

DEVELOPMENT AND PRELIMINARY VALIDATION OF A CULTURE-BOUND SOMATIC SYMPTOM SCALE

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ABSTRACT

Background: Culture specific psychosomatic symptoms such as “internal heat” are a common manifestation of psychological distress among Nigerians. However, instruments that include them in diagnostic endeavour are scarce.

Aim: To develop and validate a new self-rating questionnaire based on psychosomatic symptoms peculiar in the local context, for the screening of Somatic Symptom Disorder (SSD) in Nigeria.

Method: A preliminary stage which involved a review of the Enugu somatization scale (ESS), focus group discussion with Consultant psychiatrists and pretesting with 25 patients yielded an eight-item scale which was then tested in a two stage study. In the first stage, 230 subjects were recruited from patients attending the general outpatient clinic of the University of Calabar Teaching hospital using systematic sampling. The 8-item scale as well as the 12-item General Health Questionnaire (GHQ-12) was then administered. One hundred and thirty one subjects comprising those with positive scores on the GHQ-12 and a fifth of those with negative scores underwent a clinical interview to determine a diagnosis of somatic symptom disorder (SSD) following Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM 5) criteria. Data was analysed using statistical package for social sciences (SPSS) version 22.

Results: The 8-item scale had a Cronbach's alpha of 0.78 with a sensitivity of 0.79, a specificity of 0.72 and a misclassification rate of 28% at an optimized cut off of 3. Higher scorers on the scale were more likely to be cases at interview $\chi^2 = 14.22 p < 0.001$

Conclusions: The 8 item Culture Bound Somatic Symptoms scale can be a useful screen for somatic symptom disorder among patients with culture specific psychosomatic symptoms. Further validation studies are however needed to reassess its psychometric properties.

Key-words: Psychosomatic, culture bound, internal heat, validation, scale

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INTRODUCTION

Some somatic symptoms such as “internal heat” and crawling sensations are peculiar to West Africa and have intrigued psychiatrists in the sub-region for decades. Earlier workers alluded to the central role of somatization in the local phenomenology of mental illness.¹ Later, other workers consolidated on this fact, including a further step to recommend that these peculiar somatic symptoms be added to screening instruments in the sub-region to improve their sensitivity.^{2,4} These unconventional somatesthetic complaints are a common presentation in Nigerian clinics.^{1,5,6} They could occur in isolation or in

the context of any medical or surgical condition. Quite commonly, they are encountered in psychiatric disorders such as depression or schizophrenia and in culture-bound syndromes like “ode ori” and brain fag syndrome. It is known that psychosomatic symptoms such as these can be specific to certain cultures in terms of occurrence or significance as a symptom of illness.^{1,2,5,7,10} On account of these reasons, they are here referred to as “culture-bound somatic symptoms” for descriptive purposes.

These symptoms are often considered medically inexplicable; have been attributed to psychological distress; and called “somatization”, “idioms of distress” among other descriptors.¹¹⁻¹³ Like other medically unexplained symptoms, these share

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common denominators of worry, help seeking, and chronicity.^{14,15} The phrase, “cultural concepts of distress”, as used in the fifth edition of the Diagnostic and Statistical Manual of mental disorders (DSM-5), aptly accommodates these presentations, and with the view that somatic presentations are expressions of personal suffering inserted in a cultural and social context, they can be utilized in the diagnosis of Somatic Symptom Disorder (SSD), a category of the DSM-5 characterized by distressing somatic symptoms with abnormal thoughts, feelings, and behaviours in response to these symptoms. SSD is the dominant contemporary category replacing many somato form disorders described in the fourth edition of the Diagnostic and Statistical manual (DSM IV), aimed at minimizing overlapping diagnoses and reducing the restrictions on the nature of somatic symptoms.¹⁶

Ordinarily a clinician conversant with the DSM-5 criteria does the assessment of DSM disorders, but for research purposes, an appropriate structured clinical interview like the Structured Clinical Interview for DSM-5 (SCID-5) is utilized to improve reliability.¹⁷ However, the common presentation of these culture-bound somatic symptoms outside mental health settings, and the need to conserve resources especially in a resource-poor environment, makes self-report questionnaires particularly valuable for an initial screening of patients. There is only one known instrument, the Enugu Somatization Scale (ESS) that utilizes culture-bound somatic symptoms in a diagnostic endeavour.⁵ The ESS seeks to identify probable mental illness, has two Likert scales each comprised of 65-items, and has limited validation for clinical utility.^{18,19} For these reasons, the ESS is a bit cumbersome for a quick clinical screen, is unpopular among general practitioners and psychiatrists alike, and may not be a suitable specific screen for Somatic Symptom Disorder.

