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Investigating the Prevalence and Associated Risk Factors of Overactive Bladder Syndrome among Older Adults Using OAB-Q and ICIQ-OABqol: A Cross-Sectional Study

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Abstract: ***Overactive bladder (OAB) syndrome is a prevalent lower urinary tract disorder significantly affecting older adults worldwide, particularly in developing countries such as India. This cross-sectional study investigated the prevalence of OAB and its impact on quality of life among community-dwelling adults aged 60 years and above in Nashik district, Maharashtra. A sample of 384 participants was recruited using convenience sampling. Data were collected using two validated instruments: the Overactive Bladder Questionnaire (OAB-q) to assess symptom severity and the International Consultation on Incontinence Questionnaire Overactive Bladder Quality of Life (ICIQ-OABqol) to evaluate quality of life. Descriptive and inferential statistics were applied using chi-square test and independent samples t-test. Results revealed a high prevalence of OAB (61.2%) among older adults. Female participants constituted 74.5% of the population and exhibited significantly higher OAB scores (20.9 ± 4.9) compared to males (19.1 ± 4.6; p = 0.005). Chi-square analysis demonstrated a statistically significant association between gender and OAB status ($\chi^2 = 4.37$, p = 0.037). Quality of life assessment revealed that the sleep and energy domain was the most affected aspect, with question 28 (overall interference) recording the highest mean score (4.20 ± 1.49). These findings underscore the substantial prevalence and multidimensional impact of OAB on older adults, emphasizing the need for early identification, community-based screening, and physiotherapy-based interventions tailored to this population.***

Keywords: Overactive bladder; older adults; Prevalence; Quality of life; India

1. Introduction

Overactive Bladder Syndrome (OAB) is a prevalent lower urinary tract disorder significantly affecting individuals worldwide, particularly older adults. According to the International Continence Society (ICS), OAB is defined as urinary urgency, usually accompanied by increased daytime frequency and nocturia, with or without urge urinary incontinence, in the absence of urinary tract infection or other obvious pathology. This symptom-based definition emphasizes the functional nature of OAB, highlighting diagnosis based on patient-reported symptoms rather than structural abnormalities or laboratory findings. OAB is increasingly recognized as a major public health concern due to its high prevalence, multifactorial etiology, and profound impact on patients' daily functioning and quality of life.

Globally, OAB affects a considerable proportion of the adult population, with prevalence increasing significantly with age, affecting both men and women with slightly higher rates among women. This age-related increase is linked to physiological changes in bladder compliance, detrusor muscle function, and central and peripheral nervous system regulation. Beyond prevalence, OAB imposes a substantial economic burden on healthcare systems through direct costs associated with treatment, frequent healthcare visits, and management of complications, alongside indirect costs related to loss of productivity and reduced social participation.

OAB substantially affects quality of life across physical, emotional, and social domains. The chronic and unpredictable nature of urgency and incontinence often leads patients to adopt coping behaviors such as fluid restriction, frequent bathroom mapping, and social withdrawal, further diminishing overall well-being. Studies indicate that symptom severity, particularly frequency and nocturia, correlates strongly with quality-of-life impairment. Management of OAB includes pharmacological, behavioral, and physiotherapeutic interventions, with non-pharmacological strategies such as pelvic floor muscle training demonstrating effectiveness in reducing symptoms.

Research trends in OAB have increased in recent years, yet significant gaps remain. Scientometric analyses indicate a growing focus on epidemiology and quality-of-life assessment, but region-specific prevalence studies among older adults remain limited. In particular, data from low- and middle-income countries, including India, are scarce. This gap in evidence justifies the present study, which investigates prevalence, associated demographic and lifestyle risk factors, and quality-of-life impact among adults aged 60 years and above in an Indian community setting.

2. Literature Survey

Recent systematic reviews and meta-analyses have documented the high global prevalence of OAB, particularly in older populations, with increasing age, female sex, obesity, and chronic medical conditions identified as commonly associated factors. Zhang et al. (2025) reported significant impairment in quality of life in patients with OAB, while Milsom et al. (2024) emphasized the economic burden and importance of epidemiological studies for healthcare planning. Cross-sectional studies have consistently shown higher OAB prevalence in women compared to men, with factors such as body mass index, chronic diseases, and recurrent urinary tract infections significantly associated with

symptom presence. Scientometric analyses have revealed a steady increase in OAB-related publications with growing focus on prevalence, quality of life, and aging populations, though limited data exist from developing countries.

