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RESEARCH

PREVALENCE AND RISK FACTORS OF URINARY INCONTINENCE AND ITS IMPACT ON QUALITY OF LIFE AMONG 65 YEARS AND OVER WOMEN WHO LIVED IN RURAL AREA

ABSTRACT

Introduction: Despite the physical, psychosocial and economic impact of urinary incontinence, presentation at a healthcare institution is often delayed. This problem negatively affects the daily life of older people and decreases the quality of life.

Materials and Method: This cross-sectional study was conducted to determine the prevalence of urinary incontinence in women aged 65 or over living at home in rural area, the risk factors, and the relation of urinary incontinence to quality of life. The study sample consisted of 268 with systematic samling method selected females in Konya/Aksehir. A questionnaire developed to evaluate the socio-demographic, fertility, urinary incontinence characteristics of the respondents named "Incontinence Quality of Life Instrument" was used to evaluate the effect of urinary incontinence on the quality of life. Kruskal-Wallis Variance, The Chisquare, Yates and Mann-Whitney U tests were used to analyze the data.

Results: Urinary incontinence was observed to be more common among women at an advanced age, who were economically poor and bladder prolapse. The incontinence Quality of Life Instrument scores were negatively affected with perception of their economic status as poor, having delivered their last child at the age 40 or over, having had a twin pregnancy, having had bladder prolapse, mixed type urinary incontinence, urinary incontinence once a day, or urinary incontinence in great amounts, having to change underwear four or more times a day and urinating five or more times at night, and consulting a doctor for their urinary incontinence ($p<0.05$).

Conclusion: Urinary incontinence is common in the elderly and has a negative effect on the quality of life.

Key Words: Geriatrics; Urinary Incontinence; Quality of Life; Nursing.

ARAŞTIRMA

KIRSAL ALANDA YAŞAYAN 65 YAŞ VE ÜZERİ KADINLARDA ÜRİNER İNKONTİNANS GÖRÜLME SIKLIĞI, RİSK FAKTÖRLERİ VE YAŞAM KALİTESİ ÜZERİNE ETKİSİ

ÖZ

Giriş: Fiziksel, psikososyal ve ekonomik etkileri bulunan Üriner İnkontinans (Üİ) genellikle sağlık kurumuna başvuruda gecikilen bir durumdur. Bu sorun yaşlıların günlük yaşamını olumsuz yönde etkilemekte ve yaşam kalitesini düşürmektedir.

Gereç ve Yöntem: Kırsal alanda evde yaşayan 65 yaş ve üzeri kadınlarda üriner inkontinansı görülme sıklığı, risk faktörleri ve üriner inkontinansın yaşam kalitesi ile ilişkisini belirlemek amacıyla yapılan çalışma kesitsel türdedir. Konya/Akşehir'de 65 yaş ve üzeri sistematik örnekleme yöntemiyle seçilmiş 268 yaşlı kadın örneklemi oluşturmuştur. Bireylerin sosyo-demografik, doğurganlık, sağlık durumu ve üriner inkontinansı özelliklerini değerlendirmeye yönelik araştırmacı tarafından geliştirilmiş bir anket formu ve üriner inkontinansın yaşam kalitesine etkisini değerlendirmek için "İnkontinans Yaşam Kalitesi Ölçeği" kullanılmıştır. Verilerin değerlendirilmesinde Kruskal-Wallis Varyans analizi, Mann-Whitney U, Ki-kare ve Yates testi kullanılmıştır.

Bulgular: İleri yaşta, ekonomik durumu kötü ve mesane prolapsusu olan yaşlılarda üriner inkontinansı daha fazla görülmektedir ($p<0.05$). Ekonomik durumunu kötü algılama, son doğumunu 40 yaş ve üzerinde yapma, çoğul gebelik geçirme, mesane prolapsusu geçirme, miks tip üriner inkontinansı görülme, günde bir kez üriner inkontinansı görülme, büyük miktarda üriner inkontinansı görülme, günde dört ve daha fazla kez iç çamaşırı değiştirme, gece beş ve daha fazla kez miksiyona çıkma ve üriner inkontinansı nedeniyle doktora başvurma ile yaşam kalitesi ölçeği değerleri negatif olarak etkilenmiştir ($p<0.05$).