The objective of this work is to develop and validate a new self-rating questionnaire based on culture-bound somatic symptoms as may be applied to screen for Somatic Symptoms Disorder in Nigeria. The Culture-bound somatic symptoms scale (CSSS-8) assesses the presence of symptoms and how worried the patient is on their account as a screen for SSD. This preliminary report features the development of the CSSS-8, its psychometric properties and validation analyses in a sample of primary care patients.

METHOD

Development of the CSSS-8

The Item content of this new scale was mainly based on the ESS published in 1982, and its need for a severity measure first reported a 2009 study and later added in a 2016 review.^{5,18,20} The authors in several meetings reviewed the 65 items of the ESS which are a verbatim replication of patients' presenting complaints, and took a decision to eliminate those items that were repetitive, vague, needlessly specific, or had poor face validity; leaving 18 items with a yes or no response. Authors independently also came up with 6 likert type questions to assess various indices of symptom severity (such as duration, frequency, as well as health seeking behaviour due to the symptoms). The scale at this point had a total of 24 items.

A focus group of 8 researchers and clinicians (a professor of psychiatry, two consultant psychiatrists, and 5 Psychiatric senior registrars) working on culture-bound somatic symptoms was then formed. They discussed how understandable and applicable the items were in a review. The instrument was also administered to 25 primary care patients, each with whom a discussion ensued to assess comments, impressions and how understandable the scale was. The best items in terms of clarity, ease of understanding and face validity were selected to arrive at 8 items namely;

- I feel hot, inside but not outside, in my head or other parts of my body.

- It is as if my head or a part of my body is abnormally getting bigger or smaller
- Something is pounding or knocking inside my head
- A part of my head or body is vibrating
- I feel like something is biting me all over my body
- My head (or other parts of my body) beats like my heart
- I know my body is not alright but nobody seems to believe me

To be responded to with yes/no scored 1 for “yes” and 0 for “no”, and a single likert type question to measure severity;

8. How worried are you about these symptoms?

scored 0 for “not worried”, 1 for “a little worried”, 2 for “much worried”, 3 for “very much worried”). The questions were phrased simply for easy understanding by the average English speaking Nigerian of any tribe with at least primary education.

VALIDATION SAMPLE

This phase of the project was designed as a two-staged descriptive cross-sectional study, and set at the University of Calabar Teaching Hospital (UCTH) General Outpatient Clinic (GOPC) which is manned by Family Physicians and offer primary care services to patients from Calabar, and other nearby settlements of Cross River, Akwa Ibom and Ebonyi states. Calabar is a choice location for settlers from the many tribes of Cross River and the entire Nigeria so English language is widely spoken. A minimum sample of 226 calculated using the prevalence of 5.6% for somatization disorder at 95%CI and 3% precision was adjusted to 250 for at least a 90% response.^{21,22} Consenting patients, 18years and older presenting to the GOPC but not too ill to participate were included using systematic sampling. The daily register of GOPC attendees was the sampling frame used for recruitment. However, being generated at the time the patients presented,

its size was earlier obtained from the department as an estimated average of 180 patients daily, projected over 30 working days of 6weeks data collection time amounting to 5,400 patients from whom to generate the required sample size of 250, a sampling interval of 21 was used. All participants filled a demographic questionnaire designed by the authors, the 8 item Culture Bound Somatic Symptoms Scale, and the 12-item version of the General Health Questionnaire (GHQ-12); which are self-administered instruments. The GHQ-12 is a validated and well established measure of probable mental illness^{23,24} so it was used to pool respondents in order to conserve research resources such that all positive screens and a fifth of negative screens amounting to 131 respondents were included in a clinical interview based on the DSM-5 criteria for SSD. Only one of the authors who had familiarized himself with the SSD criteria, and was blind to the CSSS-8 performance administered the interview in order to minimize bias and guarantee reliability.

