

# Women with Hidden Urinary Incontinence Waiting to Be Discovered: a Snapshot from a Developing Country

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## ABSTRACT

**Purpose:** Urinary incontinence (UI), is a public health problem that has an increasing frequency and has an impact on the quality of life (QoL) of women worldwide. In this study, in which we focus on the general approach to risk factors associated with urinary incontinence, we aim to address the importance of transferring between practical healthcare services and screening programs.

**Methods:** Our study was conducted between December 2018- August 2019 with patients who admitted to Trakya University Medical Hospital with different gynecologic symptoms. This study investigated the relationship between menopause, incontinence, type of delivery, socioeconomic status, and risk factors. A modular inquiry form-short form (ICIQ-SF) was used for the research in all aspects of urinary incontinence and its impact on the quality of life. Our aim was to increase the awareness of clinics about urinary incontinence.

**Results:** Of the 622 participants, 176 had urinary incontinence symptoms. There was a significant relationship between menopause, age, medical treatment for uriner infection, body mass index, living in rural / urban areas, normal birth rate, education level and urinary incontinence.

**Conclusion:** It's important to assess the effects of urinary incontinence symptoms on women's QoL appropriately in UI-related research and clinical studies. Women with urinary incontinence symptoms should ensure that their body mass index is within the ideal range. In every period, quality of women's life can be improved with the necessary cares. Building awareness about urinary incontinence can help improve treatment-seeking behaviour. Improving the quality of life of women will help to increase the desired levels of quality health and welfare in the management of public health, especially in developing countries.

**Keywords:** Urinary incontinence, Women's health, Women's practical healthcare, Health quality, Gynecology

## INTRODUCTION

Urinary incontinence (UI), defined as involuntary loss of urine, is a public health problem that has an increasing frequency and has an impact on the quality of life (QoL) of women worldwide. Urinary incontinence appears to affect the QoL of more women than the number of recorded patients suggests (1). The application for symptoms and treatment of UI to healthcare institutions varies from community to community, and unfortunately, it is still not at the desired level. Patients with chronic UI also have social and psychological difficulties. The International Continence Society described UI as "a social or hygienic problem with involuntary urinary incontinence".

UI is not reported frequently; however, it is a health problem that has a significant impact on a person's QoL. It is a chronic,

corrosive disease that has a significant impact on women in terms of public health. UI is estimated to affect more than 200 million people around the world (2,3). Studies have shown that it has a prevalence of 13.9% in men and 51.1% in women. In the literature, 32% of people of aged  $\geq 60$  years have severe UI, and 17% of people aged 40-59 years have been reported to be affected (4,5). However, researchers have argued that the reported figures are lower than the actual number of cases because affected patients are embarrassed about going to hospital, which makes it very difficult to treat (3,6). Being unable to control urine is a significant problem that affects women's lives. Although it is not a cause of mortality, it can cause significant morbidity, self-isolation from society, deterioration of QoL, and various psychological problems (1,7).

The place of UI in women's lives has been reported in many studies, covering both multiparous and nulliparous women. It is important to accurately predict UI and parameters affecting UI in young women. Identifying risk factors associated with UI will help to further raise awareness of the problem. As a result, the prevention and treatment of UI in young women may require long-term treatment, even lifelong. Risk factors should be assessed to help reduce the material and moral burden for society. Management strategies for UI should be developed. In addition, determining the prevalence of UI in young and middle-aged women may be a stepping stone for future studies.

Most of the work with UI has been done in high-welfare countries. In the literature, there are limited data related with volunteer women who presented to gynecology outpatient clinics of tertiary healthcare hospitals. There are limited data in our country, Turkey, where many women refuse to receive medical help because they are afraid to report UI, which is a culturally sensitive and an embarrassing problem.

The prevention, the early intervention, the control, and the follow-up strategies for UI will increase social welfare. Additional questioning of UI symptoms in women admitting to health centers for other reasons will contribute to reducing the burden of UI symptoms in society. There is a need for standard questionnaires for incontinence. These forms are required for standardization of evaluation in clinical trials. In clinical practice, such forms of inquiry are also needed to examine 'women without UI symptoms'. These questionnaires should be able to reveal the severity, the frequency, and the type of the urinary incontinence. They should also be able to demonstrate to what extent the urinary incontinence affects the patient's QoL. These forms should be short, understandable, practical, and purposeful.

