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Validation of the Arabic linguistic version of the International Consultation on Incontinence Questionnaire-overactive bladder (ICIQ-OAB)

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Abstract

Background: Overactive bladder (OAB) is a health burden that needs an Arabic assessment tool. The idea is to validate the Arabic version of the International Consultation on Incontinence Questionnaire-overactive bladder (ICIQ-OAB).

Methods: A multicenter cross-sectional study carried out between March 2019 and February 2020. The translated ICIQ-OAB was used to assess the 227 patients. The enrolled patients were 112 complaining of symptoms suggestive of OAB, 115 healthy without LUTS symptoms. Additionally, patients with and without BOO symptoms were included. The reliability assessment of the internal consistency was done using Cronbach's α test. With the aid of Spearman's correlation coefficient (r), the interdomain associations were assessed. The Mann–Whitney test was used to assess the discrimination validity.

Results: A high internal consistency between the mean scores of women with and those without OAB as well as BOO groups, Cronbach's alpha value was 0.82. A strong correlation obviates among whole ICIQ domains in OAB set ($P \leq 0.001$). Equally, a high correlation exists among each domain in the BOO group, and Cronbach's alpha value was 0.82. In comparison with control, highly significant scores exist for all ICIQ-OAB domains and entire points in the BOO as well as OAB sets ($P < 0.001$). The ICIQ-OAB was found to have good discriminant validity.

Conclusion: A formulated and approved ICIQ-OAB -Arabic release is a value tool for addressing OAB symptom complex. The easy questionnaire will be a useful tool in grading the bother symptoms in Arabic speaking inhabitant.

Keywords: International Consultation on Incontinence Questionnaire (ICIQ-OAB); Overactive bladder, Arabic Version, Validation Studies

1 Background

Overactive bladder (OAB) is a group of symptoms with or without frequent urinary incontinence in the absence of an infection or other obvious pathologies, often with complaints of frequent urination and urinary urgency (day and night) along with or without urge incontinence [1]. The urgency incontinence exerts a profound adverse negativity on quality of life (QOL) [2, 3]. The overall prevalence was between 11.8 and 16.9% [4].

The self-accomplished questionnaires are the more than valued tool for weighting the bother of LUTS [5]. A questionnaire titled the International Consultation on Incontinence Questionnaire (ICIQ-OAB) that was

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primarily used in English was purchased to obviate the bother symptoms linked with OAB in a single score [6]. It was translated and validated in different languages [7–9].

ICIQ-OAB involves urination daytime frequency (ICIQ-OAB -3), nocturia frequency (ICIQ-OAB -4), urinary urgency frequency (ICIQ-OAB -5), and urgency incontinence (ICIQ-OAB -6). The total score entails the sum of the entire symptoms. The intensity of these symptoms was graded as 0–4. The more the score rise, the more intense will be the bother symptoms. With this obvious questionnaire, patients can be evaluated more precisely.

On the one hand, the short form of OAB questionnaire can be used by general practitioners and clinicians in primary and secondary clinics for OAB patients screening. On the other hand, it provides a suitable mean for performing research projects [6, 10].

Arabic is spoken by as many as 420 million people (native and non-native) all over the world. The Arabic validation of the ICIQ-OAB questionnaire was not provided.

The statue intend of current study is to show to what extent was the ICIQ-OAB is valid and reliable.

2 Methods

This multicenter study is a cross-sectional one which was conducted between March 2019 and January 2020**,** in two tertiary centers, xxxxxxx University, urology department and Urology and nephrology center, xxxxxx University**.** The ethical committee approval, number 970/2018, was obtained. All participants consented the questionnaire. The study was fashioned in pursuance with the declaration of Helsinki.

The owners of ICIQ-OAB give the permission to validate. The authors were permitted to translate a version in English language of ICIQ-OAB (source) into the Arabic one. ICIQ-OAB Arabic validation was executed via the following steps. Initially, two autonomous professional native Arabic translators, who can speak English appropriately, translated the questionnaire from English to Arabic. Both the translators and urologists (DE and AH) rechecked the translation. Then after, the translated text was acceptably comprehensive to patients at various schooling levels. Thirdly, the draft text, Arabic version, was back translated into English executed by two independent, outstanding translators. Checking of the back translations was done and some slight corrections were made. Some Arabic grammars and spelling was revised to finally have the second draft. Eventually, a pilot audition was carried on thirty patients who have OAB.

The changes ultimately were done, the English translation form as well as native release of the Arabic ICIQ-OAB was sent to the former composer (ICIQ advisory board) for proper comparison. This ultimate release was utilized for the entire validation process.