Sonuç: Üriner inkontinansı yaşlılarda yaygın bir durumdur ve yaşam kalitesini olumsuz yönde etkilemektedir.

Anahtar Sözcükler: Geriatri; Üriner İnkontinans; Yaşam Kalitesi; Hemşirelik.

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Introduction

Urinary incontinence (UI) has a negative effect on the quality of life and a high economic cost, and is commonly seen in people aged 65 and over (1, 2). Aggozzotti et al. (1) found a UI prevalence of 54.5%, increasing with advancing years [73.7% in women aged 95 years or over]. The UI prevalence in Turkey is 44.2% in the general population, but higher in females, at a rate of 57.1% compared to 21.5% in males (3).

Urinary incontinence patients are reported to frequently suffer from isolation, depression and anxiety due to their incontinence (4). Urinary incontinence is associated with negative psychosocial impacts such as continuous fear of smelling bad, feeling inadequate and dirty, low self-esteem, body image distortion, stigma, shame, sadness, anger, tension, anxiety, depression, loss of sexual desire and avoidance of sexual activity, together with disturbed quality of life (5). Although UI negatively affects quality of life, most women see UI as a normal and natural result of getting old, a taboo and a social issue more than a medical issue, so that they are hesitant to talk about it and often wait to seek medical attention for at least a year after the problem starts (6). It is difficult to determine the real percentage of elderly people with UI, as many elderly individuals see it as a natural result of advanced age and do not seek help (7).

The increased life expectancy has increased the rate of UI in the population and made it an important healthcare issue. Preventing the development of UI to improve the health of the elderly is an important responsibility of healthcare staff. More studies on the frequency and risk factors of incontinence and its effect on the quality of life should be performed and their results disseminated to the society in order to prevent the disorder (4). There are a lot of studies of UI in Turkey but our study has some differences, such as a focus on elderly women and those living in a rural area.

In this study we aimed to determine prevalence and risk factors of UI and its impact on quality of life among women aged 65 years or over who live at home in a rural area, to determine the relevant risk factors and the effect of UI on their quality of life.

Materials and Method

This cross-sectional study was performed to ascertain UI frequency in women aged 65 years or over who live at home in a rural area, to determine the relevant risk factors and the effect of UI on their quality of life.

The study was performed at Aksehir County Family Health Center (FHC) in Konya Province between January-April 2011. The study population consisted of 1369 females aged 65 years or over registered at this Center. Five family physicians were working in the FHC. Average 4000 population registered each family physician, so that it is would be required to be totally 20,000 populations in FHC. However, the FHC had a total of 15,813. The table presented in "prediction of the rate in a population with a specific accuracy" (8) was used to determine the sample size of the study. The rate reported by Bilgili et al. (9) of UI in elderly women (43.6%) was used as input regarding the rate of the studied disorder in the population. Additionally, values of 90% confidence and 5.0% relative accuracy were taken into account to give a sample size of 268 (45.0%) in the table. Values reported in the table closest to this ratio was determined as 45.0%. 45% of the value shown in the table is 268. The systematic sampling method was used to select the sample. We used a randomly address list, which were generated by family physicians according to their computer records, to get systematic sampling method. One chart out of every 5 (N/n: 1369/268= 5) was randomly selected and 268+20 elderly females were determined. We selected 20 extra elderly women in case our participants did not agree to participate in the survey as same as the sample selection method. 12 elderly did not agree to join the study for confidentiality so we substituted data from the extra elderly women. Sample selection criteria and the limitations of the study were living at home, not being bedridden, not having a mental disability [scoring at least 25 points on The Standardized Mini Mental Test (SMMT) or The Standardized Mini Mental State Examination for illiterate (SMMT-E)] and not having undergone urogenital region surgery. This study can be generalized to our elderly population.

Dependent and Independent Variables: The dependent variables of the study were UI status and The Urinary Incontinence Quality of Life Scale (I-QOL) scores**.** The independent variables of the study were socio-demographic, fertility and UI features. Socio-demographic features included age, marital status, educational status and perceived economic status (How do you perceive your economic status?). Fertility features included age at last birth, birth number, twin pregnancies, episiotomy, uterine prolapse and bladder prolapse (Do you feel a prolapse of the uterus or bladder when you stand?). UI features included incontinence type, frequency, amount, under wear change number, night micturition frequency, having a Urinary Tract Infection (UTI), knowing and doing kegel exerci-

se. UI was defined as any involuntary leakage of urine occurring for the past year, at least several times a month. We asked some questions of the participants such as: Do you have sudden and severe postponed urination and increased frequency of urination?, Do you have involuntary UI while laughing, sneezing, exercising, walking and coughing?, Do you have urgency and stress UI at the same time? (4,10,11).