Ethics

This project was part of a larger study on the Enugu Somatization Scale not here reported. Ethical clearance was obtained from the health research ethics committee of the University of Calabar Teaching Hospital and informed consent obtained from participants. Also attending consultants were duly informed about any diagnoses made for proper disposal.

Statistical analyses

The Statistical Package for Social Sciences (SPSS) version 22 (IBM Corp, Armonk, New York) was used for the analyses. Respondent characteristics were summarized by means and frequency tables. Reliability statistics to describe the scale were given by Cronbach's alpha and an item-total correlation table. Criterion validity was examined by a receiver operating characteristics curve and presented in a 2x2 contingency table.

RESULTS

We analysed 230 returned and appropriately filled questionnaires of the 250 given. Characteristics of the respondents are shown in Table 1.

Table I. Characteristics of the sample (N=230) used to test the final version of the CSSS-8

Variable	Category	Frequency N= 230	Percentage (%)
Age Mean: 36.19 SD: ±13.57 Range: 18-80	18-39	154	67.0
	40-64	64	27.8
	>65	12	5.2
Gender	Male	103	44.8
	Female	127	55.2
Marital status	Single	109	47.4
	Married	111	48.3
	Separated/divorced	1	0.4
	Widow(er)	9	3.9
Level of education	None	10	4.3
	Primary	15	6.5
	Secondary	45	19.6
	Tertiary	160	69.6
Occupation	Unemployed	22	9.6
	Employed	142	61.7
	Student	66	28.7
Tribe	Igbo	38	16.5
	Efik	37	16.1
	Ibibio	11	4.8
	Other tribes	144	62.6
Religion	Christianity	226	98.3
	Islam	4	1.7
Previous medical condition	Present	87	37.8
	Absent	143	62.2
Previous psychological condition	Present	18	7.8
	Absent	212	92.2
Perceived health expenditure in past 12months	Very little	59	25.7
	Little	54	23.5
	Average	59	25.7
	Much	31	13.5
	Very much	27	11.7
Number of sick leaves taken in past 12months Mean: 0.6 SD: ±0.8 Range: 0-5	0	120	52.2
	1	64	27.8
	>1	46	20.0

All items on the scale had an item-total correlation exceeding 0.3, while the scale had an internal consistency of Cronbach's alpha 0.78. Overall scale and item characteristics are shown in Table II.

Table 2: CSSS-8 item characteristics (N=230)

CSSS-8 Cronbach's alpha 0.78	Mean (SD)	Skewness (SE=0.16)	Kurtosis (SE=0.32)	Corrected item-total correlation	Cronbach's Alpha if item deleted
I feel hot, inside but not outside, in my head or other parts of my body	0.24 (0.42)	1.24	-0.39	0.54	0.74
It is as if my head or a part of my body is abnormally getting bigger or smaller	0.15 (0.34)	2.14	2.71	0.53	0.75
Something is pounding or knocking inside my head	0.15 (0.35)	2.06	2.32	0.48	0.76
A part of my head or body is vibrating	0.11 (0.29)	2.72	5.53	0.52	0.75
I feel like something is biting me all over my body	0.07 (0.24)	3.65	11.54	0.41	0.77
My head (or other parts of my body) beats like my heart	0.10 (0.29)	2.80	5.99	0.49	0.76
I know my body is not alright but no body seems to believe me	0.24 (0.41)	1.29	-0.27	0.54	0.74
How worried are you about these symptoms?	0.52 (0.84)	1.45	0.92	0.69	0.75
CSSS-8	1.56 (2.16)	1.54	2.21	-	-

The overall sum score of the scale was calculated and used to generate a receiver operating characteristics curve with the gold standard taken to be the clinical interview for a diagnosis of somatic symptoms disorder. The area under the curve was determined to be 0.80, and a Youden's index J of 0.51 (the highest value of sensitivity + specificity - 1)

corresponded to an optimum scoring threshold of ≥ 3 with a sensitivity of 0.79 and specificity of 0.72. Higher scorers on the scale (i.e. scoring 3 and above) were more likely to be cases at interview $X^2 = 14.22$ $p < 0.001$. Other indices of the criterion validity are shown in Figure I, Table III and Table IV.