A pilot audition was carried out to appraise the questionnaire applicability; 40 (of which 20 were female) patients who had OAB symptoms were interviewed. Interviewed cohort declared each question clear as well as comprehensive. No obstacles were perceived in answering it, and no more changes were urged.

The study entailed two groups. The preliminary entailed 112 with symptoms suggestive of OAB (OAB group), another comparative group without LUTS, who concurred to finalize the questionnaire, was the control group.

We excluded patients who have active UTIs, mixed urinary incontinence, pelvic pain syndrome, and/or who are concurrently on medications that might affect the lower tract.

The Arabic ICIQ-OAB version was finished at baseline and after two weeks, on the contrary, the controls just completed it once.

A test–retest reliability and internal consistency was assessed. Test–retest reliability detects the concurrence strength between the double time intervals, the first and the second questionnaires. The intraclass correlation coefficient (ICC) was computed for the overall score. Moreover, separate item was measured by kappa coefficient.

Explanation of the correlation coefficient was utilized according to the proposal by Cohen; weak correlation coefficient was 0.1, while 0.3 moderate, and 0.5 strong.

2.1 Sample size calculation

Putting in consideration the statistical error, the expected difference among groups regarding total ICIQ-OAB was 0.6 [7]. The required sample size that achieves a higher difference was around 90 in every arm.

2.2 Statistical analysis

IBM® version 21 was used for statistical analysis. Significance level was set to $p < 0.05$. Cronbach's α test was utilized to test the reliability of internal consistency, while Wilcoxon signed rank test was used to show the test–retest reliability. Moreover, Spearman correlation assessed the concurrent external validity. Values more than 0.70 were proposed to attain reasonable consistency and reliability.

3 Results

Of all, 227 involvers were enrolled in the current study. We excluded thirty seven who did not fit the proposed inclusion parameters.

The Arabic translation reliability of test–retest was adequate. For separate symptom score, the range of kappa

Table 1 Internal consistency (Cronbach's α) and interdomain association by Spearman's correlation coefficient in the OAB group

Domain	Cronbach's	Frequency *r* (*p*)	Nocturia *r* (*p*)	Urgency *r* (*p*)	UUI *r* (*p*)
Frequency	0.82		0.485 (≤ 0.001)	0.595 (≤ 0.001)	0.482 (≤ 0.001)
Nocturia	0.85	0.458 (≤ 0.001)		0.647 (≤ 0.001)	0.572 (≤ 0.001)
Urgency	0.83	0.559 (≤ 0.001)	0.647 (≤ 0.001)		0.787 (≤ 0.001)
UUI*	0.82	0.482 (≤ 0.001)	0.572 (≤ 0.001)	0.787 (≤ 0.001)	

**UUI* urge urinary incontinence

Table 2 Discrimination properties of the Arabic ICIQ between patients with OAB and controls

ICIQ (median, range)	Patients (*n* = 112)	Control (*n* = 115)	*P*
Daytime frequency	1 (0–2)	0 (0–1)	≤ 0.000
Nocturia	4 (0–4)	1 (0–2)	≤ 0.000
Urgency	4 (2–5)	0 (0–3)	≤ 0.000
UUI *	4 (3–5)	1 (0–1)	≤ 0.000
Total ICIQ	10 (8–13)	2 (0–3)	≤ 0.000

**UUI* urge urinary incontinence

coefficients was from 0.48 to 0.78, while overall symptom coefficient was 0.710 (95% CI, 0.48–0.73). Moreover, the Cronbach's alpha value was 0.82 (Table 1).

Among the four domains, a high internal consistency was perceived. As regard the OAB groups, based on Cronbach's α test, a higher internal consistency reached. The correlation (r) among frequency and nocturia, urgency, and UUI was 0.68, 0.83, and 0.71, respectively ($P < 0.001$). Additionally, the correlation (r) among nocturia and urgency, UUI was 0.52 and 0.72, respectively ($P < 0.01$), Moreover, a low significant correlation exists between urgency and UUI was ($r = 0.54$ ($P < 0.001$) (Table 1).

Likewise, inside BOO set, stronger significance exists. The correlation between frequency and nocturia, urgency, and UUI was ($P < 0.001$, $P = 0.003$, and $P < 0.001$, respectively), between nocturia and UUI ($P < 0.001$), and between urgency and UUI ($P < 0.001$) (Table 3).

Significant scores in overall domains and entire scores were present between OAB and control, similarly between BOO set and ($P < 0.001$) (Tables 2, 4). This denotes discriminative validity potential.

4 Discussion

Questionnaires can help the physicians to assess bother symptoms and eventually postulate treatment plans.

The ICIQ-OAB evolved by the Bristol Urological Institute, based at North Bristol NHS Trust, Bristol [6], validated in different languages [7–9, 11].

