

# Prevalence and Risk factors of Lower Urinary Tract Symptoms in Menopausal Women

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## Abstract

**Introduction:** Lower urinary tract symptoms is existing everywhere in the world and depending on the age, geographical location, and culture it is having great impact. They encompass different disease features which include-storage, voiding and post micturition. Numerous risk factors have been identified, and there are few published articles concerning the frequency of LUTS in menopausal women as well as their associated risk factors. Thus, this study was formulated with the intention of ascertaining the incidence and the risk indicators of LUTS in menopausal women.

**Methods:** This was a cross-sectional study of the observational type which was carried out in the Paropakar Maternity & Women's Hospital Thapathali, Kathmandu. Approval to carry out the study was sought and granted from the IRC. It was a hospital-based descriptive cross-sectional study conducted in gynecological outdoor patient department involving all menopausal women who presented themselves to the clinic between March 1<sup>st</sup> to May 30<sup>th</sup> 2024 using convenience sampling technique. Among the study population having LUTS, their details and possible risk factors were incorporated in this study.

**Results:** Three hundred menopausal women were recruited in the study during the considered period of time. Mean age of menopause was 48.3 years. Concerning LUTS, the current study established a prevalence rate of 71.7% among the respondents. The most frequently reported complaint was urgency reported by 39% of the patients, seconded by incontinence reported by 35.7% of the patients and thirdly nocturia was reported by 23% of patients. In menopausal women, the factors that may increase the risk to develop LUTS were BMI, having a history of childbirth and recurrent UTI.

**Conclusion:** LUTS was significantly high among menopausal women in Paropakar Maternity and Women's Hospital, the most dominating symptom was urgency and the second one was incontinence. Several factors were established to be predictive of LUTS namely; BMI, giving birth and a history of recurrent UTI but there was no statistical evidence related to the type of delivery.

**Keywords:** Lower urinary tract symptoms, menopause, women

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## Introduction

Lower Urinary Tract Symptoms (LUTS) is common among women globally<sup>1,2</sup> and the prevalence ranges as high as 76% influenced by the age, geographical location and cultural difference with higher Figs being recorded among the

female population especially those above the age of 40 years.<sup>2</sup> These are more or less, relative, or qualitative measures of changes which is experienced by women.

<sup>3</sup> LUTS as per ICS includes Storage symptoms, Voiding

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symptoms, and Post micturition symptoms. The storage symptoms include frequency, nocturia, nocturnal enuresis and urinary incontinence (UI); the voiding symptoms include slow or weak stream, hesitance and terminal dribble; and post-micturition symptoms consisting incomplete emptying and post-micturition dribble.<sup>4,5</sup>

Various risk factors are associated with LUTS - increasing age, abdominal adiposity, pregnancy, childbirth, diabetes, depression, use of neuroactive drugs and smoking being commonest. Previous major pelvic surgery and hereditary factors are also found to influence the development of LUTS.<sup>6</sup> However, its prevalence and severity are higher in menopausal women implicating low estrogen levels on genitourinary tissue as the etiology of LUTS.<sup>7</sup> Studies showing upto 70 percent of women relating the onset of their urinary incontinence to their final menstrual period.<sup>8</sup>

Menopausal transition includes pre, peri and post-menopause which is defined according to<sup>8</sup> changes in menstrual and hormonal patterns. Menopause is the permanent cessation of menses for 12 months resulting from estrogen deficiency and is not associated with any pathology.<sup>9</sup> Worldwide average age of menopause is 44 - 45 years and the average menopausal age of Nepali women is 48.7 years, while their life expectancy is 71.6 years.<sup>10</sup> Women experience menopause for approximately one third of their lives, underscoring the increasing number of affected individuals and the strain it places on national healthcare resources.

An understanding of the prevalence and risk factors of LUTS in post -menopausal women may help to target treatment resources and take preventive steps in future. There are scarce of published literature focusing on the prevalence of LUTS in such age group. As there is hardly any data depicting its risk factors, detailed knowledge of the natural history of LUTS in postmenopausal women may help to improve uro-gynecological services in Nepal. So the study will intend to evaluate the prevalence of LUTS, varying symptoms and its risk factor among menopausal women.

