Research article

Cross-cultural adaptation, reliability, and validity of the Persian version of the overactive bladder questionnaire (OAB-V8)

Mahdieh Momayyezi [a], Farzan Madadizadeh [a,b,*], Mehrdad Arjmand [a]

[a] Center for Healthcare Data Modeling, Departments of Biostatistics and Epidemiology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[b] Environmental Science and Technology Research Center, Department of Environmental Health Engineering, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

ABSTRACT

Background and objectives: Overactive bladder (OAB) is characterized by urinary frequency and is recognized as a disorder. Various tools are available for diagnosing this condition. This study aimed to evaluate the reliability and validity of the Persian version of the 8-item Overactive Bladder Scale (OAB-V8).

Methods: This analytical cross-sectional study was conducted on a sample of 150 OAB patients. The OAB-V8 scale was translated and culturally adapted following established guidelines. Face and content validity were assessed using the Impact Score (IS), Content Validity Index (CVI), and Content Validity Ratio (CVR) indices. Reliability was evaluated by calculating Cronbach's alpha (α) and utilizing the test-retest method (Intra-class correlation coefficients (ICC)). Construct validity was explored through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). All statistical analyses were carried out using SPSS version 24 and AMOS version 24, with a significance level set at 5 %.

Results: The face validity was confirmed, with all items having an IS value greater than 1.5. Content validity was also confirmed, as most items had a Content Validity Index (CVI) higher than 0.79, and the average Content Validity Ratio (CVR) value was 0.96. In the initial phase of Exploratory Factor Analysis (EFA), the sample adequacy and suitability of the exploratory analysis were confirmed (Kaiser-Meyer-Olkin (KMO) test value = 0.784, Bartlett's Test p-value <0.05). Two dimensions explaining 61.87 % of the variance were then extracted. In the Confirmatory Factor Analysis (CFA), the fit indices were deemed acceptable (χ^2/df = 2.006, CFI = 0.96, GFI = 0.95, AGFI = 0.89, TLI = 0.93, RMSEA = 0.08). The reliability was confirmed with an alpha coefficient of 0.81 and an Intraclass Correlation Coefficient (ICC) of 0.98.

Conclusion: The Persian version of the OAB-V8 questionnaire demonstrated good validity and reliability, indicating its suitability for use in Persian-speaking countries.

* Corresponding author. Center for Healthcare Data Modeling, Departments of Biostatistics and Epidemiology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

E-mail addresses: mahdieh_momayyezi@yahoo.com (M. Momayyezi), madadizadehfarzan@gmail.com (F. Madadizadeh), m.arjmand3370@gmail.com (M. Arjmand).

1. Introduction

Overactive bladder (OAB) is a clinical syndrome characterized by multiple symptoms in the lower urinary tract, particularly related to urine storage. Urinary urgency is considered the primary symptom of OAB [1]. This syndrome significantly impacts individuals' social, personal, physical, and sexual well-being [2]. The precise pathophysiology of urinary urgency remains unclear, but a potential mechanism involves heightened activity of the nerves in the detrusor muscle of the bladder. Essentially, the detrusor muscle becomes hyperactive when involuntary contractions occur during the filling phase of cystometry [3]. OAB accounts for more than 50 % of cases of urinary incontinence in elderly men over 65 years old and in 10–15 % of middle-aged women aged 30–40 years [4]. The global prevalence of OAB stands at 10.7 %, affecting 11.6 % of women and 7.9 % of men. Additionally, healthcare costs for individuals with OAB are considerable [5]. Over recent decades, the incidence of this condition has substantially risen [5]. As the population ages, the prevalence of OAB is anticipated to increase [6]. Many individuals with OAB refrain from seeking medical assistance due to various factors, including feelings of shame, and some may feel uncomfortable discussing their symptoms with healthcare providers [7]. Nerve control loss can be a potential cause of OAB. Predisposing factors include conditions such as dementia, aging, Parkinson's disease, stroke, and multiple sclerosis, but in most instances, the root cause remains unidentified [8].