Data Collection Technique and Tools: Data were collected using face-to-face interviews during home visits. A survey form, I-QOL, SMMT and SMMT-E were used. The survey form was developed by the investigators to determine sociodemographic, fertility and UI features.

I-QOL was used to determine the quality of life in UI patients. This scale was developed by Patrick et al. (12) in order to determine the quality of life in UI patients. The scale consists of a total of 22 questions with three subdimensions. The subdimensions are avoidance and limiting behaviours, psychosocial impact and social embarrassment. All I-QOL items are evaluated with five-item Likert type answers (1= very much, 2= quite, 3= moderate, 4= some, 5= none). The validity and reliability of I-QOL in our country have been shown by Ozerdogan et al (4). The Cronbach Alfa coefficient of I-QOL was found to be 0.96 in general, 0.88 for the avoidance and limiting behaviours subdimension, 0.92 for the psychosocial impact subdimension and 0.88 for the social embarrassment subdimension. In our study the Cronbach Alfa coefficient of I-QOL was found to be 0.94 in general, 0.80 for the avoidance and limiting behaviours subdimension, 0.88 for the psychosocial impact subdimension and 0.85 for the social embarrassment subdimension. Expert views were obtained regarding the conduct of the validity study. High scores show a better quality of life (12).

SMMT and SMMT-E provide information on the degree of cognitive disorder (13). The test was developed for the purpose of short-term cognitive assessment, especially in the examination of delirium or dementia in elderly individuals. The lowest score that can be received on the scale is 0 and the highest score is 30. A score from 0-12 indicates “severe”, 13-22 “moderate”, and 23-24 “mild cognitive disorder present,” and 25-30 indicates “cognitive disorder not present”. The validity and reliability study of SMMT and SMMT-E was conducted by Gungen et al (14). Before the study applied the survey form to 10 pilot elderly and than can not be understood of expression in the form has been identified and revised.

Statistical Analyses: The data were evaluated using the Statistical Package for the Social Sciences (SPSS) 15.0 programme. Descriptive data were presented as percentage and mean ± standard deviation (SD). Chi-square, Mann-Whitney U (MW-U) tests, the Kruskal-Wallis Variance (KW) and Bonferroni-corrected MW-U analysis (for KW test) were used to determine UI status and UI influence on quality of life because the data were not normally distributed. $p<0.0167$ and $p<0.0083$ values were considered significant in Bonferroni-corrected MW-U analysis, $p<0.05$ value was accepted significant in all other analysis.

Before the study was started, Ethical Committee consent was received from Selcuk University Medical Faculty and the related permissions were obtained from the Health Group Head Office of the region where the study took place, and from the elderly people within the study population.

RESULTS

Socio-demographic and urinary incontinence features of the subjects are presented in Table 1. The rate of subjects experiencing UI in the past year was 47.8% (128) and the most common type was mixed (51.6%). UI had been experienced a couple of times a day by 51.6% of the subjects while 58.6% had UI in large amounts.

We found that 64.8% of the subjects with UI had not gone to see a physician for this problem, 63.9% did not care, and 48.2% were not ashamed of it. Kegel exercises were unfamiliar to 99.3% of the subjects and none had performed them.

Urinary incontinence risk was higher in those in the 80 years and over group, subjects who perceived their economic condition as poor, had a birth number of 1-2, had given birth five times or more, or had bladder prolapse; these differences were statistically significant ($p<0.05$). Yates correction test was used on having experienced a twin pregnancy, bladder prolapse and episiotomy. There was no statistically significant relationship between UI and educational status, age at last birth, having experienced a twin pregnancy and episiotomy status ($p>0.05$) (Table 2).

