



RELIABILITY AND VALIDITY OF THE UZBEK VERSION OF THE OVERACTIVE BLADDER SYMPTOM SCORE (OABSS)

Abdurizaev A.A., Sarimov F.S.

Non-government center for training and retraining specialists under the LLC "Dr. BOBOEV HEALTH CENTER"
Namangan Regional Multidisciplinary Medical Center

Objective: to develop an Uzbek version of the OABSS questionnaire and to determine its effectiveness as a diagnostic tool for overactive bladder (OAB).

Materials and methods: After the translation and back translation of the questionnaire, a pilot test was conducted on 10 patients. The validity study of the final Uzbek version of the OABSS included 129 people aged ≥ 18 years with symptoms of OAB. The reliability and internal consistency of the questionnaire were assessed.

Results: The average age of the participants was 45.8 ± 12.16 years (from 18 to 66 years). At the end of the translation and adaptation process, there were no changes from the original OABSS format. The reliability and internal consistency of the first and re-testing were high. The values of the Cronbach's alpha coefficient for the first test was 0,83, for the re-test - 0.81. The value of the intra-class correlation coefficient was 0.99.

Conclusion: The Uzbek adapted version of OABSS is a simple, valid and reliable method for evaluation of patients with OAB.

Keywords: overactive bladder, validation studies, questionnaires, diagnostics

Introduction

Overactive bladder syndrome (OAB) is a chronic condition affecting both men and women and is associated with a significant reduction in patients' quality of life (1,2). Although this condition is more common among individuals over 40 years of age, it can also affect children and young adults (3). A study published in 2011 involving a sample of 10,000 individuals from Europe showed that approximately 36% of men and 43% of women over the age of 40 exhibited symptoms of OAB (4).

The most accurate and widely accepted definition worldwide at present is that proposed by the International Consultation on Incontinence Research Society (ICI-RS) in 2014: "Overactive bladder syndrome is characterized by urinary urgency, with or without urgency urinary incontinence, usually accompanied by increased daytime frequency and nocturia, in the absence of proven infection or other obvious pathology" (5).

Thus, the symptoms characterizing OAB include urgency, pollakiuria, nocturia, and urgency urinary incontinence. Many patients present with a combination of these symptoms with varying predominance (1,6). The key symptom defining OAB is urgency, which, together with nocturia and urgency urinary incontinence, is considered among the most bothersome symptoms (1,7–10). It is estimated that urgency urinary incontinence is more common in women, whereas urgency and increased frequency are more frequently observed in men (11).

Since OAB is characterized not by objective indicators but by subjective symptoms (frequency, urgency), it is essential during treatment to have a reliable method for measuring patient-reported symptoms (12).

Numerous questionnaires have been developed for the diagnostic assessment of this condition, including UDI-6 (Urinary Distress Inventory) (13), IIQ-7 (Incontinence Impact Questionnaire) (13), ICIQ-OAB (14), and OABSS (Overactive Bladder Symptom Score) (15), among others. The Overactive Bladder Symptom Score (OABSS) was designed to assess the



severity of OAB and to monitor treatment effectiveness. This scale was developed and validated by Yukio Homma et al. (16). OABSS is a simple and user-friendly questionnaire with strong diagnostic and prognostic value.

The aim of our study was to develop an Uzbek version of the OABSS questionnaire and to evaluate its effectiveness as a diagnostic tool for overactive bladder by establishing its validity, test-retest reliability, and internal consistency.

Materials and Methods

Patients and Methods

The linguistic translation of the OABSS into Uzbek was carried out using a multi-stage process in accordance with the guidelines for cross-cultural adaptation of health-related quality of life questionnaires.

The English version of the OABSS questionnaire was initially translated into Uzbek independently by two urologists and one professional translator whose native language is Uzbek and whose first foreign language is English. Any discrepancies between the versions were resolved during a consensus meeting involving the translator and the urologists.

