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Egemen Tural
Department of Family Medicine, Cifteler State Hospital, Eskisehir 26700, Türkiye,
egementural1@gmail.com

Ayşe Deniz Ertürk Coşkun
Department of Gynecology and Obstetrics, University of Health Sciences Haydarpasa Numune Training and Research Hospital, Istanbul 34668, Türkiye, denizertk@yahoo.com

Gizem Pınar
Department of Gynecology and Obstetrics, Iskenderun State Hospital, Hatay 31240, Türkiye,
gizempinar7@gmail.com

Fisun Vural
Department of Gynecology and Obstetrics, University of Health Sciences Haydarpasa Numune Training and Research Hospital, Istanbul 34668, Türkiye, fisunvural@yahoo.com.tr

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Exploring Overactive Bladder Symptoms in Premenopausal and Postmenopausal Women: A Comparative Cross-Sectional Study

Egemen Tural[1*], Ayşe Deniz Ertürk Coşkun[2], Gizem Pınar[3], Fisun Vural[2]

[1]Department of Family Medicine, Cifteler State Hospital, Eskisehir 26700, Türkiye

[2]Department of Gynecology and Obstetrics, University of Health Sciences Haydarpasa Numune Training and Research Hospital, Istanbul 34668, Türkiye

[3]Department of Gynecology and Obstetrics, Iskenderun State Hospital, Hatay 31240, Türkiye

Abstract

Background: Overactive bladder syndrome affects millions globally. It can intermittently cause urinary incontinence, which can significantly diminish the quality of life. This study investigated overactive bladder symptoms in premenopausal and postmenopausal individuals by analyzing the influence of demographic, gynecological, and obstetric factors.

Methods: This single-center prospective cross-sectional study was conducted between September 1 and November 1, 2023, among premenopausal and postmenopausal women. In total, 244 patients meeting the inclusion criteria were selected using a simple random method. Participants were asked to complete an information collection form, and the Turkish version of the Overactive Bladder-V8 questionnaire was administered. A significance level of $p < 0.05$ was considered.

Results: Individuals with an overactive bladder were older (mean age, 46.14 ± 14.56) and had a higher body mass index (mean, 28.47 ± 6.02) than healthy individuals ($p = 0.013$, $p < 0.001$, respectively). No significant difference in menopausal status was found ($p = 0.091$). Urinary incontinence was significantly higher in the overactive bladder group (63.6% vs. 17.4%, $p < 0.001$). The number of vaginal deliveries and prior gynecologic surgeries differed significantly between the groups ($p = 0.030$, $p = 0.001$, respectively).

Conclusions: Age, higher body mass index, vaginal childbirth, and history of gynecological surgeries are associated with overactive bladder frequency, whereas menopausal status did not exert a significant effect.

Keywords: menopause, postmenopause, premenopause, urinary bladder, urinary incontinence

INTRODUCTION

Overactive bladder (OAB), as defined by the International Continence Society (ICS), is characterized by symptoms such as frequent urination, nocturia, and a sudden urge to urinate in the absence of an underlying infection or pathological cause. It can intermittently lead to symptoms such as urinary incontinence (UI), negatively affecting the quality of life.[1] OAB has affected millions of people worldwide.[2,3] One of the largest population-based studies on lower urinary tract symptoms (LUTS) and OAB, conducted in five countries with over 19,000 participants, revealed an overall prevalence of OAB symptoms of 11.8% (men, 10.8%; women, 12.8%).[3]The consequences of OAB, including UI, negatively affect the quality of life for affected individuals.[4] Despite the limited number of studies on OAB prevalence in Turkey, one study reported a prevalence of 20.6% of OAB in women. The same study identified age and parity as risk factors for OAB.[5]

Although distinguishing between the effects of aging and declining estrogen levels during menopause poses a challenge, pelvic organs and their supportive muscular and connective tissues respond to estrogen. Epidemiological studies underscore menopause as a critical risk factor for the development of pelvic floor disorders, with urinary symptoms and their severity markedly increasing post-menopause.[6] Furthermore, postmenopausal women frequently exhibit decreased bladder capacity, weakened detrusor muscle function, and slower urine flow rates.[7] Nevertheless, research on the effect of menopause on OAB yields varying results. Zhu *et al*. suggested a close association between menopausal symptoms and OAB, proposing a higher prevalence of OAB in women experiencing severe menopausal symptoms.[8] However, a meta-analysis of risk factors for OAB concluded that menopause did not affect the OAB risk.[9]

In this study, we aimed to investigate OAB symptoms in both premenopausal and postmenopausal individuals

***Corresponding author:**
Egemen Tural
Department of Family Medicine, Cifteler State Hospital, Eskisehir, Türkiye
E-mail: egementural1@gmail.com

and assess demographic, gynecological, and obstetric factors influencing these symptoms.