## Methods

The present descriptive cross-sectional study was conducted in the Paropakar Maternity and Women's Hospital Thapathali, Kathmandu from March 1<sup>st</sup> to May 30<sup>th</sup> 2024. IRB permission from NAMS.(Ref. No.33512080181) was obtained before the beginning of the study. Three hundred women attending the gynecological outpatient clinic with menopausal status only and fulfilling the inclusion criteria were recruited in the study in a conventional way. Patients with DM, Neurogenic bladder, hypothyroidism, hyperthyroidism, history of pelvic surgery and patients on anticholinergics, Calcium channel blockers, Beta Blockers and HRT were excluded from

study. Data pertaining to the sociodemographic factors, anthropometry, clinical and gynecological history were collected. All women's BMI were calculated, subsequently they were divided into four groups based on BMI chart of WHO- those are Underweight, Normal, Overweight & Obese women.

Presence of LUTS was determined by using a validated questionnaire ICIQ- FLUTS which was translated into Nepali language after review from two urogynecologists.

Data analysis was performed using SPSS version 23. Standard descriptive statistics was performed, with continuous variables expressed as mean $\pm$  SD or median (IQR) as appropriate. Categorical variables were expressed as number (%).

## Results

In total 300 women of age groups of 43 to 85 years were taken for the study for a period of three months. The mean age among the women was Figd to be 59. 8 years. Again, the prevalence of LUTS was 71.7% (215) among the postmenopausal women and mean age at menopause was 48.3 years. Most of the women were of more than 60 years (46 %), illiterate (65%), married (98%), given birth more than two times (62%) and were a housewife (76%). (Table 1)

**Table 1:** Characteristics of the study subject

	Total (n=100)	Percentage( %)
<b>Age</b>		
40-44	9	3
45-49	33	11
50-54	59	19.7
55-59	60	20
60+	139	46.3
<b>Education</b>		
Primary	40	13.3
High school	39	13.1
University	26	8.7
Illiterate	195	65
<b>Marital Status</b>		
Married	295	98.3
Unmarried	5	1.6
<b>Parity</b>		
P0	9	3
P2	105	35
p>2	186	62
<b>Employment</b>		
Working	228	76
Housewife	72	24

Overall, among the 300 women included in the study 71.7% of the women reported that they had LUTS. Urgency(39%) was the commonest storage symptoms followed by nocturia(23%) and daytime frequency(17.3%).Voiding symptoms were present in 35.7% of women among which stress urinary incontinence was the commonest(17%) (Table 2).Both storage and voiding symptoms were also present in few of the women.

**Table 2:** Distribution of LUTS according to symptoms

Symptoms	Frequency	Percentage
Daytime frequency	52	17.3
Nocturia	69	23
Urgency	117	39
Incontinence	110	35.7
Stress Urinary Incontinence	51	17
Urgency Incontinence	24	8
Mixed Incontinence	35	11.7

Chi square test analysis results revealed significant association related to LUTS were recurrent UTI, giving birth and BMI.(Table.3)

**Table 3:** Risk factors among menopausal women with LUTS

Risk Factors	P value
Childbirth	297( 0.04)
Type of delivery	0.17
Age	0.3
Recurrent UTI	36 ( 0.042)
BMI	57 ( 0.00)
Chronic Constipation	49( 0.1)

## Discussion

It is difficult to determine the prevalence of LUTS as it varies with age and region. In an ideal scenario, sampling the entire population within a specific geographical area with a high response rate provides a more accurate reflection of prevalence. In our study the prevalence rate of LUTS was found to be 71.7% which signifies a higher burden but it may be due to the study being done in patients who attended the gynecological OPD rather than a community study. Additionally, the study focuses on women who are experiencing menopause. The findings are different from our study which was done on 6066 women (3.0% of registered female residents aged 20 years and older in Fuzhou) , where the prevalence of LUTS was 39.7%. Voiding symptoms and storage symptoms were 13.4% and 37.3%, respectively.<sup>11</sup> The result of the study probably varied as the study was done on all reproductive women as compared to ours where menopausal women were taken as study subjects.

