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Analysis of Urinary Incontinence in Women at Tertiary Care Centre

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Abstract

Urinary incontinence, an unintentional leakage of urine, is a prevalent condition affecting up to 30% of the population. It significantly impacts women's quality of life, particularly in India, where prevalence rates range from 21.87% to 33.8% in various studies. This study investigated the multifactorial aspects of UI among women in a tertiary care centre and explored its epidemiology, risk factors, pathophysiology, and impact on quality of life. A descriptive cross-sectional study was conducted in India from October 2023 to October 2024, including 120 women who presented to the outpatient department of Obstetrics and Gynaecology with symptoms suggestive of UI. The International Consultation on Incontinence Questionnaire Female Lower Urinary Tract Symptoms and Urogenital Distress Inventory-Short Form were used to assess the presence, severity, and impact of UI symptoms. The findings indicate significant correlations between various urinary symptoms. Frequent urination showed strong correlations with difficulty urinating ($r = 0.692$, $p < 0.001$) and pain or discomfort ($r = 0.732$, $p < 0.001$). Urine leakage related to urgency was strongly linked to leakage during physical activities ($r = 0.830$, $p < 0.001$). One-sample t-tests revealed significant scores across symptoms, with frequent urination at night (mean = 2.8, $p < 0.001$) and sudden urgency (mean = 1.76, $p < 0.001$) causing notable discomfort. The significant burden of UI underscores the need for comprehensive evaluation and management strategies. Educational initiatives, awareness campaigns, and targeted preventive approaches are crucial for addressing the substantial treatment gap and improving the quality of life of affected women.

Keywords: Epidemiology, Pathophysiology, Quality of Life, Risk Factors, Tertiary Care Centre, Urinary Incontinence.

Introduction

Urinary incontinence, the unintentional leakage of urine, is a significant public health issue affecting millions of women globally. It is not only a therapeutic illness but also a complex phenomenon with profound physical, psychological, and social implications (1). Women across different age groups are involved in UI, but its prevalence continues to rise with developing age, impacting their quality of life and daily functioning. Sympathetic nature, causes, and implications of UI in women are essential, especially in a tertiary care setting where diverse cases converge for management. This examination investigates the multifactorial aspects of UI, discovering its epidemiology, risk factors, pathophysiology, and impact on women's lives (2). The International Continence Society defined urinary incontinence as "the complaint of any involuntary leakage of urine which is a social or hygienic problem (3). It has been estimated that as much as 30% of the population suffers from UI (4). Hospital-based training has appeared in many cases that may be under-reported by the general people. UI is a burden that can be alleviated through a better understanding of the variables that put people at risk of developing the disorder (5). Urinary incontinence is an important health issue among Indian women. In 2013, a study reported a prevalence of 21.87% UI among Indian women (6). A prevalence of 33.8% was also documented in a study conducted on community-dwelling women in a selected district in 2013 (7). The prevalence of urinary incontinence (UI) in different studies conducted across various locations in India. A hospital-based study in Lucknow found a UI prevalence of 21.87% among women attending the hospital. A higher prevalence was reported by another study in Ahmedabad,

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where 30% of women in an urban slum experienced UI. This study found a prevalence rate of 27.1% among women aged 20-70 years in Punjab. In Gujarat, a study found that among young women aged 18-45 years showed a prevalence of 29.36%. These studies indicate that UI prevalence varies across regions and populations, with rates ranging from 21.87% to 30%, suggesting that urbanization and specific age groups may influence the prevalence of urinary incontinence. Aging is an important risk factor for urinary incontinence, as the structural principle of the pelvic floor and urinary sphincter diminishes over time, mostly in postmenopausal women due to estrogen deficiency, which causes urogenital atrophy. Pregnancy and childbirth, especially with large birthweights or instrumental assistance, can lead to pelvic floor trauma, with repeated pregnancies an additional combination of the danger. Obesity increases UI risk by using added pressure on the bladder and pelvic floor, still, chronic conditions such as diabetes mellitus, chronic obstructive pulmonary diseases, and neurological disorders like multiple sclerosis contribute to its development. Lifestyle factors, including smoking, excessive caffeine intake, and occupations involving heavy lifting, also exacerbate the probability of UI (8).

Urinary incontinence is established through various subtypes with distinct underlying mechanisms. Stress urinary incontinence occurs due to pelvic floor muscle weakness and loss of urethral support, leading to involuntary urine leakage during activities that elevate intra-abdominal pressure, such as coughing or exercising, and is often partial by aging, hormonal changes, or childbirth. Urgency urinary incontinence is characterized by sudden, intense urges to urinate with involuntary leakage, characteristically caused by detrusor overactivity related to overactive bladder syndrome. Mixed urinary incontinence combines symptoms of both SUI and UUI, presenting diagnostic and therapeutic tests that necessitate personalised management (9). Overflow incontinence, though less common in women, results from incomplete bladder emptying, causing continuous salivating, and is associated with neurological conditions, urethral obstruction, or detrusor under activity (as shown in Figure 1).