Table 3 shows that subjects with a better perceived economic status had higher mean scores than those with perceived poor economic status for avoidance and limiting behaviours, psychosocial impact, social embarrassment and total I-QOL score; this was statistically significant ($p<0.05$). The Bonferroni-corrected MW-U analysis showed the richest group different from the other two groups and the poorest groups having low I-QOL points ($p<0,0167$). Mean I-QOL total and social embarrassment subdimension scores were higher for

Table 1— Distribution of Socio-Demographic and Urinary Incontinence-Related Features in The Elderly.

Characteristics	n	%
Age (n=268)		
65-69	114	42.5
70-74	64	23.9
75-79	43	16.0
≥80	47	17.5
Educational Status (n=268)		
Illiterate	159	59.3
Literate	38	14.2
Primary school or over	71	26.5
Perceived Economic Status (n=268)		
Good	19	7.1
Moderate	180	67.2
Poor	69	25.7
Urinary Incontinence Status (n=268)		
Yes	128	47.8
No	140	52.2
Urinary Incontinence Type (n=128)		
Urgency	50	39.0
Stress	12	9.4
Mixed	66	51.6
Urinary Incontinence Frequency (n=128)		
Once a day	66	51.6
A couple of times a week	47	36.7
A couple of times a month	15	11.7
Urinary Incontinence Amount (n=128)		
Small amount (a few drops)	34	26.6
Moderate amount (diaper or underwear becoming humid)	19	14.8
Large amount (diaper or underwear becoming wet)	75	58.6

subjects who had last given birth at the age of 39 or younger, than for those who had given birth at the age of 40 or older ($p<0.05$). I-QOL mean social embarrassment scores of subjects who had not experienced twin pregnancy were higher than scores of those who had ($p<0.05$), and I-QOL mean scores of subjects who had bladder prolapse were lower than those who did not have bladder prolapse ($p<0.05$). No statistically significant difference was found in mean I-QOL scores with respect to age, educational status, birth number and presence of episiotomy ($p>0.05$).

The mean scores of the study subjects were 45.58±18.48 for total I-QOL score, 41.04±16.63 for avoidance and limiting behaviours, 51.82 ±20.06 for psychosocial impact, and 41.59±22.61 for social embarrassment.

Table 4 shows a statistically significant relationship between UI type, frequency, amount and mean I-QOL subdimension and total scores; the daily number of underwear changes and mean I-QOL avoidance and limiting behaviours, social embarrassment and total scores; and micturition frequency and mean I-QOL avoidance and limiting behaviours, psychosocial impact and total scores ($p<0.05$). Bonferroni-corrected MW-U analysis revealed that the groups with mixed type UI, once a day UI and large amounts of UI had different and negative characteristics in terms of I-QOL points than the other groups ($p<0,0167$). Bonferroni-corrected MW-U analysis revealed that the I-QOL points was highest in the group that changed underwear once a day and lowest in the group that changed underwear four times or more a day

Table 2— Distribution of Risk Factors for Urinary Incontinence (n=268).

	Urinary Incontinence Status		
Features	**Present n (%)**	**Absent n (%)**	**Significance Test**
Age			
65-69	48 (42.1)	66 (57.9)	
70-74	29 (45.3)	35 (54.7)	X^2=14.162
75-79	17 (39.5)	26 (60.5)	*p=0.03
≥80	34 (72.3)	13 (27.7)	
Perceived Economic Status			
Good	6 (31.6)	13 (68.4)	X2=8.937
Moderate	79 (43.9)	101 (56.1)	*p=0.011
Poor	43 (62.3)	26 (37.7)	
Educational Status			
Illiterate	77 (48.4)	82 (51.6)	X2=0.868
Literate	20 (52.6)	18 (47.4)	p=0.648
Primary school and higher	31 (43.7)	40 (56.3)	
Age at Last Birth			
39 years and ?	98 (48,5)	104 (51,5)	X2=0,030
40 years and ?	25 (47,2)	28 (52,8)	p=0,862
Birth Number			
1-2 births	15 (75.0)	5 (25.0)	
3 births	14 (34.1)	27 (65.9)	X2=11.366
4 births	20 (39.2)	31 (60.8)	*p=0.010
5 births or more	74 (51.7)	69 (48.3)	
Having Experienced a Twin Pregnancy			
Yes	11 (73.3)	4 (26.7)	X2=3.024
No	112 (46.7)	128 (53.3)	p=0.082
Bladder Prolapse			
Yes	16 (80.0)	4 (20.4)	X2=7.661
No	112 (45.2)	136 (54.8)	*p=0.006
Presence of Episiotomy			
Yes	7 (53.8)	6 (46.2)	X2=0.017
No	116 (47.9)	126 (52.1)	p=0.896

*p<0.05

(p<0,0083). Bonferroni-corrected MW-U analysis also revealed that the group that performed micturition twice a night had the highest and the group that performed micturition five or more times a night the lowest I-QOL points (p<0,0167). No statistically significant relationship was found between the status of having UTI in the last year and I-QOL mean score (p>0.05).

