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Brief communication (Original)

Validity and reliability of Thai version Overactive Bladder Symptom Score (OABSS-T)

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Background: Overactive bladder (OAB) is a symptom-based condition, difficult to evaluate and impairs human related quality of life. A questionnaire is essential for the diagnosis and evaluation of treatment outcomes. The Overactive Bladder Symptom Score (OABSS) questionnaire has been mentioned previously as a useful tool for quantifying symptoms, severity, and treatment outcomes.
Objectives: To examine the psychometric properties of the OABSS in Thai women with overactive bladder.
Methods: Sixty women aged over 18 years, diagnosed with overactive bladder syndrome were recruited. They visited in two sessions at a two-week intervals using an OABSS questionnaire translated into Thai by a group of translators comprised of bilingual doctors and native speakers. OABSS in Thai preserves the original format using seven questions.
Results: Sixty woman aged over 18 years with overactive bladder symptoms were recruited (mean age 56; SD17.8). Content validity revealed a high score of symptoms. Internal consistency of the questionnaire from both visits showed a Cronbach alpha at 0.80 and 0.82 respectively. There was a strong association between the seven-item OABSS score at visit 1 and visit 2 with an intraclass correlation coefficient (ICC) of 0.96 (95% CI 0.947–0.981).
Conclusion: The OABSS Thai version is valid, and easily evaluates symptoms and severity of OAB. It could be used not only by urologists, but also by other healthcare providers as a screening tool for OAB in Thailand.

Keywords: OABSS-T, Overactive Bladder Symptom Score

Overactive bladder (OAB) is a common problem. OAB is a symptom-based condition that impairs quality of life (HRQOL) [1]. The International Continence Society (ICS) defines OAB symptoms as urgency, with or without urgency-related urinary incontinence (UUI), usually associated with frequency and nocturia [2]. Overactive bladder studies have shown a wide range of symptomatology depending on the target population and definition of OAB [3]. In Asia, from 11 countries, the overall prevalence of OAB was 53.1% among adult women [4]. OAB therapy can be varied and include bladder behavior therapy and anticholinergic drugs [5].

Currently, there are several OAB-specific questionnaires [6-11], such as Overactive Bladder Questionnaire (OAB-g), Urgency Questionnaire (UQ), Primary OAB Symptom Question (POSQ), and the King's Health Questionnaire (which refers only to quality of life).

The questionnaires are classified into the provision of a graded answer and varied interpretation depending on the patients. Other questionnaires can assess OAB symptoms such as DANPSS (Danish Prostatic Symptom Score) [11] and IPSS (International Prostate Symptom Score) from the American Urological Association. These evaluate only a few OAB symptoms and do not evaluate the severity of symptoms. The results of the previous studies on urgency are inconstant and unpredictable. The grading system is not standard and displayed variable outcome [12-15]. Recently the Overactive Bladder Symptom Score (OABSS) (16) has been mentioned and validated in English literature. The OABSS is a tool with which to evaluate symptoms and complexities of OAB symptoms. Furthermore, it can be used in grading the response to treatment and the severity of the disease.

In Thailand, the clinicians often screen OAB by regular interview. There are no standard questionnaires

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used for screening and evaluating the symptoms, and the severity of a condition that affects the quality of life. Thai patients report significant difficulty in answering questions during the interview because of illiterateness. This problem affects the communication and the relationship between doctors and patients leading to treatment failure. Therefore, it is important to validate the OABSS questionnaire in Thai language (OABSS-T). These were previously used to compare the psychometric validity study of the OABSS in English [12] and Spanish language version [17]. This study is the first report of a Thai OABSS questionnaire.

Material and methods

The original Overactive Bladder Symptom Score questionnaire (OABSS) was translated into Thai language by two bilingual clinicians. Back translation to the English version was done by an independent native speaker. Both versions of the OABSS were reviewed forward and backward by those translators to evaluate whether the tool retains the content of the original version.

OABSS was classified into seven questions by symptoms into four domains.
Domain 1: about frequency and nocturia (2 questions)
Domain 2: about urgency (3 questions)
Domain 3: about urge urinary incontinence (1 question)
Domain 4: about bladder control (1 question)

The participants were asked to grade their symptom using Likert scale by a score of 0, 1, 2, 3, and 4 (from best to worst respectively). Out of seven questions, the total score were ranged from 0 to 28. The higher score revealed the severity of the symptoms.

Sixty women of average age 56 (± SD 17.8), were diagnosed with overactive bladder by the definition of the International Continence Society (ICS). The symptoms included a sudden, compelling desire to pass urine that is difficult to defer and fear of leakage. They were evaluated twice in a two-week interval using a self-completion questionnaire of OABSS in Thai language.