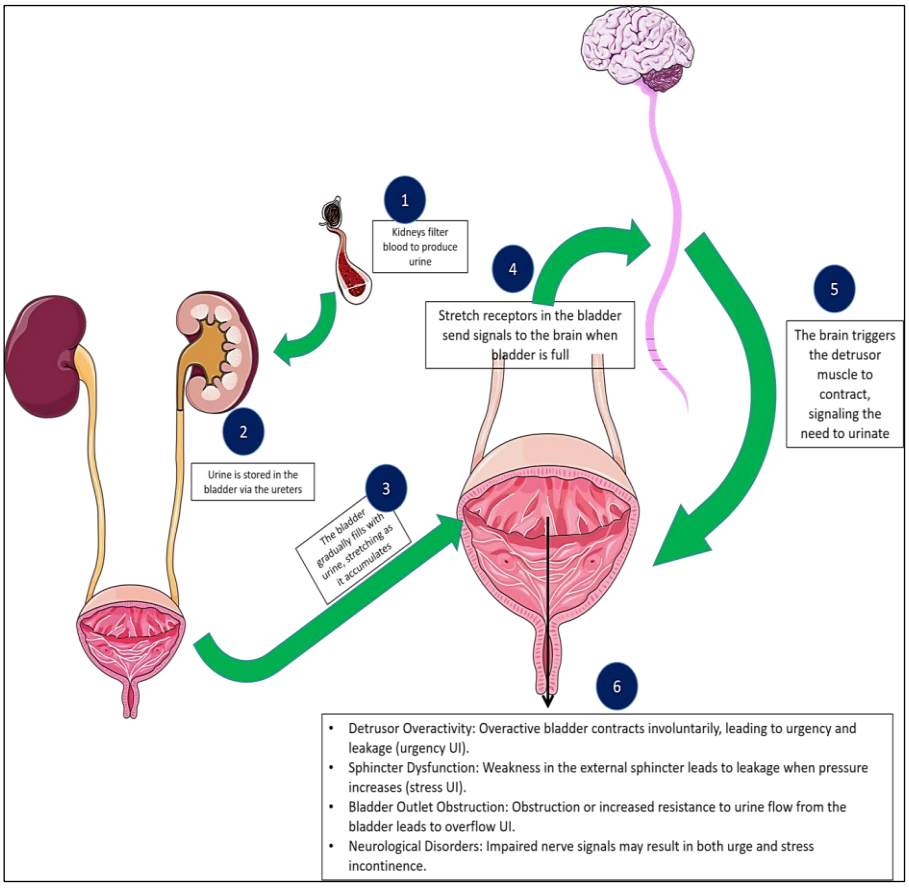

Figure 1: Mechanism of Urinary Incontinence

The implications of UI extend beyond physical discomfort, deeply affecting mental and social well-being. Women with UI often experience awkwardness, reduced self-esteem, and social isolation due to the stigma associated with the condition. The impact of UI on intimate relationships and professional life additionally underscores its multifaceted nature. In simple cases, UI can lead to clinical depression and anxiety, importance the crucial need for holistic management strategies (10) (as shown in Figure 2).