METHODS

This single-center prospective cross-sectional study was conducted between September 1, 2023, and November 1, 2023, among premenopausal and postmenopausal women presenting for any reason to the gynecology and obstetrics outpatient clinic of a training and research hospital. The study received ethical approval from the University Hospital's Medical Ethics Committee on July 21, 2023 (Decision no. 2023/14–13) and was conducted in accordance with the principles outlined in the Declaration of Helsinki.

Of the 600 patients attending the gynecology and obstetrics outpatient clinic over 2 months, a minimum sample size of 235 individuals was determined for the study population for a 95% confidence level with a confidence interval of α = 0.05. In total, 244 patients meeting the inclusion criteria were selected using a simple random method, provided with information about the study, and included after obtaining verbal and written consent. In this study, women still experiencing menstrual cycles were classified as premenopausal, whereas women who had been amenorrheic for a minimum of 12 months without psychological or pathological reasons were considered postmenopausal.[8] This study was conducted on volunteer women who applied for any reason to the gynecology and obstetrics outpatient clinic. The exclusion criteria were as follows: malignancies, dementia, pregnancy, illiteracy, inability to speak the Turkish language, diuretics, and anticholinergic drugs. Women who had a history of urogynecologic surgery such as pelvic organ prolapse surgery and anti-incontinence procedures were also excluded.

Participants were asked to fill out an information collection form, which included questions about age, marital status, educational background, obstetric and gynecological characteristics, chronic diseases, and smoking status. Subsequently, the Turkish version of the Overactive Bladder-V8 (OAB-V8) questionnaire was administered. The OAB-q, developed by Coyne *et al*., is designed to assess individuals' OAB symptoms.[10] Subsequently, in later research, a shorter form called OAB-V8 was developed.[11] Tarcan *et al*. conducted a Turkish validation and reliability study for OAB-V8. The OAB-V8 questionnaire consists of eight questions, allowing patients to rate the severity of their complaints as follows: none = 0, very little = 1, a little = 2, quite a bit = 3, a lot = 4, and very much = 5. The total score can range from 0 to 40. Individuals scoring >11 points may be indicative of OAB.[12]

Demographic information questions such as marital status, smoking habits, and body mass index (BMI) classification, along with responses to these questions, are depicted using numerical (n) and percentage (%) values to illustrate the distribution of individuals. In this study, continuous variables' normal distribution suitability was assessed graphically and through the Shapiro–Wilk test. None of the continuous variables followed a normal distribution. Descriptive statistics for the variables were presented as means ± standard deviations (SD) and median (minimum–maximum) values. The Mann–Whitney U test was employed for the comparison of age, BMI, total number of pregnancies, total number of deliveries, number of vaginal deliveries, number of cesarean deliveries, number of pregnancies resulting in miscarriage, and number of induced abortion cases according to the OAB-V8 classification. According to the OAB-V8 classification, cross-tabulations were created for the comparison of categorical variables, providing the number (n), percentage (%), and chi-square (χ^2) test statistics. IBM SPSS Statistics for Windows version 21.0 (IBM Corp., Armonk, NY, USA) and MS Excel 2007 were utilized for statistical analyses and calculations. A $p < 0.05$ was considered significant.

RESULTS

The mean age of the participants was 43.04 ± 13.84 years (minimum and maximum of 18.0 and 75.0, respectively). The average BMI was 26.27 ± 5.47 kg/m². Regarding BMI classification, 4.1% (N = 10) of the participants were underweight, 38.1% (N = 93) were normal weight, 34.4% (N = 84) were overweight, and 23.4% (N = 57) were obese. Regarding marital status, 63.9% (N = 156) of participants were married, 23.4% (N = 57) were single, and 12.7% (N = 31) were widowed/divorced.