Urinalysis was performed in every participant to exclude urinary tract diseases. If participants were found to have uncomplicated urinary tract infection, they were treated by a three-day course of oral antibiotic and excluded from the study.

The study protocols were approved by our Institutional Review Board Committee, Facility of Medicine, Vajira Hospital, Navamindradhiraj University. The authors have no conflict of interest to declare.

Statistical analysis

Demographic data included ages of participants and presented as means ± SD and level of education. The interval consistency reliability was determined by calculating a Cronbach alpha. Statistical reliabilities of questionnaires with an alpha of 0.70 or greater are recommended for comparing patient groups. The difference between test and retest reliability was determined by examining the association of answers to each question at visit 1 and 2 using an intraclass correlation (ICC) coefficient because intraclass correlation provides the most reliability. A scatter plot with a line of equality according to the total scores at visit 1 and 2 represented the association of responses to each question. All statistical procedures were performed using SPSS software, version 11.5 with $P < 0.05$ considered statistically significant.

Results

Sixty-eight participants were recruited in the study and provided their written informed consent to participant in the study. Eight participants were excluded because they had uncomplicated urinary tract infection and were treated by three-day course of oral antibiotic. The remaining sixty participants as shown in Table 1, the level of education, most of the participants were in lower level than colleges (45/60; 72.3%), whereas 15/60 (27.7%) were in higher level than a bachelor degree.

The distribution of participants total OABSS is shown in **Figure 1.** The mean average total score was 15.35 (SD 4.857) and 15.23 (SD 4.906) of visit 1 and 2, respectively.

Psychometric properties

A high level of internal consistency was observed in the seven-question responses by participants with a Cronbach alpha of 0.8 and 0.82 at visits 1 and 2 respectively. **Tables 3 and 4** show the correlation coefficient by matrix table for all seven items at visits 1 and 2.

The observed ICC is for assessing test–retest reliability. ICC indicated a strong association between participants' answers to each of the seven questions at visit 1 and 2 respectively. The ICC in each domain ranged from 0.787 to 0.985. Domain 3 shows the

highest ICC score (0.985 95% CI 0.975–0.991) and domain 4 showed the lowest ICC score (0.787: 95% CI 0.667–0.867) as shown in **Table 5**. **Figure 2** shows a scatter plot with the line of equality of the total scores at visits 1 and 2 and represented the association of responses to each question.