Urinary incontinence may affect a patient's QoL. The level of distress in individuals depends on the frequency of incontinence, the amount of leakage, and the subjective experience of these symptoms. The fear of leakage or the related odor can lead to a social withdrawal. Therefore, the initial assessment should include both symptom severity and the QoL. Opinions may differ between patients and physicians. Therefore, it is important to include reports of impact on symptoms and symptom severity directly from the patient. These data can be collected in a standardized manner through validated, assessment surveys.

In developing countries around the world, experience and recommendations should be presented to focus on the symptoms of UI and to examine the parameters affecting UI symptoms. In this study, in which we focus on the general approach to risk factors associated with UI, we aim to address the importance and the necessity of transferring between practical healthcare services and screening programs. In the present study, we examined the effects of treatment seeking behavior and QoL among women with hidden UI in northwestern Turkey, a developing country.

## METHODS

### Setting and Sample

Our study was conducted between December 2018 and August 2019 with patients who presented to the Gynecology Department of Trakya University Medical Faculty Hospital with different gynecologic symptoms.

### Study Design

In our study, women with the main risk factors for UI, i.e. pregnancy and older age, were excluded. Data were collected through face-to-face interviews with the responsible researcher. The information of the participants was kept confidential. This study investigated the relationship between menopause, incontinence, number and type of birth, socioeconomic status, and risk factors.

### Measurements

At the International Consultation on Urinary Incontinence (ICI) meetings, a detailed modular inquiry form (ICIQ) was developed to be used for research in all aspects of urinary incontinence and its impact on QoL. At this meeting it was decided to create a short form (ICIQ-SF) that could be used in clinical practice and all studies (8-10). The ICIQ-SF is a validated and reliable, short, easy to understand, and implementable, standardized inquiry form. The ICIQ-SF examines the effects of UI on women's lives.

### Data collection / Procedure

We investigated the available questionnaires about UI and the form we used in our study was the ICIQ-SF, which has been shown to be able to meet all the above-mentioned requirements (11, 12). The presence of stress incontinence risk factors, and different age groups in women were examined, delivery types, socioeconomic status, and changes were evaluated. The participants themselves completed the form and their privacy was protected.

The ICIQ-SF aims to promote broader practical use in clinics. It provides insight into the severity of incontinence symptoms and has been used in large-scale studies involving various patient groups (4,13,14). The ICIQ-SF consists of three scored questions about frequency, amount of leakage, and general discomfort (14). In addition, there is a fourth and unscored diagnostic question aimed at determining the type of incontinence. The first three items give an overall score of 0 to 21, with higher scores indicating greater symptom severity.

Patients who presented with incontinence and whose investigations and treatments were continuing were excluded from the study. Our study was conducted with women aged 30-65 years who agreed to participate voluntarily.

Patients with psychological disease, chronic kidney disease, known urologic disease, diabetes mellitus or diabetes insipidus were excluded from the study. Patients with diabetic neuropathy, congenital urologic disorders, previous central nervous system damage, bladder cancer, active urinary tract infection (UTI), neurogenic bladder disease, and other neurologic diseases were also excluded from the study. Patients who had previously

undergone training or practiced pelvic floor exercise, who had been examined and treated for UI, oncology patients, pregnant patients, girls aged under 18 years, women aged over 70 years, those who had previously undergone urologic surgery, and women who could not give consent personally were excluded from the study. Participants who did not want to answer all questions in the study were not included.

**Ethical Consideration**

Ethical approval for the study was given by the Scientific Research Ethics Committee of Trakya University Faculty of Medicine (Approval No: E- 22121724-050.04.02). The study was conducted with 622 volunteer participants. Written informed consent was obtained from the participants. During our data collection, the participants' privacy was protected.

Our aim was to increase the awareness of clinics about UI in order to increase access to treatment for patients presenting with non-UI symptoms to health centers. It was aimed to be among the studies pressing for the evaluation of women in terms of stress incontinence.

