Cukurova Medical Journal
ÇUKUROVA ÜNİVERSİTESİ TIP FAKÜLTESİ

Cukurova Med J 2021;46(4):1516-1522
DOI: 10.17826/cumj.983518

ARAŞTIRMA / RESEARCH

Prevalence and associated factors of urinary incontinence among adult women in primary care

Birinci basamakta erişkin kadınlarda üriner inkontinans prevalansı ve ilişkili faktörler

Bilge Alkurt Narçiçeği[1], Burkay Yakar[1], Harun Recep Narçiçeği[2], Erhan Önalan[3], Edibe Pirinçci[4]

[1]Fırat University School of Medicine, Department of Family Medicine, [3]Department of Internal Medicine, [4]Department of Public Health, Elazıg, Turkey
[2]Balakgazi Family Health Centre, Elazıg, Turkey

Cukurova Medical Journal 2021;46(4):1516-1522

Abstract

Purpose: The current study aimed to prevalence of urinary incontinence (UI) and related factors in adult women admitted to the family medicine outpatient clinic.
Materials and Methods: This cross-sectional prospective study was conducted in a family health centre between October 2020 and March 2021. Randomly selected 268 adult women were included in the study. The demographic, obstetric, gynecological characteristics and medical history of the participants were obtained with a questionnaire. Urinary incontinence symptoms was assessed using Turkish Version of the International Incontinence Questionnaire Short Form (ICIQ-SF)
Results: The prevalence of UI in study population was 17.5% and according to age grup it was 4.1% at 18-29 years, 10.3% at 30-39 years, 12.0% at 40-49 years, 33.3% at 50-59 years, 46.7% at 60-69 years and 81.8% at ≥70 years old, respectively. Participants with urinary incontinence had higher median age, body mass index (BMI), menopause vintage, and gravida than continent participants. Low education level, drug usage, constipation, menapause (were independently associated with urinary incontinence.
Conclusion: UI is still a common health problem among adult women. We recommend physicians to be questioned about UI symptoms, especially in women over 50 years of age. Further studies are needed to evaluate the effect of the treatment of modifiable risk factors on UI incidence among adult women.
Keywords: Urinary Incontinence, female, prevalence, family practice

Öz

Amaç: Bu çalışma, aile hekimliği polikliniğine başvuran erişkin kadınlarda üriner inkontinans (Üİ) prevalansını ve ilişkili faktörleri incelemeyi amaçlamıştır.
Gereç ve Yöntem: Bu kesitsel prospektif çalışma Ekim 2020 ile Mart 2021 tarihleri arasında bir aile sağlığı merkezinde yürütülmüştür. Çalışmaya rastgele seçilmiş 268 yetişkin kadın dahil edilmiştir. Katılımcıların demografik, obstetrik, jinekolojik özellikleri ve tıbbi öyküleri anket ile elde edildi. İdrar kaçırma semptomları Uluslararası İnkontinans Anketi Kısa Formunun (ICIQ-SF) Türkçe Versiyonu kullanılarak değerlendirildi.
Bulgular: Çalışma popülasyonunda genel Üİ prevalansı %17.5 olup, yaş gruplarına göre incelendiğinde; 18-29 yaş aralığında %4.1, 30-39 yaş aralığında %10.3, 40-49 yaş aralığında %12.0, 50-59 yaş aralığında %33.3, 60-69 yaş aralığında %46.7 ve 70 yaş ve üzerinde %81.8 idi. Üriner inkontinanslı katılımcıların ortanca yaşı, BKİ, menopoz süresi ve gravida sayıları Üİ olmayan katılımcılara göre daha yüksekti. Üriner inkontinans, evli olmak, düşük eğitim düzeyi, düşük gelir, kronik hastalık sahibi olmak, kronik ilaç kullanmak, kabızlık, menopoz ve epizyotomi öyküsü ile anlamlı olarak ilişkili bulundu.
Sonuç: Üİ yetişkin kadınlar arasında hala yaygın bir sağlık sorunudur. Özellikle 50 yaş üstü kadınlarda Üİ semptomlarını hekimlerin sorgulanmasını öneriyoruz. Değiştirilebilir risk faktörlerinin tedavisinin yetişkin kadınlarda Üİ insidansı üzerindeki etkisini değerlendirmek için daha ileri çalışmalara ihtiyaç vardır.
Anahtar kelimeler: Üriner inkontinans, kadın, prevalans, aile hekimliği