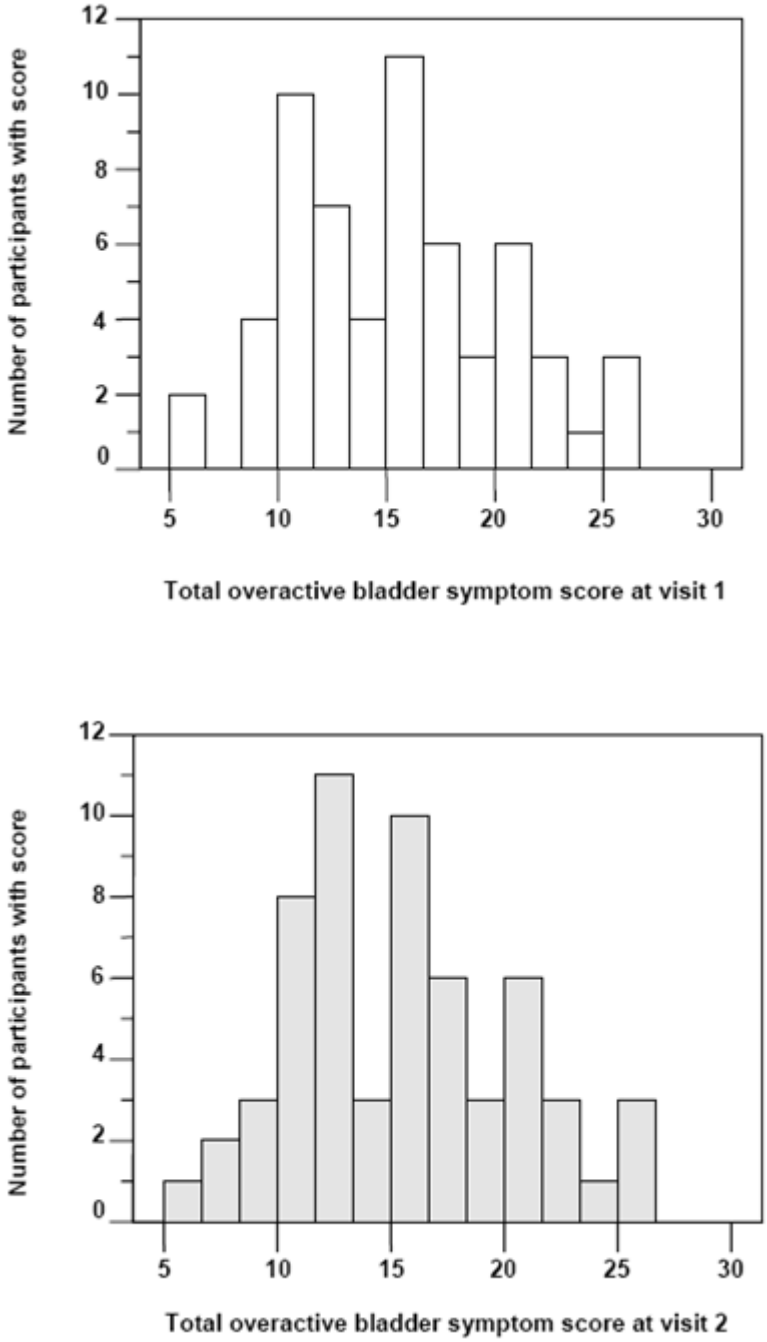

Figure 1. Distribution of Participants' total OABSS score in Thai

Table 1. Demographic data on participant education (n = 60 participants)

Education	Numbers
Less than high school	22
High school	15
College degree	8
Bachelor degree	12
Master degree and higher	3

Table 2. The participants scores in each domain

Domains (total scores)	Visit 1 mean (SD)	Visit 2 mean (SD)
Frequency and nocturia (8)	4.48 (1.545)	4.43 (1.489)
Urgency (12)	7.23 (2.445)	7.25 (2.468)
Urge incontinence (4)	1.08 (1.293)	1.07 (1.287)
Bladder control (4)	2.55 (0.746)	2.48 (0.833)
Total (28)	15.35 (4.857)	15.23 (4.966)

Table 3. Interitem correlation matrix for each of the seven items at Visit 1

Questions	1	2	3	4	5	.6	7
How many do you usually urinate during the day?	1.000						
How many times do you usually urinate at night?	.145	1.000					
What is the reason that you usually urinate?	.254	.355	1.000				
Once you get the urge or desire to urinate, How long can you postpone it comfortably?	.430	.397	.479	1.000			
How often do you get a sudden makes you want to stop what you are doing and rush to the bathroom?	.327	.500	.559	.381	1.000		
How often do you get a sudden urge or desire to urinate that makes you want to stop what you are doing and rush to the bathroom but you do not get there in time? (leak or wet pads)	.016	.225	.339	.572	.128	1.000	
In your opinion how good is your bladder control?	.387	.425	.478	.706	.462	.619	1.000

Table 4. Interitem correlation matrix for each of the seven items at Visit 2

Questions	1	2	3	4	5	6	7
How many do you usually urinate during the day?	1.000						
How many times do you usually urinate at night?	.202	1.000					
What is the reason that you usually urinate?	.441	.415	1.000				
Once you get the urge or desire to urinate, How long can you postpone it comfortably?	.508	.380	.580	1.000			
How often do you get a sudden makes you want to stop what you are doing and rush to the bathroom?	.479	.520	.625	.451	1.000		
How often do you get a sudden urge or desire to urinate that makes you want to stop what you are doing and rush to the bathroom but you do not get there in time? (leak or wet pads)	.149	.252	.401	.566	.078	1.000	
In your opinion how good is your bladder control?	.449	.494	.560	.611	.414	.570	1.000

Table 5. The intraclass correlation in each domain at visit 1 and 2

Domains	ICC (95% CI)
Frequency and nocturia	0.908 (0.85–0.944)
Urgency	0.948 (0.915–0.969)
Urge incontinence	0.985 (0.975–0.991)
Bladder control	0.787 (0.667–0.867)