Figure 1: Receiver operating characteristics curve of CSSS-8 for SSD. (N=131)

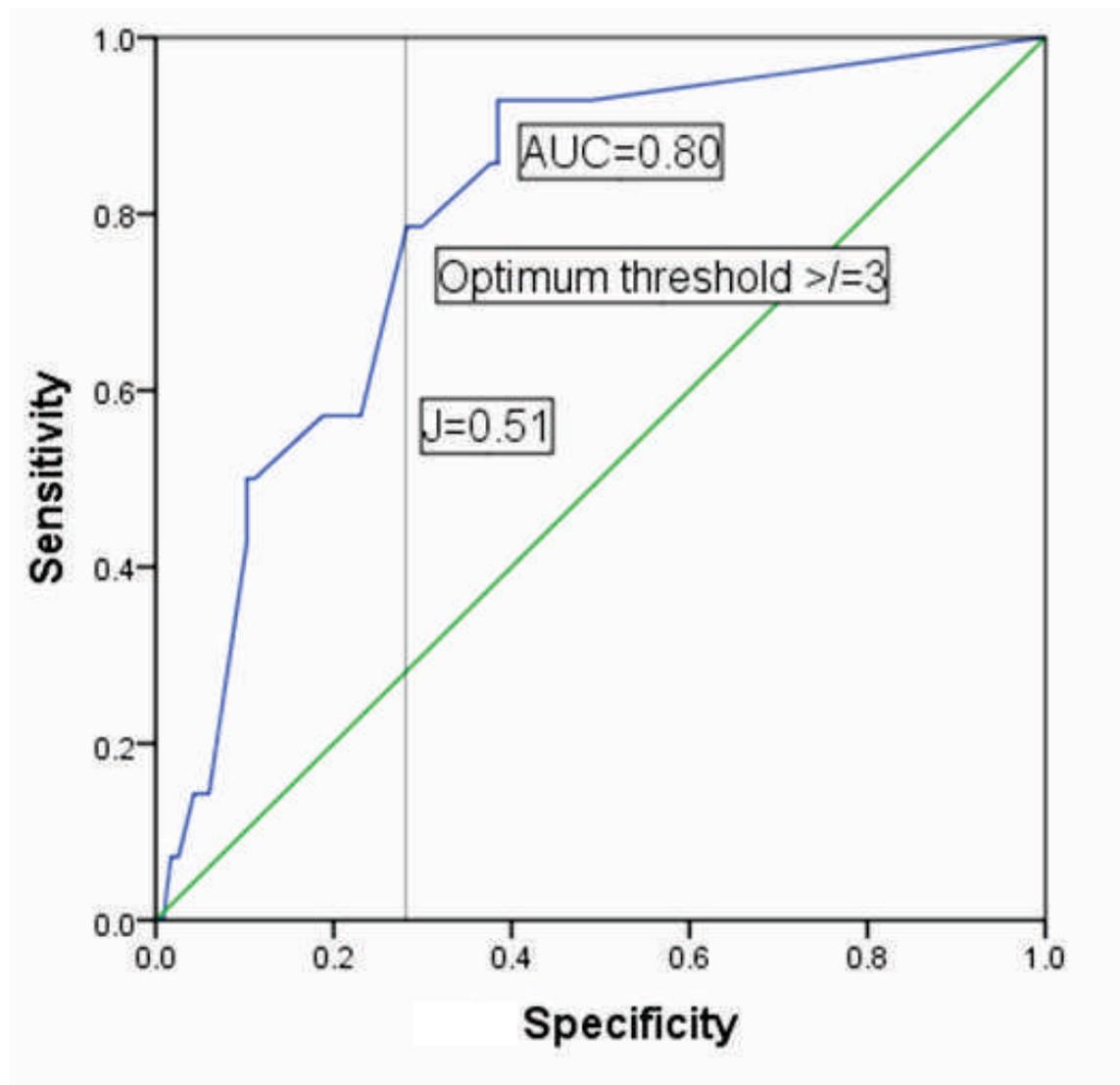


Table 3: Psychometric properties of CSSS-8 at different scoring thresholds

CSSS-8 cut-off	Sensitivity	Specificity	Positive predictive value	Negative predictive value	Misclassification rate
≥1	0.93	0.51	0.19	0.98	0.44
≥2	0.86	0.62	0.21	0.97	0.35
≥3	0.79	0.72	0.25	0.97	0.28
≥4	0.57	0.81	0.27	0.94	0.21
≥5	0.43	0.90	0.33	0.93	0.15

