Voiding Dysfunctions
Original article

Use and ease of self-administered International Prostate Symptoms Score (IPSS) and Visual Prostate Symptoms Score (VPSS) questionnaires for the assessment of lower urinary tract symptoms in Nigerian men

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O.O. Abiola [a],*, A.A. Ajape [b], S.O. Adeniyi [a], S.C. Ayeni [a]

[a] *Urology Unit, Department of Surgery, Bowen University Teaching Hospital, Ogbomoso*
[b] *Urology Division, Department of Surgery, University of Ilorin Teaching Hospital, Ilorin, Nigeria*

Abstract

Objectives: To evaluate the use of the Visual Prostate Symptoms Score (VPSS) and International Prostate Symptoms Score (IPSS) questionnaires for the assessment of lower urinary tract symptoms (LUTS) in Nigerian men, with special emphasis on the ease of administration and the time needed to complete the questionnaires.

Patients and methods: This cross-sectional survey of men with LUTS was carried out at a tertiary-care hospital in Nigeria between July and December, 2014. The symptoms were assessed using the IPSS and VPSS questionnaires. A structured questionnaire was created to collect data on socio-demographics, literacy, visual impairment and the time needed to complete the IPSS and VPSS questionnaires. The data were collated, and Pearson's chi-square test was performed using a contingency table. Spearman's rank correlation test was done for IPSS and VPSS, while the paired *t*-test was used for the average time spent in completing both questionnaires. A *p*-value <0.05 was considered as significant.

Results: Ninety patients aged between 56 and 80 years were enrolled in the study. Thirty-one (34.4%) were literate in English, while 59 (65.6%) were illiterate. The literate patients with at least secondary education completed the IPSS questionnaire without assistance. The VPSS questionnaire was completed without assistance by 43 (72.9%) illiterate patients, while all the patients with visual impairment needed assistance to complete it. There was a statistically significant correlation between the IPSS and VPSS. Completion of the VPSS questionnaire required half of the time needed to complete the IPSS questionnaire.

* Corresponding author.
E-mail addresses: jidexyseg@yahoo.co.uk, ooabiola2015@gmail.com (O.O. Abiola), ajsnrkudimoh@yahoo.co.uk (A.A. Ajape), olusegunadeniyi007@gmail.com (S.O. Adeniyi), ayenishola50@yahoo.com (S.C. Ayeni).
Peer review under responsibility of Pan African Urological Surgeons' Association.

Conclusion: To complete the IPSS questionnaire, Nigerian men require a literacy status of at least secondary education. VPSS correlated significantly with IPSS. Both questionnaires can be used to assess LUTS in uneducated patients and those with a low educational level, but visual impairment may preclude their use. It takes less time to complete the VPSS compared to the IPSS questionnaire.

Introduction

Patients with an enlarged prostate often present with lower urinary tract symptoms (LUTS) which may be irritative or obstructive. Knowledge of the severity of these symptoms assists in devising an appropriate treatment plan for the patient [1]. The American Urological Association Score (AUA Score) was developed by Barry et al. in 1992 [2] and was subsequently adopted by the World Health Organization (WHO) as the International Prostate Symptoms core (IPSS) – a valid tool for the assessment of LUTS [3]. The questionnaire consists of seven questions on incomplete bladder emptying, frequency of micturition, intermittency, urgency, weak stream, straining and nocturia. There is an 8th question on quality of life assessment in relation to the urinary symptoms.

Ideally, the IPSS questionnaire should be self-administered as this will eliminate the possible bias that may be associated with physician-assisted or health worker-assisted administration. The English version of the IPSS questionnaire is in use in Nigeria. Hence, some level of formal education is required to understand the questions. However, the level of literacy in Nigeria is relatively low, especially in the rural areas [4], which may make administering the IPSS questionnaire to patients difficult. In a study carried out in Jos, Nigeria, by Ogwuche et al. [5], illiteracy was found to be a major drawback when administering the IPSS questionnaire; 74. 3% of their patients were not able to read English.

