ORIGINAL ARTICLE

RELATIONSHIP BETWEEN LOWER URINARY TRACT SYMPTOMS AND TREATMENT-RELATED BEHAVIOUR IN HAZARA DIVISION

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Background: Lower urinary tract symptoms (LUTS) adversely affect the quality of life and are usually under-reported because of a stigma associated with these symptoms. Unless specifically probed for these symptoms, most patients do not report Lower urinary tract symptoms. This study focused on the treatment-seeking behaviour of otherwise healthy individuals who had LUTS. The study aimed to determine the relationship between lower urinary tract symptoms and treatment-related behaviours among adults in the Hazara Division. **Methods**: This was a descriptive cross-sectional, questionnaire-based study of healthy attendants of patients admitted at a private medical centre for any reason who were enrolled in this study and were interviewed using a simple questionnaire after obtaining informed consent. The patients were administered validated tools such as OAB-8 and IPSS. **Results**: Overall, 23.5% of study participants reported LUTS. Among the 968 study participants, 530 reported having LUTS less than half the time and 438 reported LUTS more than half the time during the past 3 months. Over 23.5% of patients sought any type of treatment for their symptoms. the likelihood of seeking medical attention was more in males experiencing issues such as urgency with distress (aOR 2.21 (1.11–4.05) CI 95%), frequency with distress (aOR 1.88 (1.01–4.21) 95%CI), slow urinary stream with distress (aOR 2.33 (1.13–4.49) CI 95%), hesitation (aOR 1.81 (1.02–2.15) CI 95%), and feeling of incomplete bladder emptying (aOR 3.13 (1.38-4.95) CI 95%). Similarly, females with symptoms like urgency with a fear of urine leak (aOR 5.33 (1.67–10.93) CI 95%), frequency (aOR 4.88 (1.29–9.94) CI 95%), urgency with distress (aOR 6.11 (2.33–13.20) CI 95%), and intermittency (aOR 2.32 (1.33–3.78) 95% CI), were more prone to seeking medical help. **Conclusion**: There is marked under-utilization of treatment for LUTS. Physicians need to adopt a proactive approach to identifying these symptoms and offering treatment.

Keywords: LUTS; Hesitancy; Frequency; Urgency; Burning Micturition; UTI

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INTRODUCTION

Symptoms affecting the lower urinary tract (LUTS) include a variety of conditions related to the processes of urinary storage, voiding, and post-micturition.[1] Research conducted in various global populations reveals a notable occurrence of these symptoms. In individuals aged 40 and older, the incidence rate of LUTS reaches up to 74% in European and North American regions[2], around 75% in South American countries[3], and 61% in Asian territories[4]. Although LUTS are generally not life-endangering, they significantly affect personal well-being. These symptoms frequently disrupt mental health, social interactions, sleep quality, sexual function, work productivity, and the general lifestyle of those affected.[5]

Symptoms Lower urinary tract symptoms (LUTS) detrimentally affect the health-related quality of life (HRQOL), diminishing both daily function and work productivity.[6,7] Individual variations exist in the inclination to pursue medical consultation for LUTS.[8] Research spanning various demographics has shown that the intensity of symptoms, the degree of interference in everyday life, and media influences predominantly motivate individuals to seek medical intervention for LUTS.[9–11] Barriers to obtaining treatment for LUTS are identified as physicians' lack of probing into symptoms, financial strain due to delayed insurance reimbursements, feelings of shame, insufficient knowledge about available treatments, and perceiving symptoms as a normal part of aging.[12–14]