**Data analysis**

All statistical analyses evaluating the collected data were performed using the SPSS 20.0 package program. Data are summarized with appropriate descriptive statistics. The normality of distribution of the data was checked using the Shapiro-Wilk test. Paired group comparisons were made using Student's t-test. One-way analysis of variance was used in comparisons of more than two groups. After one-way analysis of variance, multiple comparisons were evaluated using the Bonferroni test. The Chi-square test was used for the relationships between categorical variables. Descriptive statistics for numerical variables are given as mean and standard deviation (SD). Descriptive statistics for categorical variables are given as percentage (%) and frequency (n). In all statistical analyses, the significance level was determined as 5%.

**RESULTS**

In our study, there were 305 women aged 45 years and over and 317 women aged under 45 years. The participants were asked how often they have had symptoms of urinary incontinence. The

women were asked about what kinds of UI symptoms they had; 446 of the 622 (71.7%) participants reported that they had no UI symptoms.

Those who reported at least one involuntary loss of urine in the last one week were considered as having UI. Of the 622 participants, 176 (28.2%) had UI symptoms. Among the participants with UI symptoms, the mean age was 53.65 years (SD: 16.47). Sixty-one (9.8%) stated that they had passed urine before they reached the toilet, and 51 (8.19%) reported it as caused by coughing and sneezing. Nineteen women (3.0%) stated that they passed urine while sleeping. Nineteen people stated that they had passed urine without any apparent reason. Nine (1.4%) women reported that they passed urine very often (Table 1). One hundred three (58.5%) of the patients with UI had stress UI, 21 (11.9%) had urge incontinence, and 52 (29.5%) had mixed incontinence.

The effects of drug use and age of patients due to UTI in the last 3 months were evaluated. The frequency, quantity, effect, and scores of the ICIQ-SF for subunits of the ICIQ-SF were examined separately.

The first section questioning frequency was examined. With some parameters of frequency, there was a significant relationship. In the first part of ICIQ-SF, the frequency of UI symptoms is questioned. For the first part, there was a significant relationship between some parameters and the frequency of UI symptoms. 305 people were over 45 years of age. 317 people were under 45 years of age. Between these two groups, the difference between the frequency of symptoms of ICIQ-SF; was significant (p<0.001). In the last year, those who had drug use due to UTI were compared with those who did not. UI symptoms measured by ICIQ-SF were more frequent drug users (p=0.038) (Table 2). There was a significant relationship between menopause, medical treatment for UTI, and vaginal delivery rate and 'frequency' in the last year. There was no significant relationship between 'frequency' and cesarean section. The responses of the participants according to their educational level were evaluated. It was seen that UI symptoms tended to decrease with increasing socioeconomic level (Table 4).

Of the 317 people who were 45 years old; 255 participants stated that they did not leak urine (80.4%). There were 305 people aged 45 years and older. Of these 305 participants, 255 participants (62.6%)

**Table 1.** Nonparametric correlations between urinary incontinence and age

Urinary incontinence symptoms' levels	Participants		Age		p
	N	%	Mean	SD	
1	446	71.7	53.65	16.47	0.008
2	61	9.80	58.91	15.51	
3	51	8.19	56.70	13.13	
4	19	3.05	60.94	18.31	
5	12	1.92	61.41	9.89	
6	5	0.80	58.60	13.53	
7	19	3.05	64.63	13.03	
8	9	1.44	58.88	20.05	
Total	622	100	55.24	16.20	

SD: standard deviation; N: participant number.

**Table 2.** Relationship between ICIQ-SF, frequency, quantity, effect and age

ICIQ-SF Parts and Total score		Frequency		Quantity		Effect		ICIQ-SF	
		Mean Rank	P						
<b>Participants' Ages</b>									
45- 65	305	337.79	p<0.001	338.81	p<0.001	337.03	p<0.001	338.94	p<0.001
30- 44.9	317	286.20		285.22		286.94		285.09	

**Table 3.** Relationship between age group and ICIQ-SF fourth unscored question to determine the type of incontinence

Urinary incontinence symptoms' levels	45-65	%	30-44.9	%	P
1	191	62.6	255	80.4	0.002
2	37	12.1	24	7.6	
3	42	13.8	9	2.8	
4	8	2.6	11	3.5	
5	8	2.6	4	1.3	
6	3	1.0	2	0.6	
7	13	4.3	6	1.9	
8	3	1.0	6	1.9	
9	191	62.6	255	80.4	
Total	305	100	317	100	