Yazışma Adresi/Address for Correspondence: Dr. Burkay Yakar, Fırat University School of Medicine, Department of Family Medicine, Elazığ, Turkey E-mail: byakar@firat.edu.tr
Geliş tarihi/Received: 17.08.2021 Kabul tarihi/Accepted: 11.09.2021 Çevrimiçi yayın/Published online: 27.10.2021

INTRODUCTION

Urinary incontinence causes physical, social, psychological, and economic problems, so it is an important health problem for women of all ages[1,2]. Anxiety, depression, and sleep disorders are the most common psychological effects, while urinary tract infections are the most common physical effects[3]. It can cause falls and fractures in women over 65 years of age, so it has been associated with a risk of mortality[4]. It is an important problem that causes embarrassment, lack of confidence, and loneliness in women as a result of decreased social activities[5]. A previous study has been reported that it can negatively affect doctor visits due to its negative social impact[6].

Previous studies have been reported the prevalence of urinary incontinence range from 16.1% to 68.8%. It has been reported that the estimated prevalence in America is 14%, in Europe is 37%, and in Asia is 13%[7,8]. The prevalence of UI has been reported between 16.4% and 49.7% among adult women in Turkey[9]. Many factors are responsible to the etiology of UI. A meta-analysis study was demonstrated that, age, obesity, diabetes mellitus, education level, delivery parameters, hypertension, and smoking are the most important risk factors for UI[10]. Another study reported that UI was significantly associated with age, BMI, vaginal delivery, chronic obstructive pulmonary disease, and having at least one comorbidity[7].

Studies investigating the prevelance of urinary incontinence and related factors in primary care are limited. In this current study, we examined the frequency of urinary incontinence and related factors in adult women admitted to the family medicine outpatient clinic. We aimed to draw attention to the frequency of urinary incontinence in patients who applied to family medicine for any reason.

MATERIAL AND METHODS

Study design and population

This cross-sectional prospective study was conducted in a family health centre between October 2020 and March 2021. The population of the study consisted of 1600 women, over the age of 18 years old who registered in the family health centre. The sample size was calculated using the formula "$n = Nt^2pq / d^2 (N-1) + t^2pq$". According to the 20% prevalence of UI and 95% confidence ($\alpha = 0.05$), the minimum sample size was calculated, 212 adult women [10]. Randomly selected 268 adult women were included in the study. The study inclusion criteria were as follows: being 18 years old and over, volunteering for the study and being registered with the family health centre. On the other hand, the exclusion criteria were: The obstacles to filling the questionnaire were determined as neurological, psychological and physical illness, active urinary tract infection, current pregnancy, previous gynecological operation history, and use of diuretics.

Before starting the study, participants were informed about the purpose of the study, methodology, and techniques, and the signed informed consent was obtained from all participants. The current study was approved by the local ethics committee of Firat University Non-Invasive Research Ethics Committee (Date: 01.10.2020 number: 2020/13-06).

Data collection tool

The demographic, obstetric, gynecological characteristics and medical history of the participants were obtained with a questionnaire form consisting of 20 questions. The questionnaire form was applied face to face to all participants by the researcher. The height and weight of all participants were measured by the same researcher and recorded in the questionnaire form. Participants' weights were measured on an empty stomach, with bare feet and light clothing with an electronic scale that can accurately measure up to 100 grams. The height measurement was measured with bare feet, standing upright, leaning against the wall with their backs facing the wall, with a tape measure, The distance between the base of the foot and the top of the head with the thin rod parallel to the floor that touches the head during deep inspiration was measured with 0.5 cm accuracy. Body mass index was calculated with the formula "BMI = Weight (kg) / Height (m^2)".