Overactive bladder (OAB) and urinary incontinence are global issues that significantly impact quality of life and productivity. Insufficient and poor-quality sleep, depression, and decreased sexual and emotional well-being are among the problems that can arise. Treatment options for OAB include drug therapies, surgical interventions, and behavioral training measures [9]. Despite OAB's significant impact on quality of life, research into treatments for patients with symptoms of OAB remains limited [10]. Currently, the diagnostic process for OAB involves obtaining a medical history, physical and neurological examinations, and urinalysis [11]. OAB is a condition that is typically diagnosed based on the patient's subjective experiences rather than objective measurements. Therefore, diagnostic tools that rely on the patient's input are valuable in managing this disease [12]. Various questionnaires are available to assess OAB, each targeting different aspects such as symptoms, treatment satisfaction, quality of life, etc [13].

The 8-item version of the Overactive Bladder (OAB) questionnaire (OAB-V8 questionnaire) is a standardized tool used to evaluate the severity of symptoms related to overactive bladder in adults. This self-administered questionnaire is utilized in clinical settings to assist healthcare professionals in assessing the severity of OAB symptoms, tracking treatment progress, and gauging the effectiveness of interventions. It serves as a valuable instrument for both diagnosing OAB and guiding treatment decisions by providing a quantitative measure of the patient's experience with the condition. The use of brief questionnaires with self-reporting methods can aid in the prompt diagnosis of this condition. The OAB-V8 questionnaire was developed by Coyne et al., in 2005 for diagnosing OAB [14]. To enhance its usability in different countries and regions, the OAB questionnaire has been translated into various languages including Afrikaans, Chinese (Taiwan), English (South Africa), Slovak [15], Canadian [16], Spanish [17], and Arabic [5].

By establishing the reliability and validity of the Persian version of the OAB questionnaire, healthcare professionals and researchers will have a more precise and culturally responsive tool to evaluate and address overactive bladder symptoms in this population. This, in turn, has the potential to enhance diagnosis, treatment, and overall patient care. Moreover, this research contributes to the expanding body of knowledge on the cross-cultural adaptation of health-related questionnaires, which is essential for ensuring that these tools account for cultural nuances and linguistic variations among diverse populations. Ultimately, this can aid in enhancing the quality of healthcare services offered to communities worldwide. Given that the OAB-V8 questionnaire has yet to be translated into Persian, this study was undertaken to translate and validate the Persian version of the OAB-V8 questionnaire in the Iranian population.

2. Methods

2.1. Design and participants

This analytical cross-sectional study was conducted on 150 patients with overactive bladder (OAB) who were referred to a urology specialist's clinic in Yazd City from September 1, 2021, to May 1, 2022. The sample size was calculated using a rule of thumb, with 8–20 samples considered for each item on the questionnaire [18]. Sampling was conducted using a multistage sampling method proportionate to the number of patients in each medical office. Initially, the number of urology specialist clinics in Yazd City was identified, and then four main clinics were selected. The number of samples was determined based on the monthly visit count in each clinic, utilizing a stratified sampling approach proportional to size.

The study's inclusion criteria were outlined as follows: **1.** The patient must have received a diagnosis of OAB from a urologist. **2.** Patients who had not initiated treatment yet. The study's exclusion criteria were outlined as follows: **1.** Presence of anatomic abnormalities in the lower urinary tract **2.** History of bladder tumors, diabetes, or prostate cancer **3.** Presence of an active urinary tract infection **4.** Use of medications impacting urinary tract function **5.** Presence of kidney, liver, heart dysfunction, or blood disorders **6.** Pregnancy.

2.2. Research instrument

In this study, data was collected using the OAB-V8 questionnaire, developed by Coyne et al., in 2005 [14]. The questionnaire is a concise screening tool derived from the OAB-Q questionnaire, designed to identify patients with Overactive Bladder (OAB) through eight specific items. The OAB-V8 questionnaire evaluates four primary symptoms: frequency, urgency, nocturnal enuresis, and urinary incontinence. It utilizes a six-grade scoring system ranging from 0 (not at all) to 5 (very much), with a total possible score between 0 and 40. Scores falling between 0 and 8 indicate low symptom severity, while scores between 8 and 16 suggest moderate symptom

severity, and scores exceeding 16 indicate high symptom severity [14].

2.3. Translation and cultural adaptation

The initial step involved translating the questionnaire from English to Persian. This task was carried out by two bilingual translators who were proficient in both languages, with Persian being their primary language. The translated versions were later evaluated by a panel of experts, which included a urologist, an English language expert, and a prominent researcher, who assessed them for grammar and phrasing accuracy. Furthermore, the study conducted by Acquadro et al. on various translations of the questionnaire was taken into consideration during the translation process [19]. Subsequently, two English specialists translated the Persian version back into English. The expert panel reviewed both translated versions and amalgamated them into a unified version. Finally, this version was compared with the original source version to ensure its fidelity. Once endorsed, the questionnaire was administered to patients after outlining the study objectives and securing informed consent. For individuals who were unable to read, the questionnaire was completed through in-person interviews.