Quality of life assessment studies have documented that OAB negatively affects physical, psychological, and social well-being, with sleep disturbances, embarrassment, and activity limitations commonly reported. Studies from Pakistan and other regions have identified strong associations between OAB and factors such as age, BMI, diabetes, income, parity, and urinary tract infections. Research has emphasized the role of central and peripheral nervous system dysfunction in bladder control, highlighting OAB as a multifactorial condition. Reviews of OAB in frail older adults have concluded that the condition is common yet frequently underreported and undertreated in elderly populations, significantly affecting independence and sleep quality. Population-based studies have demonstrated that urgency, frequency, and nocturia are strongly associated with reduced quality of life and increased activity limitation. Studies examining symptom severity and quality of life have demonstrated a strong association between symptom severity and reduced health-related quality of life, supporting the use of validated questionnaires for comprehensive assessment. Research has consistently highlighted that OAB remains underdiagnosed in community-dwelling elderly populations due to stigma and lack of awareness.

3. Problem Definition

Overactive bladder syndrome affects millions of older adults worldwide, yet the prevalence and risk factors of OAB in India remain under-researched. Current literature lacks comprehensive data on OAB in Indian older adult populations, resulting in many cases going undiagnosed or undertreated. OAB significantly impacts daily life, often causing social isolation, sleep disturbances, and emotional distress. Understanding the localized prevalence, risk factors, and quality-of-life impact among older adults is essential for developing targeted interventions and improving patient care. The specific objectives of this study were to: (1) determine the prevalence of OAB among adults aged 60 years and above; (2) assess severity and quality-of-life impact using validated instruments; (3) evaluate the relationship between OAB symptom severity and quality-of-life domains; and (4) provide evidence-based data to support early identification and physiotherapy-based interventions.

4. Methodology / Approach

Study Design: A cross-sectional observational study was conducted to explore the prevalence of overactive bladder syndrome and evaluate its impact on quality of life among older adults.

Setting and Participants: The study was conducted in Nashik district, Maharashtra, India, among community-dwelling individuals aged 60 years and above. Convenience sampling was used to recruit participants from various residential areas and community settings within the district.

Sample Size: The sample size of 384 participants was calculated based on expected prevalence, desired precision, and confidence level.

Inclusion Criteria: Individuals aged 60 years and above; community-dwelling older adults residing in Nashik district; individuals capable of understanding the study procedure and providing informed consent independently.

Exclusion Criteria: Presence of severe cognitive impairment interfering with questionnaire comprehension; history of previous pelvic surgery or pelvic radiation exposure.

Data Collection: Two standardized validated assessment tools were used:

Overactive Bladder Questionnaire (OAB-q): Assessed presence and severity of overactive bladder symptoms including urinary urgency, frequency, nocturia, and urge incontinence. Higher scores indicate greater symptom severity.

International Consultation on Incontinence Questionnaire Overactive Bladder Quality of Life (ICIQ-OABqol): A 28-item instrument assessing impact of OAB on quality of life across domains including role limitation, physical limitation, social limitation, personal relationships, emotional problems, and sleep and energy. Higher scores indicate poorer quality of life.

Data were collected through face-to-face interviews conducted at participants' residences or community centers, depending on participant convenience. Prior to data collection, written informed consent was obtained from all participants. Confidentiality and anonymity of all data were strictly maintained.

Statistical Analysis: Descriptive statistics (mean, standard deviation, frequency, percentage) were used to summarize demographic and clinical data. The prevalence of OAB was calculated based on OAB-q scores. Chi-square test was used to determine the association between gender and OAB status. Independent samples t-test was used to compare mean OAB scores between male and female participants. A p-value of less than 0.05 was considered statistically significant. All analyses were performed using appropriate statistical software.

5. Results and Discussion

Descriptive Findings:
The study included 384 community-dwelling older adults with a mean age of 70.8 ± 6.9 years (range: 60–91 years). Female participants constituted 74.5% (n=286) of the study population, while males constituted 25.5% (n=98). The prevalence of overactive bladder was 61.2% (n=235), with 38.8% (n=149) reporting no OAB symptoms. The mean total OAB score was 20.4 ± 4.8, indicating a moderate level of symptom severity among older adults.