**Table 4.** Relationship between frequency and quantity of ICIQ-SF and some risk factors

Parameters	Frequency							Quantity					
	n	Mean	SD	Variance	Min	Max	P	Mean	SD	Variance	Min	Max	P
<b>Menopause Situation</b>													
Not	317	0.45	0.06	1.29	0	5.00	p<0.001*	0.51	0.06	1.45	0	6.00	p<0.001*
5 year/ or less	182	0.81	0.08	1.39	0	5.00		1.20	0.11	2.55	0	6.00	
Over 5.1 year	123	0.60	0.10	1.43	0	5.00		0.69	0.11	1.63	0	6.00	
<b>Using drug for urine infections in the last year</b>													
Yes	228	0.48	0.07	1.17	0	5.00	0.038*	0.51	0.06	1.05	0	6.00	0.010*
No	394	0.65	0.06	1.47	0	5.00		0.89	1.52	2.33	0	6.00	
<b>Rural / Urban</b>													
0	221	0.55	0.07	1.37	0	5.00	0.059	0.69	0.09	1.85	0	6.00	0.097
1	261	0.51	0.06	1.18	0	5.00		0.70	0.08	1.80	0	6.00	
2	140	0.77	0.10	1.68	0	5.00		0.94	0.12	2.09	0	6.00	
<b>Birth Type</b>													
Not	357	0.46	0.06	1.31	0	5.00	p<0.001*	0.52	0.06	1.49	0	6.00	p<0.001*
Vaginal Delivery	201	0.87	0.08	1.57	0	5.00		1.20	0.11	2.56	0	6.00	
C-section	64	0.42	0.10	0.69	0	4.00		0.843	0.13	1.15	0	4.00	
<b>BMI</b>													
< 24.9	221	0.37	0.05	0.780	0	5.00	0.002*	0.47	0.06	1.02	0	6.00	0.001*
> 25	401	0.71	0.06	1.65	0	5.00		0.90	0.07	2.31	0	6.00	

**Min:** mimimum; **\***: statistical significance; **Max:** maximum; **SD:** standard deviation

**Table 5.** Relationship between effect, ICIQ-SF and some risk factors

Parameters	Effect						ICIQ-SF						
	n	Mean	SD	Variance	Min	Max	p	Mean	SD	Variance	Min	Max	P
<b>Menopause Situation</b>													
Not	317	0.88	0.12	4.97	0	10.00		1.86	0.24	19.28	0	21.00	
5 year/ or less	182	2.02	0.21	8.17	0	10.00	p<0.001*	4.06	0.39	28.56	0	21.00	p<0.001*
Over 5.1 year	123	1.14	0.21	5.53	0	10.00		2.44	0.41	21.51	0	21.00	
<b>Using drug for urine infections in the last year</b>													
Yes	228	0.94	0.14	4.65	0	10.00		1.93	0.26	16.23	0	21.00	
No	394	1.46	0.13	7.07	0	10.00	0.023*	3.01	0.26	26.97	0	21.00	0.020*
<b>Rural / Urban</b>													
0	221	1.06	0.15	5.16	0	10.00		2.31	0.31	21.43	0	21.00	
1	261	1.18	0.15	5.98	0	10.00	0.027*	2.40	0.28	21.76	0	21.00	0.045*
2	140	1.77	0.24	8.19	0	10.00		3.50	0.44	28.30	0	21.00	
<b>Birth Type</b>													
Not	357	0.91	0.12	5.22	0	10.00	p<0.001*	1.89	0.23	20.00	0	21.00	
Vaginal Delivery	201	2.02	0.20	8.21	0	10.00	p<0.001*	4.11	0.38	29.49	0	21.00	p<0.001*
C-section	64	0.92	0.22	3.21	0	8.00	0.821	2.00	0.43	12.22	0	13.00	
<b>BMI</b>													
< 24.9	221	0.85	0.14	4.34	0	10.00	0.002*	1.70	0.25	14.34	0	21.00	0.001*
> 25.00	401	1.50	0.13	7.15	0	10.00		3.12	0.26	27.52	0	21.00	

**Min:** minimum \*; statistical significance; **Max:** maximum; **SD:** standard deviation.

said they did not leak urine (Table 3). In the postmenopausal period; 12.1% stated that they leaked urine before they reached the toilet. 13.8% of the people in the postmenopausal period stated that they leaked urine while coughing or sneezing. Participants who had not entered menopause stated that they leaked urine while coughing or sneezing (2.9%) before reaching the toilet. The difference was significant (p= 0.002).