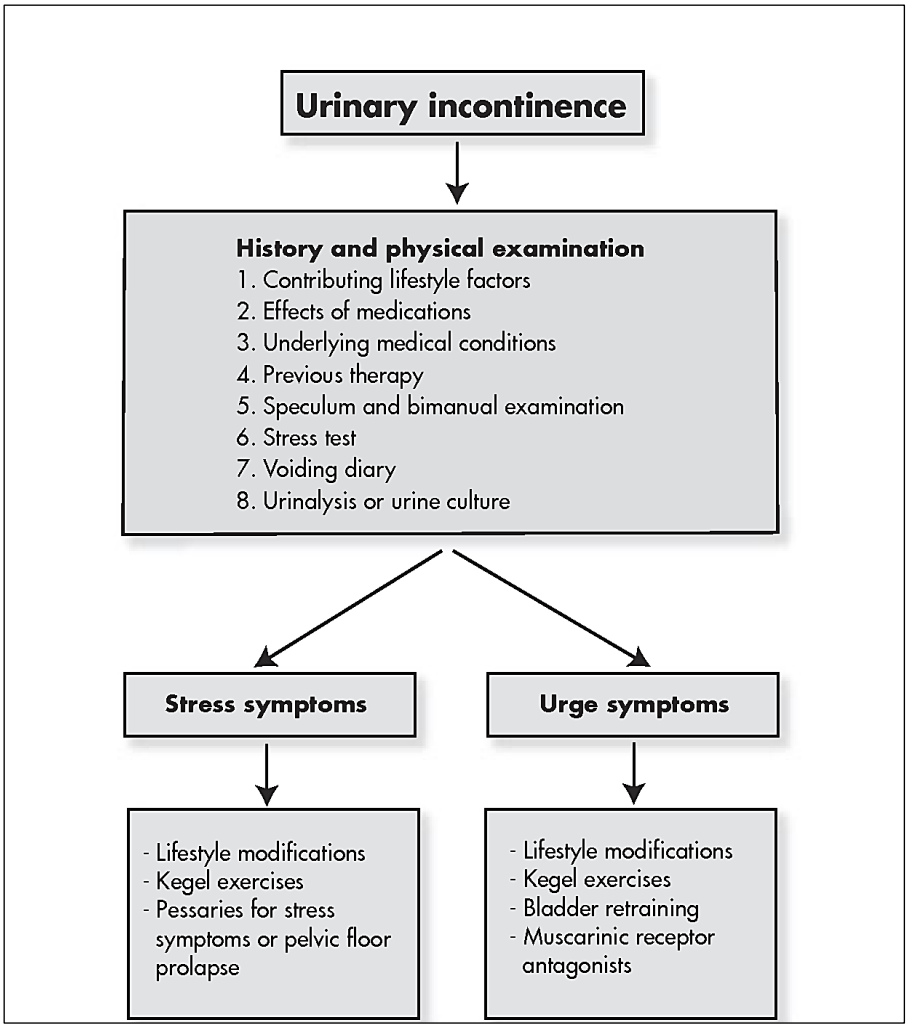

Figure 2: Flow Chart

Accurate analysis is essential for effective management of UI. A complete evaluation typically involves a detailed history, physical examination, and targeted investigations. The main components include history-taking to assess symptom onset, frequency, and severity together with contributory factors like obstetric history and lifestyle habits; pelvic examinations to identify anatomical abnormalities or signs of atrophic changes; particular tests such as urodynamic studies, bladder diaries, and imaging modalities like ultrasound or MRI to elucidate underlying pathophysiology; and screening for comorbidities such as diabetes, neurological disorders, or chronic cough that worsen UI (9). Table 1 shows various management strategies and their applications for treating specific conditions. It includes lifestyle modifications (e.g., weight loss and smoking cessation), pelvic floor muscle training (e.g., Kegel exercises), pharmacological therapies (e.g., anticholinergics), surgical interventions (e.g., mid-urethral slings), and innovative therapies (e.g., botulinum toxin). These strategies cater to different therapeutic needs in clinical practice.

Table 1: Management Strategies and Applications

Strategy	Applications
Lifestyle Modifications	Weight loss, smoking cessation, dietary changes
Pelvic Floor Muscle Training	Kegel exercises, strengthening the pelvic floor
Pharmacological Therapies	Anticholinergics, beta-3 adrenergic agonists, oestrogens
Surgical Interventions	Mid-urethral slings, colposuspension
Innovative Therapies	Botulinum toxin, neuromodulation, stem cells

Methodology

Research Design

This descriptive cross-sectional study was conducted in India from October 2023 to October 2024. It included 120 women who appeared in the outpatient department of Obstetrics and Gynaecology in a tertiary care centre. The patients with symptoms suggestive of urinary incontinence were included in the study. Patients were informed about the study's purpose and the questionnaire used, and informed consent was obtained.

Advanced doctors and paramedic staff were available to assist patients in understanding the questions. Women identified with urinary incontinence were recommended to discuss their illness and be referred to experts for additional management. The institution's ethics committee approved the treatment.

The study used the International Consultation on Incontinence Questionnaire Female Lower Urinary Tract Symptoms (ICIQ-FLUTS), an authorised questionnaire assessing female lower urinary tract symptoms and their impact on quality of life. The ICIQ-FLUTS includes 12 questions related to nocturia, urgency, bladder pain, frequency, hesitancy, straining, intermittency, urge incontinence, frequency of urinary incontinence, stress urinary incontinence, unexplained urinary incontinence, and nocturnal enuresis, concentrating on the presence of symptoms in the last four weeks. Responses were scored using a 0-4 scale based on symptom severity, and a 0-10 scale was used to assess the degree of bothersome and its impact on quality of life.

UDI-6 Scoring System

The Urogenital Distress Inventory-Short Form is a validated questionnaire used to assess the distress caused by various urinary symptoms. It is a self-reported tool comprising six items that evaluate the presence and bother of specific lower urinary tract symptoms. The scoring system is straightforward and helps quantify the severity of symptoms experienced by the patient.

Components of UDI-6

- The questionnaire includes the following six questions:
- Frequent urination.
- Urine leakage related to the feeling of urgency.
- Urine leakage related to physical activity, coughing, or sneezing.
- Small amounts of urine leakage (drops).
- Difficulty emptying the bladder.
- Pain or discomfort in the lower abdominal or genital area.

For each question, the patient rates the level of bother using a four-point Likert scale:

- 0: Not at all
- 1: A little bit
- 2: Moderately
- 3: Greatly

Calculation of the Score

- The raw score is calculated by summing up the responses for all six items, yielding a total score between 0 and 18.
- To standardize the score to a range of 0 to 100, the raw score is multiplied by 25 and divided by the total number of items (6):
- Final Score = (Raw Score × 25) ÷ 6

Interpretation

- A higher final score indicates greater symptom burden and distress.
- The UDI-6 score provides a reliable measure of urinary symptoms' impact on the patient's quality of life and can be used to evaluate the effectiveness of therapeutic interventions over time.

Table 2 outlines the scoring system for the FVI, with scores based on frequency of specific behaviors. It includes the F, V, and I scores, each scored from 0 to 4, reflecting the frequency of behaviors from "never" to "all the time" across various items.

Table 2: Scoring of FVI

Score		0	1	2	3	4
F score: sum scores 2a-5a	2a	none	one	two	three	four or more
	3a	never	occasionally	sometimes	most of the time	all the time
	4a	never	occasionally	sometimes	most of the time	all the time
	5a	1 to 6 times	7 to 8 times	9 to 10 times	11 to 12 times	13 or more times
V score: sum scores 6a+7a+8a	6a	never	occasionally	sometimes	most of the time	all the time
	7a	never	occasionally	sometimes	most of the time	all the time
	8a	never	occasionally	sometimes	most of the time	all the time
I score: sum scores9a-13a	9a	never	occasionally	sometimes	most of the time	all the time
	10a	never 0	once or less per week 1	two to three times per week 2	once per day 3	several times per day
	11a	never	occasionally	sometimes	most of the time	all the time
	12a	never	occasionally	sometimes	most of the time	all the time
	13a	never	occasionally	sometimes	most of the time	all the time

Based on their responses, patients were classified as having nocturia, frequency of urination, dysuria, stress incontinence, urge incontinence, or mixed incontinence. The ICIQ-FLUTS questionnaire provides a psychometrically healthy measure of urinary symptoms, with scores ranging from 0-16 for filling symptoms, 0-12 for removal symptoms, and 0-20 for incontinence symptoms. Other scoring systems, including the IPSS, OABSS, and CLSS, were also considered, but the ICIQ-FLUTS was selected due to its appropriateness for assessing female urinary tract symptoms.

