



Assessment of Proportion of Hidden Patients Having Symptoms of Overactive Bladder and Why Has It Been Hidden in Female Outpatients Admitted to Hospital

Oktay Üçer¹, Ömer Demir², Mehmet Fatih Zeren³, Yasin Ceylan⁴, İlker Çelen⁵, Ali Ersin Zümrütbaş⁶, Gökhan Temeltaş¹, Ozan Bozkurt², Bülent Günlüsoy⁴, Orçun Çelik⁷, Gökhan Ekin⁷, Oğuz Mertoğlu⁷; Aegean Study Group of Society of Urological Surgery

¹Department of Urology, Celal Bayar University, Faculty of Medicine, Manisa, Turkey

²Department of Urology, Dokuz Eylül University, Faculty of Medicine, İzmir, Turkey

³Urology Clinic, Uşak State Hospital, Uşak, Turkey

⁴Department of Urology, İzmir Bozyaka Training and Research Hospital, İzmir, Turkey

⁵Urology Clinic, Acıpayam State Hospital, Denizli, Turkey

⁶Department of Urology, Pamukkale University, Faculty of Medicine, Denizli, Turkey

⁷Department of Urology, İzmir Tepecik Training and Research Hospital, İzmir, Turkey



Purpose: To determine the proportion of patients with undetected symptoms of overactive bladder by using the overactive bladder-validated 8 (OAB-V8) screening questionnaire and investigate these symptoms were undetected in female patients who were hospitalized.

Methods: We invited 2,250 female patients hospitalized in the Aegean region of Turkey to answer a self-administered questionnaire. The questionnaire included questions on evidence of lower urinary tract symptoms (OAB-V8), relevant medical history, and demographic data. Patients with a total OAB-V8 score ≥ 8 were defined as having OAB symptoms.

Results: The proportion of patients with OAB symptoms in this study was 40.6%. Nearly 57% of the patients with OAB symptoms had not been previously admitted to any hospital for lower urinary tract symptoms (LUTS). The two most common reasons why women with OAB symptoms did not admit themselves to a hospital because of LUTS were as follows: "I did not think I had a disease" and "The symptoms did not bother me," with a response rate of 74.7%. The mean OAB-V8 scores of the patients with these two responses were significantly lower than those of the other patients ($P < 0.001$).

Conclusions: This is the first study to demonstrate a significant proportion of women with undetected OAB symptoms. The main reasons the women did not admit themselves to a hospital were their unawareness of the disease and because the LUTS were not bothersome. Public awareness programs on this disease may resolve this problem.

Keywords: Symptoms; Urinary Bladder, Overactive; Diagnosis

- **Research Ethics:** The study protocol was approved by the ethics committee of Celal Bayar University (approval number: 20478486-320).
- **Conflict of Interest:** No potential conflict of interest relevant to this article was reported.

INTRODUCTION

Overactive bladder (OAB) is a common disorder that adversely

affects the quality of life of patients and brings a heavy socio-economic burden [1]. OAB was first described by Paul Abrams in 1997 (quoted from [2]). According to the International Con-

Corresponding author: Oktay Üçer  <http://orcid.org/0000-0001-7912-0408>
Department of Urology, Celal Bayar University, Faculty of Medicine, No: 173,
Merkez, 45030 Manisa, Turkey

E-mail: uceroktay@yahoo.com / Tel: +905052114618 / Fax: +902362338040

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tinence Society, it is characterized by urinary urgency, with or without urge incontinence, usually with frequency and nocturia, in the absence of causative infection or pathological conditions [3]. Earlier studies reported the prevalence of OAB in a wide spectrum, ranging from 2% to 53% [4-14]. Unfortunately, these studies had methodological limitations [4,5,7,8,10,12,13] or were not population based [6,9,11,14]. Despite the fact that OAB has a significant impact on patients' quality of life and daily activities, it is frequently unreported and underdiagnosed [15]. This is the other reason of the discrepant results of previous reports about prevalence. This lack of recognition of OAB can be associated with patients' lack of understanding of the disorder, besides the fact that they tend not to talk about their symptoms or associate them with aging [16]. Self-assessment questionnaires and registries are useful for the diagnosis. However, these tests are not generally applied in daily practice [15].

The overactive bladder questionnaire (OAB-q) was first developed by Coyne et al. [17] in 2002 for assessment of symptoms and quality of life of patients with OAB. Subsequent studies developed shorter forms of the OAB-q. Overactive bladder-validated 8 (OAB-V8) is one of these shorter forms and was translated into 14 languages in 2006 by Acquadro et al. [18]. The aim of our study was to determine the proportion of female patients with undetected OAB symptoms who refer to hospitals for other diseases by using the OAB-V8 questionnaire and to investigate why these patients did not mention about their symptoms.

