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ORIGINAL ARTICLE

Prevalence and Associated Factors of Urinary Incontinence among Adults Attending a Family Medicine Clinic

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Abstract

Introduction: This study aimed to determine the prevalence and subtypes of urinary incontinence (UI), as well as associated demographic and clinical factors, among adults attending a family medicine outpatient clinic.

Methods: A two-phase cross-sectional study was conducted between January and April 2018. In Phase 1, 794 participants aged 18 years and older completed the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF). Those identified with UI were invited to participate in Phase 2, in which a 25-item structured questionnaire was administered via face-to-face interviews to explore contributing factors. All statistical analyses were conducted using SPSS version 25.0. A p-value of less than 0.05 was considered statistically significant.

Results: Of the participants, 26.9% reported UI. The most common subtype was mixed incontinence (14.4%), followed by urge (6.5%) and stress incontinence (5.9%). UI was significantly more prevalent among women ($p<0.001$) and individuals aged 65 and older ($p<0.001$). In the second phase (n=130), mixed incontinence remained the predominant type (51.5%). Significant associations were found between UI type and menopausal status ($p=0.032$) and the sensation of incomplete bladder emptying ($p=0.016$). Although the prevalence of urinary incontinence is high, only 16.9% of affected individuals sought medical care. Most attributed this to feelings of embarrassment or perceiving the condition as unimportant.

Discussion and Conclusion: Urinary incontinence is a common but underreported condition that significantly affects quality of life, particularly among older adults and women. Routine screening in primary care settings is essential for early detection and effective management.

Keywords: Aging; mixed incontinence, prevalence; primary care; urinary incontinence.

Urinary incontinence (UI), defined as the involuntary leakage of urine, is a common yet underdiagnosed condition that significantly impacts quality of life. Reported prevalence rates vary widely, ranging from 5% to 70% across different populations and age groups, depending on study design and diagnostic criteria [1]. UI is generally classified into three primary subtypes: stress incontinence, urge incontinence, and mixed incontinence, each with distinct etiological and clinical characteristics [2].

The condition is more frequently reported among women and older adults, largely due to anatomical and physiological factors such as pelvic floor damage during childbirth and postmenopausal estrogen deficiency [3]. Although its high prevalence and negative influence on physical, emotional,

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and social well-being, UI is often underreported by patients due to embarrassment or the misconception that it is a natural consequence of aging. This underreporting contributes to low diagnosis and treatment rates, leading to a significant burden on both individuals and healthcare systems [4].

Understanding the epidemiology of UI, including its associated risk factors and behavioral correlates, is essential for improving early diagnosis and preventive strategies, particularly in primary care settings. However, studies that evaluate the prevalence and contributing factors of UI in general adult populations attending family medicine clinics remain limited in number and scope.

Therefore, the aim of this study was to assess the prevalence and subtypes of urinary incontinence and to identify associated sociodemographic and clinical variables in individuals over the age of 18 who presented to a family medicine outpatient clinic.

Materials and Methods

Study Design and Setting

This cross-sectional study was conducted between January 1 and April 1, 2018, at the Family Medicine outpatient clinic of a tertiary research hospital. The study was carried out in two distinct phases. Ethical approval was obtained from the University of Health Sciences, Şişli Hamidiye Etfal Training and Research Hospital Ethics Committee (Approval No: 1763, Date: November 14, 2017), and all participants provided written informed consent in accordance with the Declaration of Helsinki.

Study Population and Sampling

The study included adult patients aged 18 years and older who attended the family medicine clinic for any reason and agreed to participate. Exclusion criteria were as follows: individuals under 18 years of age, those with mental or communication disabilities, refusal to participate, and incomplete or erroneous questionnaire data.

Of the 3,124 individuals who visited the clinic during the study period, 794 participants met the inclusion criteria and were enrolled in Phase 1. Based on their responses to the ICIQ-SF, 214 participants were identified as having UI. In Phase 2, 130 of these individuals agreed to participate in a more detailed face-to-face interview.

Sample size was calculated using G*Power 3.1 software, with a power of 95%, a significance level of 0.05, and an effect size of 0.3. The minimum required sample size was determined as 124 individuals. The final sample exceeded this number, enhancing the study's statistical robustness.