Inclusion Criteria

- Women aged 18 years and above attending the Obstetrics and Gynaecology outpatient department with symptoms suggestive of urinary incontinence.
- Patients who gave informed consent to be part of the study.
- Women who could complete the ICIQ-FLUTS questionnaire with or without assistance.

Exclusion Criteria

- Pregnant women.
- Women with known urinary tract infections or those enduring treatment for urinary problems at the period of enrolment.
- Women who were impotent to deliver consent or complete the questionnaire due to cognitive or statement problems.
- Patients with a history of recent urological surgery (within the last 6 months).
- Patients with severe medical or psychiatric conditions could inhibit with involvement in the study.

Statistical Analysis

The statistical analysis involved several methods to assess the data's significance and relationships. Descriptive statistics were used to summarise the frequency and severity of symptoms across different factors in the UDI-6 and ICIQ-FLUTS scoring systems. Correlation analysis, using Pearson's correlation coefficient, was performed to examine the strength of relationships between urinary symptoms. A one-sample t-test was conducted to determine if the mean scores for each symptom significantly differed from zero, confirming their relevance and impact on patients.

All results were assessed for statistical significance with p-values less than 0.05. Data were entered and presented as frequency and percentage. Data analysis was performed using IBM-SPSS version 21.0 (IBM-SPSS Science Inc., Chicago, IL).

Results

Table 3 shows a diverse patient population with varying risk factors. Of the 120 patients, 41.67% have a normal BMI, 33.33% are overweight, and 25% are obese. Regarding parity, 41.67% have 1-2 children, while 25% are nulliparous and 33.33% have 3 or more children. The population is evenly split between pre-menopausal and post-menopausal women, each representing 50%. Comorbidities include obesity (25%), hypertension (20.83%), and diabetes (16.67%). Additionally, 25% have a history of pelvic surgery, and 58.33% of deliveries were vaginal, with 41.67% by caesarean section. The number of patients in each age range has been shown in Figure 3 and the distribution of the final scores of the patients has been shown in Figure 4.

Table 3: Demographic Characteristics of the Patients

Demographic Parameter	Category	Number of Patients (n = 120)	Percentage (%)
BMI	Normal (18.5-24.9)	50	41.67%
	Overweight (25-29.9)	40	33.33%
	Obese (30+)	30	25.00%
Parity	Nulliparous (0 children)	30	25.00%
	1-2 children	50	41.67%
	3 or more children	40	33.33%
Menopausal Status	Pre-menopausal	60	50.00%
	Post-menopausal	60	50.00%
Comorbidities	Diabetes	20	16.67%
	Hypertension	25	20.83%
	Obesity	30	25.00%
	Other (COPD, Neurological)	20	16.67%
Pelvic Surgery History	None	25	20.83%
	Yes	30	25.00%
	No	90	75.00%