Subsequently, the Uzbek version was back-translated into English by an independent English-speaking specialist whose first foreign language is Uzbek. An additional back-translation was performed by a urologist fluent in English. The original OABSS and the back-translated version were compared, and discrepancies were resolved during a consensus meeting of the translation team. This revised final Uzbek version of the OABSS was used in the study.

Pilot testing was conducted to evaluate the clarity and relevance of the questionnaire by surveying 10 patients with OAB. The respondents reported that the questions were clear, simple, and comprehensive. No difficulties were encountered while completing the questionnaire; therefore, no further modifications were made.

For the development and validation of the Uzbek version of the OABSS questionnaire, a total of 139 individuals were surveyed and examined between December 2022 and May 2023 (age range: 18–66 years; mean age 45.8 ± 12.16 years; 12 males and 131 females). Of these, 10 participants were included in the first stage (pilot study), and 129 in the second stage (main phase) aimed at evaluating the diagnostic effectiveness of the questionnaire. Among them, 115 participants completed a repeated survey one week after the initial assessment (test-retest procedure).

Inclusion criteria:

- Male and female patients;
- Patients who provided informed consent to participate in the survey and the study.

Exclusion criteria:

- Patients with spinal disorders;
- Patients with diabetes mellitus;
- Patients with bladder outlet obstruction (BOO);
- Patients taking diuretics or antihypertensive medications;
- Patients with concomitant intravesical pathology;
- Pregnant women;
- Patients under 18 years of age.

All participants provided written informed consent and were examined at the Urology Department of the Namangan Regional Multidisciplinary Medical Center.

Data analysis and evaluation of the diagnostic effectiveness of the adapted OABSS questionnaire

The reliability of the questionnaire was assessed using the following indicators:



- The correlation coefficient between scores obtained during the initial and repeated testing for each item.
- Differences between total questionnaire scores obtained during the first and repeated testing, determined using Student's t-test.
- Mean values and standard deviations obtained during the first and second testing stages for all questionnaire items as well as for the total score.

To determine the internal consistency of the questionnaire, an item analysis was conducted, which included statistical verification of their diagnostic suitability. This analysis was performed using the following indicators:

- Cronbach's alpha coefficient as a measure of internal consistency. A minimum Cronbach's alpha value of 0.6 was considered acceptable for scale reliability.
- The correlation coefficient between each item and the total scale score.

Results

The pilot study included 10 participants with a previously established diagnosis of overactive bladder (OAB). Participants were asked to complete the translated OABSS questionnaire. After completion, all participants were interviewed to discuss the clarity of each question in order to reach a consensus on the approved version. The pilot study was conducted using a test-retest system. One week after the initial survey, participants were asked to respond to the same questions again.

The stability analysis demonstrated a statistically significant positive correlation between baseline scores and scores obtained during repeated testing for all items, as well as for the total questionnaire score. Reliability analysis based on internal consistency showed that all items had a strong positive correlation with the total scores, both in the initial and repeated testing phases of the pilot study.

Cronbach's alpha coefficients during the initial and repeated testing in the pilot study were 0.89 and 0.88, respectively, indicating a very high level of internal consistency of the questionnaire.

During post-completion interviews, all participants reported that the questionnaire items were meaningful and clear and noted the cultural appropriateness and comprehensibility of the translation. No difficulties were reported during completion; therefore, no further modifications were made. It was concluded that proceeding to the second (main) phase of validity assessment of the Uzbek version of the OABSS questionnaire was appropriate.

In the second (main) stage of evaluating the diagnostic effectiveness of the questionnaire, 129 patients with an established diagnosis of OAB were initially recruited. Among them, 115 completed a repeated survey one week after the first administration (test-retest).

Assessment of reliability based on stability criteria

The analysis demonstrated a statistically significant positive correlation between baseline scores and scores obtained during repeated testing for all questionnaire items. Intraclass correlation was also strong. The results of the correlation analysis are presented in Table 1.

