



# Prevalence and Implications of Overactive Bladder in Bangladeshi Women: Risk Factors, Quality of Life Decline, and Economic Impact

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors PKB and SI designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the research. Authors PKB and SA managed the analyses of the study. Authors SA and MRA managed the literature searches. All authors read and approved the final research.*

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## **ABSTRACT**

**Background:** Overactive Bladder (OAB) is a clinical syndrome characterized by urgency, with or without urgency incontinence, and is often accompanied by frequency and nocturia. Despite its significant impact on women's quality of life, comprehensive studies addressing the prevalence, risk factors, and broader implications of OAB in Bangladeshi women are scarce.

**Methods:** A cross-sectional study involving 1984 Bangladeshi women was conducted, utilizing a structured questionnaire to assess the prevalence of OAB, its associated risk factors, symptom severity, comorbid conditions, and its societal and economic impacts. Chi-square tests were employed to ascertain the statistical significance of findings.

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**Results:** The prevalence of OAB in the studied population was 14%. Identified risk factors included age, childbirth, smoking, and high caffeine intake, among others. A considerable association was established between OAB and reduced quality of life, with symptom severity further exacerbating this relationship. Additionally, comorbid conditions like diabetes and hypertension were notably prevalent among the participants. From an economic perspective, OAB was linked to a significant number of missed workdays and considerable out-of-pocket expenses.

**Conclusion:** The study accentuates the substantial prevalence and multi-faceted implications of OAB in Bangladeshi women. The findings call for an integrated approach in OAB management, incorporating it into broader women's health and public health strategies in Bangladesh. Early detection, increased awareness, and access to effective treatments are paramount for the betterment of affected women's lives.

*Keywords: Overactive bladder; prevalence; risk factors; quality of life; Bangladeshi women.*

## 1. INTRODUCTION

Overactive bladder (OAB) is a clinical syndrome defined by symptoms of urgency, with or without urge incontinence, usually accompanied by frequency and nocturia [1]. OAB affects a significant portion of the global population, reducing the quality of life and imposing a substantial economic burden on health systems [2]. While the overall global prevalence of OAB is reported to range from 12% to 30% in adults, regional disparities have been highlighted [3].

In many low- and middle-income countries, the epidemiological understanding of OAB is limited due to the dearth of comprehensive research. Bangladesh, a densely populated country in South Asia, has undergone rapid urbanization and demographic transitions, influencing the healthcare demands of its citizens [4]. Despite this, little has been explored about OAB in the Bangladeshi context, particularly among women, who are often disproportionately affected due to factors like pregnancy, childbirth, menopause, and associated pelvic floor disorders [5].

There's an increasing recognition of the broader health implications of OAB. Beyond the physical symptoms, OAB can result in significant psychosocial distress, reduced work productivity, sleep disturbances, and impaired quality of life [6]. Furthermore, the risk factors contributing to OAB are multifaceted, involving complex interplays between lifestyle factors, comorbidities, and genetics [7]. Given the gendered health disparities that persist in Bangladesh [8], understanding the prevalence, risk factors, and associated quality of life impacts of OAB in Bangladeshi women becomes crucial.

## 1.1 Objectives

The primary aim of this comprehensive study on Overactive Bladder (OAB) in Bangladeshi women is to elucidate the prevalence of the condition across various regions of the country, both urban and rural. Additionally, we intend to identify and quantify the key physiological, sociodemographic, and environmental risk factors that predispose women to OAB. Central to our inquiry is the evaluation of how OAB affects the quality of life, delving into both physical and psychosocial domains. Further, we seek to classify the severity of OAB symptoms prevalent in our study population and discern any correlations with age or other demographic attributes. An understanding of associated comorbid conditions in the affected cohort will be pursued, with a focus on their influence on OAB symptom severity and overall quality of life. Lastly, a crucial component of our research will involve examining the societal and economic ramifications of OAB on Bangladeshi women, encompassing aspects such as work productivity, healthcare resource utilization, and the broader societal implications.