Investigations into treatment-seeking behaviour for Lower Urinary Tract Symptoms (LUTS) have utilized a mix of quantitative and qualitative approaches, encompassing personal interviews and group discussions. Initial qualitative studies underscored the influence of LUTS on Health-Related Quality of Life (HRQOL), along with concerns about severe illnesses like cancer influencing decisions to pursue or avoid medical intervention.[15] These studies have suggested further exploration into both the

regularity and the level of disruption caused by such symptoms[16], and have also emphasized the need to identify obstacles to healthcare access. For example, research involving 18 men, aged 52–80, with LUTS revealed that their drive to seek medical care was driven by three primary factors: the desire for confirmation that they did not have prostate cancer, the intensity of the disturbance from symptoms like nocturia, and the influence of public information on LUTS.[17] Additionally, a telephonic interview study with 30 women suffering from incontinence indicated that the most common reason for not seeking medical help was the belief that their condition was insignificant.[18]

Additionally, given the substantial rural demographic catered to by our healthcare institution, prevailing knowledge about treatment-related behaviours for LUTS may not fully align with our specific circumstances. This discrepancy arises from the scarcity of research comparing LUTS and related treatment behaviours in urban and rural environments in our region. Therefore, we wanted to assess different factors like treatment-seeking behaviour, the actual receipt of treatment, contentment with the treatment, and sustained adherence to the treatment among male and female patients aged 40 and above with lower urinary tract symptoms in the Hazara Division.

MATERIAL AND METHODS

This cross-sectional observational study was conducted at a private medical center. Conducted over a period from January 2022 to February 2023, it aimed to explore the occurrence and personal discomfort caused by Lower Urinary Tract Symptoms (LUTS). Moreover, it sought to examine the impact of these symptoms on the propensity of patients to seek medical intervention. The research encompassed male and female participants aged 40 and above from various districts of the Hazara Division who were accompanying an admitted patient at the hospital. The demographic segmentation of the survey respondents included age, gender, and residential location, determined either before or after they responded to the questionnaires. Exclusion criteria were applied to those recently diagnosed with urinary tract infections (within the last month), pregnant women, and women who were six months post-natal.

The study participants were asked to furnish demographic details and elaborate on their experiences with LUTS, following the standards set by the International Continence Society (ICS). Evaluated symptoms included a wide range, such as urinary frequency, urgency and associated fear of leakage, nocturia, different forms of urinary incontinence (such as urgency, stress, mixed, and spontaneous leakage), intermittency, diminished urine flow, bifurcation or dispersion of the stream, hesitation, end-of-void dribbling, exertion during urination, the feeling of incomplete bladder evacuation, and post-micturition dribbling.[1] For comprehensive data gathering, tools like the Overactive Bladder-Validated 8-question Screener (OAB-V8)[19] and the International Prostate Symptom Score (IPSS)[20] were also employed for data collection.

The research involved querying participants about their experience of different lower urinary tract symptoms (LUTS) within the past month. For this purpose, a rating scale, similar to the Likert scale, was employed. This scale ranged from 'none' (score 0) to 'almost always' (score 5). The intermediate points on the scale were designated as 'less than once in every five instances' (score 1), 'less than half the time' (score 2), 'about half the time' (score 3), and 'more than half the time' (score 4). Individuals who reported experiencing symptoms at a frequency starting from 'less than once in every five instances' were subsequently asked to rate the degree of inconvenience these symptoms caused. This rating was based on a scale from 'not at all' (score 0) to 'a very great deal' (score 5), with intermediate points including 'a little bit' (score 1), 'somewhat' (score 2), 'quite a bit' (score 3), and 'a great deal' (score 4). The specific questions posed to the participants sought information about the consistency and urgency of their symptoms, nighttime urination frequency, various types of urinary incontinence (e.g., related to urgency, stress, or no apparent reason), intermittent urine flow, diminished strength of the urine stream, hesitation before urination, straining during urination, post-urination dribbling, sensations of incomplete bladder evacuation, and post-micturition leakage. e.g.,:

1. Have you ever sought medical advice for urinary or bladder-related issues?
   - Yes/No
2. Have you undergone any medical interventions for issues related to your urinary system or bladder? - Yes/No
3. Please specify the type of medical interventions you have utilized:
   - Lifestyle modifications/Physical therapy/Use of over-the-counter medications/Prescribed medicinal treatments/Surgical interventions
4. Are you currently continuing with the treatment?
   - Yes/No
5. Was the treatment satisfactory?
   - Yes/No