Measure

International Incontinence Questionnaire Short Form (ICIQ-SF)

The UI was defined using the Turkish Version of the International Incontinence Questionnaire Short Form (ICIQ-SF). The validity and reliability study of the form was performed by Cetinel[11] et al. and the Cronbach alpha score was found to be 0.81. This scale can evaluate the frequency and amount of UI, the causes of UI, and the effect of UI on the quality

of life in all groups, male and female, young and old. The ICIQ-SF consisted of four items that assessed (i) the frequency 0-5 points); (ii) severity (0-6 points); (iii) impact of UI on daily life (0–10 points); and (iv) situation or causes leading to UI. The overall ICIQ-SF scores were calculated by the sum of items 1 to 3, with a total score range is 0-21 points. It has been reported that a score of 8 points and above for the ICIQ-SF score is the most appropriate cut-off point for indicating UI.[11] The participants were divided into two groups as urinary incontinence (ICIQ-SF score ≥ 8 point) and urinary continent (ICIQ-SF score< 8 point)

Statistical analysis

Statistical analysis of the data were performed by IBM SPSS 22 statistics package program. The distribution of continuous variables were analyzed using the Shapiro-Wilk test. Descriptive statistics are given as median (min-max) for continuous variables with non-normal distribution, and number (n) and percentage (%) for categorical variables.

Continuous variables were expressed as the median (min-max) and were analyzed by Mann-Whitney U test. Comparisons between groups were conducted using Pearson chi-square test or Fisher's exact test for categorical variables. Spearman correlation coefficient was used to examine the relationship between continuous variables. Binary logistic regression analyses were also used to predict factors affecting urinary incontinence. Adjusted odds ratios (OR) and confidence intervals (95% CI) were also extracted by logistic regression. A value of $p<0.05$ was considered statistically significant.

RESULTS

Total of 268 participants included study. The median age of participants were 33.00 (18.00-93.00) years old. The prevalence of UI in study population was 17.5% (n=47). The prevalence of UI increased with age. The prevalence of urinary incontinence by age groups is 4.1% in the 18-29 age range, 10.3% in the 30-39 age range, 12.0% in the 40-49 age range, 33.3% in the 50-59 age range, 46.7% in the 60-69 age range, and 81.9% in the 70 years old and above age range, respectively ($p<0.001$). (Figure 1)

Participants with urinary incontinence had higher median age, BMI, menopause vintage, and gravida than continent participants ($p<0.001$). Urinary incontinence was found significantly associated with being married ($p<0.001$), low education level ($p<0.001$), low income ($p=0.039$), having chronic diseases ($p<0.001$), having chronic medication ($p<0.001$), having constipation ($p<0.001$), menopause ($p<0.001$), and episiotomy history ($p=0.042$). (Table 1).

Low education level (odds ratio [OR] 57.84, 95% CI: 3.51-954.54), drug usage (odds ratio [OR] 7.77, 95% CI: 2.42-24.96), constipation (odds ratio [OR] 5.82, 95% CI: 2.25-15.08), menapause (odds ratio [OR] 17.61, 95% CI: 1.22-254.34) were independently associated with urinary incontinence. (Table 2)

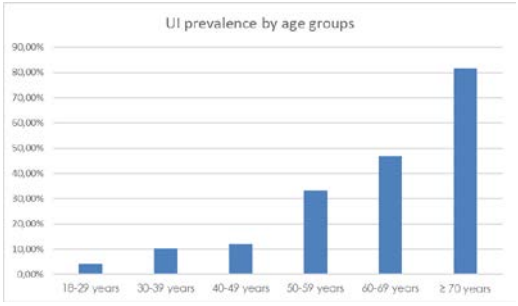

Figure 1. Prevalence of urinary incontinence by age groups ($p<0.001$)