MATERIALS AND METHODS

A multicenter, observational epidemiological study was conducted between December 2013 and August 2014. Female patients aged ≥ 18 years who were admitted to 4 different hospitals in the Aegean region of Turkey were asked to answer a self-administered questionnaire. The study questionnaire was developed by the study team and consisted of four parts as follows: (1) sociodemographic data; (2) OAB-V8 (Turkish version of OAB-V8 validated by Tarcan et al. [19]); (3) 2 questions about the treatment received by patients with OAB symptoms who previously referred to a hospital for their symptoms; (4) two questions for patients with OAB symptoms who had not been previously admitted to any hospital for their symptoms (Table 1). Patients with undetected OAB symptoms were defined as those having OAB-V8 scores ≥ 8 who had not been admitted to any hospital because of LUTS. These patients were asked why

Table 1. The questions administered to the patients with OAB-V8 scores ≥ 8

Have you been admitted to any hospital for these symptoms before? Yes or No
If your answer is yes, please continue. 1. Which clinics did you admit yourself for these complaints? 2. Did you take any medications?
If your answer is no, please continue. 1. Why did you not admit yourself to any hospital for these complaints? 2. Which clinic do you think you should go to?

OAB-V8, overactive bladder-validated 8.

they had not admitted themselves to any hospital because of the aforementioned complaints. They were asked to choose the most appropriate answer. The study protocol was approved by the local ethics committee (approval number: 20478486-320).

Statistical analysis was performed by using SPSS ver. 16.0 (SPSS Inc., Chicago, IL, USA). The patients were divided into 5 groups according to age, and the proportion of patients with OAB-V8 scores ≥ 8 in these age groups was calculated. The patients with OAB V8 scores ≥ 8 were divided into two groups according to whether or not they had been admitted to a hospital because of these symptoms. The demographic features of the 2 groups were statistically compared. The patients with undetected OAB symptoms were divided into 6 groups according to their responses to the question, "Why did you not admit yourself to any hospital because of these symptoms before?" The 6 groups were compared in terms of OAB V8 scores. A P-value < 0.05 was considered statistically significant.

RESULTS

We enrolled 2,250 female patients with a mean age (range) of 41.2 ± 15.4 years (18–95 years) who agreed to participate in the study. The proportion of patients with OAB symptoms in this study was 40.6%. A strong positive correlation was found between age and OAB-V8 score ($P < 0.001$, $r = 0.42$). Table 2 shows a comparison of demographic features between the patients with OAB V8 scores of ≥ 8 (group 1) and < 8 (group 2). Statistically significant differences in mean age, age range, marital status, educational level, work status, and living status were found between the two groups ($P < 0.001$). Of the patients with undetected OAB symptoms (group 3), 57% had newly diagnosed OAB and 43% (group 4) had been previously admitted to a hospital because of OAB symptoms. Table 3 shows a com-

Table 2. Comparison of demographic features between the patients in the two groups according to OAB-V8 scores

Variable	OAB-V8 score		P-value
	≥ 8 (group 1)	< 8 (group 2)	
Number	914	1,334	
Age (yr)	49.07 ± 14.13	39.93 ± 14.48	< 0.001
Age range			< 0.001
< 30	103 (16.7)	515 (83.3)	
30–39	119 (28.3)	301 (71.7)	
40–49	254 (49.2)	262 (50.8)	
50–59	225 (59.1)	156 (40.9)	
> 59	213 (68.1)	100 (31.9)	
Marital status			< 0.001
Married	604 (43.7)	776 (56.3)	
Single	152 (24.3)	472 (75.7)	
Divorced	157 (64.6)	86 (35.4)	
Education			< 0.001
Primary school	394 (55.1)	320 (44.9)	
Secondary school	116 (46.7)	132 (53.3)	
High school	195 (35.1)	360 (64.9)	
University	201 (27.9)	517 (72.1)	
Work status			< 0.001
Student	35 (11.3)	273 (88.7)	
Working	321 (37.8)	526 (62.2)	
Retired	102 (59.3)	70 (40.7)	
Housewife	456 (49.5)	465 (50.5)	
Income level (TL)			0.900
< 1,000	429 (40.4)	632 (59.6)	
1,000–3,000	429 (40.5)	630 (59.5)	
3,000–5,000	42 (43.7)	54 (56.3)	
> 5,000	13 (43.3)	17 (56.7)	
Living status			< 0.001
Village	130 (54.6)	108 (45.4)	
Town	196 (42.5)	265 (57.5)	
City	584 (37.8)	960 (62.2)	

Values are presented as mean ± standard deviation or number (%). OAB-V8, overactive bladder-validated 8; TL, Turkish Lira.

parison of demographic features between the patients in group 3 and those in group 4. Although significant differences in mean age, age range, work status, and living status were found between the patients in group 3 and those in group 4, no significant differences in marital status, educational level, and income level were found between the groups (Table 3).