According to the Turkish version of the OAB-V8, individuals scoring >11 points are classified as having OAB, whereas those scoring ≤11 points are categorized as normal. According to the OAB-V8 classification, the average age of the normal group was 41.61 ± 13.29 years, whereas the OAB group had an average age of 46.14 ± 14.56 years. A significant difference in age values was found between the normal and OAB groups ($p = 0.013$). The average BMI of the normal group was 25.26 ± 4.88, whereas that of the OAB group was 28.47 ± 6.02 ($p < 0.001$). The comparison of participants' demographic data according to the OAB-V8 classification is shown in Table 1. Based on the OAB-V8 classification, no significant differences were identified concerning menopausal status ($p = 0.091$). The comparison of participants' menopausal statuses according to the OAB-V8 classification is presented in Table 1.

According to the OAB-V8 classification, 17.4% of the participants who had normal OAB scores (N = 29) had complaints of UI, and 63.6% who had high OAB scores (N = 49) had complaints of UI. A significant difference has been observed in the distribution of responses to the

question, "Do you have complaints of urinary incontinence?" (p < 0.001). Table 2 presents the comparison of participants' gynecological and UI-related characteristics according to the OAB-V8 classification.

In the OAB-V8 classification, the normal group exhibited a median value of 0.0 for the number of vaginal deliveries, whereas the OAB group had a median of 1.0. A significant difference in terms of the number of vaginal deliveries has been detected based on the OAB-V8 classification (z = 2.169, p = 0.030). In addition, a significant difference has been noted in the number of pregnancies resulting in miscarriage according to the OAB-V8 classification (z = 1.986, p = 0.047). The median value for pregnancies resulting in miscarriage was 0.0 for both normal and OAB groups, with a range of 0–4 in the normal group and 0–3 in the OAB group. Table 3 displays the comparison of participants' obstetric histories in accordance with the OAB-V8 classification.

DISCUSSION

Awareness of the effect of OAB on the quality of life is crucial to understanding the necessity of appropriate healthcare services. Despite significantly affecting their quality of life, many individuals do not seek treatment for OAB.[13] Considering the millions of people worldwide suffering from OAB[3], further research is needed on OAB and the factors influencing it. Various opinions have been presented regarding the prevalence of OAB in women. Inthe study by Sheikh *et al*. study in Pakistan, the OAB prevalence was 10.2%,[14] whereas in the study by Tikkinen *et al*. in Finland, it was 9.3%.[15] Safarinejad *et al*. reported a prevalence of 18.2% in their study conducted in Iran.[16]

TABLE 1. Comparison of the demographic data of participants and participants' menopausal status according to the Overactive Bladder-V8 classification

Variable	Total participants (N = 244)	Normal group (N = 167)	OAB group (N = 77)	p
	N (%)	N (%)	N (%)	
Age (years)				
Mean ± SD	43.04 ± 13.84	41.61 ± 13.29	46.14 ± 14.56	0.013*
Median (min–max)	44.0 (18–75)	42.0 (18–75)	48.0 (20–73)	
BMI (kg/m^2)				
Mean ± SD	26.27 ± 5.47	25.26 ± 4.88	28.47 ± 6.02	<0.001*
Median (min–max)	25.6 (16.6–42.2)	25.0 (16.6–40.0)	27.5 (18.3–42.2)	
BMI Classification				
Underweight	10 (4.1)	9 (5.4)	1 (1.2)	0.002*
Normal	93 (38.1)	74 (44.3)	19 (24.7)	
Pre-obese	84 (34.4)	54 (32.3)	30 (39.0)	
Obese	57 (23.4)	30 (18.0)	27 (35.1)	
Marital status				
Married	156 (63.9)	107 (64.1)	49 (63.6)	0.048*
Single	57 (23.4)	44 (26.3)	13 (16.9)	
Widowed/divorced	31 (12.7)	16 (9.6)	15 (19.5)	
Chronic disease				
No	157 (64.3)	125 (74.9)	32 (41.6)	<0.001*
Diabetes mellitus	21 (8.6)	10 (6.0)	11 (14.3)	
Hypertension	24 (9.8)	13 (7.8)	11 (14.3)	
Endocrine diseases	15 (6.1)	8 (4.8)	7 (9.1)	
Asthma/COPD	8 (3.3)	2 (1.2)	6 (7.7)	
Others	19 (7.8)	9 (5.3)	10 (13.0)	
Smoking				
No	146 (59.8)	100 (59.9)	46 (59.7)	0.322
Yes	81 (33.2)	58 (34.7)	23 (29.9)	
Quit	17 (7.0)	9 (5.4)	8 (10.4)	
Menopause				
No	164 (67.2)	118 (70.7)	46 (59.7)	0.091
Yes	80 (32.8)	49 (29.3)	31 (40.3)	
If yes, how many years have you been in menopause?				
Mean ± SD	9.50 ± 8.62	8.77 ± 8.23	10.59 ± 9.19	0.391
Median (min–max)	6.0 (0.0–30.0)	5.5 (1.0–30.0)	6.5 (0.0–29.0)	

Mann–Whitney U test statistics and Chi-square test statistics were employed accordingly. *p < 0.05
BMI: body mass index; COPD: chronic obstructive pulmonary disease.