Table 4: Criterion validity of the CSSS-8 using the SSD clinical interview as gold standard

Instrument	N = 131	SSD clinical interview		Psychometric properties
		Cases 14	Non-cases 117	
CSSS -8	Cases 44	11	33	Sensitivity: 0.79
Cut -off ≥3	Non cases 87	3	84	Specificity: 0.72
				Positive Predictive Value: 0.25
				Negative Predictive Value: 0.97
				Misclassification Rate: 0.28

Statistics $\chi^2 = 14.22$ $p = 0.000$

DISCUSSION

This report presents the development and preliminary validation of a self-report questionnaire that utilizes a unique presentation of culture-bound somatic symptoms with the intention of providing an appropriate clinical disposal. The CSSS-8 assesses the presence of 7 symptom models including the commonly encountered "internal heat", and a measure of worry associated with them. It can be completed in a minute, the ease of use and brevity which may facilitate its use in clinical practice for screening purposes.

The results show that the CSSS-8 has a good reliability as given by the Cronbach's alpha despite its few items and two dimensions. Its individual items with item-total correlations in the range of 0.4 and 0.7, low means, and marked positive skew and kurtosis demonstrate the scales strong discriminating ability.

In view of the suggested theory that SSD should accommodate the categorization of culture-bound somatic symptoms, we used a clinical interview as the standard in the absence of a structured assessment for SSD to test the criterion validity of the CSSS-8. An area under the ROC curve of 0.80 shows an overall acceptable discriminating ability optimized at a scoring threshold of 3. The high sensitivity and specificity of the CSSS-8 alongside its other attributes satisfy the conditions of a good screening instrument.²⁵ The use of two dimensions in the CSSS-8 to predict SSD reflects on the finding that increasing number or severity of culture-bound somatic symptoms were predictive of depression, anxiety and somatoform disorders.²⁶

LIMITATIONS

An important limitation in this study is the absence of a gold standard. The SSD is not contained in SCID-4 for example, which is based on the DSM-IV somatoform disorders criteria. Using the SCID therefore would not

suffice for a presentation that has long remained uncategorized and is only recently being accommodated by the DSM-5. Also there is currently no diagnostic instrument that measures the complete dimensions of the SSD.

The SSD-12 (a recently developed instrument to assess for SSD criterion B) in combination with measures of somatic symptoms like the 15-item somatic subscale of Patient Health Questionnaire (PHQ-15) or the 8-item Somatic Symptoms Scale (SSS-8), and an assessment of chronicity should capture the complete dimensions of SSD.²⁷ However, there is still no operationalized algorithm for such a combination and more so such a combination would still not capture the presentation of culture-bound somatic symptoms. Also, the results obtained should better be considered as preliminary findings since our sample is hardly representative of the general population. These highlight the need for the development of a version of SCID for DSM 5, and further testing of the CSSS-8 as well as the uniqueness of the so called culture-bound somatic symptoms for other possible disposal.

Other limitations include the need for caution in generalizing the findings of this study in view of the general population's literacy levels and ability to use English language in comparison with this sample. Future studies should be carried out in a more representative sample and include an attempt at translating the instrument into indigenous languages of the applicable cultures.

CONCLUSION

Until then one may conclude that the CSSS-8 is a reliable and valid questionnaire for the assessment of culture-bound somatic symptoms and is useful for screening cases that are severe enough to probably meet DSM 5 criteria for somatic symptom disorder.