Gender-Associated Findings:
Chi-square analysis revealed a statistically significant association between gender and OAB status ($\chi^2 = 4.37$, df =

1, p = 0.037). Female participants exhibited both higher prevalence and greater symptom severity compared to males. Independent samples t-test demonstrated a statistically significant difference in mean total OAB scores between genders (t = 2.85, df = 382, p = 0.005). Females had significantly higher mean OAB scores (20.9 ± 4.9) compared to males (19.1 ± 4.6). This finding is consistent with previous research demonstrating that hormonal changes during menopause, anatomical differences, and increased susceptibility to urinary tract infections contribute to higher OAB prevalence among older women. These results suggest that older women should be prioritized for early detection and community-based interventions.

Quality of Life Impact:
Domain-wise analysis of the ICIQ-OABqol questionnaire revealed moderate impairment across all quality-of-life domains, with the sleep and energy domain (Q26–Q28) showing the highest mean score of 3.59, indicating the most significant quality-of-life impact. Specifically, question 28 (overall interference with daily life) recorded the highest mean score of 4.20 ± 1.49. Other domains showed the following mean scores: role limitation (3.29), physical limitation (3.34), social limitation (3.25), personal relationships (3.30), and emotional problems (3.32). These findings indicate that sleep disturbance and fatigue are the most affected aspects of daily life in older adults with OAB. Nocturia and urinary urgency likely contribute to fragmented sleep, which in turn leads to decreased energy, impaired daytime functioning, and reduced ability to participate in social and physical activities.

Discussion
The high prevalence of OAB (61.2%) observed in this study exceeds previously reported global estimates of 11–27% in general populations but aligns with studies showing increased prevalence in older age groups. This high prevalence may reflect agerelated changes in bladder physiology, including decreased bladder capacity, detrusor overactivity, and impaired sensory signaling. Additionally, the use of validated instruments (OAB-q and ICIQ-OABqol) in this study enabled more accurate symptom assessment compared to studies relying on less rigorous methodology.

The significant gender differences noted in this study, with female participants demonstrating both higher prevalence and greater symptom severity, underscore the multifactorial nature of OAB in older women. The results indicate that OAB is not merely a urinary disorder but a condition with broad psychosocial implications. Older adults experiencing OAB often reduce social interactions, limit participation in community activities, and experience anxiety or emotional distress due to fear of incontinence.

From a public health perspective, the findings highlight the need for early identification and routine screening of OAB among older adults, particularly females. Interventions should address both urinary symptoms and associated quality-of-life impairments, including sleep disruption, fatigue, and emotional stress. Behavioral therapy, bladder training, pelvic floor muscle exercises, and lifestyle modifications are recommended as first-line interventions, especially in community settings where pharmacological therapy may be less accessible. Educating older adults and caregivers about OAB symptoms and management strategies is crucial to reduce stigma, encourage reporting, and enhance quality of life.

6. Conclusion

This cross-sectional study demonstrates that overactive bladder syndrome is highly prevalent among community-dwelling older adults in Nashik district, affecting 61.2% of the study population. Female participants exhibited both higher prevalence and greater severity of OAB symptoms compared to males. Quality-of-life assessment revealed that sleep disturbance and reduced energy were the most significantly impacted domains, with question 28 (overall interference) recording the highest impact score. These findings underscore the substantial prevalence, significant gender differences, and multidimensional impact of OAB on daily functioning among older adults. The results emphasize the critical need for early identification, gender-specific screening strategies, targeted physiotherapy interventions, and comprehensive management approaches to alleviate symptoms and improve overall well-being in this vulnerable population.

7. Future Scope

Despite its contributions, this study has limitations. The use of convenience sampling may limit generalizability to broader older adult populations, and the cross-sectional design prevents establishment of causality between risk factors and OAB. Reliance on self-reported questionnaires may introduce recall bias, and objective urodynamic assessments were not included. Future research should explore longitudinal assessments to track OAB progression over time and its long-term quality-of-life impact. Intervention- based research examining non-pharmacological and lifestyle modification strategies is warranted to develop tailored management protocols for older adults. Large-scale, multicentric studies across different regions of India are essential to establish national prevalence data and identify localized risk factors. Such efforts would inform targeted public health strategies, awareness programs, and early screening initiatives, ultimately contributing to improved management and enhanced quality of life for individuals affected by OAB syndrome.

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Author Profile

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