TABLE 2. Comparison of participants' urinary incontinence and gynecological features according to the Overactive Bladder-V8 classification

Participants' urinary incontinence and gynecological features	Total participants (N = 244)	Normal group (N = 167)	OAB group (N = 77)	*p*
	N (%)	N (%)	N (%)	
Do you have a history of hysterectomy or gynecologic surgery				
No	198 (81.1)	145 (86.8)	53 (68.8)	0.001*
Yes	46 (18.9)	22 (13.2)	24 (31.2)	
Do you have complaints of uterine prolapse?				
No	232 (95.1)	163 (97.6)	69 (89.6)	0.011*
Yes	12 (4.9)	4 (2.4)	8 (10.4)	
Do you have complaints of urinary incontinence?				
No	166 (68.0)	138 (82.6)	28 (36.4)	<0.001*
Yes	78 (32.0)	29 (17.4)	49 (63.6)	
If you experience urinary incontinence, how does it happen?				
Coughing, sneezing, lifting heavy objects (stress incontinence)	32 (41.0)	17 (58.6)	15 (30.6)	
Sudden urge to urinate and cannot reach the toilet in time (urge incontinence)	12 (15.4)	4 (13.8)	8 (16.3)	0.043*
I experience urinary incontinence in both ways (mixed incontinence)	34 (43.6)	8 (27.6)	26 (53.1)	
Do you urinate at night?				
No	88 (36.1)	78 (46.7)	10 (13.0)	
I urinate once at night	92 (37.7)	67 (40.1)	25 (32.5)	<0.001*
I urinate twice at night	44 (18.0)	20 (12.0)	24 (31.2)	
I urinate three or more times at night	20 (8.2)	2 (1.2)	18 (23.3)	
Have you consulted a doctor for complaints of urinary incontinence before?				
No	216 (88.5)	164 (98.2)	52 (67.5)	<0.001*
Yes	28 (11.5)	3 (1.8)	25 (32.5)	
Have you experienced urinary incontinence during sexual intercourse?				
No	235 (96.3)	165 (98.8)	70 (90.9)	0.005*
Yes	9 (3.7)	2 (1.2)	7 (9.1)	
Have you been diagnosed with an overactive bladder before?				
No	230 (94.3)	165 (98.8)	65 (84.4)	<0.001*
Yes	14 (5.7)	2 (1.2)	12 (15.6)	
Do you have a history of difficult births?				
No	206 (84.4)	151 (90.4)	55 (71.4)	<0.001*
Yes	38 (15.6)	16 (9.6)	22 (28.6)	
Do you have a history of bladder prolapse?				
No	233 (95.5)	163 (97.6)	70 (90.9)	0.026*
Yes	11 (4.5)	4 (2.4)	7 (9.1)	

Mann–Whitney U test statistics and Chi-square test statistics were employed accordingly. *p <0.05.

According to the study by Al Edwan *et al*. in different countries, approximately 50% of women aged >40 years exhibited OAB symptoms.[17] In the present study, the prevalence of OAB was 31.5%, and the difference from other studies may be attributed to variations in the ages of participants, racial differences, or application method of the survey.[18] In addition, 84.4% of the individuals in the OAB group, according to the OAB-V8 classification, were not previously diagnosed with OAB. This highlights a lack of awareness regarding OAB, a condition that significantly affects the quality of life.