In part 2 of ICIQ-SF, "Quantity" was questioned. For this part, both postmenopausal women and non-postmenopausal women were evaluated. Patients with a history of drug use for the treatment of UTI in the last year were compared with women without these symptoms. There was a statistically significant difference between the two groups in terms of quantity. There was also a significant difference between those who had given birth in terms of quantity and those who had not. There was no difference between women who lived in rural/urban areas. There was no significant difference in terms of participants who had undergone cesarean section (Table 4).

Part 3 of the ICIQ-SF questions "Impact." Menopause and UTIs in the last year were different in terms of drug use. For the participants, differences were found in terms of living in rural / urban areas, having / not having given birth. For those who had delivered by cesarean section, there was no difference between participants in terms of both effect and ICIQ-SF. Participants with a BMI equal to or greater than 25.00 kg/m<sup>2</sup> and those with a BMI lesser than 25 kg/m<sup>2</sup> (n=221) were compared (Cut-off is not stated

clearly '≥25 kg/m<sup>2</sup>' and '<25 kg/m<sup>2</sup>' could be better). The difference between the two groups due to ICIQ-SF was statistically significant (p= .001\*) (Table 5).

## DISCUSSION

It is important to assess the effects of UI symptoms appropriately on women's QoL in UI-related research and clinical studies. This can be done by taking a detailed history of UI; however, self-filled questionnaires are increasingly being used in these evaluations (4). Quantification of UI symptoms and the effects on women's QoL life is possible with these questionnaires. However, such assessments are far from standard and the results may vary according to the person performing the assessment.

In the evaluation of UI and its effects on life, practical, objective questionnaires that are completed by the patients themselves, which have been shown to be reliable and valid, are recommended. This form of evaluation method best reflects the patients' perspectives. Some studies have limitations due to the fact that the questions are not completed face-to-face and do not resemble the clinical situation (14). Our study was conducted through face-to-face interviews with the patients. Thus, this study conducted on women who presented to a tertiary hospital aims to contribute to the increased awareness of UI. The presence of UI symptoms should be examined in every female patient. Social

awareness needs to be increased for the effects of UI symptoms on the quality of life of women in society.

Increased age, BMI, and parity were positively associated with incontinence according to the results of the Nursing Health Study II (NHS II). Women aged between 50 and 54 years were 1.81 times more likely to have severe incontinence than women aged over 40 years (95% CI: 1.66-1.97) (15). The NHS II report shows that women with BMI  $\geq 30$  kg/m<sup>2</sup> are 3.10 times more likely to have severe incontinence than women with BMI 22-24 kg/m<sup>2</sup>. In the literature, UI symptoms were more frequent in patients with BMI  $\geq 30$  kg/m<sup>2</sup> compared with women with BMI  $\leq 23.3$  kg/m<sup>2</sup> (16,17).

In our study, participants were evaluated for BMI (Table 5). For those with BMI  $\geq 30$  kg/m<sup>2</sup> and women with BMI  $\leq 23.3$  kg/m<sup>2</sup>, there were significant differences in ICIQ-SF scores ( $p = 0.001$ ). Women with UI symptoms should ensure that their BMI is within the ideal range. Women with UI symptoms and those at risk will benefit from regulating exercise and nutrition according to healthy lifestyles.

Among the participants with UI symptoms in our study, 58.5% had stress UI, 11.9% had urge incontinence, and 29.5% had mixed incontinence. The results showed similarities with other studies in the literature (1,18,19).

In the literature, regarding parity, vaginal delivery, and UI, as parity increases, incontinence symptoms increase (20, 21). Exercises that strengthen the pelvic floor have a positive effect on UI symptoms in women (22). According to our results, a significant relationship was found between ICIQ-SF and parity number. However, we could not evaluate the effect of performing pelvic floor exercise because women who performed these exercises were not included in our study. It is reported that the risk of UI symptoms increases in women with normal spontaneous vaginal delivery (NSVD) (23,24). In our study, when evaluated in terms of delivery, with 201 (32.31%) participants having normal vaginal delivery, there were significant differences in ICIQ-SF scores compared to 357 (57.39%) women who had not given birth. However, there was no significant difference between women who delivered by cesarean section ( $n = 64$ ) and women who had never delivered.

