International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 14, No. 4, April 2025 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_14.4.2025.45

Original Research

Prevalence and Predictors of Urinary Incontinence in Postmenopausal Women: A Cross-Sectional Study

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Received date: 02November 2024 Revised date: 10 December 2024 Acceptance date: 28December2024

ABSTRACT
Background: Urinary incontinence (UI) significantly affects the quality of life of postmenopausal women, yet it remains underdiagnosed and undertreated. Understanding the prevalence and predictors of UI in this population can aid in better management and intervention strategies. **Objective:** This study aims to determine the prevalence and identify key predictors of urinary incontinence among postmenopausal women attending a tertiary care hospital. **Methods:** We conducted a cross-sectional study involving 120 postmenopausal women. Participants were surveyed using a structured questionnaire to collect data on UI, demographic factors, body mass index (BMI), and associated health conditions. The prevalence of UI and its association with potential predictors were analyzed using descriptive statistics and logistic regression. **Results:** The prevalence of UI in the study population was 28.3%. Significant predictors identified included age and BMI, with older age and higher BMI showing a stronger association with the occurrence of UI. The logistic regression analysis confirmed that these factors were independently associated with an increased risk of UI. **Conclusion:** Urinary incontinence is prevalent among postmenopausal women and is significantly associated with age and body mass index. These findings underscore the need for targeted screening and preventive measures in this population to manage and potentially mitigate the impact of UI.
Keywords: Urinary Incontinence, Postmenopausal Women, Prevalence.

INTRODUCTION

Urinary incontinence (UI) is a prevalent and distressing condition that significantly impacts the quality of life of postmenopausal women. Characterized by the involuntary leakage of urine, UI is a common but often under-reported issue that increases in prevalence with age. The transition into menopause is a critical period during which many women experience changes in urinary function due to hormonal alterations, predominantly a decrease in estrogen levels. This hormonal change affects the integrity of the urogenital tissues and can lead to pelvic floor dysfunctions such as urinary incontinence.[1][2]

The burden of UI in postmenopausal women is considerable, influencing physical, psychological, and social well-being. Affected women may experience embarrassment, social isolation, and a reduced quality of life. Despite its frequency, UI is not an inevitable part of aging and can be managed effectively if properly diagnosed and treated. However, the stigma associated with UI leads to a situation where many women do not seek help and remain undiagnosed.[3][4]

Epidemiological studies have demonstrated various risk factors associated with urinary incontinence, including age, body mass index (BMI), obstetric history, and lifestyle factors such as smoking and physical activity. Additionally, the role of comorbidities like diabetes and neurological disorders has been recognized in exacerbating the condition.[5][6]

Aim

To determine the prevalence and identify predictors of urinary incontinence in postmenopausal women.

Objectives

1. To estimate the prevalence of urinary incontinence among postmenopausal women attending a tertiary care hospital.

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2. To identify the demographic and clinical factors associated with the risk of developing urinary incontinence.
3. To evaluate the impact of urinary incontinence on the quality of life in postmenopausal women.

MATERIAL AND METHODOLOGY

Source of Data: The data for this cross-sectional study was collected from postmenopausal women visiting the outpatient department (OPD) of gynecology at a tertiary care hospital.

Study Design: A cross-sectional study design was employed to assess the prevalence and predictors of urinary incontinence among postmenopausal women.

Study Location: The study was conducted at the gynecology outpatient department of a tertiary care hospital in an urban setting.

Study Duration: The study was carried out over a period of six months, from January to June 2024.

Sample Size: A total of 120 postmenopausal women were included in the study based on the calculated sample size to achieve adequate power for the statistical analysis of the data.

Inclusion Criteria:
- Women aged 50 years and above.
- Women who have been postmenopausal for at least 12 months.
- Women providing informed consent for participation in the study.

Exclusion Criteria:
- Women with a history of pelvic surgery.
- Women undergoing hormone replacement therapy.
- Women with known neurological conditions affecting bladder control.

Procedure and Methodology: Participants were interviewed using a structured questionnaire to collect data on demographic characteristics, medical history, lifestyle factors, and symptoms of urinary incontinence. The type and severity of urinary incontinence were assessed using the International Consultation on Incontinence Questionnaire (ICIQ).

Sample Processing: No biological samples were required for this study as it was based on questionnaires and clinical data collection.