The mean I-QOL avoidance and limiting behaviours, psychosocial impact and total scores of subjects who had presented to their physicians with UI were lower than the scores of those who had not, and the difference between the groups was statistically significant (p<0.05).

Discussion

In the first section of the discussion is given to the relationship between UI status and some independent variables. In our study, the percentage of elderly women who had experienced UI in the last year was 47.8%. Prevalence of UI was reported between 27.0% and 68.9% in abroad study (15-17). In studies performed in our country, UI frequency was found to

Table 3— Distribution of Mean I-QOL Total and Subdimensional Scores According to Specific Variables (**n=128).

I-QOL	Avoidance and Limiting Behaviours	Psychosocial Impact	Social Embarrassment	Total I-QOL
Perceived Economic Status	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Good***	59.58±22.21	75.19±22.10	67.33±23.92	67.73±21.25
Moderate	41.68±16.90	52.43±20.25	42.73±22.95	46.32±18.60
Bad	37.27±13.51	47.44±17.30	35.91±19.23	41.12±15.65
Significance Test	**KW=6.040**	**KW=7.373**	**KW=9.352**	**KW=8.088**
	***p=0.049**	***p=0.025**	***p=0.009**	***p=0.018**
Age at Last Birth				
39 years and ↓	41.84±16.01	53.38±19.70	42.94±21.83	46.81±17.85
40 years and ↑	37.40±18.92	46.67±21.70	35.68±23.69	40.80±20.49
Significance Test	Z=-1.761	Z=-1.932	**Z=-2.100**	**Z=-1.977**
	p=0.078	p=0.053	***p=0.036**	***p=0.048**
Number of Births				
1-2	42,67±18,18	53,78±19,37	46,40±24,36	48,06±19,23
3	45,36±14,17	56,83±20,67	43,71±21,25	49,68±16,78
4	38,50±17,47	50,78±21,94	40,80±21,07	44,05±19,38
≥5	40,41±16,70	51,08±20,08	40,22±22,68	44,73±18,61
Significance Test	KW=3,231	KW=2,020	KW=1,395	KW=2,148
	p=0,357	p=0,568	p=0,707	p=0,542
Twin Pregnancy Experience				
Yes	34.32±15.29	43.43±21.23	29.82±16.33	37.02±17.35
No	41.58±16.71	52.86±20.01	42.61±22.54	46.43±18.45
Significance Test	Z=-1.479	Z=-1.873	**Z=-2.037**	Z=-1.831
	p=0.139	p=0.061	***p=0.042**	p=0.067
Bladder Prolapse				
Yes	33.28±11.99	41.81±14.81	30.25±12.64	36.08±12.41
No	42.14±16.94	53.25±20.36	43.21±23.29	46.93±18.84
Significance Test	**Z=-2.007**	**Z=-2.136**	**Z=-1.977**	**Z=-2.296**
	***p=0.045**	***p=0.033p**	***p=0.048**	***p=0.022**
Presence of Episiotomy				
Yes	43,57±14,56	62,54±17,79	49,71±21,89	52,73±16,84
No	40,78±16,82	51,38±20,24	40,97±22,33	45,16±18,56
Significance Test	Z=-0,739	Z=-1,580	Z=-1,365	Z=-1,305
	p=0,460	p=0,114	p=0,172	p=0,192

*p<0.05
**(n:128 having UI)
***(Different group)

be between 16.4% and 68.8% (3,9,11,18-21). Our study results are similar to studies performed both abroad and in our country. These findings show that UI is a common problem in the elderly and we can therefore conclude it is an important healthcare issue in this age group.