Method of Delivery	Vaginal Delivery	70	58.33%
	Caesarean Section	50	41.67%

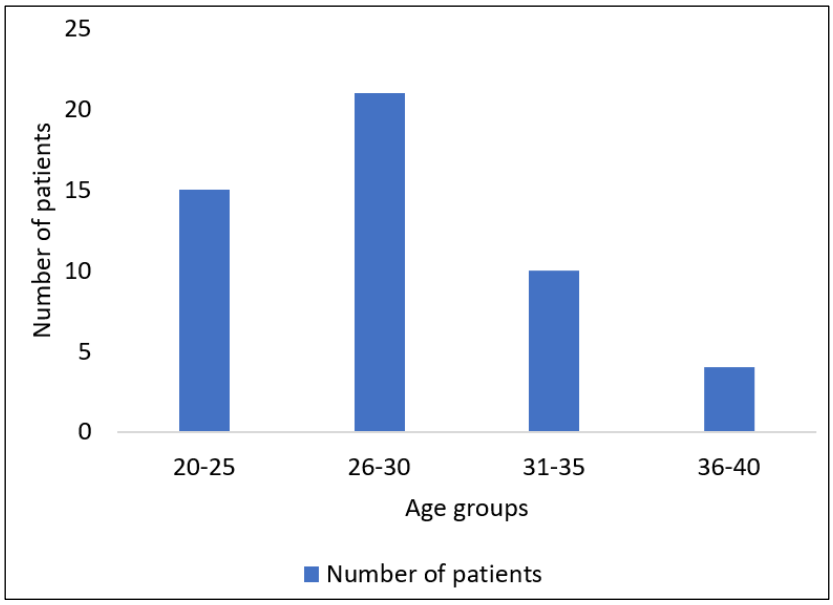

Figure 3: Number of Patients in Each Age Range

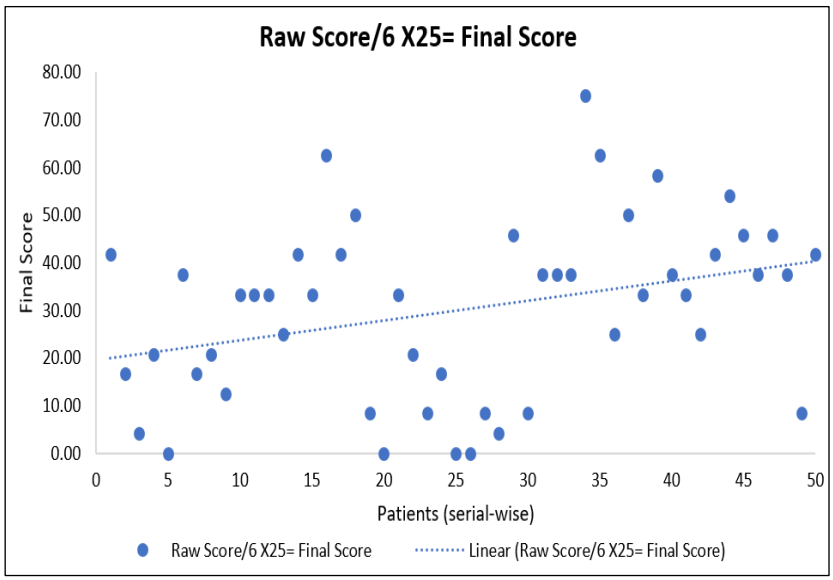

Figure 4: Distribution of Final Scores of the Patients

The interpretation of the data from the two tables highlights key insights into urinary symptoms and their impact on patients. Table 4, based on UDI-6 scoring, shows that frequent urination is the most common issue, with a significant number of patients reporting it as a "Moderate" problem. Urine leakage related to urgency and physical activities is less prevalent, with most patients reporting these as "Not at all" or "Slightly" bothersome. Small amounts of urine leakage show a balanced distribution across severity levels, indicating variability among patients. Difficulty urinating is less commonly reported as "Greatly" bothersome but is still significant across other levels. Pain or discomfort in the lower abdominal, pelvic, or genital area has more patients reporting it as "Moderately" or "Greatly" bothersome, suggesting that this issue has a higher severity for some individuals.

Table 4: Number of Patients against Each Factor/Question in UDI-6 Scoring

Question	Not at all	Slightly	Moderately	Greatly
Frequent Urination	6	14	20	10
Urine Leakage Related to Urgency	21	17	9	3
Urine Leakage Related to Physical Activities	22	13	12	3
Small Amount of Urine Leakage	19	14	14	3
Difficulty Urinating	18	14	10	8
Pain or Discomfort in Lower Abdominal, Pelvic, or Genital Area	9	15	15	11

In Table 5, which presents the average scores for symptoms in ICIQ-FLUTS, frequent urination at night (mean: 2.8) is more prevalent than during the day (mean: 1.64), with both showing moderate bother scores of 4.72 and 4.66, respectively. Sudden urgency to urinate (mean: 1.76) is moderately common but has a high bother score (4.76), indicating significant disruption. Pain in the bladder, though less frequent (mean: 1.8), also has a high bother score (4.26), reflecting its impact on quality of life. Symptoms like urinary delay (mean: 0.7) and straining to urinate (mean: 0.86) are less frequent but still moderately bothersome, with scores of 2.48 and 2.4, respectively. Urinary leakage (mean: 1.02) and leakage due to physical activity (mean: 1.18) are more common than delay or straining, with bother scores of 3.76 and 3.42, respectively. Leakage while asleep (mean: 0.38) is the least frequent symptom and has the lowest bother score of 1.55, indicating minimal impact on patients (as shown in Figure 5).

Table 5: Average Scores against Each Question in ICIQ-FLUTS

Questions	Mean Value
During the night, how many times do you have to get up to urinate on average?	2.8
How much does it bother you?	4.72
Do you have a sudden need to rush to the toilet to urinate?	1.76
How much does it bother you?	4.76
Do you have pain in your bladder?	1.8
How much does it bother you?	4.26
How often do you pass urine during the day?	1.64
How much does it bother you?	4.66
Is there any delay before you can start to urinate?	0.7
How much does it bother you?	2.48
Do you have strain to urinate	0.86
How much does it bother you?	2.4
Do you stop and start more than once while you urinate?	0.84
How much does it bother you?	2.82
Does urine leak before you can get to the toilet?	1.02
How much does it bother you?	3.76
How often do you leak urine?	0.76
How much does it bother you?	3.46
Does urine leak when you are physically active, exert yourself, cough, or sneeze?	1.18
How much does it bother you?	3.42
Do you ever leak urine for no obvious reason and without feeling that you want to go?	0.7
How much does it bother you?	1.84
Do you leak urine when you are asleep?	0.38
How much does it bother you?	1.551020408