2.4. Evaluation of psychometric properties: validity assessment

Validity in the current study was assessed through three dimensions: face validity, content validity, and construct validity. Face and content validity were determined through a combination of quantitative and qualitative methodologies. Construct validity was evaluated employing both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

Qualitative Face Validity: To ascertain the quality of translation and address any potential issues, an expert panel comprising professionals with diverse backgrounds was convened. The panel included three urologists, two internal medicine specialists, one statistician, two English language experts, and two questionnaire designers—all possessing a minimum of five years of specialized experience in their respective domains. Additionally, the questionnaire was shared with 10 individuals from the target population (patients) who were requested to provide feedback on the relevance, clarity, and complexity of the questions. This step aimed to enhance the questionnaire's clarity and suitability for the intended audience.

Quantitative Face Validity: The Impact Score (IS) method was employed to quantitatively assess face validity. In this method, a 5-point Likert scale was utilized for each question (5 = very important, 4 = important, 3 = somewhat important, 2 = slightly important, 1 = not important at all), and participants were instructed to rate each question on a scale of 1 to **5.** Questions with a score of 1.5 or higher were considered appropriate for inclusion in subsequent analyses. The Impact Score was calculated by multiplying the frequency (%) and importance scores, ensuring that only pertinent and significant questions were retained for the analysis.

Qualitative Content Validity: In the qualitative assessment of the content, eight expert specialists were tasked with presenting their opinions on the tool in writing after a thorough analysis. They were required to provide suggestions for improvement on aspects such as appearance, grammar, wording, item allocation, scaling, writing style of questions, and sentence structure. The expert panel comprised professionals with diverse backgrounds, including two urologists, one internal specialist, one statistician, two English language experts, and two questionnaire designers. Individuals had to possess a minimum of five years of specialized experience in their respective fields to qualify for the expert panel.

Quantitative Content Validity: The Content Validity Ratio (CVR) and Content Validity Index (CVI) were computed to evaluate the quantitative content validity [20]. To determine CVR, the questionnaire was given to eight experts who were asked to select from three options: "necessary," "useful but unnecessary," and "unnecessary" for each question. CVR was calculated using the Lawshe formula. For CVI, the questionnaire was distributed to 10 experts who assessed the simplicity, specificity, and clarity of each question using a 4-point Likert-type scale. CVI was computed by dividing the total number of agreements with grades 3 and 4 by the total number of responses. A CVI exceeding 0.79 was considered appropriate, a range of 0.7–0.79 indicated a need for revision, and below 0.7 was considered unacceptable.

Construct validity: Construct validity was evaluated using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The significance of Bartlett's test and a Kaiser-Meyer-Olkin (KMO) value exceeding 0.70 indicated a sufficient sample size for EFA. A scree plot was utilized to determine the dimensions of the questionnaire; factors with eigenvalues surpassing 1 were extracted. In CFA, various fit indices were assessed, such as χ^2/df, CFI (Comparative Fit Index), GFI (Goodness of Fit Index), AGFI (Adjusted Goodness of Fit Index), TLI (Tucker-Lewis Index), and RMSEA (Root Mean Square Error of Approximation). Acceptable values in CFA were $\chi^2/df < 4$, CFI>0.9, GFI>0.9, AGFI>0.9, TLI>0.9, and RMSEA≤0.08.

2.5. Evaluation of psychometric properties: reliability assessment

Reliability was evaluated using Cronbach's alpha (α) and the test-retest method (intra-class correlation coefficients (ICC)). A two-week test-retest period with 25 participants was conducted to calculate ICC (ICC≥0.7 is considered acceptable). Additionally, α was employed to assess internal consistency (α ≥ 0.7 is deemed acceptable). All statistical analyses were conducted using SPSS version 24 and AMOS version 24, with the significance level set at 5 %.