Urinary incontinence prevalence was higher in the group of elderly people aged 80 or over than in the group aged 65-69. Aggazzotti et al. (1) reported that UI prevalence increased significantly with age: UI prevalence was 26.5% for subjects aged 65 or over but 73.7% for those aged 95 or over. The other study (3,10,11,15,21), reported a significant relationship between age and UI prevalence. Studies from our country and others support our finding that advanced age increases UI prevalence.

Table 4— Distribution of Mean I-QOL Total and Subdimension Scores According to UI-Related Features (n=128).

I-QOL	Avoidance and Limiting Behaviours	Psychosocial Impact	Social Embarrassment	Total I-QOL
Incontinence Type	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Urgency	45,15±17,19	54,31±22,83	46,16±25,66	49,13±20,51
Stress	52.92±15.62	70.37±17.40	58.33±22.72	61.29±16.43
Mixed***	35.76±14,.45	46.57±15,.69	35.09±17.46	40.03±14.76
Significance Test	**KW=17.425**	**KW=13.455**	**KW=11.040**	**KW=15.282**
	****p=0.000**	****p=0.001**	****p=0.004**	****p=0.000**
Incontinence Frequency				
Once a month	54.00±15.69	66.67±17.35	59.20±23.38	60.36±17.19
Once a week	45.11±18.73	58.30±20.44	46.30±23.95	50.77±19.61
Once a day	35.19±12.39	43.84±16.74	34.24±18.25	38.51±14.51
Significance Test	**KW=18.393**	**KW=25.596**	**KW=17.125**	**KW=24.038**
	****p=0.000**	****p=0.000**	****p=0.000**	****p=0.000**
Incontinence Amount				
Small	54.49±17.76	66,47±19,60	56.47±25.08	59.84±9.08
Moderate	45.92±13.95	60.00±17.45	52.00±18.18	53.06±15.41
Large	33.70±11.95	43.11±15.90	32.21±17.27	37.21±13.68
Significance Test	**KW=37.013**	**KW=36.056**	**KW=34.798**	**KW=40.490**
	****p=0.000**	****p=0.000**	****p=0.000**	****p=0.000**
Underwear Change Number				
Once***	38.13±14.81	50.90±18.94	42.50±22.69	44.35±17.05
Twice	34.82±13.28	41.59±18.25	30.00±17.09	36.49±15.39
Three times	38.17±15.96	47.41±21.35	36.80±21.97	41.64±18.78
Four times or more	25.94±7.06	34.17±7.69	24.00±5.65	28.86±5.86
Significance Test	**KW=7.859**	**KW=7.047**	**KW=8.056**	**KW=9.561**
	***p=0.049**	**p=0.070**	***p=0.045**	***p=0.023**
Night Micturition Frequency				
Once	45.43±17.48	55.71±20.89	44.83±23.81	49.50±19.33
Twice***	48.25±17.69	58.67±17.38	46.60±21.41	52.14±17.31
Three times	39.32±15.23	51.92±19.56	40.97±20.47	44.85±17.51
Four times	37.08±14.35	48.40±21.37	40.00±24.96	42.37±18.31
Five times and more	31.63±11.49	42.32±17.54	33.04±20.89	36.32±15.51
Significance Test	**KW=15.746**	**KW=11.91**	**KW=8.152**	**KW=14.107**
	****p=0.003**	***p=0.018**	**p=0.086**	****p=0.007**
Having a UTI				
Yes	40.38±16.71	49.62±19.04	38.63±20.49	43.76±17.63
No	41.91±16.63	54.75±21.17	45.53±24.80	47.98±19.45
Significance Test	Z=-0.608	Z=-1.364	Z=-1.453	Z=-1.240
	p=0.543	p=0.172	p=0.146	p=0.215

*p<0.05
**p<0.01
***(Different group)

In our study the UI prevalence found to be higher in patients who perceive their economic condition as poor than in patients who perceive their economic condition as good. No similar economic data were found in other studies regarding UI. Poor socioeconomic status effects negatively the healthy lifestyle behaviors and quality of life (22). Poor economic conditions may affect the demand for protecting and improving the elderly person's own health and in this way the prevalence of UI will increase.