There was a significantly positive correlation between ICIQ-SF score and age (r:0.434, $p<0.001$), weight (r=0.211, p=0.001), menopause vintage (r=0.745, $p<0.001$), gravida (r=0.424, $p<0.001$), vaginal delivery (r=0.428, $p<0.001$), curettages (r=0.331, $p<0.001$), abortus (r=0.382, $p<0.001$), parity (r=0.414, $p<0.001$). There was a significantly negative correlation between ICIQ-SF score and height (r=-0.195, p=0.001), and cesarean delivery (r=-0.024, $p<0.001$), (Table 3)

Table 1. Comparison of sociodemographic and medical factors between continent and incontinent women

Features	Incontinence (-)(n=221) Median (min-max)	Incontinence (+) (n=47) Median (min-max)		p
Age	32.00 (26.0-45.0)	47.00 (40.0-67.0)		<0.001a
Height (meter) (mean±SD)	1.63 (1.58-1.67)	1.60 (1.57-1.65)		0.002a
Weight (kg)	65.00 (57.50-73.50)	75.00 (64.0-80.0)		0.001a

Body mass index (kg/m2)	24.60 (21.3-27.6)	28.65 (24.2-29.3)		<0.001a
Total Score	0.00 (0.00-3.00)	14.00 (10.00-16.00)		<0.001a
Menopause vintage (year)	6.00 (2.0-7.5)	13.50 (13.0-28.0)		<0.001a
Gravida	1.00 (0.0-2.0)	4.00 (2.0-5.0)		<0.001a
Marital status (n=269)	n (%)	n (%)	n (%)	
Single	85 (38.5)	2 (4.3)	87 (32.5)	
Married	129 (58.4)	37 (78.7)	166 (61.9)	<0.001c
Widow/divorced	7 (3.2)	8 (17.0)	15 (5.6)	
Education (n=269)				
Illiterate	1 (0.5)	12 (25.5)	13 (4.9)	
Elementary	36 (16.3)	15 (31.9)	51 (19.0)	<0.001b
High school	43 (19.5)	10 (21.3)	53 (19.8)	
University	141 (63.8)	10 (21.3)	151 (56.3)	
Occupation (n=269)				
Housewife	91 (41.2)	25 (53.2)	116 (43.3)	
Working	119 (53.8)	20 (42.6)	139 (51.9)	0.319b
Retired	11 (5.0)	2 (4.3)	13 (4.9)	
Household income (n=269)				
Low	22 (10.0)	11 (23.4)	33 (12.3)	
Middle	193 (87.3)	35 (74.5)	228 (85.1)	0.039b
High	6 (2.7)	1 (2.1)	7 (2.6)	
Chronic disease (n=269)				
No	160 (72.4)	11 (23.4)	171 (63.8)	<0.001b
Yes	61 (27.6)	36 (76.6)	97 (36.2)	
Drug use (n=269)				
No	152 (68.8)	10 (21.3)	162 (60.4)	<0.001b
Yes	69 (31.2)	37 (78.7)	106 (39.6)	
Smoking (n=269)				
No	185 (83.7)	40 (85.1)	225 (84.0)	0.813b
Yes	36 (16.3)	7 (14.9)	43 (16.0)	
History of surgery (n=269)				
No	110 (49.8)	16 (34.0)	126 (47.0)	0.055b
Yes	111 (50.2)	31 (66.0)	142 (53.0)	
Constipation (n=269)				
No	151 (68.3)	14 (29.8)	165 (61.6)	<0.001b
Yes	70 (31.7)	33 (70.2)	103 (38.4)	
Menopause (n=269)				
No	181 (81.9)	23 (48.9)	204 (76.1)	<0.001b
Yes	40 (18.1)	24 (51.1)	64 (23.9)	
Difficult birth experience (242)				
No	194 (87.8)	41 (87.2)	235 (87.7)	0.611c
Yes	5 (2.3)	2 (4.3)	7 (2.6)	
Episiotomy (254)				
No	166 (75.1)	27 (57.4)	193 (72.0)	0.042b
Yes	44 (19.9)	17 (36.2)	61 (22.8)	
Uterin prolapsus (265)				
No	211 (95.5)	29 (61.7)	240 (89.6)	<0.001c
Yes	7 (3.2)	18 (38.3)	25 (9.3)	
Intrauterine device use (262)				
Never used	187 (84.6)	36 (76.6)	223 (83.2)	
Less than 3 years	8 (3.6)	5 (10.6)	13 (4.9)	0.180c
3-5 years	5 (2.3)	1 (2.1)	6 (2.2)	
More than 5 years	15 (6.8)	5 (10.6)	20 (7.5)	
Obesity (n=269)				
Normal (BMI=18-24.9)	123 (55.9)	12 (25.5)	135 (50.6)	
Overweight (BMI=25-29.9)	64 (29.1)	25 (53.2)	89 (33.3)	0.001b
Obese (BMI≥30)	33 (15.0)	10 (21.3)	43 (16.1)	