The overall score entails the aggregate of all symptom scores that interpret daytime voiding frequency, nighttime voiding frequency, urgency, and UUI.

As a concern, 47% of patients, who have BOO, might complaint about OAB symptoms. Moreover, the degree of symptom burden correlated equally with the BOO degree as well as OAB at baseline and after treatment [12].

The Arabic translation of the ICIQ-OAB precludes average content validity and internal consistency, was

Table 4 Discrimination properties of the Arabic ICIQ between patients with BOO with OAB-like symptoms (BOO group) and controls

ICIQ (median, range)	Patients (*n* = 50)	Control (*n* = 50)	*P**
Daytime frequency	1 (0–2)	0 (0–1)	≤ 0.000
Nocturia	2 (0–3)	1 (0–2)	≤ 0.000
Urgency	2 (0–4)	0 (0–3)	≤ 0.000
UUI	2 (0–4)	1 (0–1)	≤ 0.000
Total ICIQ	8 (6–12)	2 (0–3)	≤ 0.000

* *UUI* urge urinary incontinence

Table 3 Internal consistency (Cronbach's *α*) and interdomain association by Spearman's correlation coefficient in the BPH group

Domain	Cronbach's	Frequency *r* (*p*)	Nocturia *r* (*p*)	Urgency *r* (*p*)	UUI *r* (*p*)
Frequency	0.69		0.457 (≤ 0.001)	0.271 (≤ 0.001)	0.157 (≤ 0.001)
Nocturia	0.70	0.457 (≤ 0.001)		0.487 (≤ 0.001)	0.283 (≤ 0.001)
Urgency	0.72	0.271 (≤ 0.001)	0.487 (≤ 0.001)		0.585 (≤ 0.001)
UUI*	0.69	0.157 (≤ 0.001)	0.283 (≤ 0.001)	0.585 (≤ 0.001)	

stable, and had good construct validity and responsiveness in women with OAB, especially urinary incontinence and/or urgency, and is therefore suitable for the assessment of these symptoms, before and after treatment, in Arabic-speaking women.

The reliability of the Arabic version was proven by the high internal consistency, also an accepted interdomain correlation in both the OAB and BOO sets (Tables 1, 3), the same that was perceived in other ICIQ-OAB language validation, e.g., portuges, dealing with OAB [9].

An obvious discrimination validity was perceived by the significant variance in entire scores between diseased and healthy persons (Tables 2, 4). The high discriminatory power as well as reasonable psychometric properties of the original English-validated questionnaire is the core of this discriminative validity, Moreover, the to and fro translation validation process is considered a value standard for linguistic validation.

Consequently, the current study obviates that the Arabic validated release of the ICIQ-OAB can be easily utilized by urologists to ease and quick patients assessment. Additionally, it is of value that the ICIQ-OAB will aid the grading of OAB symptoms equally in young as well as geriatric demographics.

To the best of our knowledge, the present study boost come from being elucidated in two tertiary specialized urology clinics. Moreover, equally the subject and the expert evaluated each question separately that reinforce the study. Another strength was the broad diversity of inhabitants, equally males as well as females, with the symptoms.

What limits our study that, some of our patients are not well educated that probably impact their ability to finalize such questionnaires. Another drawback was the incapacity to assess test–retest reliability, for the same reason of low educational levels in various patients.

5 Conclusion

A formulated and approved ICIQ-OAB -Arabic release is a value tool for addressing OAB symptom complex. The easy questionnaire will be a useful tool in grading the bother symptoms in Arabic speaking inhabitant.

Abbreviations

ICIQ-OAB: International Consultation on Incontinence Questionnaire-overactive bladder; OAB: Overactive bladder; BOO: Bladder outlet obstruction; LUTS: Lower urinary tract symptoms; UUI: Urge urinary incontinence.

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None.

Authors' contributions

DT has finished article writing, MAE collected data collection and revised the article, AH revised the article, HN has collected the data and statistical analysis, AI collected. The data, MNP processed the translation revision, and ASE finialize the article. All authors have read and approved the manuscript.

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Availability of data and materials

Available.

Declarations

Ethics approval and consent to participate

The ethical approval committee in faculty of medicine, Mansoura university, was the assigned committee for approving the study. The ethical committee approval number 970/2018, was obtained. All participants consented the questionnaire.

Committee's reference number

Not applicable.

Consent for publication

The consent obtained from study participants was verbal. The reason for that is the study doesn't involve intervention or experiment, it just filling a questionnaire, this was approved by the ethics committee as well.The ethical approval committee in faculty of medicine, Mansoura university, was the assigned committee for approving the study.

Competing interests

All authors declare no conflict of interest.

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