In our study, we aligned our approach with previous epidemiological research on lower urinary tract symptoms (LUTS) and established two principal criteria to assess the prevalence of LUTS. The initial criterion categorized symptoms based on their occurrence as either less than 50% of the time or more,

while the secondary criterion focused on symptoms appearing 50% of the time or more.[2,3]

To assess the association between categorical variables, we employed the Pearson chi-squared test. We also undertook multiple logistic regression analyses to ascertain the collective influence of a range of predictive factors on dichotomous outcomes. These outcomes included seeking and receiving treatment, patient contentment, and the continuity of care. The predictive factors comprised demographic elements like age, gender, education level, employment status, marital status, and residential area (urban versus rural). We also considered the frequency and intensity of disturbance from each LUTS. For regression purposes, any particular LUTS was considered present if its occurrence was less than half the time or more, aligning with an International Prostate Symptom Score (IPSS) of at least 2. The threshold for perceiving bother was set at 'somewhat' or more, corresponding to an Overactive Bladder Questionnaire (OAB-V8) score of at least 2. A comprehensive range of variables was scrutinized for inclusion in each regression model, based on a 20% significance level in univariate analyses. Initially, all selected factors were included, followed by stepwise removal of those with less than 5% significance, except for age, which was maintained as a control variable through a backward elimination process. The models were separately developed for male and female groups. The data analysis was conducted using SPSS Statistics software, version 26.

RESULTS

Table 1 presents an analysis of treatment-related behaviours among our study participants, categorized by sex and place of living, utilizing two symptom occurrence definitions. Under Definition I, referring to symptoms presenting less than half the time or more, 124 (23.4%) out of a total of 530 patients sought treatment, with men accounting for 46.7% and women for 53.3% of this group. Treatment was received by 101 patients, where 40.6% were men and 59.4% women. Satisfaction with treatment was reported by 83 patients, with a higher percentage of men (57.8%) than women (42.2%) indicating satisfaction. However, 12 patients expressed dissatisfaction, with a larger proportion being men. Of those continuing treatment, men comprised 66.1%, in contrast to 33.9% of women. Treatment discontinuation was more prevalent among women, with 76.6% compared to men at 23.4%.

When applying Definition II, where symptoms are experienced at least half the time, out of 438 patients, 103 engaged in treatment-seeking, with men making up 45.6% and women 54.4%. A total of 80 patients received treatment, with men and women almost equally represented. Treatment satisfaction was reported by 66 patients, with dissatisfaction more pronounced among women. Regarding treatment continuation, men represented 58% of the 50 patients who continued, while 74.3% of the 35 patients who discontinued treatment were women.

The table also compares urban versus rural living conditions, with urban patients more likely to seek treatment and express satisfaction under both definitions. The data suggest a notable difference in treatment continuation and satisfaction rates between men and women, with urban residents generally more engaged in treatment behaviours than rural residents.

In the examined group, using Definition I—which characterizes symptoms as appearing less than half the time or more—23.4% (124 individuals) were actively seeking medical help, while 19.1% (101 individuals) had already initiated treatment. Alternatively, Definition II, which defines symptoms as occurring at least half the time, saw 23.5% (103 individuals) in the process of seeking treatment, with 18.3% (80 individuals) undergoing treatment. Notably, under Definition II, a statistically significantly higher proportion of males compared to females were found to be both seeking and receiving treatment, as highlighted in Table 1. A similar trend was observed under Definition I, though it did not attain statistical significance. No discernible variations were observed in the treatment-seeking patterns of individuals residing in urban versus rural areas.