3. Results

The results of the present study indicate that 62.7 % (94 participants) were male, 38 % (57 participants) were between 40 and 60 years old, and 47.3 % (71 participants) were over 60 years old. The majority of participants had a diploma education, accounting for

30.7 % (46 individuals) (refer to Table 1). The mean (SD) score of the OAB-V8 questionnaire by demographic variables is provided in Table 1. The one-way ANOVA test revealed that individuals aged over 60 years reported significantly more severe symptoms ($P <$ 0.001). There were no statistically significant differences in symptom severity based on gender or level of education (refer to Table 1). Our findings demonstrate that face validity was confirmed through qualitative assessment involving expert panels and patients. During the initial phase, the questions were presented to both expert panels and patients to assess qualitative face validity. The team evaluated the questions considering factors such as ambiguity, comprehension difficulties, potential misinterpretations, complex terminologies, and the overall appropriateness of the questions within the questionnaire. Subsequently, feedback from participants was collected, leading to a consensus on necessary adjustments to ensure clarity and effectiveness. Additionally, the face validity of the quantitative assessment was confirmed, as all items exceeded the IS value of 1.5.

The content validity assessment involved obtaining expert opinions to confirm the quality of the evaluation. Necessary adjustments were made to the questions following this confirmation. Furthermore, a majority of items showed a CVI higher than 0.79 and an average CVR value of 0.96, as indicated in Table 2. Construct validity was assessed through exploratory factor analysis (EFA). The adequacy of the sample and appropriateness of the exploratory analysis were confirmed with a Kaiser-Meyer-Olkin (KMO) test value of 0.784 and Bartlett's test p-value significance (<0.05) in Table 2. The EFA revealed two dimensions (Fig. 1.), urinary incontinence (items 4, 6, 7, and 8) and urinary urgency and frequency (items 1, 2, 3, and 5), which explained 61.87 % of the variance. Confirmatory factor analysis (CFA) supported the model proposed by EFA, with fitted indices falling within acceptable ranges ($\chi^2/df = 2.006$, CFI = 0.96, GFI = 0.95, AGFI = 0.9, TLI = 0.93, RMSEA = 0.08) in Fig. 2. Factor loadings for all dimensions exceeded 0.4. Table 2 displays the internal consistency and stability reliability results. Cronbach's alpha (α) and ICC values for each dimension and the overall questionnaire demonstrate high reliability. The initial internal consistency reliability was confirmed with a Cronbach's alpha (α) of 0.81 in Table 2.

4. Discussion

The aim of the present study was to examine the validity and reliability of the OAB-V8 questionnaire in the Iranian population. The results indicated that the Persian version of OAB-V8 demonstrates good face, content, and construct validity. Additionally, the Persian version of OAB-V8 proves to be a reliable scale with internal consistency and high repeatability. Preliminary results in terms of face validity and qualitative content validity reveal that patients, doctors, and translators faced similar challenges in completing the questionnaire. There was confusion regarding questions 5 and 6 due to subtle differences between the concepts in these two questions. Translators in this study noted that question 5 was translated as "nocturnal urination" and question 6 was translated as "waking up at night due to the need to urinate". Peterson et al. (2017) suggested that questions 5 and 6 needed to be rephrased since question 5 emphasizes the act of urinating during the night, while question 6 emphasizes waking up to urinate. These two questions address separate concepts and should not be combined [16]. Acquadro et al. (2006) also explained that question 5 focuses on the act of urinating, whereas question 6 highlights the act of interrupting sleep due to the need to urinate. Acquadro et al. noted that the English version of the OAB-V8 questionnaire is written in an American colloquial style, posing challenges in its translation to European and Indian languages [19]. In a study by Reilly et al. the validity of the OAB-V8 questionnaire was examined in four languages. The authors recommended revising some questions when translating them into another language [15].

The results indicate that the CVR for all questions was equal to one, suggesting that the expert panel deemed all questions necessary for inclusion in the questionnaire. Most questions had a CVI above 0.79, which is considered acceptable. Questions 5 and 6 had a CVI between 0.7 and 0.79, and they were retained in the questionnaire after adjustments. The key step in establishing the validity of a questionnaire is determining construct validity, with factor analysis being the most effective method in this context [21]. In our exploratory factor analysis following Varimax rotation, we identified two dimensions: Urinary Incontinence and Urinary Urgency and Frequency. Factor loadings for all questions were above 0.6, and the eigenvalues for both dimensions exceeded 1, meeting acceptable criteria. While the original version of the OAB-V8 questionnaire featured one dimension, our results revealed two dimensions [14]. This difference may be attributed to cultural variances.