Data Collection Tools and Procedures

In Phase 1, participants completed the International Consultation on Incontinence Questionnaire – Short Form (ICIQ-SF), a validated and widely used tool for assessing the frequency, severity, and impact of UI on quality of life. The Turkish version of the ICIQ-SF was validated by Çetinel et al. [5,6]. It consists of six items scored between 0 and 21, with higher scores indicating greater symptom severity [7].

In Phase 2, individuals who screened positive for UI completed a 25-item structured questionnaire administered through face-to-face interviews. This questionnaire collected detailed sociodemographic data, medical and surgical history, medication use, reproductive history (for females), and urinary symptom characteristics. UI was categorized into three types: stress, urge, and mixed incontinence, based on self-reported symptom patterns.

Statistical Analysis

All statistical analyses were conducted using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were calculated as mean and standard deviation for continuous variables, and as frequencies and percentages for categorical variables. For non-normally distributed variables, median values (min–max) were reported. Chi-square was used for comparing proportions. The Kolmogorov–Smirnov test was used to assess the normality of continuous variables. Non-normally distributed variables were analyzed using the Mann–Whitney U test or Kruskal–Wallis test, while normally distributed variables were compared using One-Way Welch ANOVA. For post-hoc analyses, Tukey's HSD test was used following parametric ANOVA, while non-parametric comparisons between more than two groups were performed using the Kruskal–Wallis test, and when significant, post-hoc pairwise comparisons were conducted with Dunn's test using Bonferroni correction for multiple comparisons. A p-value of less than 0.05 was considered statistically significant.

Results

First Phase Results

A total of 794 individuals participated in the study. Among them, 457 (57.6%) were between 40–65 years old. There were 594 women (74.8%). A history of urinary incontinence was reported by 214 participants (26.9%), while 590 participants (74.3%) had never experienced UI.

Participants reported varying frequencies and volumes of UI: 70 (8.8%) experienced UI once a week or less, 43 (5.4%) two or three times a week, 146 (18.4%) reported losing a small amount of urine, and 34 (4.3%) reported losing a

large amount. The impact of UI on daily life was rated on a scale from 0 to 10, with 41 participants (5.2%) rating it a 10.

Regarding UI types, 52 participants (6.5%) had urge UI, 47 (5.9%) had stress UI, and 115 (14.4%) had mixed UI. The average ICIQ-SF score for the group was 10.83±5.37.

- Women with stress incontinence (n=47) had an average ICIQ-SF score of 5.87±0.41 (min: 3, max: 15).
- Women with urge incontinence (n=52) had an average ICIQ-SF score of 9.96±0.74 (min: 3, max: 21).
- Women with mixed incontinence (n=115) had an average ICIQ-SF score of 13.25±0.43 (min: 3, max: 21).

Among women with a history of UI (n=185), 95 (51.4%) had mixed incontinence, 47 (25.4%) had urge incontinence, and 43 (23.2%) had stress incontinence. Among men with a history of incontinence (n=29), 20 (69.0%) had mixed incontinence, 5 (17.2%) had urge incontinence, and 4 (13.8%) had stress incontinence.

Women had higher rates of incontinence frequency, volume, impact on daily life, history of incontinence, urgency, stress incontinence, and mixed incontinence compared to men (p<0.001, p<0.001, p=0.001, p<0.001, p<0.001, p<0.001, p=0.037, respectively) (Table 1).

Table 1. Comparison of ICIQ-SF characteristics by gender and age groups of all participants