Regarding treatment-seeking based on specific symptoms, the likelihood of seeking medical attention was more in males experiencing issues such as urgency leading to distress (aOR 2.21 (1.11–4.05) CI 95%), frequent urination leading to distress (aOR 1.88 (1.01–4.21) 95%CI), slow urinary stream leading to distress (aOR 2.33 (1.13–4.49) CI 95%), hesitation (aOR 1.81 (1.02–2.15) CI 95%), and feeling of incomplete bladder emptying (aOR 3.13 (1.38-4.95) CI 95%). The adjusted odds ratios for each symptom are detailed in parentheses. Similarly, females with symptoms like urgency with a fear of urine leak (aOR 5.33 (1.67–10.93) CI 95%), frequent urination (aOR 4.88 (1.29–9.94) CI 95%), urinary urgency with distress (aOR 6.11 (2.33–13.20) CI 95%), and intermittency (aOR 2.32 (1.33–3.78) 95% CI), were more prone to seeking medical help. The likelihood of seeking treatment escalated with age in both sexes, showing an annual increase of 6.5% in males and 2.8% in females ($p<0.01$). Additionally, married men demonstrated a higher tendency to seek treatment for Lower Urinary Tract Symptoms (LUTS).

The most prevalent form of treatment among the participants was prescription medication, with 68% under Definition I and 73.8% under Definition II opting for this approach. This was followed by non-prescription medications (24.1% and 21.4%, respectively), surgical procedures (18% and 14%),

physiotherapy (12.6% and 14.9%), and lifestyle adjustments (10.7% and 9.3%). Over one-third of the respondents (35.4% under Definition I and 34.1% under Definition II) chose a multifaceted treatment strategy, incorporating at least two of these methods.

Individuals experiencing lower urinary tract symptoms (LUTS) exhibit varied propensities toward seeking treatment based on symptom type and severity. Men presenting with symptoms including intermittent urine flow, exertion during urination, and a sensation of incomplete bladder evacuation demonstrated a higher likelihood of pursuing treatment. Conversely, women displaying symptoms such as urinary urgency coupled with incontinence apprehension and pronounced urinary frequency were similarly inclined to initiate treatment. Statistically, the annual likelihood of receiving treatment for LUTS escalated by 11% in men and 5.7% in women, a statistically significant difference ($p<0.01$).

Table-1

	Sex				Residence					
	Men		Women		Urban		Rural		Total	
	n	%	n	%	n	%	n	%	N	%
Definition 1: Patients with LUTS less than 50% of the time										
Sought Treatment	58	46.7	66	53.3	67	54.1	57	45.9	124	23.4
Received Treatment	41	40.6	60	59.4	64	63.37	37	36.63	101	19.1
Satisfied with treatment	48 *	57.8	35	42.2	53	63.9	30	36.1	83	15.7
Unsatisfied with treatment	7	36.8	12	63.2	13	68.4	6	31.6	19	3.6
Continuing treatment	35 **	66.1	18	33.9	34	64.2	19	35.8	53	10
Discontinued treatment	11 **	23.4	36	76.6	30	63.9	17	36.1	47	8.9
Satisfied with the treatment and continued it	28 **	65.2	15	34.8	27	62.8	16	37.2	43	8.1
Satisfied with the treatment but discontinued it	12 **	30	28	70	24	60	16	40	40	7.5
Unsatisfied with the treatment but continued it	7	63.6	4	36.4	8	72.7	3	27.3	11	2.1
Unsatisfied with the treatment and discontinued it	7 *	77.8	2	22.2	6	66.7	3	33.3	9	1.7
Definition 2: Patients with LUTS at least half the time										
Sought treatment	47 *	45.6	56	54.4	63	61.2	40	38.8	103	23.5
Received treatment	37 *	46.2	43	53.8	50	62.5	30	37.5	80	18.3
Satisfied with the treatment	30*	45.4	36	54.6	37	56.1	29	43.9	66	15.1
Unsatisfied with the treatment	8	40	12	60	13	65	7	35	20	4.6
Continued the treatment	29 **	58	21	42	28	56	22	44	50	11.4
Discontinued the treatment	9 **	25.7	26	74.3	22	62.9	13	37.1	35	7.9
Satisfied with the treatment and continued it	22 **	61.9	14	38.9	21	58.3	15	41.7	36	8.2
Satisfied with the treatment and discontinued it	7 *	26.9	19	73.1	15	57.7	11	42.3	26	5.9
Unsatisfied with the treatment but continued it	6	60	4	40	7	70	3	30	10	2.3
Unsatisfied with the treatment and discontinued it	3	25	9	75	8	66.7	4	33.3	12	2.7