REFERENCES

1. Okhomina FOA, Ebie JC. Heat in the Head as a Psychiatric Symptom. In: Fourth Pan-African Workshop. Accra;1973.
2. Ayorinde A. Heat in the head or body: A semantic confusion. *Afr J Psychiatry*. 1977;1:5963.
3. Morakinyo OA. Phenomenological study of Functional Abnormal Bodily Sensations in African Psychiatric Patients. *Psychopathologie Africaine*. 1983;XIX(3):34355.
4. Ohaeri JU, Odejide OA. Somatization symptoms among patients using primary health care facilities in a rural community in Nigeria. *Am J Psychiatry*. 1994;151(5):72831.
5. Ebigbo P O. Development of a culture specific (Nigeria) screening scale of somatic complaints indicating psychiatric disturbance. *Cult Med Psychiatry*. 1982;6(1):2943.
6. Lasebikan VO, Ejidokun A, Coker OA. Prevalence of Mental Disorders and Profile of Disablement among Primary Health Care Service Users in Lagos Island. *Epidemiol Res Int*. 2012;2012:16.
7. Boroffka A, Marinho AA. Psychoneurotic Syndromes in urbanized Nigerians. *Transcult Psychiatr Res Rev*. 1963;15:446.
8. Morakinyo O. Phobic states presenting as somatic complaints syndromes in Nigeria: socio cultural factors associated with diagnosis and psychotherapy. *Acta Psychiatr Scand*. 1985;71(4):35665.
9. Mbanefo SE. Heat in the Body as a Psychiatric Symptom. *J Coll Gen Pract*. 11:235.
10. Chakroborty A. Origin of a common psychiatric symptom (burning sensation) among Indian patients: Study of a myth with reference to Ayurveda. In: *Clinical Psychology in Africa*. Enugu: Chuka Printing Company;
11. Mohan I, Aleksandar J, John O. Somatization - a culture-bound or universal syndrome. *J Ment Heal*. 1996;5(3):21922.
12. Nichter M. Idioms of distress: alternatives in the expression of psychological distress: a case study from South India. *Cult Med Psychiatry*. 1981;5(Dec):379408.
13. Ebigbo P O., Onyema WP. Alternative Diagnostic Method: The use of the Enugu Somatization Scale in the investigation of female psychopathology. In: *Association of Psychiatrists in Nigeria*. Enugu;1982.
14. Gureje O, Simon GE, Ustun TB, Goldberg DP. Somatization in cross-cultural perspective: A World Health Organization study in primary care. *Am J Psychiatry*. 1997;154(7):98995.
15. Katon W, Lin E, Von Korff M, Russo J, Lipscomb P, Bush T. Somatization: a spectrum of severity. *Am J Psychiatry*. 1991;148(1):3440.
16. American Psychiatrists Association. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. Washington, DC: AMA; 2013.
17. First M, Spitzer R, Gibbon M, Williams J. *Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition (SCID-I/P)*. New York; 2002.
18. Ebigbo PO, Nweze FC, Elekwachi CL, Eze JE. New Data on the Enugu Somatization Scale , Taking Frequency and Intensity of Somatic Experiences of Nigerians into Consideration Abstract Development of the Original Enugu Somatization Scale (ESS) Rescaling of the Instrument. *Acta Psychopathol*. 2016;2(2:15):113.
19. Igbokwe DO. A factorial validation of the Enugu Somatization Scale. *College of Human Development, Covenant University*; 2008.
20. Okafor CJ. Cluster analysis of some functional somatic symptoms presenting at the general outpatient department of University of Calabar Teaching Hospital. *National Postgraduate Medical College of Nigeria*; 2009.
21. Obimakinde AM, Ladipo MM, A E Irabor. Symptomatology and Comorbidity of Somatization Disorder Amongst General Outpatients Attending a Family Medicine Clinic in South West Nigeria. *Ann Ibadan Postgrad Med*. 2014;12(2):96102.
22. Cochran WG. *Sampling Techniques*. 2nd ed. Vol. 20, John Wiley & Sons. New York: John Wiley and Sons, Inc; 1977.
23. Gureje O, Obikoya B. The GHQ-12 as a Screening Tool in a Primary Care Setting. *Soc Psychiatry Psychiatr Epidemiol*. 1990;25:27680.
24. Goldberg DP. The detection of psychiatric illness by questionnaire: a technique for the identification and assessment of non-psychotic psychiatric illness. *Maudsley monographs*; nr.21. London: Oxford university press; 1972.
25. Wittchem H, Essau C. Assessment of symptoms and psychosocial disabilities in primary care. In: Sartorius N, editor. *Psychological disorders in general medical settings*. New York: Hogrefe and Huber publishers; 1990.
26. Okafor CJ, Udofia O, Ekpe EE. Psychiatric Diagnoses of Patients Presenting with Functional Somatic Symptoms in a Primary Care Clinic at a University Teaching Hospital in Nigeria. *Open J Depress*. 2015;4(August):3140.
27. Toussaint A, Murray AM, Voigt K, Herzog A, Gierk B, Kroenke K, et al. Development and Validation of the Somatic Symptom Disorder B Criteria Scale (SSD-12). 2016;(January):512.