Table 1

Correlation Between Scores Obtained During the First and Repeated Testing (Test-Retest Reliability)

| Questionnaire Items | Correlation Coefficient | p |
|---|-------------------------|-------|
| 1. How many times do you usually urinate from the time you wake up in the morning until you go to sleep at night? | 0.82 | 0.000 |



| Questionnaire Items | Correlation Coefficient | P |
|--|-------------------------|-------|
| 2. How many times do you usually wake up at night to urinate? | 0.97 | 0.000 |
| 3. How often do you experience a sudden urge to urinate that is difficult to postpone? | 0.99 | 0.000 |
| 4. How often do you experience urine leakage due to an inability to postpone a sudden urge to urinate? | 0.99 | 0.000 |
| 5. Intraclass correlation | 0.99 | 0.000 |

The analysis of the processed data demonstrated the absence of statistically significant differences between the results obtained during the first and second assessments (the results are presented in Table 2).

Table 2
Mean Values and Standard Deviations for Questionnaire Items and the Total Score (Test–Retest)

| Questionnaire Item | Test | Retest | p |
|---|-------------|-------------|-----|
| 1. How many times do you usually urinate from the time you wake up in the morning until you go to sleep at night? | 1.03 ± 0.48 | 1.06 ± 0.44 | 0.3 |
| 2. How many times do you usually wake up at night to urinate? | 2.27 ± 0.75 | 2.28 ± 0.74 | 0.5 |
| 3. How often do you experience a sudden urge to urinate that is difficult to postpone? | 2.84 ± 0.79 | 2.83 ± 0.80 | 0.4 |
| 4. How often do you experience urine leakage due to an inability to postpone a sudden urge to urinate? | 0.53 ± 1.11 | 0.54 ± 1.14 | 0.1 |
| 5. Total score | 6.68 ± 2.67 | 6.72 ± 2.63 | 0.0 |

Thus, the data obtained from the two stages of testing meet the existing psychometric requirements and indicate the stability of the results upon repeated assessment.

Assessment of the questionnaire reliability according to the internal consistency criterion.

To determine the internal consistency of the questionnaire, an item analysis was conducted, which included statistical verification of the diagnostic suitability of each item in the approved methodology. The analysis was carried out using the following indicators:

- Cronbach's alpha coefficient, which serves as a measure of internal consistency
- Item–total correlation coefficient

The conducted analysis revealed high values of Cronbach's alpha during both the first and repeated testing, amounting to 0.84 and 0.81, respectively. These findings indicate that the scale items demonstrate sufficient homogeneity. This conclusion is further supported by the results of the correlation analysis between each questionnaire item and the total score. Significant correlations were identified between the individual items and the total scores during both the initial and repeated testing. The corresponding values are presented in Table 3.

Table 3
Internal Consistency Reliability Coefficients of the OABSS Questionnaire at Initial Testing and Retesting



| Questionnaire Items | R (Test) | P | R (Retest) | P |
|--|-------------|-------|---------------|-------|
| 1. From the time you wake up in the morning until you go to sleep at night, how many times do you usually urinate? | 0.75 | 0.000 | 0.71 | 0.000 |
| 2. How many times do you usually wake up at night to urinate? | 0.83 | 0.000 | 0.80 | 0.000 |
| 3. How often do you experience a sudden desire to urinate that is difficult to postpone? | 0.86 | 0.000 | 0.85 | 0.000 |
| 4. How often do you experience urine leakage because you could not postpone a sudden urge to urinate? | 0.75 | 0.000 | 0.74 | 0.000 |

Cronbach’s alpha coefficient:

- Test: 0.83
- Retest: 0.81

Discussion

Questionnaires and symptom assessment instruments are widely used by physicians to evaluate patient symptoms and to develop appropriate treatment strategies. Limited availability of qualified specialists in symptom assessment creates challenges for both clinicians and patients in terms of evaluation and management.

