks using 15 items. Sum-scores range from 0 to 30 and indicate the self-rated symptom burden with higher scores indicating higher burden (0–4 no-minimal; 5–9 low; 10–14 medium; 15–30 high).

The Somatic Symptom Scale-8 (SSS-8) was developed within the process of the DSM-5 field trials as a measure of somatic symptom burden related to the new diagnosis of somatic symptom disorder (former title: Patient Health Questionnaire Somatic Symptom Short-Form, PHQ-SSS) [16]. It is an abbreviated 8-item version of the PHQ-15. The items of the SSS-8 were selected on the basis of symptom prevalence in primary care, association with measures of functioning, and statistical commonalities with the items of the complete scale. Some original items were condensed from two into one, and a few items were deleted. A 5-point response option (0–4) for each SSS-8 item and a 7-day time frame are used. Cut-off-scores indicate whether a patient suffers from minimal (0–3 points), low (4–7), medium (8–11), high (12–15), or very high (16–32) somatic symptom burden. Gender and age specific norms are available [13]. Previous studies demonstrated good item characteristics and excellent reliability, a sound factor structure and significant associations with related constructs like depression, anxiety, quality of life, and health care use [13,17]. The SSS-8 is available in English, German, and Japanese [13,17,18], and its sensitivity to change has recently been demonstrated [19].

1.1. Aims of the study

Gierk et al. [17] examined within a sample of outpatients from a psychosomatic clinic in Germany whether both measures were comparable in terms of their psychometric properties and estimates of symptom burden. The correlation between both instruments was high ($r = 0.83$) and they showed similar results considering reliability and validity. The SSS-8 performed well as a short version of the PHQ-15. Also, analyses suggested that similar cut-points might be used for both measures in grading somatic symptom burden as mild, moderate or severe. The aim of this paper is to replicate and extend the psychometric comparison of both measures using baseline data from a large clinical trial. Specifically, we compare the two measures in terms of item characteristics, reliability, and construct validity of the severity thresholds with regard to health related quality of life, functional impairment and work disability.

2. Method

2.1. Procedure and participants

Data were drawn from the Comprehensive vs. Assisted Management of Mood and Physical Symptoms Study (CAMMPS: https://clinicaltrials.gov/ct2/show/NCT01757301), a randomized comparative effectiveness trial designed to test the relative effectiveness of a lower-resource vs. a higher-resource enhancement of usual primary care in the management of Veterans suffering from pain plus comorbid anxiety and/or depression. The trial enrolled a total of 294 patients between January 2014 and June 2016. Baseline data was used for all analyses in this study. All measures were interviewer-administered. The trial was approved by the Indiana University institutional review board and the Roudebush VAMC research review committee.

2.2. Somatic symptom measures

The CAMMPS trial used a modified, 14 item version of the PHQ-15, hereinafter referred to as the PHQ-15m. The item on *sexual pain and problems* was left out for several reasons. First, it is the least commonly endorsed item in multiple epidemiological studies and also the one item that a subset of respondents are most uncomfortable answering. Second, the item has shown the lowest item-total correlation (0.33) of any of the PHQ-15 items, and all correlations with other items of the scale were low (< 0.20). Third, this item demonstrates among the lowest correlations with multiple domains of quality of life, disability and health care use. Fourth, in factor analysis, this item and the item on menstrual problems had the lowest commonality with the other 13 items and were excluded from the three factors (cardiopulmonary, gastrointestinal, and fatigue/pain) [12]. Fifth, reliability in terms of internal consistency (Cronbach α) for the modified 14 item version (PHQ-15m) ranged from 0.76 to 0.77 in three large clinical trials [20–22], which is similar to the reliability reported for the original PHQ-15 (Cronbach $\alpha = 0.80$ [12]). Finally, these trials demonstrated the responsiveness to treatment of the PHQ-15m. The Somatic Symptom Scale-8 (SSS-8) was used in its original form [13].

2.3. Other mental health, quality of life and disability measures

Depression was measured with the Patient Health Questionnaire 9-item depression scale (PHQ-9; [23]) which assesses the presence of the nine DSM criteria for major depression within the last two weeks. Scores range from 0 to 27 and indicate the severity of depression (high scores reflect high symptom load).

Anxiety was assessed with the 7-item Generalized Anxiety Disorder Scale (GAD-7) [24], a self-administered patient questionnaire which is used as a screening tool and severity measure of both generalized anxiety disorder as well as other common anxiety disorders. Scores range from 0 (minimal) to 21 (severe).

The Brief Pain Inventory (BPI) [25] is an 11-item self-administered questionnaire used to evaluate the severity of a patient's pain and the impact of this pain on the patient's daily functioning. Patients are asked to rate their worst, least, average, and current pain intensity, and the degree that pain interferes with general activity, mood, walking ability, normal work, relations with other persons, sleep, and enjoyment of life on a 0 (none) to 10 (worst). We used the mean total pain score for our analyses.

The 12-item Short Form Health Survey (SF-12) [26] is a measure of health-related quality of life from which a Physical Component Summary (PCS) score and Mental Component Summary (MCS) score can be derived. Both scores are standardized to a mean of 50 and a standard deviation of 10 to facilitate the comparison of individuals within the general population. Higher scores correspond to better health related quality of life.

The Sheehan Disability Index (SDI) [27] assesses functional impairment in three interrelated domains: work/school, social and family life. Each of its 3 items is scored from 0 (unimpaired) to 10 (highly impaired), with the SDI score being a mean of the 3 items.

In addition, patients reported the number of days in the past four weeks where they had to reduce their usual activities by 50% or more (range: 0 to 28), and provided information on sociodemographic characteristics.