



# Evaluation of overactive-bladder syndrome's impact on woman sexual function

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## ABSTRACT

**Objective:** To evaluate the effects of overactive-bladder (OAB) syndrome on sexual-function in women.

**Materials and Methods:** Evaluation of 101 healthy participants and 74 patients diagnosed with OAB syndrome were conducted retrospectively from January 2020 to January 2024. Age, body mass index, gravida, smoking-status, parity, alcohol status, education-level and delivery method of all patients were evaluated retrospectively. The pelvic organ prolapse/urinary incontinence sexual-questionnaire, the female-sexual function-index (FSFI), urogenital-distress inventory-short-form (UDI-6), and international-consultation-on-incontinence-questionnaire-overactive-bladder-module (ICIQ-OAB) measurements of all patients were evaluated retrospectively.

**Results:** The FSFI score was significantly lower ( $19.2 \pm 1.8$ ) in the OAB syndrome-group in comparison with the control-group ( $23.1 \pm 2.1$ ) ( $p < 0.001$ ). The PISQ-score was significantly lower ( $33.6 \pm 4.1$ ) in the OAB syndrome-group in comparison with the control-group ( $35.8 \pm 4.2$ ) ( $p = 0.042$ ). The UDI-6 score was significantly higher ( $13.4 \pm 2.4$ ) in the-OAB syndrome group in comparison with the control-group ( $8.8 \pm 1.2$ ) ( $p < 0.001$ ). The ICIQ-OAB score was significantly greater ( $10.4 \pm 2.9$ ) in the OAB syndrome-group in comparison with the-control group ( $9.5 \pm 2.4$ ) ( $p = 0.028$ ).

**Conclusion:** Because of the significant effects of OAB syndrome on females' sexual-health, we recommend medical professionals to focus more on sexual issues while treating people with OAB-syndrome. Prospective and large-scale cohort studies are needed to determine if sexual dysfunction contributes to or results from OAB syndrome.

**Keywords:** FSFI; PISQ; sexual function; overactive-bladder syndrome

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## INTRODUCTION

Overactive-bladder (OAB) syndrome is a condition that generally consists of a mix of symptom-including urine-frequency and nocturia, regardless of urge-incontinence.<sup>1</sup> Prior to the beginning of urge incontinence, OAB syndrome may produce frequent urination and a sense of urgency owing to detrusor overactivity. Because OAB syndrome impairs a person's capacity of working, travelling, sleeping, exercising, interacting with others, and forming personal connections, it dramatically lowers quality of life.<sup>2,3</sup> It has been demonstrated that OAB syndrome significantly affects a patient's everyday functioning and health-related-quality of-life (HRQL).<sup>4,5</sup> OAB syndrome affects between 7.7% and 31.3% of adult women. Additionally, OAB syndrome is a prevalent, upsetting illness that has a detrimental effect on quality-of life (QoL). Due to underreporting, the illness is frequently undertreated.<sup>6,7</sup> Due in part to variations in symptom evaluation, populations questioned, data collection techniques, and criteria used to identify OAB syndrome, estimates-of the incidence and effect of OAB syndrome on QoL fluctuate greatly.<sup>8</sup> Up to 33 million Americans are thought to be afflicted with OAB syndrome.<sup>9</sup> Up to 20% of people worldwide suffer from OAB syndrome.<sup>10,11</sup> According to earlier reports, women seeking therapy for issues related to the lower urinary system frequently have sexual dysfunction.<sup>12</sup> Female-sexual dysfunction is a risk factor for women due to physiological, iatrogenic, and psychological-causes. Menopause, smoking, spinal cord injuries, abdominal surgery (e.g., hysterectomy), and some drugs (e.g., birth control-pills, antipsychotics, antihypertensives, antidepressants, etc.) are examples of physiological and iatrogenic variables. Anxiety, sadness, a poor body image, a record of emotional or physical abuse, and stress are examples of psychological components.<sup>13</sup> There are less options for treatment for female sexual dysfunction (FSD), despite the fact that reported estimations of sexual dysfunction in females are greater than in males (43% vs. 31%).<sup>14</sup> The World Health Organization and the diagnostic and statistical manual of mental-disorders<sup>15,16</sup> classify FSD as a disease of arousal, orgasm, pain (dyspareunia and vaginismus), and desire (hypoactive sexual-desire, lack of sexual-desire). FSD may also occur as a result of OAB syndrome.<sup>3</sup> OAB syndrome is categorized by the International Continence Society as a group of symptoms that may indicate lower-urinary tract dysfunction. Urinary-urgency, frequency, and urge incontinence are signs of OAB syndrome.<sup>17</sup> Numerous research has assessed the effect of OAB syndrome symptoms on women's sexual function. The diagnosis of FSD is not universally accepted, and the findings of several investigations cannot be compared.<sup>18-22</sup> Several researchers have found that OAB syndrome has a greater impact