The relationship between age and OAB showed variations in studies available in the literature. Wen *et al*. demonstrated an increase in OAB prevalence with age in their studies.[19] According to the results of a meta-analysis conducted by Zhu *et al*., an increase in age was associated with increased OAB risk.[9] In contrast, in the study by Lingping Zhu *et al*., no significant difference in age was found between individuals with and without OAB.[8] In the present study, a significant age difference was found between individuals with and without OAB. Owing to changes in the pelvic floor and bladder associated with aging,[20] an increase in OAB with age was plausible. Wen *et al*. demonstrated a higher prevalence of OAB in individuals with BMI >29 kg/m^2.[19] In the study by Yang *et al*., the prevalence of OAB associated with UI in middle-aged women with a BMI of ≥27 kg/m^2 was 1.5 times higher

TABLE 3. Comparison of participants' obstetric histories according to the Overactive Bladder-V8 classification

Participants' obstetric histories	Total participants (N = 244)	Normal group (N = 167)	OAB group (N = 77)	*p*
Total number of pregnancies				
Mean ± SD	1.97 ± 3.26	1.91 ± 1.88	2.09 ± 1.64	0.229
Median (min–max)	2.0 (0.0–11.0)	2.0 (0.0–11.0)	2.0 (0.0–7.0)	
Total number of deliveries				
Mean ± SD	1.61 ± 1.48	1.54 ± 1.53	1.78 ± 1.38	0.083
Median (min–max)	2.0 (0.0–11.0)	2.0 (0.0–11.0)	2.0 (0.0–6.0)	
Number of vaginal deliveries				
Mean ± SD	1.23 ± 1.51	1.12 ± 1.53	1.47 ± 1.45	0.030
Median (min–max)	1.0 (0.0–11.0)	0.0 (0.0–11.0)	1.0 (0.0–6.0)	
Number of cesarean Section deliveries				
Mean ± SD	0.39 ± 0.76	0.42 ± 0.77	0.31 ± 0.73	0.191
Median (min–max)	0.0 (0.0–3.0)	0.0 (0.0–3.0)	0.0 (0.0–3.0)	
Number of pregnancies resulting in miscarriage				
Mean ± SD	0.25 ± 0.61	0.29 ± 0.64	0.17 ± 0.55	0.047
Median (min–max)	0.0 (0.0–4.0)	0.0 (0.0–4.0)	0.0 (0.0–3.0)	
Number of induced abortions				
Mean ± SD	0.11 ± 0.39	0.08 ± 0.34	0.17 ± 0.49	0.167
Median (min–max)	0.0 (0.0–2.0)	0.0 (0.0–2.0)	0.0 (0.0–2.0)	

Mann–Whitney U test statistics was employed. *p <0.05.

than those with BMI <24 kg/m^2.[18] In contrast, Lingping Zhu *et al*. did not find an association between BMI and OAB.[8] Our results align with the findings of Wen and Yang, as we observed a significantly higher BMI in the OAB group.

In a meta-analysis, Zhu *et al*. found that OAB symptoms were not influenced by marital status.[9] In contrast, Safarinejad indicated that being married was associated with OAB symptoms.[16] Yang observed that having a partner with OAB with UI was associated with developing OAB with UI.[18] Although we found a higher prevalence of OAB among married participants than single ones, the lack of partner inquiries in our study may be considered a limitation.

Brown *et al*. revealed that chronic conditions such as chronic obstructive pulmonary disease (COPD), a history of stroke, and diabetes mellitus (DM) are associated with UI.[21] Similarly, Kim *et al*. demonstrated that conditions such as DM, hypertension, and hyperlipidemia increase the prevalence of OAB.[22] In this study, a significant difference was identified in the distribution of chronic diseases according to the OAB-V8 classification. Upon examining the source of significance with post-hoc tests, the higher rates of DM, asthma/COPD, and other chronic diseases in the OAB group contributed to this significance compared with the normal group. Bladder ischemia and structural changes resulting from chronic diseases[23] might lead to OAB.

Kawahara *et al*. identified smoking as a risk factor for LUTS in their study, and quitting smoking led to improvement in urinary symptoms, particularly in younger participants.[24] In contrast, Zhu *et al*. did not consider smoking as a risk factor for OAB.[9] Our finding of the lack of significant difference between smoking status and OAB is consistent with the findings of Zhu *et al*.

Genitourinary menopause syndrome is a new terminology used for vulvovaginal atrophy and urinary symptoms that can occur together or independently.[25] A study conducted in Iran indicated a positive correlation between menopause and OAB.[16] In a study conducted in China, symptoms of menopause such as sexual problems, mood changes, and melancholy were associated with OAB; however, these issues may not solely be attributed to menopause.[8] Nagai *et al*. identified a relationship between postmenopausal status and OAB; however, in more comprehensive studies, a definitive link has not been established between postmenopausal status and OAB.[9] Although the prevalence of OAB in postmenopausal women was higher in the present study, no significant difference in OAB was observed between premenopausal and postmenopausal women. Vaginal estrogen therapy was found to be effective in improving urinary symptoms.[27] Baruch *et al*. demonstrated that improvement in symptoms with vaginal estrogen therapy was significantly higher in women who develop OAB symptoms after menopause than in those who had symptoms before menopause.[28]