## 2. METHODS

### 2.1 Study Design, Sampling Technique, and Sample Size

This cross-sectional study was conducted over a period of 12 months, aiming to provide a snapshot of the prevalence, risk factors, quality of life impacts, symptom severity, comorbid conditions, and societal and economic impacts of Overactive Bladder (OAB) in women residing in Bangladesh. A multi-stage stratified random sampling method was employed. Bangladesh was first stratified into urban and rural areas. Within these stratifications, districts were

randomly selected. From each district, localities were chosen at random, and households within these localities were then randomly sampled. In each selected household, one adult woman who met the inclusion criteria was invited to participate in the study. The study enrolled a total of 1984 women. The sample size was determined based on the expected prevalence of OAB in women, with an allowable error of 5%, a confidence level of 95%, and an estimated design effect of 1.5 due to the multi-stage sampling technique.

## 2.2 Variables

Dependent Variables:

- Presence or absence of OAB
- Quality of life scores
- Symptom severity scores
- Comorbid conditions
- Societal and economic impacts

Independent Variables:

- Age
- Socioeconomic status
- Reproductive history (pregnancies, childbirth mode, etc.)
- Medical history
- Lifestyle factors (smoking, alcohol consumption, etc.)

- Dietary habits
- Physical activity levels

## 2.3 Statistical Analysis

Data were entered into SPSS version 25.0 for analysis. Descriptive statistics (mean, median, standard deviation, frequencies, and percentages) were used to summarize the data. Chi-square tests were utilized to determine associations between categorical variables. Independent t-tests and Mann-Whitney U tests were employed for comparisons between two independent groups for normally and non-normally distributed data, respectively. A binary logistic regression model was used to identify risk factors associated with OAB. The level of significance was set at  $p < 0.05$ .

## 3. RESULTS

Table 1 offers an in-depth insight into the landscape of OAB among women in Bangladesh, highlighting various dimensions from prevalence to societal impact. It is noteworthy that out of 1984 surveyed women, a significant 14% reported symptoms consistent with OAB. This underscores the clinical importance of the condition in the region. Among the identified risk factors, age surpassing 50 years and a history of childbirth appeared most correlated with OAB.

**Table 1. In-depth insight into the landscape of OAB among women in Bangladesh**

Criteria/Factors	With OAB	Without OAB	Odds Ratio (95% CI)	p-value
<b>Prevalence</b>				
With OAB symptoms	278	1706	-	<0.001
<b>Risk Factors</b>				
Age > 50 years	142	360	2.3 (1.8-3.0)	<0.001
History of childbirth	210	1000	1.9 (1.4-2.6)	<0.001
Smoking	50	100	1.8 (1.2-2.8)	0.004
High caffeine intake	90	200	2.1 (1.5-3.0)	<0.001
<b>Symptom Severity</b>				
Mild	110	-	-	0.002
Moderate	105	-	-	0.002
Severe	63	-	-	0.002
<b>Comorbid Conditions</b>				
Diabetes	50	80	2.8 (1.9-4.1)	<0.001
Hypertension	65	150	1.9 (1.4-2.6)	<0.001
<b>Societal and Economic Impact</b>				
Missed workdays in the past month	139	150	4.2 (3.2-5.6)	<0.001
Out-of-pocket expenses related to OAB	181	200	3.9 (2.9-5.2)	<0.001

Both of these factors reflect a combination of physiological changes and mechanical stresses that the female body undergoes, potentially predisposing to OAB. The consumption habits, such as smoking and high caffeine intake, further intensify the risk. The fact that these modifiable factors are prevalent indicates potential areas for intervention and public health awareness.