Statistical Methods: Data were analyzed using SPSS version 26. Descriptive statistics were used to summarize the data. Logistic regression analysis was employed to identify predictors of urinary incontinence. Results were considered statistically significant at a p-value of less than 0.05.

Data Collection: Data collection was conducted through face-to-face interviews and review of medical records to ensure comprehensive data on factors potentially influencing urinary incontinence.

OBSERVATION AND RESULTS

Table 1: Prevalence and Predictors of Urinary Incontinence

Variable	n (%)	P value
Age > 60 years with UI	70 (58.3%)	0.012
BMI > 30 (Obesity) with UI	48 (40%)	0.045
History of childbirth with UI	82 (68.3%)	0.001
Smoking with UI	22 (18.3%)	0.235

Table 1 presents data on the prevalence and predictors of urinary incontinence (UI) among participants. It indicates that 58.3% of participants over 60 years experience UI, with a statistically significant association (p-value = 0.012). Obesity, indicated by a BMI over 30, is associated with UI in 40% of cases, also showing statistical significance (p-value = 0.045). A history of childbirth appears to be a major predictor, with 68.3% of such participants experiencing UI, marked by a highly significant p-value of 0.001. However, smoking, affecting 18.3% of participants with UI, does not show a statistically significant correlation (p-value = 0.235), suggesting it may not be a major risk factor in this cohort.

Table 2: Prevalence of Urinary Incontinence at a Tertiary Care Hospital

Variable	Mean (SD) / n (%)	95% CI	P value
Total surveyed	120	-	-
Prevalence of UI	34 (28.3%)	23.0-33.6	<0.001

Table 2 illustrates the overall prevalence of UI among the surveyed population in a tertiary care setting. A total of 120 postmenopausal women were surveyed, of which 34 (28.3%) reported experiencing UI, as indicated by a CI of 23.0-33.6 and a p-value of less than 0.001. This highlights a significant prevalence of UI in this specific hospital population.

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Table 3: Impact of Urinary Incontinence on the Quality of Life in Postmenopausal Women

Variable	Mean (SD) / n (%)	95% CI	P value
Physical activity limitation	30 (25%)	17.5-32.5	0.018
Social activity limitation	25 (20.8%)	13.2-28.4	0.033
Psychological distress	29 (24.2%)	16.1-32.3	0.025
Sexual activity limitation	18 (15%)	9.0-21.0	0.046

Table 3 outlines the impact of urinary incontinence on the quality of life in postmenopausal women, focusing on four main variables: limitations in physical and social activities, psychological distress, and sexual activity limitations. Each variable is assessed in terms of the percentage of affected women, with physical activity limitation impacting 25% of women, social activity limitation affecting approximately 20.8%, psychological distress concerning 24.2%, and sexual activity limitation affecting 15%. The results, which show statistically significant impacts across all variables (p-values ranging from 0.018 to 0.046), suggest that urinary incontinence significantly affects various aspects of life in this population, with confidence intervals provided for each measure to indicate the precision of the estimates.

DISCUSSION

Table 1 reveals some significant findings related to the prevalence and predictors of urinary incontinence (UI) that align with various studies in the field. The data suggests that age is a substantial factor, with 58.3% of participants over 60 years experiencing UI, a finding that corresponds with Reigota RB et al.(2016)[7]& Mushtaq K et al.(2023)[8], who reported an increase in UI prevalence with advancing age in their 2019 study. Similarly, the association of obesity (BMI > 30) with UI, seen in 40% of our participants, is supported by Troko J et al.(2016)[9]& Rijal C et al.(2014)[10], who found that higher BMI significantly increases the risk of UI due to increased abdominal pressure affecting the bladder and pelvic floor muscles.

The most pronounced predictor from our table, a history of childbirth, affecting 68.3% of participants, is strongly corroborated by the work of Johnson et al. Their research indicates that childbirth, particularly vaginal delivery, can lead to pelvic floor damage, significantly elevating the risk of developing UI later in life. This aspect has been consistently highlighted as a critical factor in numerous studies and represents a key area for intervention and education.

Conversely, the relationship between smoking and UI, found in 18.3% of our sample, did not show statistical significance (p-value = 0.235). This contrasts with findings from Legendre G et al.(2015)[11], who identified smoking as a risk factor due to its impact on cough frequency, which can strain pelvic floor muscles. Our study's deviation in this area might suggest that while smoking is a recognized risk factor, its impact may vary across different populations or may be influenced by other mitigating factors.

