



# Validation of the Arabic linguistic version of the 8-item overactive bladder questionnaire (OAB-V8)

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## Abstract

**Introduction and hypothesis** This study aimed to translate and validate the 8-item overactive bladder questionnaire (OAB-V8). **Methods** Utilizing a multistep process, the English version of the OAB-V8 was translated into Arabic by three urologists and one independent translator. It was validated by asking 46 patients with overactive bladder and 58 healthy individuals to complete the questionnaire. Healthy individuals were involved in establishing the discrimination validity. The scores of both groups were compared using the Mann-Whitney test. The reliability of the Arabic version was evaluated utilizing Cronbach's alpha test for internal consistency. Spearman's correlation coefficient ( $r$ ) was utilized to evaluate the domain structures and the inter-domain associations.

**Results** Internal consistency was high (Cronbach's alpha = 0.923). There were good correlations among frequency, urgency, sudden urge to urinate, waking up at night to urinate and uncontrollable urge to urinate. There were weak or no correlations among urge, incontinence and nocturia. For discrimination validity, there were significant changes in all domain scores when comparing patients with ureteric stents and healthy individuals ( $P < 0.001$ ).

**Conclusions** The Arabic version of the OAB-V8 proved to be a reliable and valid tool, which can be easily utilized to evaluate symptoms in Arabic patients. It is feasible in evaluating quality of life in relation to this disorder, as patients are able to demonstrate their symptoms accurately with the comfort of their first language, Arabic.

**Keywords** Overactive bladder · OAB-V8 · Questionnaire · Quality of life

## Introduction

Overactive bladder (OAB) is a syndrome that comprises urgency, with or without urge incontinence, and is usually accompanied by frequency and nocturia [1]. The estimated worldwide prevalence of OAB is 10.7% (11.6% in females and 9.7% in males) [2]. OAB has a substantial effect and burden on both societies and individuals. The healthcare costs

of OAB patients in the USA were estimated to be 2.5 times more than in similar patients without OAB [3]. On the individual level, OAB has been proven to have a significant impact on quality of life, affecting sleep quality, sexual relationships and occupational performance [3–5].

OAB-V8 (Appendix) is an eight-item, self-reported questionnaire that assesses the burden of OAB and the degree of bother caused by the symptoms. Since its development as a subscale of the overactive bladder questionnaire (OAB-q), the OAB-V8 questionnaire has been used to screen for OAB and to assess OAB symptom burden and severity [6].

We conducted this study to provide a validated version of the OAB-V8 in Arabic. The Arabic version of the OAB-V8 questionnaire will be an important tool in Arabic-speaking countries, where many patients do not speak or read English, as it will enable primary care physicians to screen for OAB and refer patients to specialized urologists. It will also help the urologists in these countries to follow up their patients and assess them properly. In addition, studies on OAB will be

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more feasible in these countries with the presence of the translated version, especially because many people feel embarrassed discussing this issue [7], and others underreport these symptoms as they attribute them to the normal aging process [8].

## Methods and materials

This study was approved by the ethics committee of the Research and Development Department of Al-Amiri Hospital and was given IRB approval number 010318. The Arabic linguistic translation of the OAB-V8 questionnaire was conducted using a multi-step process following the guidelines for cross-cultural adaptation of health-related QoL measures [9]. First, the questionnaire was translated from English to Arabic in parallel by three urologists and one independent English literature professor specialized in translation who speaks Arabic as a native language and English as a first foreign language. We chose simple language that could be understood by all people, even those with lower educational levels. A consensus meeting was held between the urologists and translator to resolve any differences between the versions. Then, the Arabic version was back-translated to English by an independent, native English-speaking professional and a native English-speaking urologist with Arabic as the first foreign language. The original version of the OAB-V8 and the back-translated English version were compared, and differences were resolved in another meeting. To ensure if the questionnaire was clear and understandable, a pilot test was carried out by interviewing seven female and seven male patients diagnosed with overactive bladder, and they all reported that the questionnaire was clear with simple language and was not difficult to complete.

## Groups

The study included two groups; the first comprised patients newly diagnosed with overactive bladder by urodynamic study who had not started treatment yet. Patients with anatomical abnormalities of the lower urinary tract, bladder tumors, diabetes mellitus, active urinary tract infection or receiving medications that affect lower urinary tract function were excluded. Pregnant female and male patients with lower urinary tract symptoms secondary to benign prostatic hyperplasia or prostatic cancer were also excluded from the study.

The second group comprised healthy workers in the hospital who agreed to complete the Arabic version of the OAB-V8 questionnaire and met the same exclusion criteria applied to the first group.

## Statistical analysis

The power of the study was calculated with the G\*Power program (University of Dusseldorf, Dusseldorf, Germany), applying an effect size of 0.6 for the two-tailed t-test and 0.05 for alpha error protection. The number of patients needed for each group was calculated to be 45 patients.

The reliability of the Arabic OAB-V8 was evaluated for internal consistency using Cronbach's  $\alpha$  for each domain (section). Domain structures were examined by inter-domain associations using Spearman's correlation coefficient ( $r$ ). The correlation was considered good when  $r > 0.5$ . The discrimination validity was evaluated by comparing the scores of cases with those of controls using the Mann-Whitney test. In all tests,  $P < 0.05$  was considered to indicate significance.

## Results

The study included 46 patients with OAB (mean age: 42.7 years, SD: 12.8) and 58 healthy individuals (mean age: 36 years SD: 9.2). The power of the study was 85%.