Patients who do not read English often seek the assistance of the physician for the completion of the questionnaire. This may affect the patient's actual symptoms score due to a loss of the actual meaning during translation of the questions and possibly due to the physician being biased.

In an attempt to improve this self-administered assessment tool, a non-verbal pictographic assessment of LUTS including frequency, nocturia and weak stream as well as the quality-of-life question was developed and called Visual Prostate Symptom Score (VPSS) [6]. Studies have shown it to significantly correlate with IPSS [6,7], but it can be easily completed without assistance by a greater number of patients, especially those with limited education [7,8].

To the best of the authors' knowledge, there has been no documented use of the VPSS in the assessment of LUTS in Nigeria. Hence, this study sought to evaluate the use of the VPSS as compared to the IPSS for the assessment of LUTS, with special emphasis on the ease of administration and the time needed to complete the questionnaires.

Patients and methods

This prospective cross-sectional survey of consecutive male patients presenting with LUTS to the urology clinic of a tertiary-care hospital in Ogbomoso, Nigeria, was conducted over a six-month period from July to December, 2014.

Ethical approval of this study was obtained from the hospital's Ethical Review Committee.

The patients' informed consent was obtained before enrolling them into the study (Appendix I).

A structured questionnaire was used to evaluate the patients' socio-demographic characteristics. These included: age, level of education, occupation, ability to read and write in English language. Moreover, there was a question as to whether the patient suffered from any visual impairment (Appendix II). The English versions of the IPSS and VPSS questionnaires were attached to the structured questionnaire (Fig. 1). The patients completed the structured, IPSS and VPSS questionnaires with the physician at hand to provide assistance when necessary. The number of patients requiring assistance and of those who did not require any help, as well as the time taken to complete each questionnaire was noted by the physician.

The total scores of frequency, nocturia and weak steam according to the IPSS and VPSS questionnaires, as well as the score for quality-of-life assessment were then calculated for each respondent.

Data collation and analysis

Descriptive analysis of the collated data was done, and the data were summarized accordingly. The relationship between the variables was identified using Pearson's chi-square test. The x-variables in the contingency table consist of the following: age, level of education, literacy in English and visual impairment, while the y-variables represent the respondents requiring assistance and those not requiring assistance when completing the IPSS and VPSS questionnaires. A p-value < 0.05 was considered as significant.

Spearman's rank correlation test was used for the correlation analysis of frequency, nocturia, weak stream and the total of the three variables in the IPSS and VPSS with a p-value < 0.05 considered significant.

The above statistical analyses were done using the Statistical Package for the Social Sciences (SPSS), version 16. The time spent by the respondents to complete each set of questionnaires was analyzed using the paired t-test, using graph pad software for data analysis. A p-value of 0.05 was considered as significant.

Results

This study was carried out on 90 consecutive patients with LUTS attending our urology clinic during the study period. The
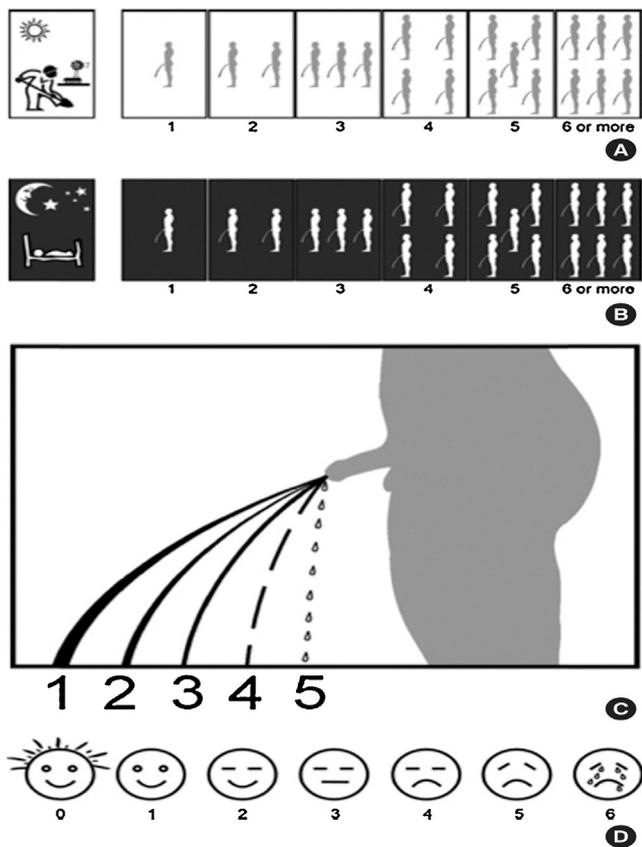
(A) Frequency, (B) Nocturia, (C) Force of Urinary stream, (D) Quality of life