on-sexual function than urodynamic stress-incontinence.<sup>22,23</sup> The aim of our research was to make an evaluation regarding the-effects of OAB syndrome on sexual-function in females.

## MATERIALS AND METHODS

Our research was constructed as a retrospective-cohort-study. The research was designed according to the Helsinki Declaration and informed consent forms were received from all patients. The study was initiated after obtaining Ethics Committee of Başkent University approval dated 12/12/2024 and numbered KA24/406. from the hospital ethics committee. In our study, 74 patients diagnosed with OAB syndrome, and 101 healthy patients were evaluated retrospectively between January 2020 and January 2024. Data from a total of 185 patients diagnosed with OAB syndrome and those in the healthy group were evaluated retrospectively. Age, body mass index (BMI), gravida, parity, smoking-status, alcohol status, education level and delivery method of all patients were analyzed retrospectively. Criteria for inclusions were determined as patients giving consent to take part in the research, presence of OAB syndrome, active sexual life. Exclusion-criteria were determined as having a record-of pelvic surgery, having a record of narcotic-drug or antidepressant use in the patient or partner, having a record of diabetes, hypertension and heart disease in the participant or partner, and having sexual-problems (premature ejaculation and impotence) in the partner. The pelvic-organ-prolapse/urinary-incontinence-sexual-questionnaire (PISQ-12), the female-sexual function-index (FSFI), urogenital-distress inventory-short form (UDI-6), and international-consultation-on incontinence-questionnaire-overactive-bladder-module (ICIQ-OAB) measurements of all patients were evaluated retrospectively. The abbreviated version of the pelvic organ prolapse/urinary-incontinence sexual-questionnaire serves as the basis for the PISQ-12 score. Clinicians and other medical professionals who are interested in evaluating the sexual function of females with pelvic organ prolapse or urine incontinence are the target audience. There are twelve items on the score, all of which are questions on facets of sexual life. The participant is asked to reflect on their sexual orientation throughout the last six months. There are several response options for each of these items, and they are weighed differently based on their significance.<sup>24-26</sup> The 19-item FSFI questionnaire assesses six primary factors: Lubrication, orgasm, pleasure, pain/discomfort, sexual desire, and sexual arousal. This scale has a maximum raw value of 95, a minimum raw value of 4, a maximum value of 36, and a minimum value of 2 once the coefficients are multiplied. The complete scale was scored using the following effect coefficients: 0.4 for satisfaction, iorgasm, and pain/discomfort; 0.3 for sexual-arousal and

lubrication; and 0.6 for sexual desire. Sexual dysfunction was characterized as an FSFI score of less than 26.55.<sup>27,28</sup> The effect of urogenital-symptoms brought on by female incontinence on life is the main emphasis of the UDI-6 questionnaire. The most commonly used questionnaire to measure QoL is the pelvic-floor impact-questionnaire (PFIQ). The UDI-6 has six questions referring to different symptoms of urogenital distress. The score ranges between 0 and 100. The score is interpreted as follows: The higher the score, the more disabled the person. All of the scores are added together to determine the final UDI-6 score, and the average value is then obtained by dividing the total by 6, and then multiplying by 25 to reach the scale score. In cases where items are left unanswered, only the average of the answered questions is calculated.<sup>29,30</sup> The ICIQ-OAB-questionnaire is used in clinical practice and research worldwide to assess OAB syndrome and its associated effects on males' and females' QoL and treatment outcomes. Urinary-frequency, urgency, urge-incontinence, and nocturia-symptoms can all be measured with the ICIQ-OAB, which is based on the thoroughly validated ICS male and BFLUTS-questionnaires. total score between 0 and 16, where higher numbers denote more severe symptoms. Bother scales show the effect of certain symptoms on the patient but are not included in the final score.<sup>31,32</sup>