	Gender					Age						
	Male		Female			Under 40 years old		40-64 years old		65 years and older		
	n	%	n	%	p	n	%	n	%	n	%	p
Urinary incontinen-ce status												
Incontinence present	29	14.5	185	31.1	**<0.001**	27	17.2	107	23.4	80	44.4	**<0.001**
Never Incontinent	171	85.5	409	68.9		130	82.8	350	76.6	100	55.6	
How often do you leak urine?												
Never	171	85.5	409	68.9	**<0.001**	130	82.8	350	76.6	100	55.6	**<0.001**
About once a week or less often	11	5.5	59	9.9		14	8.9	43	9.4	13	7.2	
Two or three times a week	4	2.0	39	6.6		5	3.2	20	4.4	18	10	
About once a day	3	1.5	29	4.9		4	2.5	14	3.1	14	7.8	
Several times a day	7	3.5	29	4.9		3	1.9	16	3.5	17	9.4	
All the time	4	2.0	29	4,9		1	0.6	14	3.1	18	10	
How much urine do you usually leak? (whether you wear protection or not)												
None	171	85.5	409	68.9	**<0.001**	130	82.8	350	76.6	100	55.6	**<0.001**
A small amount	21	10.5	125	21		21	13.4	77	16.8	48	26.7	
A moderate amount	3	1.5	31	5.2		5	3.2	15	3.3	14	7.8	
A large amount	5	2.5	29	4.9		1	0.6	15	3.3	18	10	
How significantly does urinary incontinence impact your daily life?												
5 points or less	184	92.0	489	82.3	**0.001**	148	94.3	402	88.0	123	68.3	**<0.001**
6 points or more	16	8.0	105	17.7		9	5.7	55	12.0	57	31.7	
Leaking urine before reaching the toilet												
None	181	90.5	475	80.0	**<0.001**	144	91.7	392	85.8	120	66.7	**<0.001**
Present	19	9.5	119	20.0		13	8.3	65	14.2	60	33.3	
Leaking urine when coughing or sneezing												
None	190	95.0	474	79.8	**<0.001**	141	89.8	393	86	130	72.2	**<0.001**
Present	10	5.0	120	20.2		16	10.2	64	14	50	27.8	
Mixed type UI												
None	180	90.0	499	84.0	**0.037**	146	93.0	413	90.4	120	66.7	**<0.001**
Present	20	10.0	95	16.0		11	7.0	44	9.6	60	33.3	
Total	200	100.0	594	100.0		157	100.0	457	100.0	180	100.0	

Chi-Square analysis. ICIQ-SF: International Consultation on Incontinence Questionnaire – Short Form; UI: Urinary incontinence.

There was a significant difference between ICIQ-SF scores and gender (Z=-4.618, U=49281.0, p<0.001), with women scoring higher than men (Table 2).

Participants aged 65 and older had higher frequencies, volumes, impacts on daily life, histories of incontinence, urgency, stress incontinence, and mixed incontinence compared to other age groups (p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, p<0.001, respectively). The distribution of UI by age group is shown in Table 1.

As presented in Table 2, the Kruskal–Wallis test indicated a significant difference in ICIQ-SF scores across age groups (H=49.62, p<0.001), with the highest scores observed in those aged 65 and older. Post-hoc Dunn's test with Bonferroni correction revealed that patients who were 65 years and older had significantly higher scores compared with patients younger than 40 years (p<0.001). There was no significant difference in ICIQ-SF scores between patients younger than 40 years and those aged 40–64 years (p=0.183).

Second Phase Results

Of the 214 participants with a history of UI, 130 were included in the second phase of the study. Of these individuals, 115 (88.5%) were female, and the mean age was 61.49±13.39 years (min: 26, max: 97). When the distribution according to UI types was examined, 42 individuals (32.3%) were diagnosed with urge-type UI, 21 individuals (16.2%) with stress-type UI, and 67 individuals (51.5%) with mixed UI.

The mean number of pregnancies among female participants was 5.06±3.31 (min: 0, max: 21), the mean number of births was 3.53±2.27 (min: 0, max: 11), and the mean number of abortions was 1.33±1.87 (min: 0, max: 15). The mean age at first birth was 20.41±3.71 years (min: 13, max: 40), and eight women (7.0%) had never given birth. The vaginal birth rate was 81.7% (n=94), and the cesarean birth rate was 11.3% (n=13). Vaginal, rectal, or bladder prolapse was detected in 16.5% (n=19) of the women, and atrophic urethritis or vaginitis was detected in 33.0% (n=38). The menopause rate was 74.8% (n=86), while 25.2% (n=29) were still menstruating. A statistically significant relationship was found between menopausal status and UI type (p=0.032).

Among male participants, 13.3% (n=2) had rectal or bladder prolapse, and 46.7% (n=7) had benign prostatic hyperplasia (BPH). When surgical history was examined, 53.3% (n=8) of the men had not undergone any previous surgery, and 20.0% (n=3) had undergone prostate surgery.

