

## Prevalence and Risk Factors of Urinary Incontinence in Postmenopausal Women

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### Abstract

**Background:** Urinary incontinence (UI) is a common but underreported condition in postmenopausal women, significantly affecting physical, psychological and social well-being. Its burden in low-resource settings remains poorly characterized. This study aimed to determine the prevalence and risk factors of urinary incontinence among postmenopausal women attending a tertiary hospital in Kishoreganj, Bangladesh.

**Methods:** A cross-sectional study was conducted at the Out Patient Department of Obstetrics and Gynecology, Shahid Syed Nazrul Islam Medical College Hospital, Kishoreganj, Bangladesh, from July 2023 to June 2024. A total of 80 postmenopausal women were surveyed using structured questionnaires. Data on sociodemographic characteristics, reproductive history, comorbidities, and urinary symptoms were collected. Urinary incontinence was categorized into stress, urge, and mixed types. Statistical analysis was performed using SPSS version 25.

**Results:** The mean age of participants was  $61.3 \pm 6.7$  years. Overall, 39 women (48.8%) reported UI, with stress urinary incontinence being most common (23.8%), followed by urge (16.3%) and mixed types (11.3%). Risk factors significantly associated with UI included age  $\geq 60$  years (69.2%), BMI  $\geq 25$  kg/m<sup>2</sup> (76.9%), multiparity ( $\geq 3$  children: 79.5%), and history of vaginal delivery (87.2%). Comorbidities were also frequent, particularly hypertension (43.6%) and diabetes (35.9%). Among affected women, 26.3% reported mild, 16.3% moderate, and 6.3% severe symptoms.

**Conclusion:** Urinary incontinence is highly prevalent among postmenopausal women in Bangladesh, driven by age, obesity, parity, and comorbidities. Integrating screening, lifestyle interventions, and awareness programs into postmenopausal care could mitigate its impact.

**Keywords:** Urinary incontinence, postmenopausal women, prevalence, risk factors.

### 1. INTRODUCTION

Urinary incontinence (UI) is recognized as a significant public health concern affecting women worldwide, particularly during the postmenopausal years when physiological, hormonal, and anatomical changes converge to increase vulnerability. Defined as the involuntary leakage of urine, UI not only impairs daily functioning but also undermines psychological well-being and quality of life [1]. Global

prevalence estimates vary widely, ranging from 25% to over 50% among postmenopausal women, depending on population characteristics and diagnostic criteria [2, 3]. In developing countries, UI remains underreported and undertreated, often due to sociocultural stigma, lack of awareness, and limited access to healthcare services [4].

Menopause is a critical transition that predisposes women to UI through estrogen

deficiency, pelvic floor weakening, and associated comorbidities such as obesity, diabetes, and hypertension [5]. Stress urinary incontinence (SUI), urge urinary incontinence (UUI), and mixed urinary incontinence (MUI) are the most common subtypes, each with distinct pathophysiological mechanisms and clinical implications [6]. SUI arises primarily from pelvic floor muscle weakness and urethral sphincter incompetence, while UUI is linked to detrusor overactivity; MUI involves overlapping mechanisms of both [7]. Although these conditions differ, they share significant consequences, including social embarrassment, depression, sexual dysfunction, and reduced productivity [8, 9].

Several studies from high-income countries have documented the epidemiology of UI and identified key risk factors, including increasing age, parity, obesity, and chronic conditions [10, 11]. For instance, Erekson et al. reported a 10-year prevalence rate of nearly 50% in older American women [12], while Daneshpajoo et al. highlighted similar patterns among Iranian populations [13]. Systematic reviews reinforce that parity and mode of delivery significantly increase risk, with vaginal birth being strongly associated with SUI and MUI [14]. However, the burden in South Asian countries, including Bangladesh, has received less attention, leaving critical gaps in understanding the prevalence and risk factors in this context [15].

The consequences of UI extend beyond physical symptoms, contributing to social withdrawal, diminished self-esteem, and heightened risk of anxiety and depression [16]. Quality of life assessments consistently demonstrate that even mild UI can significantly impair daily activities and interpersonal relationships [17].

These outcomes underscore the importance of investigating prevalence and risk factors in diverse populations to inform preventive, diagnostic, and therapeutic strategies tailored to local health systems and cultural settings.

In Bangladesh, reproductive health research has historically emphasized fertility, maternal mortality, and infectious diseases, with menopausal health conditions such as UI often overlooked. Available regional studies suggest that prevalence may be comparable to global averages, yet underdiagnosis remains common due to limited awareness and inadequate screening [18]. Addressing this evidence gap is essential, as the proportion of postmenopausal women is rising with increasing life expectancy,

highlighting the need for comprehensive health strategies.

