ORIGINAL ARTICLE

Clinical Profile of Women with Lower Urinary Tract Symptoms Visiting Kathmandu Model Hospital

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ABSTRACT

Background: Lower urinary tract symptoms (LUTS) are common among women and can significantly impair quality of life. Despite their high prevalence, LUTS often remain under-recognized and under-treated, particularly in low- and middle-income countries. This study aimed to determine the prevalence, severity, and associated factors of LUTS among women attending a tertiary care hospital in Kathmandu, Nepal.

Methods: A hospital-based cross-sectional study was conducted from September 2025 to December 2025 at Kathmandu Model Hospital. A total of 385 women were assessed for any lower urinary tract symptoms were using a validated Bristol Female Lower Urinary Tract Symptoms questionnaire translated into Nepali. Symptoms were categorized into no/minimal, moderate, and severe LUTS based on total scores. Data were analyzed using SPSS version 25, and associations were assessed using the chi-square test, with statistical significance set at $p < 0.05$.

Results: Among 385 participants mild, moderate, and severe LUTS were present in 40.7%(157), 27.0%(104), and 10.3%(40) of women, respectively. Storage symptoms, particularly urinary frequency, were the most common complaints among 76.60%(295). Moderate to severe LUTS were significantly more prevalent in women aged over 40 years and in those with increasing parity ($p < 0.001$). All women with diabetes mellitus and those with a history of hysterectomy reported LUTS, with the majority experiencing moderate to severe symptoms. No statistically significant association was observed between mode of delivery and LUTS severity.

Conclusion: Lower urinary tract symptoms are highly prevalent among 79% women attending tertiary care in Kathmandu, with increasing age, higher parity, diabetes mellitus, and prior hysterectomy being significant associated factors. Early identification and targeted management strategies are essential to reduce symptom severity and improve quality of life among affected women.

Keywords: Lower urinary tract symptoms; Nepal; women; urinary incontinence.

INTRODUCTION

According to current standards recommended by the International Continence Society (ICS), LUTS are divided into three groups: storage, voiding, and post-micturition. [1]Storage symptoms include frequency, urgency, nocturia and urinary incontinence which include stress urinary incontinence(SUI), urge incontinence(UI) and mixed urinary incontinence. Voiding symptoms include hesitancy, intermittency, slow stream straining, splitting or spraying of the urinary stream and post micturition symptoms include post micturition leakage and feeling of incomplete bladder emptying.[1]

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Population prevalence and incidence of LUTS varies depending on sex, age, ethnicity, parity, obesity. Pathophysiology of LUTS arises from diverse mechanisms including post menopause changes, detrusor overactivity, bladder outlet obstruction, urethral dysfunction or neurological dysregulation, childbirth trauma, metabolic causes, iatrogenic secondary to anticholinergic and post radiation changes.[2] LUTS are highly prevalent with 59.2% of women exhibiting storage symptoms.[1] This study aimed to analyze the prevalence and severity of LUTS in our set up and their sociodemographic profile and associated risk factors.

METHODS

This was a cross-sectional study conducted at Kathmandu Model Hospital Institute of Health Science, Kathmandu, Nepal from September 2025 to December 2026. Sample size calculated as n= z^2pq/d^2 where n is required sample size, z is statistic for a level of confidence (for 95% level of confidence, z=1.96), p is estimated average prevalence, q is 1-p, d is precision or maximum tolerable error= 5%. As per study done by Debbarma et al, prevalence of LUTS was 48%. [1]The sample size (n) was 384.

All patients visiting our outpatient department were enrolled. Sampling was nonprobability consecutive sampling. A standardized, pretested structured Bristol's female LUTS-SF questionnaire translated into Nepali language by author Thapa BD et al in their study Translation and validation of Bristol Female lower urinary tract syndrome(BFLUTS) questionnaire for Nepali speaking women was used. [3]The symptoms of LUTS were classified as storage, voiding, and tension. Each response received a score between 0 and 4. Patients were categorized into no/minimal LUTS(score,1–7), moderate LUTS (score,8–19), and severe LUTS (score,>20). Other relevant data age, parity, marital status, mode of delivery and comorbid conditions like hypertension, diabetes mellitus, hysterectomy, smoking and alcohol intake were recorded.

For the data analysis the data were entered into Statistical Package for the Social Science(SPSS) version 25 and expressed in frequency and percentage form for analysis. Data analysis was done using Chi-square test for subgroup analysis. Significance was taken at 95% confidence level with P value of <0.05.

Ethical approval was obtained from the Institutional Review Board of Kathmandu Model Hospital Institute of Health Sciences (IRC application number: 207-2025). Informed written consent was obtained from every participant. Complete anonymity of participant was maintained. Data storage was done by researchers.