The tool's reliability refers to the accuracy or correctness of the measurement [22]. In this study, the Cronbach's alpha coefficient indicated the internal consistency among the questions. The test-retest ICC also confirmed the high stability and reliability of this questionnaire. Peterson et al. found that the Cronbach's alpha ranged from 0.89 to 0.91 for the questions and was 0.9 for the entire

Table 1
Mean score of OAB-V8 by demographic variables.

Variable		Mean ± SD	*P*-value
Gender	**Female** (n = 56, 37.3 %)	21.46 ± 6.2	0.87
	Male (n = 94, 62.7 %)	21.64 ± 7.3	
Age	**Less than 40**(n = 22, 14.7 %)	20.63 ± 6.02	0.001
	40–60(n = 57, 38 %)	18.92 ± 6.87	
	More than 60 (n = 71, 47.3 %)	24 ± 6.46	
Education	**Illiterate** (n = 27, 18 %)	23.22 ± 7.78	0.18
	Less than a diploma (n = 23, 15.3 %)	22.95 ± 7.32	
	Diploma (n = 46, 30.7 %)	19.87 ± 6.08	
	Associate Degree (n = 25, 16.7 %)	22.64 ± 6.61	
	Bachelor's degree and higher (n = 29, 19.3 %)	20.79 ± 7.06	

Table 2

Results of Exploratory factor analysis, Reliability and Content validity.

Items	Factor loadings		i-CVI	i-CVR
	Factor 1(Urinary Incontinence)	Factor 2 (Urinary Urgency and Frequency)		
Q4- Accidental loss of a small amount of urine	0.74		0.91	1
Q6- Waking up at night because you had to urinate	0.83		0.74	1
Q7- An uncontrollable urge to urinate	0.85		1	1
Q8- Urine loss associated with a strong desire to urinate	0.82		1	1
Q1- Frequent urination during daytime hours		0.79	1	1
Q2- An uncomfortable urge to urinate		0.77	0.95	1
Q3- Sudden urge to urinate with little or no warning		0.76	0.95	1
Q5- Nighttime urination		0.65	0.74	0.75
Eigenvalues	3.43	1.51		
Variance explained (%)	35.53	26.34		
Cumulative variance explained (%)	35.53	61.87		
Kaiser-Meyer-Olkin	0.784			
Bartlett's Test	Approx. Chi Square	315.116		
	DF[a]	28		
	Sig[b]	<0.001		
Reliability: Cronbach's Alpha	0.82	0.71	Overall α = 0.81	
Reliability: ICC	0.97	0.99	Overall ICC = 0.98	

CVI Content Validity Index, **CVR** Content Validity Ratio, **α** Cronbach's alpha, **ICC** Intra-class correlation coefficients.
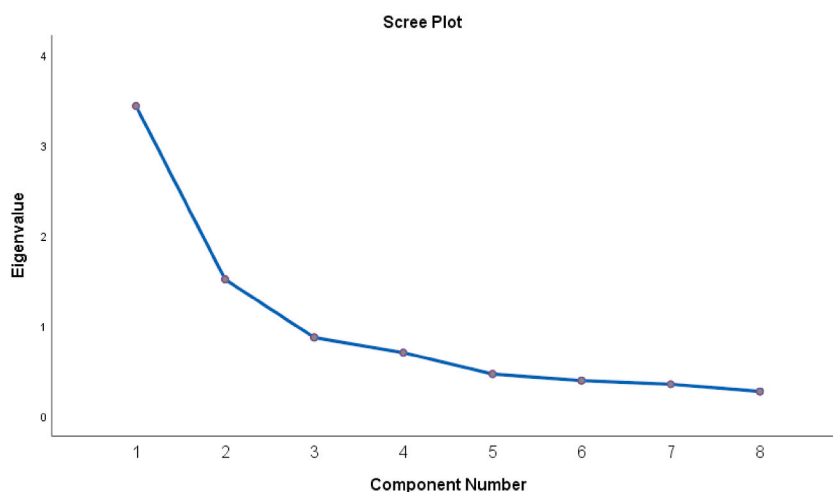
[a] Degrees of freedom.

[b] Significant.