Ninomiya *et al*. demonstrated that vaginal birth and cesarean section were risk factors for stress UI but were not risk factors for OAB.[29] In a review study, cesarean delivery was found to be associated with reduced risk of UI compared with vaginal delivery,[30] and another study argued that having ≥4 births increases UI symptoms[31]

Studies have suggested that cesarean delivery is more related to risk reduction for both stress incontinence and OAB than vaginal birth.[32] A meta-analysis examining OAB risk factors did not find a relationship between the number of pregnancies and vaginal deliveries with OAB.[9] In this study, a significant difference was found between number of vaginal deliveries and pregnancies resulting in miscarriage, according to the OAB-V8 classification, among groups with normal and OAB. However, no significant differences were found in the number of cesarean deliveries and total number of deliveries in both groups.

Brown *et al*. analyzed 7900 individuals and found that a history of hysterectomy was associated with UI[21], whereas Yang *et al*. revealed that a history of hysterectomy or oophorectomy was not associated with OAB.[18] In the present study, the OAB rate was higher in participants who answered affirmatively to the question, "Do you have a history of hysterectomy or gynecological surgery?" In this respect, our findings were consistent with those of Brown *et al*. Notably, the lack of inquiry into the vaginal component of surgery, both in the present study and in other studies, may be considered a limitation.

OAB occurring in conjunction with UI is referred to as "OAB_{wet}," and in the absence of UI, it is termed "OAB_{dry}."[33] In this study, of the 77 individuals classified as having OAB, 63.6% were considered to have OAB_{wet}, and 36.4% were evaluated as having OAB_{dry}. Irwin *et al*. demonstrated that approximately half of women exhibiting OAB symptoms experience some form of UI.[3]

Tikkinen *et al*. found urge UI in 27% of women with OAB,[15] whereas Sarici *et al*. reported that stress UI was more common in this study population.[5] In the present study, a significant difference was detected in the distribution of responses to the UI-type inquiry according to the OAB-V8 classification. When the source of significance was examined with post-hoc tests, mixed UI was found to be more prevalent in the OAB group than in the normal group, whereas stress UI was more common in the normal group.

Nocturia is cited as the most troubling symptom in the older population.[34] In the study by Irwin *et al*., in which nocturia was defined as voiding two or more times at night, the prevalence of nocturia in women was 24.0%.[3] Sheikh *et al*. reported that 27.6% of their patients voided two or more times at night.[14] Similarly, in the present study, 26.2% of the participants voided two or more times at night, similar to both studies. A significant difference was found in the distribution of responses to the question, "Do you urinate at night?" according to the OAB-V8 classification. In the analysis of significance with posthoc tests, the higher prevalence of individuals in the OAB group who responded, "I urinate twice at night" and "I urinate three or more times at night," contributed to the significance when compared with the normal group.

A study conducted in Poland found a low rate of seeking treatment for OAB and LUTS, and the possible reason could be shame or perception that this condition is a natural process that occurs with age. [35] In the present study, a significant difference was found in the distribution of responses to the question, "Do you have complaints of urinary incontinence?" However, only 35.9% (28/78) of the participants who reported experiencing UI had previously sought medical help for it. Participants might not have consulted a doctor because of common reactions to LUTS, such as embarrassment, discomfort, perceiving LUTS as a natural outcome of aging,[35] or the depression caused by LUTS.[36,37]

The main limitation of this study was the use of only the OAB-V8 questionnaire for the diagnosis of OAB. Studies diagnosing OAB based on urodynamic assessments could provide additional insights. Moreover, this was a single-center study with a small sample size. Despite these limitations, this study had some strengths. The results are supported by a comprehensive literature review, and detailed demographic, gynecological, and obstetric information about the participants has been collected. Considering the limited number of studies involving the Turkish population, the results of this study will guide future studies on the relationship between menopausal status and OAB.

CONCLUSIONS

The older and obese populations are increasing worldwide. In the coming years, urogynecological problems may emerge as a serious public health problem. Considering the scarcity of studies on the prevalence of OAB in our country, these studies may guide future health policies. According to the results of this study, menopausal status was not associated with the prevalence of OAB. However, this study found that OAB was associated with advanced age, increased BMI, parity, number of vaginal deliveries, and comorbidities. The awareness of OAB, which affects millions of women worldwide, and the development of new treatment strategies are of significant social and economic importance. More large-scale studies on the Turkish population are needed.