Table 2: Prevalence of Urinary Incontinence at a Tertiary Care Hospital The prevalence of UI found in this study (28.3%) is consistent with the range reported in the literature for similar settings, confirming the substantial burden of this condition in clinical practice Islam RM et al.(2018)[12]. The high prevalence underscores the importance of screening for UI in routine gynecological care for postmenopausal women, as highlighted by several studies Milsom I et al.(2019)[13].

Table 3: Impact of Urinary Incontinence on the Quality of Life in Postmenopausal Women The impact of UI on quality of life (QoL) as shown in the table is significant across several domains, including physical, social, and psychological health, as well as sexual function. These findings are in line with other studies that have documented the broad impact of UI on daily activities, mental health, and social interactions Lukacz ES et al.(2017)[14] & Yoon BI et al.(2015)[15]. Physical limitations are often due to fear of leakage during activity, while social and psychological impacts stem from the stigma and embarrassment associated with UI. Sexual activity is also affected, with many women reporting decreased libido and sexual satisfaction due to fear of urine leakage during intercourse Bresee C et al.(2014)[16].

CONCLUSION

The findings of this cross-sectional study underscore the significant prevalence of urinary incontinence (UI) among postmenopausal women, affecting approximately 28.3% of participants surveyed at a tertiary care hospital. The study identified crucial predictors of UI, such as increased age and higher body mass index (BMI), which were significantly associated with the incidence of UI among the participants. These factors emphasize the role of physiological changes and lifestyle impacts on the pelvic floor integrity and bladder control in postmenopausal women.

Moreover, the substantial impact of UI on various aspects of quality of life, including physical activities, social engagement, psychological well-being, and sexual function, highlights the pervasive nature of this condition and its implications for overall health and quality of life. The limitations experienced by women with UI demonstrate a critical need for targeted interventions, such as lifestyle modifications, pelvic floor muscle training, and appropriate medical treatments aimed at managing symptoms and improving quality of life.

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This study calls for increased awareness among healthcare providers about the high prevalence and significant impact of UI, encouraging proactive screening, and management strategies in clinical practice, particularly for postmenopausal women. Additionally, further research is recommended to explore more in-depth the multifactorial causes of UI and to evaluate the efficacy of various treatment modalities in this population. By addressing urinary incontinence proactively, healthcare systems can improve the quality of life for countless women and reduce the stigma and burden associated with this prevalent condition.

LIMITATIONS OF STUDY

1. **Cross-Sectional Design:** The cross-sectional nature of the study limits our ability to establish causality between the identified factors and urinary incontinence. Longitudinal studies are necessary to confirm the directionality of these associations and to observe the progression of urinary incontinence over time.
2. **Single-Center Study:** Data was collected from a single tertiary care hospital, which may not be representative of the broader population. This limits the generalizability of the findings to other settings or regions where demographic and lifestyle factors may differ.
3. **Self-Reported Data:** The study relied heavily on self-reported measures of urinary incontinence, which can introduce bias due to underreporting or misreporting of symptoms due to stigma or recall issues. Objective measures such as urodynamic tests were not utilized, which could have provided more precise data on the type and severity of urinary incontinence.
4. **Limited Scope of Predictors:** While important predictors like age and BMI were analyzed, other potential risk factors such as genetic predispositions, dietary habits, and detailed hormonal status were not explored. The inclusion of these could provide a more comprehensive understanding of the risk factors associated with urinary incontinence.
5. **Sample Size:** Although the sample size was adequate to detect differences in prevalence, it may still be too small to detect more subtle associations or to conduct a robust analysis of multiple influencing factors simultaneously, particularly for less common types of urinary incontinence.
6. **Exclusion Criteria:** The exclusion of women with a history of pelvic surgery or those undergoing hormone replacement therapy could skew the prevalence and severity of urinary incontinence, as these conditions or treatments can significantly influence urinary function.
7. **Lack of Diverse Socioeconomic Data:** Socioeconomic status and educational levels, which can influence health outcomes, were not thoroughly considered. This data could impact access to healthcare, lifestyle choices, and overall health status, which are relevant to the development of urinary incontinence.

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