Fig. 1. Results of Scree plot in EFA.

questionnaire. They concluded that the OAB-V8 questionnaire exhibited high reliability for the Canadian population and was suitable for a wide range of patients [16]. Brenes et al. (2014) assessed the validity and reliability of the OAB-V8 questionnaire for the Spanish population, revealing good consistency (α = 0.896) and high repeatability (ICC = 0.826). They affirmed that this questionnaire was practical, reliable, and valid for the Spanish population [17]. Tarcan et al. (2012) highlighted the OAB-V8 questionnaire as a valid, concise, and straightforward diagnostic tool for the Turkish population (α = 0.92, r = 0.98) [23]. Mikuš et al. (2021) demonstrated that the OAB-V8 exhibited high internal consistency for all questions (α = 0.799–0.847) and remained stable over a 2-week period (ICC = 0.81–1) [24].

The most recent translated version of the OAB-V8 questionnaire was in Arabic, and it was assessed by Al-Shaiji et al., in 2019 [5]. They demonstrated that the OAB-V8 questionnaire is a reliable and valid tool and that there is a strong correlation between its questions. They stated that this questionnaire can be easily utilized to assess symptoms in patients [5].

5. Strengths and limitations

The present study had several strengths, such as conducting a thorough investigation of the validity of the OAB-V8 questionnaire using both quantitative and qualitative approaches. The research comprehensively assessed the face, content, and construct validity through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). However, there were also limitations in the study. One significant limitation was the lack of a comparison between the OAB-V8 questionnaire and other existing screening tools for OAB.
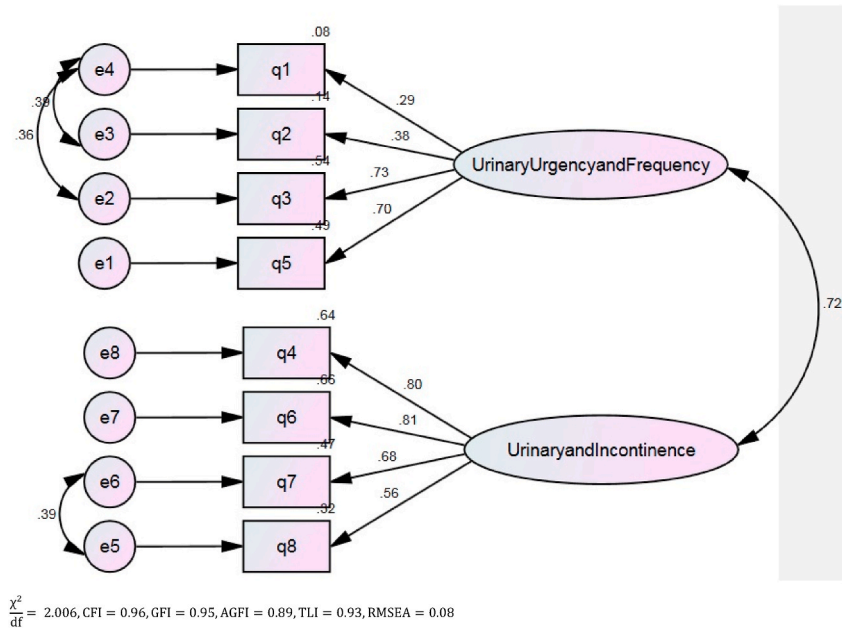
$$\frac{\chi^2}{df} = 2.006, CFI = 0.96, GFI = 0.95, AGFI = 0.89, TLI = 0.93, RMSEA = 0.08$$

Fig. 2. Results of Confirmatory factor analysis.

Moreover, participant hesitance to provide honest responses due to factors like embarrassment may have impacted the study's results.

6. Conclusion

The Persian version of the OAB-V8 questionnaire has shown a high level of validity and reliability. This makes it a valuable tool for doctors in diagnosing patients with OAB in Persian-speaking countries. Given the concise nature of the questionnaire and its quick response time, it is recommended that healthcare professionals utilize it for diagnosing patients with OAB.

Ethics approval

This article has been licensed by the research ethics committees of Shahid Sadoughi University of Medical Sciences, under code IR.SSU·SPH.REC.1399.045.

Data availability statement

Data will be made available upon reasonable request from the corresponding author.

'Ethics statement'

Ethical Considerations Initially, the researchers explained the research objectives to the participants, and participation in the study was voluntary. This study is approved by the Research Ethics Committees of Shahid Sadoughi University of Medical Sciences in Yazd, Iran, under the ethical code IR.SSU·SPH.REC.1399.045. The study adhered to the guidelines outlined in the Declaration of Helsinki, and informed consent was obtained from participants or their legally authorized representatives in the case of illiterate participants.