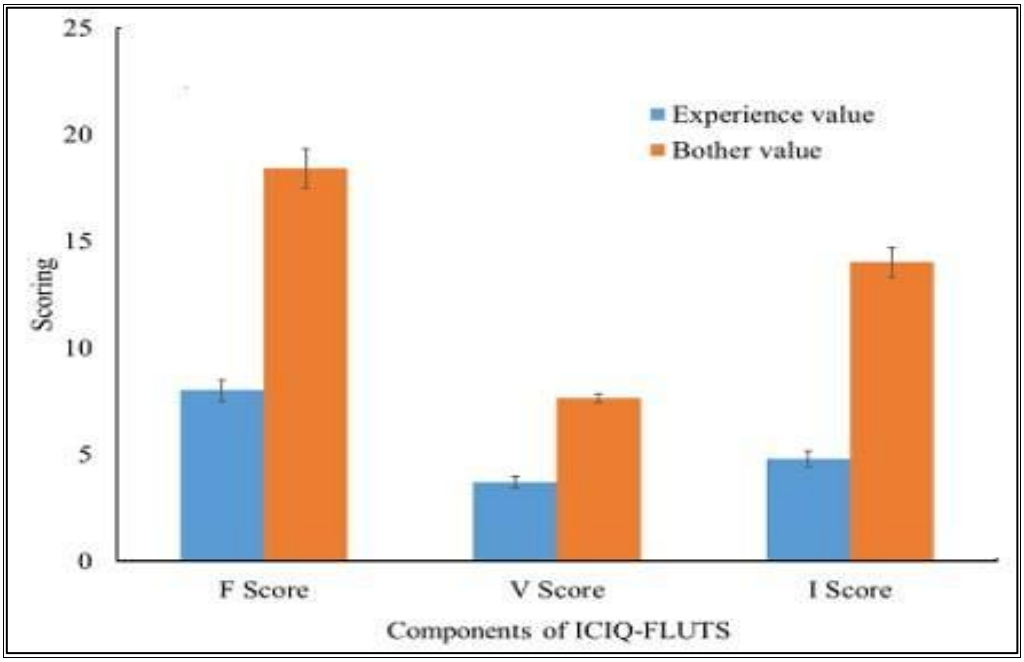

Figure 5: Filling, Voiding and Incontinence Score of ICIQ-FLUTS

Table 6 shows significant correlations between the factors in UDI-6, highlighting the interconnected nature of urinary symptoms. Frequent urination shows a strong and significant correlation with difficulty urinating ($r = 0.692$, $p < 0.001$) and pain or discomfort in the lower abdominal, pelvic, or genital area ($r = 0.732$, $p < 0.001$), indicating these issues often co-occur. Urine leakage related to urgency is highly correlated with leakage during physical activities ($r = 0.830$, $p < 0.001$) and small amounts of urine leakage ($r = 0.715$, $p < 0.001$), suggesting that urgency frequently exacerbates other forms of leakage. While urine leakage during physical activities shows a moderate correlation with small amounts of leakage ($r = 0.652$, $p < 0.001$), its connections to other symptoms are weaker. Small amounts of urine leakage correlate moderately with difficulty urinating ($r = 0.465$, $p = 0.001$) and pain or discomfort ($r = 0.327$, $p = 0.021$), further emphasising their overlap. Difficulty urinating is strongly correlated with pain or discomfort ($r = 0.805$, $p < 0.001$), underlining their close association. The significant p-values (<0.05 or <0.001) confirm the robustness of these relationships, with frequent urination and pain or discomfort emerging as central issues linked to multiple symptoms.

Table 6: Correlation between the Factors Involved in UDI6

		Frequent Urination	Urine Leakage Related to Urgency	Urine Leakage Related to Physical Activities	Small Amount of Urine Leakage	Difficulty Urinating	Pain Or Discomfort in Your Lower Abdominal, Pelvic, Or Genital Area
Frequent Urination	Pearson Correlation	1	0.272	0.104	0.254	0.692**	0.732**
	Sig. (2-tailed)		0.056	0.47	0.075	0	0

Urine Leakage Related to Urgency	Pearson Correlation	0.272	1	0.830**	0.715**	0.405**	0.264
	Sig. (2-tailed)	0.056		0	0	0.003	0.064
Urine Leakage Related to Physical Activities	Pearson Correlation	0.104	0.830**	1	0.652**	0.259	0.247
	Sig. (2-tailed)	0.47	0		0	0.069	0.084
Small Amount of Urine Leakage	Pearson Correlation	0.254	0.715**	0.652**	1	0.465**	0.327*
	Sig. (2-tailed)	0.075	0	0		0.001	0.021
Difficulty Urinating	Pearson Correlation	0.692**	0.405**	0.259	0.465**	1	0.805**
	Sig. (2-tailed)	0	0.003	0.069	0.001		0
Pain Or Discomfort in Your Lower Abdominal, Pelvic, Or Genital Area	Pearson Correlation	.732**	0.264	0.247	0.327*	0.805**	1
	Sig. (2-tailed)	0	0.064	0.084	0.021	0	

*** significant

In Table 7, the one-sample t-test results demonstrate that all ICIQ scores significantly differ from zero, shows their relevance to patients. Frequent urination at night has a mean score of 2.8 (95% CI: 2.48–3.12, $p < 0.001$), indicating it is a moderately common issue. Its bother score is notably higher at 4.72 (95% CI: 3.85–5.59, $p < 0.001$), reflecting its significant impact on quality of life. Sudden urgency to urinate has a lower frequency (mean = 1.76, 95% CI: 1.40–2.12, $p < 0.001$) but a high bother score (4.76, 95% CI: 3.88–5.64, $p < 0.001$), showing it is highly disruptive. Bladder pain is relatively infrequent (mean = 1.8, 95% CI: 1.43–2.17, $p < 0.001$) but has a significant bother score of 4.26 (95% CI: 3.44–5.08, $p < 0.001$). Symptoms such as urinary delay (mean = 0.7, $p < 0.001$) and straining to urinate (mean = 0.86, $p < 0.001$) are less frequent but still moderately bothersome, with scores of 2.48 and 2.4, respectively. Urinary leakage, whether before

reaching the toilet, during physical activity, or without an obvious cause, has low mean frequencies (0.76–1.18) but high bother scores (3.42–3.76), highlighting their significant impact despite their infrequency. Leakage during sleep is the least common symptom (mean = 0.38, $p < 0.001$) with the lowest bother score (1.55, $p < 0.001$), indicating minimal disruption. Overall, frequent urination, urgency, and bladder pain emerge as the most impactful issues, combining moderate-to-high frequencies with significant bother scores. The low p-values across all symptoms confirm the reliability of these findings.