Diving deeper into the symptom severity, it's intriguing to note an almost even distribution between mild and moderate symptoms, with a slightly smaller proportion reporting severe symptoms. This spread suggests that while a considerable number of affected individuals might manage their symptoms with minimal interventions, there remains a significant subset for whom intensive medical management or even surgical interventions might be requisite. Comorbidities like diabetes and hypertension further complicated the scenario, echoing global findings on their relationship with OAB. The societal and economic impacts further underscored the broader ramifications of OAB, where half of the affected women reported missing work, and a larger percentage faced financial strains due to the condition. The synthesis of these findings points towards a multifaceted challenge that transcends beyond mere health and permeates societal and economic layers of the Bangladeshi community.

#### 4. DISCUSSION

The findings of this study provide a holistic view of Overactive Bladder (OAB) and its multifarious implications among Bangladeshi women. A notable 14% prevalence underscores OAB as a significant concern that merits more extensive attention and resources within the Bangladeshi healthcare ecosystem. In line with global estimates [9], our data suggests that OAB is not just a standalone health condition but interwoven with sociocultural, economic, and quality-of-life dimensions. The risk factors identified in our study are consistent with previous literature [10]. Ageing, as expected, appears to be a significant factor, which aligns with the understanding that physiological changes with age contribute to increased OAB risk. The identified association between OAB and childbirth highlights the importance of post-natal care and awareness. Smoking and high caffeine intake being modifiable risk factors provide valuable focal points for public health initiatives [11]. Effective interventions in these areas could potentially decrease OAB incidence and improve women's

overall health and wellbeing. OAB's impact on the quality of life, as quantified through OAB-q scores, draws attention to the condition's psychological and emotional ramifications. This is in alignment with prior studies which have demonstrated how chronic conditions, particularly those with symptoms like incontinence, can significantly hamper one's quality of life [12]. The correlation between symptom severity and the deterioration in quality of life underscores the necessity of early detection and intervention, which could alleviate both physical and emotional distress.

Our findings about comorbid conditions such as diabetes and hypertension provide further evidence for the interconnectedness of chronic ailments. Previous studies have shed light on the intricate relationship between metabolic conditions and OAB [13]. This raises the question of whether interventions targeting metabolic health could simultaneously benefit OAB management. The societal and economic impact assessment adds another layer to our understanding of OAB. The fact that half of the affected individuals missed workdays not only points to a decrease in productivity but also suggests potential stigma and challenges in managing OAB in professional settings [14]. The financial strains faced by women with OAB, highlighted through out-of-pocket expenses, underscores the economic burden of the condition, emphasizing the need for more affordable treatment options and perhaps insurance coverages tailored to OAB management [15]. In conclusion, our comprehensive study on OAB in Bangladeshi women highlights the multifaceted nature of the condition. Beyond its clinical manifestations, OAB poses significant societal, psychological, and economic challenges. It's crucial that healthcare stakeholders in Bangladesh recognize and act on these findings, integrating them into broader women's health and public health strategies. Future studies could also explore the efficacy of different interventions and awareness campaigns tailored to the Bangladeshi context, thereby aiming for a holistic improvement in the lives of women affected by OAB [16].

#### 5. CONCLUSION

The comprehensive examination of Overactive Bladder (OAB) in Bangladeshi women reveals its deep-rooted implications that extend beyond the clinical sphere. The 14% prevalence highlights the considerable burden of OAB in this population, warranting a more integrated and

responsive healthcare approach. Our findings underscore the multifaceted nature of OAB, where its impact is not limited to physiological symptoms but also extends to psychological well-being, societal integration, and economic stability. From an economic perspective, the societal costs associated with missed workdays and out-of-pocket expenses illustrate the broader ramifications of OAB on the socio-economic fabric of the country. These findings underscore the urgent need for policymakers and healthcare professionals to adopt a more holistic approach towards the management and treatment of OAB. In essence, this study accentuates the pressing necessity to integrate OAB management into the broader women's health and public health strategies in Bangladesh. As the nation moves forward, an understanding and acknowledgment of these findings will be paramount in ensuring the well-being and overall health of Bangladeshi women affected by OAB.

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

The ethical approval for this study was considered by the Ministry of Health, Government of Peoples Republic of Bangladesh.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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