CRediT authorship contribution statement

Mahdieh Momayyezi: Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Conceptualization. **Farzan Madadizadeh:** Writing – review & editing, Software, Methodology, Formal analysis. **Mehrdad Arjmand:** Writing – review & editing, Methodology, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] M. Keshvari, L. Nazari, A. Yarmohmmadi, M. Armin, Evaluation of urodynamic changes, after the use of botulinum-a toxin injections into the detrusor, in patients with HTLV1 related detrusor over activity who are resistant to anticholinergic therapy, Medical Journal of Mashhad University of Medical Sciences 57 (2) (2014) 473–479, https://doi.org/10.22038/mjms.2014.2683.

[2] C. Chapple, C. Kelleher, E. Siddiqui, D.A. Andrae, N. Johnson, C. Payne, et al., Validation of the overactive bladder-bladder assessment tool (OAB-BAT): a potential alternative to the standard bladder diary for monitoring OAB outcomes, European Urology Focus 7 (5) (2021) 1176–1183, https://doi.org/10.1016/j.euf.2020.12.001.

[3] R. Mahdavi, Z. Sheikhi, A. Golshan, Effect of Botulinum neurotoxin type A injection in refractory idiopathic overactive bladder, North Khorasan University of Medical Sciences 3 (2) (2011) 75–80, https://doi.org/10.29252/jnkums.3.2.75.

[4] B. Samadzadeh, R. Najafloee, H. Omrani, M. Rezaei, Efficacy of diltiazem plus tolterodine in treatment of overactive bladder after prostatectomy, Journal of Mazandaran University of Medical Sciences 25 (131) (2015) 128–135. URL:http://jmums.mazums.ac.ir/files/site1/user_files_0d0bf0/nouri70-A-10-5029-144-fa5356e.pdf.

[5] T.F. Al-Shaiji, M. Alkabbani, A.R. El-Nahas, A. Thahir, M.F. Almutairi, A. Al-Terki, Validation of the Arabic linguistic version of the 8-item overactive bladder questionnaire (OAB-V8), International Urogynecology Journal 30 (2019) 2153–2156, https://doi.org/10.1007/s00192-019-03905-0.

[6] I.M. Groenendijk, J.R. Scheepe, T.C. Noordhoff, B.F. Blok, The validation of the Dutch OAB-q SF: an overactive bladder symptom bother and health-related quality of life short-form questionnaire, Neurourol. Urodyn. 38 (6) (2019) 1775–1782, https://doi.org/10.1002/nau.24074.

[7] P.R. Reese, A.M. Pleil, G.J. Okano, C.J. Kelleher, Multinational study of reliability and validity of the King's Health Questionnaire in patients with overactive bladder, Qual. Life Res. 12 (2003) 427–442, https://doi.org/10.1023/a:1023422208910.

[8] A. Seim, T. Talseth, H. Haukeland, K. Høye, N. Berg, T. Bergeland, Validation of a simple patient questionnaire to assist self-detection of overactive bladder A study in general practice, Scand. J. Prim. Health Care 22 (4) (2004) 217–221, https://doi.org/10.1080/02813430410006639.

[9] M. Elbaset, A. Hashem, D.-E. Taha, M.H. Zahran, A.S. El-Hefnawy, Validation of the Arabic linguistic version of the overactive bladder symptoms score questionnaire, Arab Journal of Urology 17 (4) (2019) 265–269, https://doi.org/10.1080/2090598X.2019.1627061.

[10] C.M. Gomes, M.A. Averbeck, M. Koyama, R. Soler, Impact of OAB symptoms on work, quality of life and treatment-seeking behavior in Brazil, Curr. Med. Res. Opin. 36 (8) (2020) 1403–1415, https://doi.org/10.1080/03007995.2020.1760806.

[11] A. Wróbel, K. Skorupska, E. Rechberger, A. Woźniak, P. Miotla, A. Kubik-Komar, et al., Reliability of the polish version of the overactive bladder symptom score (OABSS) questionnaire: correlation of the OABSS with urodynamic study and the UDI-6 and IIQ-7 questionnaires, International Urogynecology Journal 30 (2019) 2135–2139, https://doi.org/10.1007/s00192-019-04060-2.