CONFLICT OF INTEREST

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REFERENCES

1. Bo K, Frawley HC, Haylen BT, Abramov Y, Almeida FG, Berghmans B, *et al*. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for the conservative and nonpharmacological management of female pelvic floor dysfunction. *Neurourol Urodyn*. 2017;36:221–44.
2. White N, Iglesia CB. Overactive Bladder. *Obstet Gynecol Clin North Am*. 2016;43:59–68.
3. Irwin DE, Milsom I, Hunskaar S, Reilly K, Kopp Z, Herschorn S, *et al*. Population-based survey of urinary incontinence, overactive bladder, and other lower urinary tract symptoms in five countries: results of the EPIC study. *Eur Urol*. 2006;50:1306–14.
4. Wolff GF, Kuchel GA, Smith PP. Overactive bladder in the vulnerable elderly. *Res Rep Urol*. 2014;6:131–8.
5. Sarici H, Ozgur BC, Telli O, Doluoglu OG, Eroglu M, Bozkurt S. The prevalence of overactive bladder syndrome and urinary incontinence in a Turkish women population; associated risk factors and effect on Quality of life. *Urologia*. 2016;83:93–8.
6. Rahn DD, Ward RM, Sanses TV, Carberry C, Mamik MM, Meriwether KV, *et al*. Vaginal estrogen use in postmenopausal women with pelvic floor disorders: Systematic review and practice guidelines. *Int Urogynecol J*. 2015;26:3–13.
7. Robinson D, Cardozo L, Milsom I, Pons ME, Kirby M, Koelbl H, *et al*. Oestrogens and overactive bladder. *Neurourol Urodyn*. 2014;33:1086–91.
8. Zhu L, Cheng X, Sun J, Lv S, Mei S, Chen X, *et al*. Association between menopausal symptoms and overactive bladder: A cross-sectional questionnaire survey in China. *PLoS One*. 2015;10(10):e0139599.
9. Zhu J, Hu X, Dong X, Li L. Associations between risk factors and overactive bladder: A meta-analysis. *Female Pelvic Med Reconstr Surg*. 2019;25:238–46.
10. Coyne K, Revicki D, Hunt T, Corey R, Stewart W, Bentkover J, *et al*. Psychometric validation of an overactive bladder symptom and health-related quality of life questionnaire: The OAB-q. *Qual Life Res*. 2002;11:563–74.
11. Acquadro C, Kopp Z, Coyne KS, Corcos J, Tubaro A, Choo MS, *et al*. Translating overactive bladder questionnaires in 14 languages. *Urology*. 2006;67:536–40.
12. Tarcan T, Mangir N, Ozgur MO, Akbal C. OAB-V8 AAM sorgulama formu validasyon çalışması [OAB-V8 overactive bladder questionnaire validation study]. *Üroloji Bülteni*. 2012;21:113–6. Turkish.
13. Gomes CM, Averbeck MA, Koyama M, Soler R. Impact of OAB symptoms on work, quality of life and treatment-seeking behavior in Brazil. *Curr Med Res Opin*. 2020;36:1403–15.
14. Sheikh MA, Fawad A, Rabbani KJ, Mazhar SB, Ali S, Yasmin H, *et al*. Overactive bladder: A multicenter study in Pakistan. *J Pak Med Assoc*. 2022;72:17–21.
15. Tikkinen KA, Tammela TL, Rissanen AM, Valpas A, Huhtala H, Auvinen A. Is the prevalence of overactive bladder overestimated? A population-based study in Finland. *PLoS One*. 2007;2:e195.
16. Safarinejad MR. Prevalence of the overactive bladder among Iranian women based on the International Continence Society definition: A population-based study. *Int Urol Nephrol*. 2009;41:35–45.
17. Al Edwan G, Abdelazim MS, Salhab SE, Jamal YM, Soliman MA. The prevalence of overactive bladder symptoms in women in Algeria, Egypt, Jordan and Lebanon: A cross-sectional population-based survey. *Adv Ther*. 2021;38:1155–67.
18. Yang CF, Huang CY, Wang SY, Chang SR. Prevalence of and associated factors for overactive bladder subtypes in middle-aged women: A cross-sectional study. *Medicina*. 2022;58:383.
19. Wen JG, Li JS, Wang ZM, Huang CX, Shang XP, Su ZQ, *et al*. The prevalence and risk factors of OAB in middle-aged and old people in China. *Neurourol Urodyn*. 2014;33:387–91.
20. Tunn R, Baessler K, Knüpfer S, Hampel C. Urinary incontinence and pelvic organ prolapse in women. *Dtsch Arztebl Int*. 2023;120:71–80.
21. Brown JS, Seeley DG, Fong J, Black DM, Ensrud KE, Grady D. Urinary incontinence in older women: Who is at risk? Study of Osteoporotic Fractures Research Group. *Obstet Gynecol*. 1996;87:715–21.
22. Kim SY, Bang W, Choi HG. Analysis of the prevalence of and factors associated with overactive bladder in adult Korean women. *PLoS One*. 2017;12:e0185592.
23. Nomiya M, Andersson KE, Yamaguchi O. Chronic bladder ischemia and oxidative stress: New pharmacotherapeutic targets for lower urinary tract symptoms. *Int J Urol*. 2015;22:40–6.
24. Kawahara T, Ito H, Yao M, Uemura H. Impact of smoking habit on overactive bladder symptoms and incontinence in women. *Int J Urol*. 2020;27:1078–86.
25. Portman DJ, Gass ML; Vulvovaginal Atrophy Terminology Consensus Conference Panel. Genitourinary syndrome of menopause: New terminology for vulvovaginal atrophy from the International Society for the Study of Women's Sexual Health and the North American Menopause Society. *Menopause*. 2014;21:1063–8.
26. Nagai K, Homma Y, Ideno Y, Hayashi K. Prevalence and factors associated with overactive bladder and stress urinary incontinence in the Japan Nurses' Health Study. *Menopause*. 2021;29:129–36.
27. Christmas MM, Iyer S, Daisy C, Maristany S, Letko J, Hickey M. Menopause hormone therapy and urinary symptoms: A systematic review. *Menopause*. 2023;30:672–85.
28. Baruch Y, Torella M, De Bastiani S, Meschia M, Candiani M, Colacurci N, *et al*. Pre- versus Post-menopausal onset of overactive bladder and the response to vaginal