### Statistical Analysis

Statistical-analysis was conducted by-utilizing the SPSSx26.0 (IBM-Inc.-Chicago-IL-USA). Continuous variables were employed to calculate descriptive statistics including mean-standard deviation, and range values. The normality evaluation of the-distribution was conducted with the Kolmogorov-Smirnov test. The Independent t-test was employed to analyze by comparing the pair groups in the study data evaluation, and the qualitative data were compared using the chi-square test. The 95% confidence interval was employed to analyze the results. A *p*-value of less than 0.05 was considered statistically significant.

### RESULTS

The mean age of the women included in the research was 37.3±7.9, and the BMI score was 24.5±4.5 kg/m<sup>2</sup>. The mean parity of the women were 2.1±1.2, and the mean gravidity was 2.6±1.2. Among the participants included in the study, 74 (42.2%) patients were smokers, 41 (23.4%) patients were alcohol users, and 94 (53.7%) patients were university graduates. No significant difference was found between the groups with regard to demographic characteristics (Table 1).

The sexual desire score was significantly lower (3.3±0.4) in the OAB syndrome-group in comparison with the control-group (4.1±0.4) (*p*<0.001). The sexual arouse score was significantly

lower (3.2±0.3) in the OAB syndrome group compared with the control-group (3.9±0.3) (*p*<0.001). The vaginal moisturizing score was significantly lower (3.2±0.3) in the OAB syndrome group compared with the control-group (3.9±0.3) (*p*<0.001). The pain score was significantly lower (3.3±0.3) in the OAB syndrome-group compared with the control-group (4.1±0.3) (*p*<0.001). The sexual satisfaction-score was significantly lower (3.1±0.3) in the OAB syndrome-group in comparison with the control-group (3.9±0.4) (*p*<0.001) (Table 2).

The physical factor score was significantly lower (14.8±1.2) in the OAB syndrome-group in comparison with the control-group (16.3±1.3) (*p*=0.038) (Table 3).

The-FSFI value was significantly lower (19.2±1.8) in the OAB syndrome-group compared with the control-group (23.1±2.1)

**Table 1. Comparison of demographic characteristics according to the presence of OAB syndrome**

	Control group n=101	OAB syndrome group n=74	<i>p</i>
	Mean ± SD		
Age (year)	37.2±7.5	37.6±8.1	0.28
BMI (kg/m <sup>2</sup> )	24.4±4.5	24.6±4.6	0.34
Gravidity	2.6±1.2	2.7±1.2	0.24
Parity	2.1±1.1	2.1±1.2	0.66
Smoking (n-%)	41 (40.5%)	33 (44.5%)	0.16
Alcohol (n-%)	22 (21.7%)	19 (25.6%)	0.28
Education (n-%)			0.36
High school	45 (44.5%)	36 (48.6%)	
University	56 (55.5%)	38 (51.4%)	

OAB: Overactive bladder, BMI: Body mass index, SD: Standard deviation

**Table 2. Comparison of FSFI measurements according to the presence of OAB syndrome**

	Control group n=101	OAB syndrome group n=74	<i>p</i>
	Mean ± SD		
Sexual desire	4.1±0.4	3.3±0.4	<0.001
Sexual arousa	3.9±0.3	3.2±0.3	<0.001
Vaginal moisturizing	3.9±0.3	3.2±0.3	<0.001
Orgasm	3.2±0.4	3.1±0.2	0.18
Pain	4.1±0.3	3.3±0.3	<0.001
Sexual satisfaction	3.9±0.4	3.1±0.3	<0.001
Total score of sexual function	23.1±2.1	19.2±1.8	<0.001

FSFI: Female sexual function index, OAB: Overactive bladder, SD: Standard deviation

**Table 3. Comparison of PISQ measurements according to the presence of OAB syndrome**

	Control group n=101	OAB syndrome group n=74	<i>p</i>
	Mean ± SD		
Behavior and emotions	10.9±1.3	10.3±1.1	0.11
Physical factor	16.3±1.3	14.8±1.2	0.038
Factors related to sex partner	8.6±1.5	8.5±1.6	0.76
Total score	35.8±4.2	33.6±4.1	0.042