Statistical significance between men's and women's responses is denoted by asterisks, with *$p<0.05$ and **$p<0.01$, highlighting significant differences in treatment-related behaviours based on sex.

DISCUSSION

In this study, a wide range of symptoms and their varying degrees were observed in a cohort with lower urinary tract symptoms (LUTS). This study's unique aspect was its focus on individuals with LUTS who had not yet sought medical care. The results suggest that the intensity of symptoms and the distress they cause are primary factors influencing individuals' decisions to seek medical intervention. This aligns with findings from similar research.[21] A quantitative analysis showed a significant correlation between the prevalence of symptoms and the level of distress for most LUTS, with polychoric correlation coefficients between 0.49 and 0.98. The study also highlighted that in some cases, the presence of symptoms and the distress they cause could be perceived as different aspects of a single severity dimension. This finding suggests that it might not always be necessary to evaluate severity and distress separately. However, further research is needed to determine whether assessing distress offers additional value for diagnosis and prognosis beyond severity assessment.[22]

In our study, we observed that a limited proportion of participants, specifically 23.5%, sought medical intervention for Lower Urinary Tract Symptoms (LUTS). This pattern of limited treatment-seeking is consistent with other studies. For instance, the EpiLUTS study, an online survey conducted in the UK, Sweden, and the USA, indicated that only 29% of male and 28% of female respondents with LUTS sought medical assistance.[8] A similar trend was evident in an electronic survey in China, Taiwan, and South Korea, where a mere 26% of individuals with LUTS consulted healthcare providers.[4] Additionally, in the Brazil LUTS study, which utilized telephone interviews in five major Brazilian cities, around 30.6% of respondents with LUTS pursued medical treatment.[23] These comparative figures are in line with our regional data, where 23.5% of adults with LUTS demonstrated treatment-seeking behaviours. Collectively, these studies underscore a prevalent

issue of inadequate healthcare utilization among individuals suffering from LUTS.

Several common factors deter individuals from seeking medical assistance for lower urinary tract symptoms (LUTS). Initially, the embarrassment associated with LUTS often prevents individuals from pursuing medical advice. Research indicates that concerns about discussing sensitive issues in a supportive healthcare setting exacerbate this reluctance.[24] Additionally, many believe LUTS to be an inevitable aspect of ageing, leading to self-perception and societal views of affected individuals as frail and elderly.[25] A general lack of public awareness that LUTS are treatable and can significantly enhance life quality also hinders treatment pursuit.[26] Misconceptions about LUTS being untreatable or concerns over financial costs and potential treatment side effects, such as medication adverse effects, further impede individuals from seeking treatment.[27] Without proper knowledge of treatment options, optimal decision-making for treatment seeking is not feasible. Education plays a pivotal role in encouraging treatment seeking, as it directly influences an individual's motivation and adherence to treatment, ultimately affecting treatment outcomes.[28] A range of healthcare providers, such as urologists, gynaecologists, general practitioners, geriatricians, nurses, and physiotherapists with expertise in pelvic floor therapy, can provide education and counselling on lower urinary tract symptoms (LUTS).