In the literature, there are studies reporting that menopause has no effect on UI (16). However, some studies also report a negative relationship between menopausal status and UI (25). According to the results of our study, there were significant differences in terms of ICIQ-SF scores with 317 (50.9%) participants who did not enter menopause and those with a menopause duration of 5 years or more. In particular, women who have been menopausal for more than 5 years should be evaluated within the scope of preventive health services and UI symptoms should be questioned. Women with UI symptoms may not be able to articulate this problem easily. Therefore, care and treatments may be delayed. By applying the ICIQ-SF scale practically to women who present to health institutions with different issues in the postmenopausal period, these patients can be prevented from escaping the attention of health personnel. In the postmenopausal period, quality of life can be improved with the necessary care and treatments.

There is increasing evidence in the literature showing that there is a relationship between UI symptoms and the frequency of UTI. The evidence suggests that the microbiologic characteristics of urine cause UI symptoms of varying degrees and affect the quality QoL of women (17,26). ICIQ-SF results were significantly higher in patients who had received medical treatment for UTI in the last year. Effective, timely treatment of UTIs will reduce the occurrence of UI symptoms. For the protection and improvement of women's health, efforts should be made to prevent UTIs. In society, women's awareness and awareness of urogenital hygiene should be increased.

In the literature, there are studies evaluating the relationship between UI and socioeconomic status. Rural living and low socioeconomic level has been shown to increase UI symptoms. In addition, it is stated that rural women are hesitant to express their problems. It is shown that presentations to health institutions are not frequent due to UI (1,27). In our study, UI symptoms were common in rural women. This is because; rural women have not previously applied to hospitals for UI symptoms. It was seen that unexplored patients with UI tended to decrease with increasing educational level and improved awareness and socioeconomic opportunities for access to health services.

It is a general belief that UI is only associated with the elderly and women who give birth. However, epidemiologic studies have reported that young nulliparous women also experience UI symptoms. UI, which is embarrassing and distressing, causes women to stay away from social and recreational activities. Thus, the social QoL of women is negatively affected. Despite the high prevalence and negative impact on life, very few women affected by UI seek treatment (28). In developing countries, the frequency of unspoken UI is high. Stress UI is the most common(1). In our study, participants were afraid to admit to health institutions for UI and feared social isolation. Building awareness about UI can help improve treatment-seeking behavior. However, there is a need for new methods of providing non-pharmacologic treatments. Studies in the literature have shown that internet-based therapies increase access to care and reduces barriers to care (13). Internet-based therapies are likely to increase in the future and are expected to be beneficial.

In the literature, it is stated that higher socioeconomic status, which increases with education, increases the tendency to be treated. However, it has also been shown that the higher the level of education was, the lower the satisfaction with treatment was (8). In our study, the relationship between the level of education and the demand level for health service procurement was also evaluated. As the educational level of the participants increased, the proportion of women expecting absolute positive results from the care and treatments they received increased. Online healthcare training will help increase the level of awareness of women regarding UI in society and around the world. The expansion of online healthcare services can support women's behaviors of seeking treatment for UI symptoms.

## CONCLUSIONS

The aim of this study was to reduce the burden of UI on women and thus to support and protect women's health. Some modifiable UI risk factors were evaluated. Various treatment options for UI are now available with greater efficacy and applicability, and less cost. Increasing the patient's awareness of seeking treatment is of primary importance in the effectiveness of first-line intervention to improve urinary symptoms. For effective UI symptom management, community awareness should be increased. Even for healthcare presentations for different reasons, short and practical assessments of UI should be made. Health professionals should evaluate women at risk for UI at every opportunity. Improving the QoL of women will help to increase the desired levels of quality health and welfare in the management of public health, especially in developing countries.

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## Limitations

In our study, patients admitted to the gynecology outpatient clinic due to UI symptoms were not included. Patients were not treated, but women with UI symptoms were informed that they should be examined by a specialist.

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