RESULTS

Total of 385 participants were recruited for the study. The validated Bristol Female LUTS-SF questionnaire translated into Nepali language was used to assess LUTS in women. The socio demographic information is provided in Table 1. As presented in sociodemographic table are n (%); N=385. In our investigation the most common participants were between 21years to 40 years i.e. 214(55.5%). Most participants were married women 232(60.2%). 115(29.8%) were nulligravida and 270 (70.2%) participants had delivered baby, out of which 199(51.6%) has undergone vaginal delivery and 64 (23%) has cesarean section (Table 1).

Table 1: Socio-Demographic characteristics of the participants (n=385)

Age group	
<20	11 (2.8%)
21-40	214 (55.5%)
41-60	143 (37.1%)
61-80	16 (4.1%)
>81	1 (0.2%)
Marital status	
Single	87 (22.5%)
Married	232 (60.2%)
Divorced	15 (3.8%)
Widow	51 (13.2%)
Parity	
0	115 (29.8%)
1	94 (24.4%)
2	117 (30.3%)
3	37 (9.6%)
4	11 (2.8%)

>4	10 (2.5%)
Mode of delivery	
Vaginal Delivery	199 (73.9%)
Cesarean Section	64 (23.7%)
Instrumental Delivery	7 (2.5%)

In our study, the prevalence of mild LUTS was among 157(40.7%) participants, moderate LUTS was among 104(27%) and severe was among 40(10.3%) participants. Only 84(21%) participants did not have any component of LUTS (Table 2). The most common symptoms were frequency in almost every age group, 295(76.6%) participants, 40 (10.3%) had voiding dysfunction, 191(49.6%) had incontinence, and 119(30.9%) had their quality of life affected due to LUTS (Figure 1).

Table 2: Proportion of LUTS according to severity (n=385)

No LUTS	84 (21%)
Mild LUTS	157 (40.7%)
Moderate LUTS	104 (27.0%)
Severe LUTS	40 (10.3%)

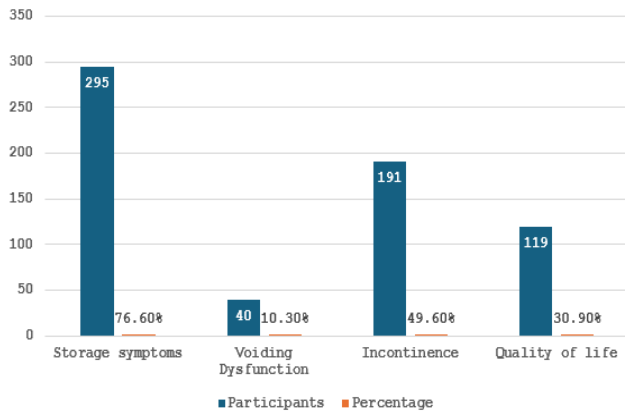

Figure 1: Proportion of various symptoms of LUTS

No/minimal LUTS was more common in age group 20-40 years and moderate to severe LUTS was common among participants among 40-60 years age groups. 100%(17/17) participants above age group 60 years had moderate to severe LUTS. Elderly women were more likely to have moderate to severe form of LUTS compared to younger generation (Table 3) with high statistical significance (p value<0.001). There were 115(29.8%) nulligravida, 94(24.4%) with parity 1, 117(30.3%) with parity 2, 37(9.6%) with parity 3, 11(2.8%) with parity 4 and 10(2.5%) with more than 4 parity. The prevalence of LUTS among majority of nulliparous women were null to minimal. Those without LUTS were 45%(52/115) and those with minimal LUTS were 44% (51/115). The increasing number of parity was associated with moderate to severe LUTS (Table 4) with high statistical significance with p value of <0.001. In our study, 73.9%(199) participants had vaginal delivery, 64(23.7%) had cesarean section and 7(2.5%) had instrumental delivery. 89.4%(178/199) participants who had vaginal delivery had some form of LUTS and 85.9% (55/64) participants who had undergone cesarean section had some form of LUTS and 100%(7/7) patient who had instruments delivery had LUTS. This showed that irrespective of mode of delivery LUTS was present among those who had delivered compared to nulliparous women. No statistical significance was noted among participants with different modes of delivery (Table 5). In our study, 19(4.9%)were diabetic and 11(2.8%) were hypertensive and 24(6.2%) had undergone hysterectomy (Table 6) . All patients who underwent hysterectomy had some form of LUTS and among them 87.5% (21/24) had moderate to severe LUTS. All patients (19/19) who had diabetes mellitus had LUTS, among which 84% (16/19) had moderate to severe LUTS.