History of surgery: urological, gynecological and obstetric surgery history, Drug usage: history of choronic drug use, n= number, BMI: Body mass index, [a] Mann-whitney U test, [b] Pearson chi-square test, [c] Fischer's Exact test

Table 2. Relationship between urinary incontinence and sociodemographic characteristics

Variables	Odds Ratios	Confidence Interval (95.0%)	p value
Age	1.01	0.95-1.08	0.684
BMI (kg/m²)	1.14	0.95-1.37	0.161
Education			
Illiterate	57.84	3.51-954.54	0.005
Elementary	1.42	0.36-5.55	0.618
High school	1.96	0.53-7.20	0.312
University	Ref.		
Marital status			
Single	0.19	0.03-1.19	0.077
Married	1.85	0.31-11.11	0.501
Widow/divorced	ref		
Household income			
Low	0.07	0.003-1.55	0.092
Middle	0.09	0.01-1.34	0.081
High	ref		
Drug usage			
No	Ref		
Yes	7.77	2.42-24.96	0.001
Constipation			
No	Ref		
Yes	5.82	2.25-15.08	<0.001
Menopause			
No	Ref		
Yes	17.61	1.22-254.34	0.035
Obesity			
Normal	Ref		
Overweight	0.86	0.18-4.04	0.851
Obese	0.17	0.01-2.78	0.212
Episiotomy			
No	ref		
Yes	1.22	0.45-3.14	0.698

Model R^2: 0.519, $p<0.001$. BMI: Body mass index

Table 3. Correlation between ICIQ-SF total score and continuous variables

Variables	Total score	
	r	p
Age (year)	0.434	<0.001
Height (meter)	-0.195	0.001
Weight (kg)	0.211	0.001
Menopause vintage (year)	0.745	<0.001
Gravida	0.424	<0.001
BMI (kg/m²)	0.273	<0.001
Caesarean delivery	-0.024	<0.001
Number of curettages	0.331	<0.001
Vaginal delivery	0.428	<0.001
Number of abortus	0.382	<0.001
Parite	0.414	<0.001

BMI: Body mass index

DISCUSSION

The overall prevalence of UI in current study population was 17.5%. Many studies have reported a wide range of UI prevalence due to the age and the study population characteristics. A previous study was reported UI prevalence %29 among women aged over 20 years old[12]. Another study was reported UI prevalence of 20.4% among women aged 35 years old[13]. The current study findings are similar to previous studies which are having a similar age range population. Another study was reported UI prevalence 48.3% in Germany and 46.4% in Denmark among women aged over 18 years old[7]. Irwin's EPIC study had a lower UI prevalence (11.4%) than the current study findings[14].

The prevalence of UI was 4.1% in the 18-29 age group but it was 81.8% in women aged over 70 years old. A meta-analysis study was reported that women's age is the most important predictor of UI[10]. Xue et al. reported the prevalence of the UI 30.0% and 61.6%, for women aged 17–40 years, and 60 years and older, respectively[15]. Most of the literature studies showed increased age is a risk for UI. Our findings are consistent with the results of the studies mentioned above. The current study showed that obesity and increased BMI are associated with UI. Weight and obesity are known risk factors for UI in women. Obesity can cause increasing intra-abdominal pressure and urethral mobility so contribute to the UI[16]. Many previous studies have showed obesity is related to higher UI prevalence. Two different systematic review studies have reported obesity is a risk factor for UI[10,17]. Literature findings and our data suggest that we can reduce the frequency of urinary incontinence by reducing obesity.