The OABSS is a four-item questionnaire that allows quantitative assessment of OAB symptoms using a single total score. It was originally developed simultaneously in Japanese and English by bilingual Japanese urologists. The score represents a simple sum of four symptom scores related to daytime frequency, nocturia, urgency, and urinary incontinence.

OAB was diagnosed based on the latest standardization of terminology established by the International Continence Society (ICS), which defines the condition by the presence of increased urinary frequency, nocturia, urgency, and sometimes urinary incontinence in the absence of specific pathology or prior radiation therapy. The original language version is considered reliable and is widely used. However, prior to this study, the OABSS had never been applied in Uzbekistan and had not been translated into the Uzbek language.

The Scientific Advisory Committee of the Medical Outcomes Trust — a non-profit public organization that serves as a repository and distributor of high-quality, standardized outcome measurement instruments for national and international medical communities — requires that any health measurement instrument demonstrate a valid conceptual and measurement model. These characteristics include reliability, validity, responsiveness (sensitivity), interpretability, low respondent and administrative burden, availability of comparable alternative forms, and appropriate cultural and linguistic adaptation (17).

Reliability refers to the internal consistency or reproducibility of research measurements. Internal consistency reflects the overall agreement among different items within the same test and serves as a means of determining whether multiple items intended to measure the same underlying construct produce similar results (9).

Cronbach’s alpha (α) coefficient is used to assess internal consistency. The value of α ranges from 0 to 1, where values from 0 to 0.6 indicate unsatisfactory reliability, 0.6 to 0.7 indicate acceptable reliability, and 0.7 to 0.95 indicate high reliability. A value of 1 suggests complete agreement and potential redundancy (15).



In our study, we confirmed high reliability of the Uzbek version of the OABSS in the studied OAB population, with a Cronbach's alpha coefficient of 0.88.

Reproducibility (the ability to replicate an experiment or study) was assessed using the intraclass correlation coefficient (ICC) according to McGraw and Wong (18). Retesting was conducted 14 days after the initial survey. An ICC result of 0.99 in patients with OAB demonstrated excellent agreement between questionnaire items.

Based on the study findings, the Uzbek version of the OABSS is reliable, demonstrates very good psychometric validity, and can therefore be used by physicians for preliminary screening, diagnosis, and evaluation of treatment effectiveness in patients with OAB.

Conclusion

Overactive bladder (OAB) is a significant health problem worldwide. Instruments such as the OABSS can serve as valuable tools for the diagnosis and assessment of treatment effectiveness in patients with OAB.