Table 7: One Sample t-Test of ICIQ Scores

	Test Value = 0					
	t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
During the night, how many times do yo have to get up to urinate on average?	17.601	49	0.000	2.800	2.48	3.12
How much does it bother you?	10.892	49	0.000	4.720	3.85	5.59
Do you have a sudden need to rush to the toilet to urinate	9.794	49	0.000	1.760	1.40	2.12
How much does it bother you?	10.809	49	0.000	4.760	3.88	5.64
Do you have pain in your bladder?	9.721	49	0.000	1.800	1.43	2.17
How much does it bother you?	10.393	49	0.000	4.260	3.44	5.08
How often do you pass urine during the day?	10.349	49	0.000	1.640	1.32	1.96
How much does it bother you?	11.845	49	0.000	4.660	3.87	5.45
Is there any delay before you can start to urinate?	4.876	49	0.000	0.700	0.41	.99
How much does it bother you?	5.784	49	0.000	2.480	1.62	3.34
Do you have strain to urinate	5.016	49	0.000	0.860	0.52	1.20
How much does it bother you?	6.000	49	0.000	2.400	1.60	3.20
Do you stop and start more than once while you urinate?	5.168	49	0.000	0.840	0.51	1.17
How much does it bother you?	6.160	49	0.000	2.820	1.90	3.74
Does urine leak before you can get to the toilet?	7.071	49	0.000	1.020	0.73	1.31
How much does it bother you?	8.943	49	0.000	3.760	2.92	4.60
How often do you leak urine?	6.348	49	0.000	0.760	.52	1.00
How much does it bother you?	7.522	49	0.000	3.460	2.54	4.38
Does urine leak when you are physically active, exert yourself, cough, or sneeze?	6.818	49	0.000	1.180	0.83	1.53
How much does it bother you?	6.956	49	0.000	3.420	2.43	4.41
Do you ever leak urine for no obvious reason and without feeling that you want to go?	5.315	49	0.000	0.700	0.44	0.96
How much does it bother you?	4.309	49	0.000	1.840	0.98	2.70
Do you leak urine when you are asleep?	3.704	49	0.001	0.380	0.17	0.59
How much does it bother you?	3.899	48	0.000	1.551	0.75	2.35

Figure 6 shows the correlation between factors involved in UDI6, highlighting both strong and moderate relationships among them. "Urine Leakage Related to Physical Activities" and "Urine Leakage Related to Urgency" show a strong positive correlation (0.830), indicating that these symptoms often co-occur. Similarly, "Difficulty Urinating?" and "Pain or Discomfort in the Lower Abdominal, Pelvic, or Genital Area?" are strongly correlated (0.805), suggesting a significant association between these two factors. Additionally, "Frequent Urination?" has moderate to strong correlations with "Pain or Discomfort" (0.732) and "Difficulty Urinating?" (0.692). The remaining relationships display weaker correlations, indicating more variable associations across other symptoms. Overall, the heatmap provides insight into how certain urinary symptoms are closely linked.