In our study, urgency was the commonest storage symptoms followed by incontinence which was 35.7% and stress incontinence was the commonest voiding disorder (17%). But in a study among 74 post-menopausal patient, it showed that nocturia was the commonest symptom (89.2%) followed by frequency (83.8%). Weak stream was the commonest voiding LUTS (63.5%).<sup>5</sup> The difference of the symptoms might be due to the number of participants which differed in both the studies limiting the accuracy of the result.

Similarly, a study done over a period of 18 months included 312 women- results showed rates of urgency, urinary incontinence, nocturia, and frequency symptoms were 61.5, 52.2, 18.9, and 25%, respectively,<sup>12</sup> the results being similar to our study.

In the light of above discussion, a recent cross-sectional study identified that almost half of the women suffer from it, i.e., 50. 6%, among 253 women more than 15 years of age. SUI was reported by 49% of the women. The associated risk factors included; Obesity which had a p – value of 0. 034, parity with p– value of <0. 001 and previous pelvic surgery with p-value of 0. 01412.The risk factors associated with LUTS were childbirth and recurrent UTI, BMI with p – value 0. 017 and was therefore similar to our findings.<sup>12</sup>

The study that was conducted in Brazil , a cross sectional, analytical observational study noted most common form of LUTS was the urgency and stress incontinence.<sup>3</sup> Using each of the three stages of menopause; premenopausal, perimenopausal and postmenopausal, stress incontinence was found to be the commonest symptom. Facetiously, they presented that among the three menopausal stages, perimenopause had the most significant effect on urinary incontinence based on the International Consultation on Incontinence Questionnaire. Evidently, the finding revealed that the existence of LUTS may fluctuate in relation to menopausal stages and the urinary incontinence was the commonest complaint. Based on the study, there is need for more research to be conducted on this age group.

With an aim to assess a possible correlation between metabolic syndrome(MetS) and LUTS, Kamaraj J et al. studied 154 postmenopausal women attending menopause clinic. LUTS were observed in 43% of the women. 90% of women had filling symptoms,57% had incontinence,17% had voiding symptoms,14 % had quality of life issues and 6 % had sexual symptoms. There was no significant difference in LUTS in women with MetS and without MetS.<sup>16</sup>

A multinational, multi-center survey conducted in women between ages 45–60 years using validated questionnaires(ICIQ-UI) was done to understand the relationship between severity of urinary incontinence and health related quality of life and mental well being ..

Subjects with more severe urinary incontinence showed poorer scores on health-related quality of life and mental well-being assessments.<sup>18</sup> Though our study has not included the social aspects of LUTS, the study has shown the need of further research in this area as it affects the health related quality of life and mental well being of the women.

Various studies have been done in relation to LUTS worldwide but few studies have been done in Nepal. a study found prevalence of LUTS to be 0.3% with overactive bladder being the commonest symptom(82.4%) which vastly differed from our study<sup>14</sup> The difference probably was because the study was done in women from age group of 21 to 80 years ,who already were diagnosed to have lower urinary tract symptoms and were evaluated for storage symptoms using Overactive Bladder Symptom Score questionnaire(OBSS)

Though a high number of women suffer from lower urinary tract symptoms,very few reach out for its management.As it affects the health quality of life and mental wellbeing, it is very important to recognize and to raise awareness regarding LUTS. Though many studies have been done to assess the LUTS and the quality of life, our study prioritized the prevalence and risk factors for LUTS as there is increase in ageing population worldwide, thus the study helping to target treatment resources and to take preventive steps in the future. Data depicting its risk factors, detailed knowledge of the natural history of LUTS in menopausal women will definitely help to improve our urogynecological services in Nepal,thus benefiting the patients.

The study included 300 menopausal women who attended the OPD of the hospital who were interviewed with a validated questionnaire. The study identified different types of LUTS and the association of LUTS with its risk factors.

## Conclusion

The prevalence of LUTS among menopausal women seeking care in Paropakar Maternity and Womens Hospital is significantly high. The commonest symptom was urgency followed by incontinence. BMI, giving birth and recurrent urinary tract infection were significantly associated with LUTS however type of delivery did not show significant association.

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