Figure 1 Visual Prostate Symptoms Score [8].

Table 1 Socio-demographic characteristics.

	Frequency ($n = 90$)	Percentage
Occupation		
Farming	44	49.0
Civil Servant	3	14.4
Clergy	12	13.3
Artisans	11	12.2
Retiree	10	11.1
Level of education		
Primary	44	48.9
Secondary	10	11.1
Tertiary	20	22.2
Uneducated	16	17.8

while 59 (65.6%) patients who could not read or write in English required assistance.

In comparison, 70 (77.8%) respondents completed the VPSS questionnaire without assistance, while only 20 (22.2%) required help.

The characteristics of the respondents with regard to their ability to complete of the IPSS and VPSS questionnaires are as shown in Table 2. All the respondents aged under 60 were able to complete the IPSS ($p < 0.001$) and VPSS questionnaires except one who required help with the VPSS questionnaire ($p = 0.020$).

All the respondents with secondary and tertiary education completed the IPSS questionnaire without assistance, while all those who were uneducated or had primary education, except one, required help ($p < 0.001$). Ten (37.5%) of the 16 uneducated patients and 34 (77.3) of the 44 patients with primary education completed the VPSS questionnaire without assistance. However, 2 (20%) respondents with secondary education and 2 (10%) respondents with tertiary education required assistance when completing the VPSS questionnaire ($p = 0.270$).

All the respondents literate in English completed the IPSS questionnaire without assistance. There was no statistically significant influence of the literacy level on the respondents' ability to complete

respondents' mean age was 66.0 ± 5.1 (range 56–80) years. Their socio-demographic characteristics are shown in Table 1.

Thirty-one (34.4%) respondents were literate in English and completed the IPSS questionnaire without the physicians' assistance,

Table 2 Characteristics of respondents in completion of IPSS and VPSS.

Variable	IPSS			VPSS		
	Assistance not required (%)	Assistance required (%)	χ^2/p value	Assistance not required (%)	Assistance required (%)	χ^2/p value
Age groups						
51–60	14 (100.0)	0		13 (92.9)	1 (7.1)	
61–70	13 (25.0)	39 (75.0)		43 (82.7)	9 (17.3)	
71–80	4 (16.7)	20 (83.3)	**32.059/<0.001**	14 (58.3)	10 (41.7)	**7.818/0.020**
Level of education						
Uneducated	0	16 (100.0)		10 (55.6)	8 (44.4)	
Primary	1 (2.3)	43 (97.7)		34 (81.0)	8 (19.0)	
Secondary	10 (100.0)	0		8 (80.0)	2 (20.0)	
Tertiary	20 (100.0)	0	**85.67/<0.001**	18 (90.0)	2 (10.0)	**7.145/0.067**
Literacy in English						
Yes	31 (100.0)	0		27 (87.1)	4 (12.9)	
No	0	59 (100.0)	**90.00/<0.001**	43 (72.9)	16 (27.1)	**2.376/0.123**
Visual impairment						
Yes	3 (27.3)	8 (72.7)		0	11 (100.0)	
No	28 (35.4)	51 (64.6)	**0.285/0.593**	70 (88.6)	9 (11.4)	**43.86/<0.001**

IPSS – International Prostate Symptoms Score; VPSS – Visual Prostate Symptom Score. p-value < 0.05.

Table 3 Correlation of IPSS and VPSS.