References

1. Leron E, Weintraub AY, Mastrolia SA, Schwarzman P. Overactive bladder syndrome: Evaluation and management. *Curr Urol*. 2018;11:117–125.
2. Abrams P, Kelleher CJ, Kerr LA, Rogers RG. Overactive bladder significantly affects quality of life. *Am J Manag Care*. 2000;6(Suppl):S580–S590.
3. Milsom I, Abrams P, Cardozo L, Roberts RG, Thüroff J, Wein AJ. How widespread are the symptoms of an overactive bladder and how are they managed? A population-based prevalence study. *BJU Int*. 2001;87:760–766.
4. Coyne KS, Sexton CC, Kopp ZS, Ebel Bitoun C, Milsom I, Chapple C. The impact of overactive bladder on mental health, work productivity and health-related quality of life in the UK and Sweden: Results from EpiLUTS. *BJU Int*. 2011;108:1459–1471.
5. Drake MJ. Do we need a new definition of the overactive bladder syndrome? *ICI RS* 2013. *Neurourol Urodyn*. 2014;33:622–624.
6. Lightner DJ, Gomelsky A, Souter L, Vasavada SP. Diagnosis and treatment of overactive bladder (non-neurogenic) in adults: AUA/SUFU Guideline amendment 2019. *J Urol*. 2019;202:558–563.
7. Van Dijk MM, Wijkstra H, Debruyne FM, De La Rosette JJ, Michel MC. The role of nocturia in the quality of life of men with lower urinary tract symptoms. *BJU Int*. 2010;105:1141–1146.
8. Cerruto MA, Asimakopoulos AD, Artibani W, Del Popolo G, La Martina M, Carone R, Finazzi Agrò E. Insight into new potential targets for the treatment of overactive bladder and detrusor overactivity. *Urol Int*. 2012;89:1–8.
9. Robinson D, Cardozo L. Managing overactive bladder. *Climacteric*. 2019;22:250–256.
10. Burkhard FC, Bosch JLHR, Cruz F, Lemack GE, Nambiar AK, Thiruchelvan N, Tubaro A, Ambühl D, Bedretidnova DA, Farag F, et al. Urinary Incontinence in Adults. EAU Guidelines. Presented at the EAU Annual Congress Amsterdam, 2020. Available at: <https://uroweb.org/guideline/urinary-incontinence/>. Accessed March 21, 2021.
11. Abboudi H, Fynes MM, Doumouchtsis SK. Contemporary therapy for the overactive bladder. *Obstet Gynaecol*. 2011;13:98–106.
12. Wróbel A, Skorupska K, Rechberger E, et al. Reliability of the Polish version of the Overactive Bladder Symptom Score (OABSS) questionnaire. *Int Urogynecol J*. 2019;30:2135–2139.
13. Uebersax JS, Wyman JF, Shumaker SA, McClish DK, Fantl JA. Short forms to assess quality of life and symptom distress for urinary incontinence in women: The Incontinence



Impact Questionnaire and the Urogenital Distress Inventory. *Neurourol Urodyn.* 1995;14:131–139.

14. ICIQ-OAB questionnaires. Available from: <https://iciq.net/iciq-oab>

15. Homma Y, Fujimura T. Linguistic validation of the English version of the overactive bladder symptom score. *Int J Urol.* 2014;21:229.

16. Homma Y, Yoshida M, Seki N, et al. Symptom assessment tool for overactive bladder syndrome – Overactive Bladder Symptom Score. *Urology.* 2006;68:318–323.

17. Lohr KN, Aaronson NK, Alonso J, Burnam MA, Patrick DL, Perrin EB, et al. Evaluating quality-of-life and health status instruments: Development of scientific review criteria. *Clin Ther.* 1996;18:979–992.

18. Koo TK, Li MY. A guideline for selecting and reporting intraclass correlation coefficients for reliability research. *J Chiropr Med.* 2016;15:155–163.

Appendix 1

Full Name _____ Age _____

Overactive Bladder Symptom Score (OABSS)

| Question | Response | Score |
|---|-----------------------|-------|
| How many times do you usually urinate from waking in the morning until going to sleep at night? | ≤7 | 0 |
| | 8–14 | 1 |
| | >15 | 2 |
| How many times do you usually wake up at night to urinate? | 0 | 0 |
| | 1 | 1 |
| | 2 | 2 |
| | ≥3 | 3 |
| How often do you experience a sudden urge to urinate that is difficult to postpone? | Never | 0 |
| | Less than once a week | 1 |
| | Once a week or more | 2 |
| | About once a day | 3 |
| | 2–4 times a day | 4 |
| | 5 or more times a day | 5 |
| How often do you experience urine leakage because you cannot defer a sudden urge to urinate? | Never | 0 |
| | Less than once a week | 1 |
| | Once a week or more | 2 |



| Question | Response | Score |
|-----------------|-----------------------|--------------|
| | About once a day | 3 |
| | 2–4 times a day | 4 |
| | 5 or more times a day | 5 |

Interpretation of Total Score

0–2 points – No overactive bladder

3–5 points – Mild overactive bladder

6–11 points – Moderate overactive bladder

≥12 points – Severe overactive bladder

For the diagnosis of OAB using this questionnaire, the minimum total score must be 3 points, and Question 3 must score at least 2 points.