A total of 22 participants (16.9%) sought medical help due to UI, while 112 (83.1%) did not seek medical attention. Reasons for not seeking help included not perceiving the complaint as important (59.8%, n=67), embarrassment (29.4%, n=33), and the physician not asking about the condition (10.7%, n=12). In addition, 70.8% (n=92) of the participants stated that they avoided using public

Table 2. Comparison of ICIQ-SF scores by age groups and gender

	n	%	Mean±SD	Median* (min–max)	p	Post-hoc[c]
Age						
Under 40 years old[1]	157	19.8	1.36±0.28	0 (0–17)	**<0.001[a]**	3>1: **p<0.001**
40–64 years old[2]	457	57.6	2.35±0.23	0 (0–21)		3>2: **p<0.001**
65 years and older[3]	180	22.7	5.7±0.54	0 (0–21)		
Gender						
Male	200	25.1	1.47±4.03	0 (0–21)	**<0.001[b]**	–
Female	594	74.9	3.41±5.91	0 (0–21)		

[a]: Kruskal Wallis test; [b]: Mann-Whitney U test; [c]: Dunn post-hoc comparisons (Bonferroni corrected). *: Values are expressed as median (min–max) due to the large number of zero scores. ICIQ-SF: International Consultation on Incontinence Questionnaire – Short Form; SD: Standard deviation; UI: Urinary incontinence.

Table 3. Relationship between participants' ages and types of urinary incontinence

Age	Urge n=42	Stress n=21	Mixed n=67	F value	p	Post-hoc
Mean±SD	59.00±12.53	55.09±12.21	65.05±13.33	5.91	0.004	Urge-mixed: **0.048** Stress-mixed: **0.007**

Welch ANOVA and Türkiye HSD Post-Hoc. SD: Standard deviation.

toilets, 71.5% (n=93) reported frequent urination, and 63.8% (n=83) reported no urinary tract infection in the previous year.

A statistically significant relationship was found between UI type and the sensation of incomplete bladder emptying after urination (p=0.016). Among participants reporting this sensation, 68.7% (n=46) were in the mixed UI group, 47.6% (n=20) were in the urge UI group, and 38.1% (n=8) were in the stress UI group. Sociodemographic factors and their associations with UI are summarized in Table 3.

Discussion

One in every four patients who applied to a family medicine clinic reported UI, and the most common and effective type was found to be mixed UI. In a study covering approximately 19,000 individuals in five different countries, the overall UI prevalence was found to be 11.0% [8]. In a study conducted in Edirne, Türkiye, among individuals aged 20 years and older in the general population, the UI prevalence was reported as 19.3% [9]. The lower rate compared to our findings may be attributed to differences in the study setting, as our sample was drawn from a clinical population attending a family medicine outpatient clinic. According to a study in the literature, the prevalence of urinary incontinence during pregnancy was reported to be 56.1% [10]. In this study, the UI prevalence was found to be 27%, which is higher than in the literature and can be explained by the fact that the study included a certain regional hospital group.

The age of onset of mixed UI was found to be statistically significantly higher compared to urge and stress UI. In a meta-analysis study, 54 studies covering a total of 138,722 women between the ages of 10–90 were examined. It has been determined that the prevalence of UI varies between 2.8% (Nigeria) and 57.7% (Iran). The prevalence of general UI was 25.7%, stress type 12.6%, urge type 5.3%, and mixed type 9.1% [11]. In another study, stress UI was found to be 45.9%, urge UI 31.1%, and mixed UI 18.1%.

Despite the differences in mean ages in the study, the finding that mixed UI is more common in older ages and stress UI in younger ages is supported. In the literature, it is stated that women are at higher risk of UI, and this situation is attributed to factors such as a short urethra, pelvic floor damage due to childbirth, and postmenopausal estrogen decrease. In a study conducted in Europe, the prevalence of UI in women was reported as 13.1% [8]. In our study, the prevalence of UI in women was 31.1%, which is consistent with the literature [12].

It has been reported that the prevalence of UI in women aged 35 years and over is 42.8%, and 50% during menopause [13]. In this study, it was observed that both the prevalence of UI and ICIQ-SF scores increase with age. Although the relationship between menopause and UI is not fully clear, it is thought that estrogen deficiency may increase the risk of UI by weakening the pelvic muscles [2,14]. In the study, the prevalence of UI was found to be significantly high in women in menopause, and in particular, 80.4% of women with mixed UI and 78.9% of women with urge UI were found to be in menopause. In a study conducted in India, the most common types of UI after menopause were determined to be mixed (26%), urge (19%), and stress UI (13%) [3].