In this study, a statistically significant association was observed between the tendency to seek healthcare and a spectrum of symptom-related distress spanning diverse categories. The research highlighted that in males, a combination of symptoms such as increased frequency, urgency, a slow urinary stream, hesitancy, and a sensation of incomplete bladder emptying post-urination correlated with a greater likelihood of seeking medical attention. Conversely, in females, the presence of symptoms including frequency, urgency, urgency urinary incontinence, intermittency, and straining was similarly linked to the pursuit of medical intervention. These observations elucidate that the lower urinary tract symptoms (LUTS) in men encompass more than mere voiding issues, while in women, LUTS are not solely confined to storage-related problems. This pattern of symptomatology prompts both genders to seek medical assistance, irrespective of the symptom classification. This discovery underscores the necessity for a broad and symptom-centric approach in regular clinical settings, transcending traditional disease-specific models. Additionally, LUTS, commonly associated with bladder outlet obstruction, may also be indicative of bladder dysfunction or other urinary tract abnormalities, hinting at a range of possible non-urological conditions.[29] It is crucial, therefore, for patients exhibiting a variety of symptoms to receive an extensive and integrative diagnostic assessment to facilitate effective and individualized treatment strategies. Further, the study notes that men are more inclined than women to seek treatment for LUTS, corroborating findings from other international studies.[30,31] This highlights the imperative for healthcare providers to proactively address LUTS in both male and female patients.

The prevalence of successful therapy acquisition was notable among participants in the study. A higher likelihood of treatment was observed in men presenting with symptoms like intermittency, straining, and incomplete emptying. These symptoms are commonly associated with benign prostatic hyperplasia and involve issues related to voiding and post-micturition, often identified in clinical assessments. Interestingly, while symptoms such as frequency and urgency influenced men's decision to seek treatment, they were not significantly linked to the actual reception of treatment. This highlights a potential discrepancy in addressing storage symptoms. In contrast, women demonstrating urgency and increased frequency, particularly with fear of leakage, showed a greater tendency to receive treatment. Symptoms like intermittency and straining, while prevalent, seemed to be less prioritized in treatment considerations for women, suggesting a clinical focus on storage symptoms. This observation underscores the importance of educating both patients and healthcare providers, including those outside urology, about the diverse spectrum of lower urinary tract symptoms (LUTS), their comprehensive evaluation, and the array of treatment modalities available.

The study, however, encountered limitations due to its reliance on self-reported data regarding LUTS and treatment modalities, which could affect the precision of continuity in treatment, particularly surgical interventions. Procedures such as mid-urethral sling placement in women and transurethral resection of the prostate in men generally have favourable outcomes. Nonetheless, not all patients experience uniform benefits, and the permanence of treatment effects remains variable. Post-operative adjustments, like reprogramming in sacral neuromodulation, or repeated procedures, such as on abotulinumtoxin A injections, might be necessary for some. The concurrent use of other treatments among surgical patients further

complicates the evaluation of ongoing treatment efficacy. The cross-sectional nature of the study meant that at the time of data collection, some participants were awaiting surgical procedures, posing a challenge in classifying them according to their treatment status. Therefore, the study inquired about their overall treatment history, a method differing from clinic-based research and lacking a definitive standard for population-level analysis. This approach presents challenges in accurately estimating the continuation or discontinuation of treatments for LUTS. Despite these constraints, the study's methodology is consistent with other large-scale research efforts and seeks to contribute insights at the population level, which could inform national health programs and resource allocation strategies. Due to the study's broad scope, certain generalizations were necessary, such as amalgamating different treatment types, and it did not encompass factors like barriers to healthcare access or drug-related adverse effects.

CONCLUSION

In our region, the occurrence of Lower Urinary Tract Symptoms (LUTS) is notably frequent. However, there is a marked underutilization of treatment options for these symptoms. This underscores the importance of increasing awareness among the general population about the advantages of seeking treatment for LUTS. Furthermore, medical practitioners need to initiate discussions about LUTS with their patients and conduct thorough evaluations of the symptoms and the associated discomfort they cause.

AUTHORS' CONTRIBUTION

SJ: Data collection. MNJ: Data collection, data analysis. AUH: Data interpretation. FUH: Proof reading. EUI: Write-up, proof reading. MFT: Data collection.

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