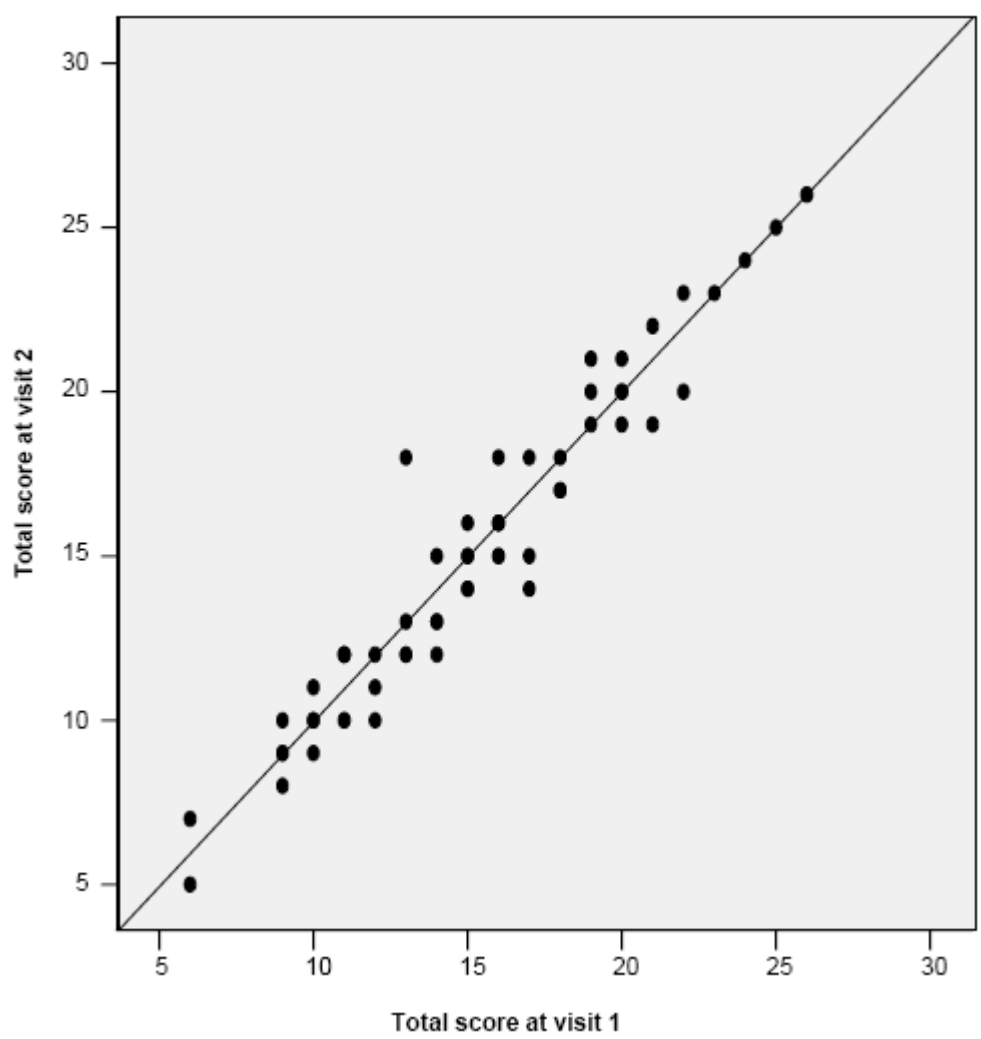

Figure 2. The Scatter plot shows the correlation between Visit 1 and 2

Discussion

The OAB symptoms are subjective and difficult to interpret. The OABSS questionnaire was developed and has proven validity and reliability in many languages.

The results from this study showed a high correlation in internal consistency, using Cronbach' coefficient alpha and external consistency, using ICC coefficient. These measures were previously used to compare the psychometric validity study of the OABSS in English [12] and Spanish language versions [17]. This study is the first Thai OABSS questionnaire reported.

The participants in this study presented at a urological clinic with minimal symptoms of OAB as shown in **Figures 1 and 2** and mostly their education was lower than college as shown in **Table 1**. This data is similar to that in a previous study [18].

The questions in domains 1, 2, and 3 in **Table 5** had high ICC scores from both visits. These are good and easy to understand questions. By contrast with domain 4, which has the lowest ICC score, talking about the global assessment "how good is your bladder control", it is difficult question and related to the patients' subjective feeling. However, the result revealed that 16/60 participants (26.7%) give a nonidentical answer whereas 44 participants (73.3%) give identical answers at both visits.

The limitations of our study are that it was conducted at single institute and the sample was not random in this cohort. The data were collected only in the central region of Thailand and the different dialects in other regions were not taken in to consideration. Another limitation is that some data regarding underlying disease and occupation were not collected, so their impact on this study is unclear. Therefore, future studies should examine these parameters to determine whether there is any effect on OAB symptoms.

The strengths of this study are that the OABSS can be conducted easily to evaluate symptoms and severity of OAB at all levels of healthcare settings in Thailand because the validity of each question was evaluated by participants. Therefore the results of this study show that OABSS in Thai can be used by all health care providers and specialists to assess patients' symptoms, severity of symptoms, and treatment outcomes easily and quickly. OABSS can assess the purpose of patients in treatments and develop a good doctor–patient relationship in treatment.

In Thailand, data regarding the prevalence of OAB are inadequate because urinary symptoms are often underreported, especially in the elderly population who often considered OAB as a normal outcome of aging. Screening of overactive bladder patients with the OABSS-T questionnaire will assist as the screening tool for evaluating OAB symptom in both young and elderly Thais.

Conclusion

The OABSS in Thai language is a meaningful and useful, self-completion questionnaire that can grade symptoms and severity of overactive bladder symptoms.

The author declares no conflict of interest.

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