[12] M.G. Culha, R.B. Degirmentepe, S. Ozbir, S.S. Cakir, Y. Homma, Turkish validation of the overactive bladder symptom score (OABSS) and evaluation of mirabegron treatment response, International Urogynecology Journal 30 (2019) 2121–2126, https://doi.org/10.1007/s00192-019-04054-0.

[13] J. Angulo, M. Calderín, Y. Fernández, M. González, E. Gómez, M. Herreros, et al., Comparative study of the B-SAQ, OAB-V8 and OAB-V3 questionnaires as screening tools for overactive bladders in clinical practice, Actas Urol. Esp. 41 (6) (2017) 383–390, https://doi.org/10.1016/j.acuro.2016.12.007.

[14] K.S. Coyne, T. Zyczynski, M.K. Margolis, V. Elinoff, R.G. Roberts, Validation of an overactive bladder awareness tool for use in primary care settings, Adv. Ther. 22 (4) (2005) 381–394, https://doi.org/10.1007/BF02850085.

[15] K. Reilly, S. McKown, M. Gawlicki, K. Coyne, PUK24 linguistic validation of the overactive bladder questionnaire (OAB-Q), overactive bladder short form questionnaire (OAB-Q SF), and OAB assessment tool (OAB-V8) in 4 languages, Value Health 6 (9) (2006) A391–A392, https://doi.org/10.1016/S1098-3015(10)63791-6.

[16] A.C. Peterson, A. Sehgal, R.T. Crump, R. Baverstock, J.M. Sutherland, K. Carlson, Evaluating the 8-item overactive bladder questionnaire (OAB-v8) using item response theory, Neurourol. Urodyn. 37 (3) (2018) 1095–1100, https://doi.org/10.1002/nau.23420.

[17] F.J. Brenes, J.C. Angulo, D. Ochayta, J. Rejas, D. Arumi, A. Canadas, et al., Psychometric validation of the OAB-V8 and OAB-V3 scales for the screening of patients with probable overactive bladder in the Spanish population, Med. Clínica 143 (12) (2014) 521–529, https://doi.org/10.1016/j.medcli.2013.10.032.

[18] M. Ghanbari-Firoozabadi, M. Mirzaei, M.V. Nasab, S.L. Grace, H. Okati-Aliabad, F. Madadizadeh, et al., Cross-cultural adaptation and psychometric validation of the Persian version of the cardiac rehabilitation barriers scale (CRBS-P), BMJ Open 10 (6) (2020) e034552, https://doi.org/10.1136/bmjopen-2019-034552.

[19] C. Acquadro, Z. Kopp, K.S. Coyne, J. Corcos, A. Tubaro, M.-S. Choo, Translating overactive bladder questionnaires in 14 languages, Urology 67 (3) (2006) 536–540, https://doi.org/10.1016/j.urology.2005.09.035.

[20] F. Madadizadeh, S. Bahariniya, Tutorial on how to Calculating content validity of scales in medical research, Perioperative Care and Operating Room Management (2023) 100315, https://doi.org/10.1016/j.pcorm.2023.100315.

[21] M. Momayyezi, H. Fallahzadeh, M. Momayyezi, Construction and validation the lifestyle questionnaire related to cancer, Iran. J. Cancer Prev. 8 (5) (2015) e3965, https://doi.org/10.17795/ijcp-3965.

[22] M. Momayyezi, H. Fallahzadeh, Construction and validation of breast cancer awareness scale in Iranian women, J. Caring Sci. 9 (3) (2020) 140, https://doi.org/10.34172/jcs.2020.021.

[23] T. Tarcan, N. Mangır, M.Ö. Özgür, C. Akbal, OAB-V8 Aşırı aktif mesane sorgulama formu validasyon çalışması, Üroloji Bülteni 21 (21) (2012) 113–116. https://kontinansdernegi.org/wp-content/uploads/2021/08/oab-v8-asiri-aktif-mesane-sorgulama-formu.pdf.

[24] M. Mikuš, M. Ostroški, P. Beljan, M. Karadža, S. Dumancic, Goldštajn Mš, et al., Validation of the Croatian version of the 8-item overactive bladder questionnaire (OAB-V8), Female Pelvic Med. Reconstr. Surg. 27 (11) (2021) e687–e690, https://doi.org/10.1097/SPV.0000000000001098.