The ratio of the reasons the OAB symptoms were undetected, and the mean ages and mean OAB V8 scores for different causes of the patients are provided in Table 4. The two most common reasons why the women with OAB symptoms did not admit themselves to a hospital because of LUTS were as follows: (1) “I did not think I had a disease.” and (2) “The symptoms did

Table 3. Comparison of demographic features between the patients in the 2 groups according to their responses to the question, “Have you been admitted to any hospital because of OAB symptoms?”

Variable	OAB-V8 score ≥ 8		P-value
	No (group 3)	Yes (group 4)	
Number	521	393	
Age (yr)	46.40 ± 14.82	50.90 ± 14.43	< 0.001
Age range			< 0.001
< 30	65 (57.6)	48 (42.4)	
30–39	150 (60.0)	100 (40.0)	
40–49	118 (54.4)	99 (45.6)	
50–59	101 (47.5)	112 (52.5)	
> 59	87 (72.0)	34 (28.0)	
Marital status			0.810
Married	345 (57.4)	257 (42.6)	
Single	91 (55.5)	73 (44.5)	
Divorced	85 (57.5)	63 (42.5)	
Education			0.100
Primary school	213 (56.3)	165 (43.7)	
Secondary school	56 (51.0)	54 (49.0)	
High school	106 (53.9)	91 (46.1)	
University	146 (63.8)	83 (36.2)	
Work status			< 0.001
Student	37 (77.1)	11 (22.9)	
Working	182 (57.6)	134 (42.4)	
Retired	48 (45.8)	53 (54.2)	
House wife	254 (56.6)	195 (43.4)	
Income level (TL)			0.610
< 1,000	238 (56.6)	183 (43.4)	
1,000–3,000	256 (58.9)	179 (41.1)	
3,000–5,000	21 (46.7)	24 (53.3)	
> 5,000	6 (46.2)	7 (53.8)	
Living status			< 0.05
Village	77 (61.6)	48 (38.4)	
Town	103 (54.5)	86 (45.5)	
City	341 (56.9)	259 (43.1)	

Values are presented as mean ± standard deviation or number (%). OAB-V8, overactive bladder-validated 8; TL, Turkish Lira.

not bother me.” The mean OAB-V8 scores of the patients with these 2 responses were significantly lower than those of the patients with other responses (11.34 vs. 16.29, P < 0.001). Of the patients who responded to the question, “Why did you not admit yourself to a hospital for these symptoms before?” 74.7% gave the 2 responses.

DISCUSSION

In the present study, our objective was to determine the propor-

Table 4. Mean OAB-V8 scores and ages according to the patients' responses

Why did you not refer to a hospital because of these symptoms?	No. of patients	Age (yr)	OAB-V8 score
I did not think it was a disease.	209 (40.1)	46.45 ± 14.43	12.73 ± 6.23
The symptoms did not bother me.	183 (35.1)	45.12 ± 15.04	9.62 ± 5.13
I was ashamed to seek treatment.	73 (14.0)	48.01 ± 13.45	16.34 ± 7.13
I did not know where I should go to.	31 (5.9)	50.41 ± 15.42	14.56 ± 5.71
I had no time.	20 (3.8)	56.09 ± 12.13	17.13 ± 7.60
Others	5 (0.9)	50.51 ± 13.34	18.22 ± 5.11

Values are presented as number (%) or mean ± standard deviation. OAB-V8, overactive bladder-validated 8.

tion of female patients with undetected OAB symptoms who attended tertiary hospitals because of varied complaints referred to different departments (urology, gynecology, ophthalmology, internal medicine, general surgery, etc.) in the Aegean region of Turkey by using a self-administered questionnaire. Cheung et al. [1] reported that the prevalence of OAB in women aged 18 to 70 years (mean, 42.2 years) was 30%. The ages of the patients in their study were similar to those of our patients. The proportion of patients with OAB symptoms in our study was higher than that of patients OAB in the previous study. Two reasons of this difference may be that our study group consisted of patients with different complaints and our study was not epidemiological. Previous epidemiological studies consistently report increased prevalence of OAB with age [20]. Similarly, the present study showed that the proportion of female patients with OAB symptoms increased with age. The demographic data of groups 1 and 2 were compared, and statistically significant differences were found between the 2 groups, except for income status (Table 1). Overall, the findings of this statistical analysis show that aging is an important factor of OAB symptoms. For example, the proportion of patients with OAB symptoms was lower among single women than among divorced and married women, and among female students and working women than among housewives and retired women (Table 1).