Spearman rank's correlation	Correlation coefficient	p-value
Frequency in IPSS Vs frequency in VPSS	0.524	<0.001
Nocturia in IPSS Vs nocturia in VPSS	0.873	<0.001
Weak stream in IPSS Vs weak stream in VPSS	0.639	<0.001
QoL in IPSS Vs QoL in VPSS	0.533	<0.001
Total of IPSS Vs total of VPSS	0.775	<0.001

IPSS – International Prostate Symptoms Score; VPSS – Visual Prostate Symptom Score; QoL – Quality of life. p-value < 0.05.

the VPSS questionnaire ($p = 0.123$); a larger number of the respondents not literate in English completed the VPSS questionnaire without the physician's assistance (72.9%).

All the 11 respondents who reported visual impairment required assistance in completing the VPSS questionnaire ($p < 0.001$), but 3 of them completed the IPSS questionnaire without assistance, though this was not statistically significant ($p = 0.593$).

Correlation of the scores of frequency, nocturia, weak stream and quality of life in the IPSS and VPSS questionnaires revealed statistically significant results ($p < 0.001$). Nocturia had the strongest correlation ($rho = 0.873$), while frequency had the least correlation ($rho = 0.524$). Also, correlation of the total score of frequency, nocturia and weak stream in the IPSS and VPSS questionnaires was statistically significant ($p < 0.001$) (Table 3).

The time needed by the respondents to complete both questionnaires is shown in Table 4.

Discussion

In Nigeria, the English version of the IPSS questionnaire is used to assess the severity of LUTS. Due to the complexity of the IPSS questionnaire, its completion may pose a problem to patients, especially to those with a low educational level [9]. In our study, only 31 patients who were literate in English completed the IPSS questionnaires without a physician's assistance, while those who were unable to read and write in English required assistance. This finding is similar to the results of a previous study in Nigeria which revealed illiteracy to be a major drawback in administering the IPSS questionnaire to patients [5]. It is also comparable to the results of a study carried out by Afriansyah et al. in Indonesia [10] where none of the illiterate respondents completed the IPSS questionnaire without assistance. Hence, with the low literacy level in Nigeria, especially in the rural areas [4], administering the IPSS questionnaire for the assessment of LUTS without a physician's assistance has proved to be difficult.

Table 4 Time to complete IPSS and VPSS.

n = 90	Range (min)	Mean (SD)	Paired t-test	p-value
IPSS	6–10	7.51 (1.48)		
VPSS	3–5	3.49 (0.52)	24.441	**<0.001**

IPSS – International Prostate Symptoms Score; VPSS – Visual Prostate Symptom Score; SD – standard deviation; p-value < 0.05.

Previous studies have shown the VPSS to correlate significantly with the IPSS and to be of valuable use in assessing LUTS in populations with limited formal education [6–8,10]. The present study confirms the above fact as 43 (72.9%) of the respondents not literate in English completed the VPSS questionnaire without assistance. Thus, it can be inferred that the literacy status may not necessarily influence the respondents' ability to complete the VPSS questionnaire, but that it has a significant influence on the respondents' ability to complete the IPSS questionnaire.

This study shows that an educational level of at least secondary school education is required to complete the self-administered IPSS questionnaire; only one patient with primary education was able to complete it without assistance. This finding is comparable to a study carried out by MacDiarmid et al. [11], where a minimum level of sixth-grade reading according to American educational standards (an equivalent of first-year secondary school education in the Nigerian educational system) was required to read and understand the questions in the IPSS questionnaire. A larger proportion of respondents who had primary education or were uneducated completed the VPSS questionnaire without assistance. The relationship between the educational level and completion of the VPSS questionnaire without a physician's assistance was not statistically significant ($p = 0.270$). Hence, the educational level may not have an influence on the ability of patients to complete the VPSS questionnaire without assistance. This finding is similar to previous studies where individuals with limited education completed the questionnaire easily, possibly due to the advantage of easy understanding of its schematic pictogram [7,8,12].

Visual impairment significantly affected the respondents' ability to complete the VPSS questionnaire without assistance. None of the respondents who reported visual impairment completed the VPSS questionnaire without assistance ($p < 0.001$) and only three of them completed the IPSS questionnaire without assistance ($p = 0.593$). Thus, visual impairment can preclude the use of a self-administered VPSS questionnaire.