This study aimed to determine the prevalence and risk factors of urinary incontinence among postmenopausal women attending a tertiary hospital in Kishoreganj, Bangladesh. By identifying the magnitude of the problem and the associated sociodemographic and clinical correlates, the findings are expected to contribute to improving screening, management, and health education interventions in this vulnerable population.

## 2. METHODOLOGY & MATERIALS

This hospital-based cross-sectional study was conducted in the Out Patient Department of Obstetrics and Gynecology at Shahid Syed Nazrul Islam Medical College Hospital, Kishoreganj, Bangladesh. Data were collected over one year from July 2023 to June 2024. A total of 80 postmenopausal women were included in this study.

### Sample Selection

#### 2.1. Inclusion criteria

- Women aged  $\geq 50$  years who had experienced natural menopause for at least 12 months.
- Attendance at the gynecology outpatient department during the study period.
- Women with Comorbidities particularly hyper tension and diabetes.
- Willingness to provide informed consent.

#### 2.2. Exclusion criteria

- Women with urogenital malignancies.
- Those with prior urological or gynecological surgery affecting urinary function.
- Women with cognitive impairments that limited reliable responses.

#### 2.3. Data Collection and Study Procedure

Data were collected using a structured questionnaire. Informed consent was obtained from all participants before enrollment. The questionnaire included sections on sociodemographic variables, reproductive history, comorbid conditions, and urinary symptoms.

Clinical assessments included measurement of height and weight to calculate BMI. Urinary incontinence was identified and categorized based on self-reported symptoms, following standard definitions of stress, urge, and mixed types. The severity of UI was graded by

participants as mild, moderate, or severe according to the frequency and impact of leakage episodes.

Data were entered and analyzed using SPSS version 26. Descriptive statistics, including frequencies, percentages, means, and standard

deviations, were used to summarize baseline characteristics.

Associations between UI and potential risk factors were examined using chi-square tests. Confidentiality was maintained throughout the study.

### 3. RESULTS

**Table 1.** Baseline Characteristics of Study Participants (N = 80)

Characteristics	Number of Patients	Percentage (%)	
Age group (years)	50–59	37	46.3
	60–69	29	36.3
	≥70	14	17.5
	Mean ± SD	61.3 ± 6.7	
BMI (kg/m <sup>2</sup> )	Underweight (<18.5)	15	18.8
	Normal (18.5-23.9)	20	25
	Overweight (24-27.9)	21	26.3
	Obese (≥28)	24	30
Parity	1–2	22	27.5
	3–4	39	48.8
	≥5	19	23.8
Comorbidities	Hypertension	27	33.8
	Diabetes mellitus	19	23.8
	Osteoarthritis	15	18.8

Table 1 presents the baseline characteristics of the study participants. The mean age was 61.3 ± 6.7 years, with most women between 50 and 59 years (46.3%), followed by 36.3% aged 60–69 years, and 17.5% aged 70 years or older. Regarding body mass index (BMI), 30% were classified as obese (≥28 kg/m<sup>2</sup>), while 26.3%

were overweight, 25% had a normal BMI, and 18.8% were underweight. Parity showed that nearly half of the participants (48.8%) had 3–4 children, 27.5% had 1–2, and 23.8% had five or more. Hypertension was the most common comorbidity (33.8%), followed by diabetes mellitus (23.8%) and osteoarthritis (18.8%).

**Table 2.** Prevalence of Urinary Incontinence among Participants

Type of Urinary Incontinence	Number of Patients	Percentage (%)
Stress urinary incontinence	19	23.8
Urge urinary incontinence	13	16.3
Mixed urinary incontinence	9	11.3
Any type (overall prevalence)	39	48.8

Table 2 shows the prevalence of urinary incontinence among participants. Overall, 39 women (48.8%) reported at least one type of UI.

Stress urinary incontinence (SUI) was the most common type (23.8%), followed by urge urinary incontinence (UII) (16.3%) and mixed urinary incontinence (MUI) (11.3%).

**Table 3.** Distribution of Risk Factors among Women with UI (n = 39)

Risk Factors	Present n (%)	Absent n (%)
Age ≥ 60 years	27 (69.2)	12 (30.8)
BMI ≥ 25 kg/m <sup>2</sup>	30 (76.9)	9 (23.1)
≥3 parity	31 (79.5)	8 (20.5)
Vaginal delivery history	34 (87.2)	5 (12.8)
Diabetes mellitus	14 (35.9)	25 (64.1)
Hypertension	17 (43.6)	22 (56.4)

Table 3 describes the distribution of risk factors among women with UI (n = 39).

The majority were aged 60 years or older (69.2%) and had a BMI  $\geq 25$  kg/m<sup>2</sup> (76.9%).

High parity ( $\geq 3$ ) was present in 79.5% of affected women, and 87.2% reported a history of vaginal delivery. Comorbidities were also common, with 35.9% having diabetes mellitus and 43.6% hypertension.