The current study showed that Obstetric and gynecological characteristics of individuals such as menopause year, gravida, episiotomy history, curettages, abortus, and parity were associated with urinary incontinence. Previous studies have emphasized the relationship between these factors and urinary incontinence[12,18]. Gravida, episiotomy, curettages, abortus, and parity are modifiable factors for UI. Informing individuals about UI risk factors in routine health screenings and patient education may contribute to reducing the frequency of UI. Reproductive health counseling given by family physicians may also contribute to reducing the frequency of IU by affecting abortion, curettage, gravida and parity.

The current study showed that some socio-demografic factors such as being married, low education level, low income, comorbidity, chronic medication, and constipation are significantly associated with UI. A previous meta-analysis study demonstrated that some socio-demographic factors such as age, diabetes mellitus (DM), hypertension, women's education, and smoking are risk factors for UI [10]. Another study have been reported that age, DM, hypertension, co-morbidity were risk factors for UI [7]. The relationship between age and UI has been clarified above. The effect of co-morbidity and education on the UI has been demonstrated once again with both literature data and current study data. Family physicians have duties to promote health and well-being. Family physicians can spending more time on patient education in order to protect health and promote well-being. Thus, family physicians can increase the health knowledge level of patients and contribute to the reduction of co-morbidities.

The current study has some limitations. First, due to the cross-sectional design of the study, the data obtained cannot be generalized to the Turkish population. The sociodemographic and obstetric characteristics of the participants were obtained through participant statements. Although we used scales to assess UI, participants did not undergo urodynamic measurements.

In conclusion, the prevalence of UI was 17.5% in the study population and increased with age. UI is still a common health problem among adult women. We recommend physicians to be questioned about UI symptoms, especially in women over 50 years of age. Age, BMI, menapause, gravida, education, income, co-morbidity, choronic medication, episiotomy, being married, and constipation are significantly associated with UI. Some of these factors are modifiable risk factors and physicians may contribute to reducing risk factors. Further studies are needed to evaluate the effect of the treatment of modifiable risk factors on UI incidence among adult women.

Yazar Katkıları: Çalışma konsepti/Tasarımı: BAN, BY, HRN; Veri toplama: BAN, HRN, BY, EO, EP; Veri analizi ve yorumlama: BY, EO, EP; Yazı taslağı: BY, EO, EP; İçeriğin eleştirel incelenmesi: BAN, BY, HRN, EO, EP; Son onay ve sorumluluk: BAN, BY, HRN, EO, EP; Teknik ve malzeme desteği: BAN, HRN; Süpervizyon: BY, EP; Fon sağlama (mevcut ise): yok.
Etik Onay: Bu çalışma için Fırat Üniversitesi Rektörlüğü Girişimsel Olmayan Araştırmalar Etik Kurulundan 01.10.2020 tarih ve 2020/13-06 sayılı kararı ile etik onay alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Çıkar Çatışması: Yazarlar çıkar çatışması beyan etmemişlerdir.
Finansal Destek: Yazarlar finansal destek beyan etmemişlerdir.
Author Contributions: Concept/Design : BAN, BY, HRN; Data acquisition: BAN, HRN, BY, EO, EP; Data analysis and interpretation:

BY, EO, EP; Drafting manuscript: BY, EO, EP; Critical revision of manuscript: BAN, BY, HRN, EO, EP; Final approval and accountability: BAN, BY, HRN, EÖ, EP; Technical or material support: BAN, HRN; Supervision: BY, EP; Securing funding (if available): n/a.
Ethical Approval: For this study, ethical approval was obtained from the Ethics Committee of the Fırat University Rectorate for Non-Interventional Research with the decision No. 2020/13-06 dated 01.10.2020 and dated 01.10.2020.
Peer-review: Externally peer-reviewed.
Conflict of Interest: Authors declared no conflict of interest.
Financial Disclosure: Authors declared no financial support

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