PISQ: Pelvic organ prolapse/urinary incontinence sexual questionnaire, OAB: Overactive bladder, SD: Standard deviation

**Table 4. Comparison of sexual index measurements according to the presence of OAB**

	Control group n=101	OAB syndrome group n=74	<i>p</i>
	Mean ± SD		
FSFI	23.1±2.1	19.2±1.8	<0.001
PISQ	35.8±4.2	33.6±4.1	0.042
UDI-6	8.8±1.2	13.4±2.4	<0.001
ICIQ-OAB	9.5±2.4	10.4±2.9	0.028

OAB: Overactive bladder, FSFI: Female sexual function index, PISQ: Pelvic organ prolapse/urinary incontinence sexual questionnaire, UDI-6: Urogenital distress inventory short form, ICIQ-OAB: International consultation on incontinence questionnaire-overactive bladder module, SD: Standard deviation

(*p*<0.001). The PISQ-score was significantly lower (33.6±4.1) in the OAB syndrome-group compared with the control-group (35.8±4.2) (*p*=0.042). The UDI-6 score was significantly higher (13.4±2.4) in the-OAB syndrome-group compared with the control-group (8.8±1.2) (*p*<0.001). The ICIQ-OAB score was significantly higher (10.4±2.9) in the OAB syndrome group in comparison with the control-group (9.5±2.4) (*p*=0.028) (Table 4).

## DISCUSSION

This research analyzed the impact of OAB-syndrome on general and sexual QoL in sexually active females of reproductive age using validated questionnaires such as FSFI, PISQ, UDI-6 and ICIQ-OAB. Considering our results, general QoL and sexual health was found to be significantly influenced by OAB-syndrome. In this research, FSFI value was significantly lower in OAB syndrome group compared to control group. PISQ value was significantly lower in OAB syndrome group compared to control-group. UDI-6 value was significantly greater in OAB syndrome-group compared to control-group. ICIQ-OAB value was significantly greater in OAB syndrome-group compared to control-group. In

our study, no significant difference was found among the groups when evaluated with regard to age, BMI, number of births and education level. In addition to the severity of the condition, physiological, psychological, or socioeconomic variables may also have an impact on how much OAB syndrome symptoms impair sexual function. Certain bladder symptoms might make people feel embarrassed, which lowers their desire for sex. The research has contradictory information on the connection between OAB syndrome or urine incontinence and sexual dysfunction.<sup>20,33</sup> Nonetheless, research indicates that symptoms of OAB syndrome negatively affect sexual function and other aspects of HRQL.<sup>34,35</sup> Sexual dysfunction is an evolving multidisciplinary problem linked with a variety of biological, medical, and psychological elements. The urogynecological components of sexual dysfunction are gaining attention. According to reports, between 0.6% and 64% of females who report having lower urinary tract symptoms also have sexual dysfunction.<sup>12,36</sup> A variety of factors other than OAB syndrome may contribute to sexual dysfunction, such as age, hormonal status, parity, pelvic organ prolapse, and previous-surgery for urinary-incontinence and genital-prolapse. Thyroid gland function and chronic diseases such as diabetes-mellitus, and sociocultural-determinants including relationship duration, education, and employment-status may play a role, as well.<sup>37-39</sup> Few studies have examined the effect of OAB syndrome on patient desire in sexual-activity, despite prior research evaluating the association between pelvic health (e.g., urine-incontinence, pelvic-organ-prolapse) and sexual dysfunction.<sup>21,22</sup> Because the cause of urinary incontinence during intercourse is not clear, the most widely accepted theory is that during sexual activity, detrusor activity increases due to mechanical pressure. Penetration has been found to be a contributing factor to urine incontinence during sexual activity in individuals with stress urinary incontinence, whereas orgasm has been found to be a contributing factor in individuals with OAB syndrome.<sup>40,41</sup> Therefore, there are publications in the literature supporting the negative impact of sexual function in females with bladder-dysfunction.<sup>13,42</sup> Due to OAB syndrome, urine leaks are erratic and inevitable, which may be upsetting and uncomfortable. Females having the syndrome often complain of having to urinate or use the restroom frequently during sexual activity.<sup>21</sup> Urine leakage during orgasm, which is a frustrating situation for the patient, is common in females with urinary incontinence. It can also cause some women to feel dirty and therefore unpleasant. Laumann et al.<sup>14</sup> reported that urinary tract symptoms contribute to arousal and pain disorders in women. Urinary incontinence may have a complex link with hypoactive sexual drive. Sexual desire can be eliminated, and dissatisfaction and melancholy can result from a progressive