**Table 4.** Severity of Urinary Incontinence (n = 39)

Severity (self-reported)	Number of patients	Percentage (%)
Mild (occasional leakage)	21	26.3
Moderate (frequent episodes)	13	16.3
Severe (daily/involuntary)	5	6.3

Table 4 illustrates the severity of UI symptoms among affected women. Mild, occasional leakage was the most frequently reported (26.3%), while 16.3% described moderate, frequent episodes. Severe, daily, or involuntary leakage was reported by 6.3% of the participants.

#### 4. DISCUSSION

The present study demonstrated that nearly half of the postmenopausal women surveyed experienced some form of urinary incontinence, with stress urinary incontinence being the most prevalent subtype. These findings are broadly consistent with reports from other populations, though prevalence rates vary across studies due to differences in methodology, cultural perceptions, and health-seeking behaviors. Abufaraj et al. observed that prevalence in the United States ranged from 40–50% depending on age, while Otmani et al. reported lower estimates in Morocco, emphasizing how regional variations influence observed patterns [19, 20].

Age emerged as a major risk factor, with the majority of affected participants being 60 years or older. This association aligns with the work of Xu et al., who found a significant rise in UI prevalence with advancing age in Chinese women, reflecting cumulative changes in pelvic floor integrity and bladder function [21]. Similarly, Rashidi et al. highlighted age as a consistent determinant across Iranian populations [22]. These findings suggest that age-related structural and hormonal changes remain universal contributors to UI.

Body mass index was another strong correlate, as more than three-quarters of incontinent women in this study were overweight or obese. Comparable observations were made by Ng et al. in Singaporean women, where obesity was among the most prominent risk factors [23]. Mechanistically, increased intra-abdominal pressure and associated metabolic disturbances exacerbate pelvic floor dysfunction. Deshmukh

et al. also noted a dose-response relationship between BMI and UI severity among postmenopausal Indian women, underscoring the importance of weight management strategies in mitigating risk [24].

Parity and vaginal delivery history were strongly associated with UI in the present cohort. Over 79% of affected women had delivered three or more children, and 87% had a history of vaginal birth. These findings echo the conclusions of Larsudd-Kåverud et al., who demonstrated that both parity and mode of delivery significantly increase the lifetime risk of UI and prolapse surgery [14]. Gallas et al. similarly identified vaginal delivery as a critical determinant in Tunisian women, reinforcing that pelvic floor trauma during childbirth remains a global concern [25].

Comorbidities such as diabetes mellitus and hypertension were also more common among women with UI in this study. Daugirdas et al. reported that chronic conditions, including diabetes and cardiovascular disease, significantly heighten the risk of UI, largely through neuropathic, vascular and musculoskeletal pathways [10]. In Bangladesh, where diabetes and hypertension are increasingly prevalent, these associations highlight a need for integrated chronic disease management and urogynaecological screening.

Severity patterns in this study showed that most women reported mild symptoms, with only a small proportion experiencing severe daily leakage. This distribution is consistent with reports by Qiu et al. in Chinese populations and Gomes et al., who demonstrated that although many women experience mild UI, even low-severity cases can substantially affect sexual function and quality of life [26, 27]. Therefore, the burden of UI cannot be evaluated solely on severity scores but must account for psychosocial outcomes.

Comparisons with regional data further highlight this concern. Islam et al. reported a prevalence of

37% among Bangladeshi women at midlife, slightly lower than the present findings [15]. Differences may be attributable to study settings and definitions used, but suggest a substantial and growing burden in the country. The rising proportion of postmenopausal women in Bangladesh due to improved life expectancy amplifies the importance of addressing UI as a priority in women's health policies.

In summary, the present findings corroborate international literature by demonstrating that UI is highly prevalent among postmenopausal women and influenced by multifactorial determinants, including age, parity, BMI, and comorbidities. However, the local sociocultural environment may exacerbate under recognition and underreporting, necessitating more awareness campaigns and integration of UI screening into routine postmenopausal care. Addressing UI holistically, considering both medical and psychosocial dimensions, will be essential for improving women's health outcomes in Bangladesh and similar settings.

### 5. LIMITATIONS OF THE STUDY

The study was limited by its single-center design, relatively small sample size, and reliance on self-reported measures, which may have introduced recall or reporting bias. Future multicenter studies with larger cohorts and objective diagnostic assessments are needed to validate these results.

### 6. CONCLUSION

This study revealed that nearly half of postmenopausal women experienced urinary incontinence, with stress urinary incontinence being the most prevalent type. Key risk factors identified were advanced age, higher body mass index, multiparity, vaginal delivery, and comorbid conditions such as diabetes and hypertension. These findings highlight urinary incontinence as a substantial health issue in Bangladeshi women, warranting greater clinical and public health attention.

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### CONFLICTS OF INTEREST

There are no conflicts of interest.

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