Table 3: Demonstrate Severity of LUTS with age (n=385)

Age group	No LUTS	Mild LUTS	Moderate LUTS	Severe LUTS	p-value
<21	5	4	1	1	<0.001
21-40	67	104	34	9	
41-60	10	49	61	23	
>60	0	3	7	7	

Table 4: Demonstrate LUTS severity with parity (n=385)

Parity	No LUTS	Mild LUTS	Moderate LUTS	Severe LUTS	p-value
0	52	51	10	2	<0.001
1	19	47	23	5	
2	10	45	48	14	
3	2	10	17	8	
4	0	3	4	4	
>4		1	2	7	

Table 5: Relation of LUTS with Mode of Delivery (n=270)

Mode of Delivery	LUTS Present	LUTS Absent	p-value
Vaginal	178(89.4%)	21(17.6%)	0.61
Cesarean section	55 (85.9%)	9(14%)	
instrumental	7(100%)	0	

Table 6: Comorbidities in the study population (n=385)

Diabetes Mellitus	19 (4.9%)
Hypertension	11 (2.8%)
Hysterectomy	24 (6.2%)

DISCUSSION

Lower Urinary Tract Symptoms (LUTS) are common condition seen in women of all ages. These are frequent yet underreported problem having have social stigma, causing distress, shame, and loss of self-esteem. The present study highlights the magnitude of LUTS among women attending a tertiary care hospital in Kathmandu and identifies key demographic and clinical factors associated with symptom severity.

The prevalence of LUTS in this study was notably high, with approximately 79% (385) of participants reporting at least one symptom and more than one-third experiencing moderate to severe LUTS. These findings (Table 2) are comparable to large epidemiological studies such as the EPIC study, which documented LUTS in over two-thirds of women, reinforcing the global nature of this condition.[4] Similar prevalence rates have been reported in studies conducted in South Asia, particularly among middle-aged and postmenopausal women, indicating that regional and ethnic factors may influence symptom burden.[5]

Age emerged as a significant predictor of LUTS severity. While younger women predominantly reported no or mild symptoms, moderate to severe LUTS were significantly more common among women aged over 40 years, with all participants above 60 years experiencing clinically relevant symptoms (Table 3). This progressive increase with age has been consistently demonstrated in previous studies and is likely attributable to age-related hormonal changes, decline in pelvic floor support, detrusor instability, and increased prevalence of chronic medical conditions.[6]

Parity was strongly associated with LUTS severity in the present study(Table 4). Women with higher parity were more likely to experience moderate to severe LUTS compared to nulliparous women. This observation supports existing evidence suggesting that cumulative pelvic floor trauma during childbirth, connective tissue laxity, and urethral hypermobility, all of which predispose women to urinary symptoms later in life contributing to long-term bladder dysfunction.[6-8] Stretching and injury to pelvic muscles and nerves during repeated deliveries may predispose women to urinary incontinence and voiding difficulties later in life.

In contrast, no statistically significant association was found between mode of delivery and LUTS severity (Table 5). Although women who had delivered vaginally exhibited a higher prevalence of LUTS compared to nulliparous women, similar symptom rates among those with cesarean delivery suggest that pregnancy itself, rather than delivery route alone, may play a major role in the development of LUTS. This observation aligns with studies indicating that cesarean section does not provide complete protection against pelvic floor dysfunction.[7] The small number of women with instrumental deliveries in this study limits definitive conclusions regarding its impact.

Comorbid conditions such as diabetes mellitus and prior hysterectomy showed a strong association with LUTS. All women with diabetes reported LUTS,

with the majority experiencing moderate to severe symptoms (Table 6). This finding is consistent with known mechanisms of diabetic cystopathy, including autonomic neuropathy and impaired detrusor contractility.[9,10] Similarly, women with a history of hysterectomy universally reported LUTS, with a high proportion experiencing severe symptoms, likely due to disruption of pelvic nerve pathways and altered anatomical support following surgery.[11]

Storage symptoms were the most reported LUTS across all age groups (Figure 1), with urinary frequency being the predominant complaint, followed by urinary incontinence. These findings align with previous studies demonstrating that storage symptoms are more prevalent and bothersome than voiding or post-micturition symptoms in women[4,5] Nearly one-third of participants reported a negative impact on quality of life, underscoring psychosocial burden of LUTS. Earlier studies have similarly reported increased anxiety, depression, and reduced health-related quality of life among women with LUTS the.[5] Many women do not seek medical care due to social stigma, misconceptions regarding normal aging, or lack of awareness about available treatments. Addressing these barriers through patient education and proactive screening in gynecology clinics is crucial.

The strengths of this study include a large sample size and the use of a validated, culturally adapted questionnaire. However, its hospital-based design may limit generalizability to the broader population. Additionally, the cross sectional nature of the study precludes establishing casual relationships between risk factors and LUTS. Also, absence of urodynamic assessment restricts objective classification of LUTS subtypes.

CONCLUSION

In conclusion, LUTS are highly prevalent among women in our setting, particularly among older women, those with higher parity, diabetes mellitus, and prior hysterectomy. Early screening, increased awareness, and individualized management strategies are essential to reduce symptom burden and improve quality of life. However, a prospective cohort study to establish temporal relationships with larger sample size among general population is recommended.

CONFLICT OF INTEREST

None

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