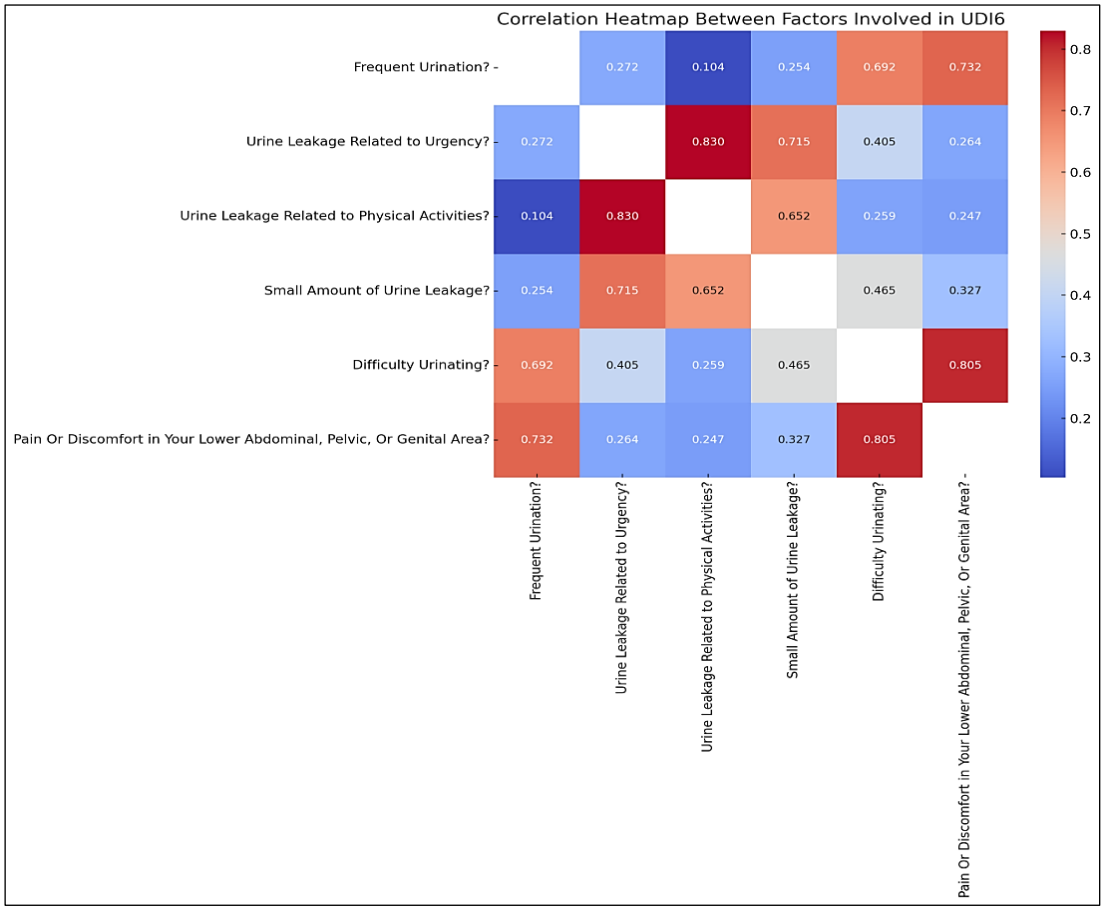

Figure 6: Correlation Heatmap between Factors Involved in UDI6

Discussion

Urinary incontinence is a pervasive condition among women, with profound implications for their quality of life. The widespread prevalence of UI often remains underdiagnosed and undertreated, largely due to social stigma, lack of awareness, and misconceptions. Studies conducted in tertiary care centres provide valuable insights into its prevalence, types, related risk factors, and potential interferences (10, 11). Studies conducted in tertiary care settings have emphasised the significant burden of UI among women across different life stages. A study from Northern India reported that 40.4% of pregnant women experienced UI, with stress urinary incontinence being the most common type, accounting for 45.5% of cases. Mixed urinary incontinence followed at 34.6%, while urge urinary incontinence constituted 19.8% of cases research from a tertiary health care centre in Kochi, Kerala, found a 26.47% prevalence of UI among postmenopausal women (11). SUI remained the predominant type, reported in 13.9% of cases, with MUI at 7.2% and UUI at 5.4%. These inferences underscore the inconsistency in prevalence and type distribution of UI across different demographic groups, influenced by physiological, hormonal, and lifestyle factors.

The accurate documentation and assessment of UI are essential for effective management. The Questionnaire for Urinary Incontinence Diagnosis is a validated six-item diagnostic tool designed to decide between SUI and UUI. Its reliability and effectiveness have been established across diverse populations, including postmenopausal women. The procedure of the QUID in clinical settings enables precise diagnosis, enabling healthcare providers to tailor involvements to the specific type of incontinence, thereby improving outcomes (12). Another important tool is the Health Belief Scale for Urinary Incontinence and Kegel Exercise, a 49-item instrument developed to assess awareness and beliefs about pelvic-level muscle exercises among individuals with UI (13). A validation study conducted in Turkey confirmed the reliability of this scale in evaluating health beliefs and promoting self-management strategies. Integrating this scale into clinical practice can help healthcare workers know patient sensitivities, identify barriers to accepting beneficial performs, and design targeted, informative programs to improve observance of contributions like Kegel exercises (10-13).

The risk factors associated with UI are multifaceted and vary across different populations. In Northern India, a study identified multiparity, chronic cough, and bladder infections as significant contributors to UI development. Similarly, the research in Kerala emphasised chronic cough, recurrent urinary tract infections, and extended labour as independent risk factors among postmenopausal women. These results underline the importance of inclusive patient histories and the need for targeted preventive events, mainly for high-risk groups (13).

Preventive approaches should focus on addressing modifiable risk factors. Managing chronic cough, treating recurrent urinary tract infections, and improving labour and delivery practices can significantly reduce the incidence of UI. Also, airborne awareness about the benefits of pelvic floor muscle exercises and ensuring access to antenatal and postnatal care can further mitigate risks (11, 12). The important prevalence of UI treatment-seeking behaviour among affected women remains disturbingly low. The study from Northern India revealed that only 15.3% of women with UI sought medical treatment, with a mere 6.9% of those experiencing very severe UI doing so. This reluctance is often rooted in societal stigma, lack of awareness, and misunderstandings about the condition. Many women perceive UI as an expected consequence of aging or childbirth, relatively more than a treatable medical condition (13, 14).

The barriers require a multi-layered approach. Educational initiatives can play a crucial role in dispelling myths, enhancing awareness, and allowing women to seek timely care. Healthcare providers can leverage tools like the Health Belief Scale to understand patient perspectives and develop tailored communication strategies. Community-based interventions, support groups, and culturally sensitive health promotion campaigns can also help normalize discussions around UI and encourage treatment-seeking behavior (14, 15).

The analysis of urinary incontinence among women in tertiary care centres things to see its significant prevalence, mainly of SUI, and underlines key risk factors such as multiparity, chronic cough, and bladder infections (12, 13). The application of diagnostic tools like the QUID and the Health Belief Scale for Urinary Incontinence and Kegel Exercise is instrumental in the effective assessment and management of UI. To address the substantial treatment gap, it is imperative to implement educational initiatives, promote awareness, and develop targeted preventive approaches. By allowing women to seek care and adopt beneficial practices, healthcare providers can significantly improve health outcomes and increase the quality of life for those affected by this illness (15).

Conclusion

The study has concluded that the frequent urination, particularly at night, along with sudden urgency and bladder pain, significantly impact patients' quality of life, as evidenced by moderate-to-high bother scores. The correlation analysis further implies that the symptoms such as urine leakage related to urgency and physical activities, difficulty urinating, and pelvic discomfort often co-occur, suggesting these issues are closely interconnected. These results concludes the importance of addressing these common symptoms in urinary health management, as they are prevalent and contribute to significant patient distress.

Abbreviation

None.

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Author Contributions

All the authors contributed equally.

Conflict of Interest

The authors declare that they do not have any conflict of interest.

Ethics Approval

Informed consent was obtained from all participants prior to their inclusion in the study. Each participant was thoroughly informed about the study's purpose, the procedures involved, and their right to withdraw at any time without consequence. Consent was obtained either verbally or in writing, depending on the participant's preference, and all responses were anonymized to ensure confidentiality. The research was reviewed and approved by the institutional ethics committee of Teerthanker Mahaveer University, Moradabad, ensuring compliance with ethical standards for research involving human subjects. The study adhered to the ethical guidelines outlined in the Declaration of Helsinki, ensuring the safety, rights, and well-being of the participants throughout the research process.

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