In a European study conducted on UI in men, the overall prevalence of UI was found to be 5.4% [8]. In Türkiye, the prevalence of UI in men aged 18 years and over varies between 4.9% and 13.5% [9]. In this study, the prevalence of UI in men was determined as 14.5%, which is consistent with the literature. A review reported the prevalence of UI in men as 17.3% [15]. Like many studies showing that UI increases with age, this study also determined that both the prevalence of UI and ICIQ-SF scores increase with age.

The frequency of UI in men increases with age. In one study, the prevalence of UI in the 40–44 age group was 12.2%, while it increased to 17.3% in the 55–59 age group and to 24.9% in the 60 and older age groups. The most common type of UI was mixed UI (10.3%), followed by stress UI (7.7%) and urge UI (6.9%). Studies examining the types of UI in men in Türkiye are quite limited. In one study, 41.5% had urge, 20.3% stress, 6.5% mixed, and 31.7% unclassified UI in men with UI [9]. In this study, the most common type of UI in men was mixed UI, followed by urge and stress UI. The reason for the difference from the order in the literature may be that cases that do not fully fit into a certain category are classified as mixed UI.

Although UI is common among elderly individuals, the rate of healthcare-seeking remains low. The main reasons include the perception of UI as a natural part of aging, feelings of embarrassment, and a lack of recognition of UI as a serious health concern [16]. In one study, it was reported that UI awareness is low in elderly individuals, and this situation negatively affects their behavior of seeking medical help [17]. In this study, only 17% sought medical help, while 59% of individuals who did not seek help did not see the complaint as important, 30% were embarrassed, and 10% stated that their doctors did not ask about this issue. In our study, only 17% of individuals

with UI reported seeking medical care, consistent with previous findings indicating low help-seeking behavior. For instance, a systematic review by Yan et al. [16] found that help-seeking rates among older adults with UI varied from 12% to 38%, depending on cultural context and healthcare accessibility. Common barriers included embarrassment, the belief that UI is a normal part of aging, and lack of awareness about treatment options. These findings suggest that underreporting of UI is a global concern and highlight the need for public education and proactive screening in primary care settings to improve health-seeking behaviors.

The present study identified older age and female gender as significant risk factors associated with UI severity. Mixed UI is the most common and most affecting type among age groups, and is particularly strongly associated with menopause and the feeling of incomplete emptying of the bladder after urination.

Limitations

This study has several limitations. Due to the cross-sectional design and the selection of participants from a specific geography, cause-effect relationships could not be evaluated, and the findings were interpreted at the relational level. Since participation in the study was voluntary, the participants may not fully represent the entire population.

Conclusion

This study has shown that UI is significantly associated with age and female gender. However, UI is a common health problem that affects not only certain risk groups but also both men and women aged 18 and over, seriously reducing the quality of life. Due to reasons such as social stigma, lack of awareness, and acceptance as a natural consequence of aging, most patients avoid expressing UI and delay the diagnosis and treatment processes of this condition. Considering the negative effects of UI on the physical health, psychological state, and social life of individuals, this condition should be routinely screened in primary health care, regardless of whether symptoms are present or not. Future research should focus on developing more comprehensive approaches to the early diagnosis and management of UI. First of all, standard screening protocols should be established in primary health care to ensure early detection of the disease. In addition, more targeted preventive strategies should be developed by examining in detail the physiological and lifestyle factors that cause UI in women and men. The effectiveness of treatment approaches should be evaluated, individualized management plans should be created, and comparative analyses of different approaches such as behavioral therapy, pharmacological treatments, and surgical methods should be conducted. In addition, it is of great importance to organize community-based awareness and education programs, change the perception of UI, and encourage individuals' healthcare-seeking behaviors. Finally, the use of innovative technologies such as wearable technologies, telemedicine applications, and non-invasive diagnostic methods can be increased to make UI monitoring and management more effective. Further studies in these areas will contribute to a better understanding of UI, improve the quality of life of patients, and develop more effective approaches that will be integrated into the health system.

Ethics Committee Approval: The study was approved by University of Health Sciences, Şişli Hamidiye Etfal Training and Research Hospital Ethics Committee (No: 1763, Date: 14.11.2017).

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