The internal consistency was high for all the domains, as shown by Cronbach's  $\alpha$  test (Table 1). There were good correlations among frequency, urgency, sudden urge to urinate, waking up at night to urinate and uncontrollable urge to urinate; however, there were weak or no correlations among urge, incontinence and nocturia.

The inter-domain correlations are shown in Table 2. There were statistically significant changes in all domain scores when comparing patients with OAB (cases) and individuals without OAB (controls). The discrimination validity results are shown in Table 3.

## Discussion

In 2005, Coyne et al. [10] developed and validated the OAB-V8 questionnaire as an adapted subscale from the symptom

**Table 1** Internal consistency of the V8 questionnaire domains

Domain	Cronbach's alpha
Q1. Frequent urination during daytime hours	0.911
Q2. An uncomfortable urge to urinate	0.903
Q3. Sudden urge to urinate with little or no warning	0.904
Q4. Accidental loss of a small amount of urine	0.918
Q5. Nighttime urination	0.924
Q6. Waking up at night because you had to urinate	0.919
Q7. An uncontrollable urge to urinate	0.909
Q8. Urine loss associated with a strong desire to urinate	0.919

**Table 2** Inter-domain correlations of the V8 questionnaire

r (Correlation coefficient)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Q1	1							
Q2	0.789	1						
Q3	0.734	0.822	1					
Q4	0.481	0.583	0.654	1				
Q5	0.585	0.594	0.502	0.284	1			
Q6	0.698	0.761	0.566	0.323	0.634	1		
Q7	0.620	0.709	0.811	0.673	0.488	0.554	1	
Q8	0.438	0.518	0.582	0.834	0.304	0.339	0.657	1

bother scale of the OAB-q, which is a validated overactive bladder symptom and health-related quality of life questionnaire [6]. The OAB-V8 questionnaire was validated to be a screening awareness tool to aid in identifying patients with OAB in primary care settings [10]. The questionnaire measures the bothersome level caused by four main symptoms: frequency, urgency, nocturia and urge incontinence. Each symptom's bothersome degree is described by the patient on a six-point scale, ranging from 0 (not at all) to 5 (a very great deal). Males are given two extra points, as men with OAB syndrome were noticed to have a lower threshold for OAB symptoms during the retrospective analysis of the OAB-V8 data [10].

The reliability of the Arabic version of the OAB-V8 questionnaire was confirmed by the high internal consistency and good inter-domain correlations (Tables 1 and 2). The discrimination validity was clear and obvious by the significant difference in scores between patients with OAB and healthy individuals (Table 3). These results are consistent with the results reported from two other linguistic validation studies. One study has validated the OAB-V8

**Table 3** Discrimination properties of the Arabic V8 between patients with over active bladder and controls

	Control (mean)	Patients (mean)	P value
Total score	5.3	24.2	< 0.001
Q1. Frequent urination during daytime	1.3	3.9	< 0.001
Q2. An uncomfortable urge to urinate	0.5	3.9	< 0.001
Q3. Sudden urge to urinate with little or no warning	0.3	2.9	< 0.001
Q4. Accidental loss of small amount of urine	0.2	1.8	< 0.001
Q5. Nighttime urination	0.8	3	< 0.001
Q6. Waking up at night because you had to urinate	0.9	3.7	< 0.001
Q7. An uncontrollable urge to urinate	0.2	2.4	< 0.001
Q8. Urine loss associated with a strong desire to urinate	0.1	1.8	< 0.001

questionnaire in four languages: Afrikaans, Chinese (Taiwan), English (South Africa) and Slovak [11]. The other study validated the questionnaire in Spanish [12]. We attribute the reliability of the translated version to two major points: first, the good psychometric properties and the high reliability of the original questionnaire, which was confirmed by a study that evaluated the OAB-V8 questionnaire and included 1128 patients [13], and the two other studies that translated the questionnaire from English to other languages [11, 12].

The second point was the standard method for linguistic validation of patient-reported outcomes [14, 15] that we followed, which consisted of a specific multi-step approach, and multiple consensus meetings that were held to address differences in the translated versions or difficulties in understanding the final translated version.

During observation of people's responses to the answers, we noticed a few patients had difficulty differentiating between questions 5 and 6, which ask about nighttime urination and waking up at night to urinate, respectively. This was addressed by Peterson et al. [13] when they found that questions 5 and 6 demonstrated high residual correlation; hence, they recommended reducing the two questions into a single one or rephrasing them.

The limitation of this study was the inability to assess the test-retest reliability because all patients who were diagnosed with OAB started receiving treatment immediately, and as the treatment might alleviate the symptoms experienced by the patients, the answers would be affected in the retest.

In conclusion, the results of the present study show that the Arabic version of the OAB-V8 is a reliable and valid tool to screen for overactive bladder syndrome among Arabic-speaking individuals and enable physicians in multiple specialties to conduct different studies about this syndrome in the Arab world.

## Compliance with ethical standards

**Conflicts of interest** None

## Appendix

**Table 4** The original English version of the OAB-V8 questionnaire

How bothered have you been by:	Not at all	A little bit	Somewhat	Quite a bit	A great deal	A very great deal
1. Frequent urination during the daytime hours?	0	1	2	3	4	5
2. An uncomfortable urge to urinate?	0	1	2	3	4	5
3. A sudden urge to urinate with little or no warning?	0	1	2	3	4	5
4. Accidental loss of a small amounts of urine?	0	1	2	3	4	5
5. Nighttime urination?	0	1	2	3	4	5
6. Waking up at night because you had to urinate?	0	1	2	3	4	5
7. An uncontrollable urge to urinate?	0	1	2	3	4	5
8. Urine loss associated with a strong desire to urinate?	0	1	2	3	4	5

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