estrogen therapy: A prospective study. *Medicina*. 2023;59:245.
29. Ninomiya S, Naito K, Nakanishi K, Okayama H. Prevalence and risk factors of urinary incontinence and overactive bladder in Japanese women. *Low Urin Tract Symptoms*. 2018;10:308–14.
30. López-López AI, Sanz-Valero J, Gómez-Pérez L, Pastor-Valero M. Pelvic floor: Vaginal or caesarean delivery? A review of systematic reviews. *Int Urogynecol J*. 2021;32:1663–73.
31. Alasmi RA, Saqyan TMB, Alanazi LF, Alharbi MF, Alashgae AF. Urinary incontinence: Comparison study to identify the type, incidence and risk factors between admitted women and the general population in Al-Kharj city, Saudi Arabia. *Urol Ann*. 2023;15:68–73.
32. Blomquist JL, Muñoz A, Carroll M, Handa VL. Association of delivery mode with pelvic floor disorders after childbirth. *JAMA*. 2018;320:2438–47.
33. Staskin D, Frankel J, Varano S, Kennelly M, Newman DK, Rosenberg MT, *et al*. Vibegron for the treatment of patients with dry and wet overactive bladder: A subgroup analysis from the EMPOWUR Trial. *Int J Clin Pract*. 2022;2022:6475014.
34. Leron E, Weintraub AY, Mastrolia SA, Schwarzman P. Overactive bladder syndrome: Evaluation and management. *Curr Urol*. 2018;11:117–25.
35. Przydacz M, Chłosta M, Belch Ł, Czech AK, Wiatr T, Gronostaj K, *et al*. Treatment patterns for lower urinary tract symptoms and overactive bladder in an Eastern European country: A nationwide population-representative survey. *Cent European J Urol*. 2021;74:382–87.
36. Zuluaga L, Caicedo JI, Mogollón MP, Santander J, Bravo-Balado A, Trujillo CG, *et al*. Anxiety and depression in association with lower urinary tract symptoms: Results from the COBaLT study. *World J Urol*. 2023;41:1381–8.
37. Ninomiya S, Kawahara T, Tsutsumi S, Ito H, Makiyama K, Uemura H. Lower urinary tract symptoms are elevated with depression in Japanese women. *Low Urin Tract Symptoms*. 2023;15:116–21.