loss of self-esteem and self-confidence due to a fear of leaking during sexual activity or orgasm and discomfort at the passage of urine.<sup>38</sup> It is challenging to evaluate sexual health, especially when it is linked to incontinence. Patients are not allowed to voice their ideas about how OAB syndrome or urine incontinence affects sexual health. Self-administered surveys offer a way to get data on sexual health without the possible embarrassment and response bias that come with questions given by interviewers. The multifaceted character of female sexual function is addressed by the FSFI, a helpful instrument created as a clinical trial evaluation tool.<sup>27</sup> In our study, FSFI score, and subgroups were significantly lower in OAB syndrome-group in comparison with control-group. On the other hand, Tannenbaum et al.<sup>43</sup> did not associate urinary frequency alone with any domain on the FSFI. Zahariou et al.<sup>44</sup> made a comparison between FSFI and OAB syndrome diagnosed by urodynamic and International Continence Society criteria. Shindel et al.<sup>45</sup> evaluated the FSFI together with an OAB-syndrome-questionnaire. Musco et al.<sup>46</sup> conducted pilot research in females undergoing percutaneous-tibial nerve-stimulation and found no linkage between OAB-syndrome severity and different FSFI-score grades. Because the PISQ has undergone extensive reliability and validity tests and is focused on evaluating sexual function in females with pelvic-floor diseases, it is a better questionnaire than general ones.<sup>25</sup> In females having pelvic-floor problems, the PISQ has been demonstrated to be a valid and consistent-instrument for evaluating sexual-function.<sup>47</sup> In the study by Ergenoglu et al.,<sup>48</sup> the PISQ-12 physical score and the first section of the-OABq-SF showed a modest connection, indicating the severity of the illness. In this current research, PISQ value was significantly lower in OAB syndrome group in comparison with control-group. In the study by Juliato et al.,<sup>49</sup> a significant correlation was found between the severity of symptoms in ICIQ-OAB and FSFI scores only in the postmenopausal-group, especially total score, orgasm, pain, lubrication, and arousal. In our study, no correlation analysis was performed between ICIQ-OAB and FSFI scores. However, FSFI score was seen to be significantly lower and ICIQ-OAB score was seen to be significantly higher in the OAB syndrome group.

### Study Limitations

The factors affecting sexual function are quite diverse and study populations should take this diversity into account. Evaluations based on a single variable may not be comprehensive. The retrospective approach in this current research and the small-sample-size may be considered as limitations. The criteria for determining sexual dysfunction were assessed by self-reporting patients via a questionnaire and were not founded on objective

measures or physical examinations, which may be considered as another limitation.

## CONCLUSION

Because of the significant impact of OAB syndrome on females' sexual health, we recommend medical professionals to focus more on sexual problems while treating individuals with OAB syndrome. The high prevalence of sexual dysfunction may be attributed to the fact that all cases with severe OAB syndrome are referred to our facility. Prospective and large-scale cohort studies are needed to evaluate if sexual dysfunction contributes to or results from OAB syndrome.

## ETHICS

**Ethics Committee Approval:** Ethics committee approval was obtained from the Clinical Research Ethics Committee of Başkent University Faculty of Medicine before starting the study (date: 12/12/24, number: KA24/406).

**Informed Consent:** Signed consent was obtained from all participants.

## FOOTNOTES

### Contributions

Surgical and Medical Practices: U.A., Concept: B.Ö., Design: E.Y.T., Data Collection or Processing: D.U., Analysis or Interpretation: U.A., Literature Search: B.Ö., E.Y.T., Writing: U.A., D.U.

## DISCLOSURES

**Conflict of Interest:** No conflict of interest was declared by the authors.

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