We used the OAB-V8 questionnaire in face-to-face interviews with patients to evaluate OAB symptoms. This type of data collection was reported to be more accurate than the use of postal questionnaires and telephone interviews because the questions can be clarified before answering [21]. We found that 57% (group 3) of the 914 patients with OAB symptoms had not been admitted to a hospital because of their LUTS, whereas 393 patients (group 4) had been admitted to a hospital for their

symptoms. We compared demographic features between the patients in group 3 and those in group 4. No statistically significant differences in marital status, educational level, and income level were found. The mean age of the patients in groups 3 and 4 were 46.4 and 50.9 years ($P < 0.001$). The work status of the patients with OAB symptoms was evaluated, and a statistically significant difference was found between the patients in group 3 and those in group 4. This discrepancy depends on the difference in the number of students between the 2 groups. Group 3 had more students than group 4, and the difference was statistically significant (Table 3). Overall, these findings show that younger patients with OAB symptoms do not prefer to go to a hospital for their symptoms. When we investigated the living status of the patients in groups 3 and 4, we found that most of the patients living in the village did not attend a hospital because of LUTS (Table 3). This may be due transportation difficulties from the villages to hospitals.

The two most common responses that accounted for 74.7% of all the responses to the question, “Why have you not referred to a hospital because of these symptoms before?” were “I think I did not have a disease.” and “The symptoms did not bother me.” (Table 4). The mean OAB-V8 score of the patients who did not think the LUTS were bothersome was 9.6. The mean OAB-V8 score of the patients who answered, “I did not think it was a disease,” was 12.79. Coyne et al. [22] reported that the model identifying patients with a diagnosis of probable OAB had a sensitivity and specificity of 98.0 and 82.7, respectively. They found that for OAB-V8 scores ≥ 8 , the odds ratio for probable OAB was 95.7 (95% confidence interval, 29.3–312.4). They also recommended that the OAB-V8 performed well in helping clinicians identify patients with bothersome OAB symptoms in a primary care setting. On the other hand, Muhilan et al. [23] reported that for OAB screening, an optimum OAB-V8 screen-

ing score > 12 had a sensitivity of 94.7% and a specificity of 83.4%. In a study in Turkey, Tarcan et al. [19] found that the sensitivity and specificity of OAB-V8 scores > 8.5 for the diagnosis of OAB were 90% and 59%, respectively, and those of OAB-V8 scores > 11.5 were 80% and 78%, respectively. In our study, OAB V8 scores ≥ 8 were used in identifying patients with OAB symptoms. With this cutoff OAB V8 score, we found that 34.9% of the patients with OAB symptoms did not consider their LUTS bothersome. Cetinel et al. [21] evaluated only the prevalence of undetected urinary incontinence (UI) in women in Turkey and found that although the crude prevalence of female UI was found to be high (36%), more than half (53%) of incontinent women had nonbothersome UI. They also reported that most incontinent female patients did not seek medical help, whereas the degree of discomfort due to the symptoms was found to be the only independent factor that increased the help-seeking behavior of incontinent women. We suggest that this cut off OAB-V8 score for the diagnosis of OAB should be reconsidered according to geographical region.

Despite the high prevalence of OAB, many afflicted patients remain undiagnosed or untreated [1]. We found that 57% of the patients with OAB symptoms in our study population remained undiagnosed. The most common responses aside from the aforementioned two most common ones were “Ashamed to seek treatment,” “I did not know where I should go,” and “I had no time.” We think that these patients did not have enough information about OAB and LUTS. To avoid this situation, primary care practitioners should evaluate patients with LUTS by using self-administered questionnaires. Patients with OAB symptoms should be given information about OAB and, if necessary, referred to secondary or tertiary hospitals.

Our present study has some methodological limitations, the most important of which is its being not population based. On the other hand, the large number of participating centers, including universities, and training and research hospitals, in the Aegean region of Turkey makes our study valuable. The other important limitation of our study is that the subjects were not evaluated for possible urinary tract infection, genitourinary cancers, contracted bladder, loop diuretics, pregnancy, and puerperal conditions. Future studies about this topic may evaluate the above-mentioned conditions as exclusion criteria.

In conclusion, the high proportion of patients with OAB symptoms in our study suggests that the needs of many of them may not have been met by their primary care providers. Patients with LUTS should be given information about OAB and

LUTS by primary care providers. We also suggest that this information should be provided to people via the Internet and media by societies in order to increase their awareness. When OAB-V8 (score ≥ 8) was used in the diagnosis of OAB, one of every three patients with OAB symptoms did not consider their disorder bothersome. Further studies should reevaluate these patients with further tests and should reconsider the threshold OAB-V8 score.

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