There was a statistically strong correlation between total IPSS and VPSS (correlation coefficient = 0.775, $p < 0.001$) in this study. Also, each component of the VPSS had a statistically significant correlation with the corresponding IPSS component. We found the strongest correlation for nocturia (correlation coefficient = 0.873, $p < 0.001$), while the least correlation was found with regard to frequency (correlation coefficient = 0.524, $p < 0.001$). The quality-of-life score in the VPSS questionnaire also correlated with the one in the IPSS questionnaire (correlation coefficient = 0.533, $p < 0.001$). These findings are consistent with previous studies performed in Namibia and Indonesia where the total IPSS and VPSS correlated significantly with a correlation coefficient of 0.863, $p < 0.001$ and 0.675, $p < 0.001$, respectively [8,10].

An average time of approximately 7 min and 3.45 min was spent by the respondents on completing the IPSS and VPSS questionnaires, respectively. Thus, it takes about half the time to complete IPSS questionnaire in completing VPSS questionnaire. Hence, the VPSS allows for a much faster assessment of LUTS in Nigerian men than the IPSS. This finding is similar to a previous study carried out in Namibia where the patients, especially those with limited education, took less time to complete the VPSS questionnaire [8].

Conclusion

The use of the self-administered IPSS questionnaire in Nigerian men requires a literacy status of at least secondary education. The VPSS correlated significantly with the IPSS, and it can be used to assess LUTS in uneducated individuals and in those with a low educational level. However, visual impairment can preclude its use. It takes less time to complete the VPSS compared to the IPSS.

Ethical committee approval

Obtained from Bowen University Teaching Hospital Research Ethics Committee with the number: NHREC/12/04/2012.

Conflict of interest

None declared by the authors.

Source of funding

None declared by the authors.

Authors' Contributions

O.O. Abiola: Development of the concept of the study and design of the study; definition of intellectual content and literature search; acquisition of data, data analysis, interpretation of data and drafting of the manuscript.

A.A. Ajape: Revision of the drafted manuscript for intellectual content; manuscript review and editing.

S.O. Adeniyi: Definition of intellectual content and literature search; data acquisition, statistical analysis and manuscript preparation.

S.C. Ayeni: Data acquisition, literature search and manuscript preparation.

Appendix I.

CONSENT FORM

Sir,

We wish to seek your consent to participate in this study which is proposed to evaluate the use and ease of administering international prostate symptoms score and visual prostate symptoms score questionnaires in assessing the severity of lower urinary tract symptoms.

The outcome of this study will help to ascertain the efficiency of administering each of the questionnaires in the assessment of lower urinary tract symptoms.

We assure you that all information given in this questionnaire shall be treated as confidential information

Kindly tick the space AGREE if you consent to and agree to participate. Otherwise, tick the space DISAGREE

AGREE ☐   DISAGREE ☐

IF YOU **AGREE**, KINDLY FILL THE QUESTIONNAIRE   ATTACHED

Appendix II.

PROFORMA FOR EVALUATION OF THE USE OF THE INTERNATIONAL

PROSTATE SYMPTOMS SCORE AND THE VISUAL PROSTATE SYMPTOMS

SCORE FOR THE ASSESSMENT OF LOWER URINARY TRACT SYMPTOMS

1. Hospital number_____
2. Age_____
3. Level of education: none(   ); primary(   ); secondary(   ); tertiary(   )
4. Occupation_____
5. Able to read and write in English?: yes(   ); no(   )
6. Any visual impairment: yes(   ); no(   )
7. Any assistance required in completing the IPSS questionnaire? Yes (   ); No ( ).
8. Any assistance required in completing the VPSS questionnaire? Yes (   );No(   )
9. Total IPSS score of frequency, nocturia and weak stream _____
10. VPSS score:_____
11. Quality of life assessment score of IPSS _____
12. Quality of life assessment score of VPSS: _____
13. Time to complete IPSS:_____
14. Time to complete VPSS_____

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