Urinary incontinence prevalence was found to be significantly related that both the number of births and bladder prolapse status. The number of births increases UI prevalence (1,10,11,19,21). However, Ilce and Ayhan (23) reported that there was no significant relationship between UI prevalence and number of births. While studies generally report that a high number of births is a risk factor for UI, our study does not conform with these results. In this study, we thought birth type was not related factor on the number of births because only two elderly had cesarean section. The elderly could have been performed hard labor or had high body mass index (BMI) who had 1-2 births. They couldn't want to another pregnancy due to this traumatic labor. BMI could be important factor on the number of births and UI. To clarify the relationship between number of births and UI are necessary more detailed studies. In our study, UI was seen more frequently in elderly people who had bladder prolapse. According to a report by the NIH Consensus Conference on Urinary and Fecal Incontinence in Adults, number of births and prolapse increase the risk of UI (24). The prevalence of UI in subjects who had a lot of birth number can be considered to increase in later stages due to the increasing pressure on the bladder by increased abdominal pressure and bladder prolapse.

In our study, there was no statistically significant relationship between UI and age at last birth and episiotomy status. Bilgili et al. (9) studies support our finding that age at last birth and episiotomy status unrelated UI status.

In the second section of the discussion is given to the relationship between I-QOL scores and some independent variables (perceived economic condition, age at last birth, twin pregnancy, bladder prolapse, UI frequency and amount, UI type, number of underwear changes and nighttime micturition and UI presentation).

Perceived economic condition was found to be significantly related to mean I-QOL scores of the elderly. Quality of life was higher for elderly women who perceived their economic condition as good than for those who perceived their economic condition as poor. Our study results indicate that UI-related quality of life is lower in people whose economic condition is poor.

When the relationship between I-QOL mean scores and fertility features was evaluated, we found the mean I-QOL total and social embarrassment subdimension scores to be higher in subjects who had, of 39 or under, compared to those who had last given birth at the age of 40 or over. Giving birth to the last child at the age of 40 or over had a significantly negative effect on UI-related quality of life.

We found a statistically significant relationship between experiencing a twin pregnancy and mean I-QOL social embarrassment scores. There was also a statistically significant relationship between having had bladder prolapse and mean I-QOL scores. We found no other studies on the relationship between I-QOL and twin pregnancies or bladder prolapse. We found the UI-related quality of life to be lower in subjects who had twin pregnancies or bladder prolapse.

I-QOL mean scores were higher in the subjects with a lower amount of UI. Ozerdogan et al. (4) reported a negative relationship between quality of life and UI frequency and amount. Our study results indicate that increased UI frequency and amount negatively influence UI-related quality of life.

There was a statistically significant relationship between UI type and mean I-QOL subdimension and total scores in our study. Mean I-QOL scores of the elderly subjects who had stress type UI were higher than those with mixed type UI. Ozerdogan et al. (4) reported a statistically significant relationship between the quality of life of individuals and UI type, with females suffering from stress UI having a higher quality of life than those with other types of UI. Accordingly, quality of life can be said to be highest in those with stress UI.

A high number of underwear changes was found to negatively affect mean avoidance and limiting behaviors, social embarrassment and I-QOL total scores. Kocak et al. (25) reported that 62.4% of females with UI had at least one complaint regarding their social life and that the anxiety level was high in women using pads or protectors due to the severity of UI. We found a statistically significant relationship between the frequency of nighttime micturition and mean psychosocial impact and I-QOL total scores. Mean I-QOL scores of elderly subjects who performed micturition 5 times or more a night were lower than those reporting this just once a night. These results indicate that the increased number of underwear changes and nighttime micturition due to UI severity adversely affect the quality of life.

In our study a statistically significant relationship occurred between the presentation of elderly women to their physi-

cians for UI and mean I-QOL avoidance and limiting behaviours, psychosocial impact and I-QOL total scores. Minassian et al. (10) reported that although UI negatively affected the quality of life of individuals, none of them sought medical aid. Studies have shown that UI is not perceived as a problem and the rate of presentation to physicians for this symptom is low.

In conclusion, UI is quite common in Turkish women aged 65 or over. Advanced age and lower economic status increase the prevalence of UI.

Mean I-QOL scores vary depending on the UI type and amount, daily underwear changes and the number of night micturitions. Although UI is common and affects the quality of life negatively, the rate of presentation at the physician is low. Accordingly, physicians and nurses and especially those working in primary care should inform the elderly and their relatives about UI development, risks and complications. The healthcare staff should persuade them to present at the physician when necessary and observe those in the risk groups carefully in terms of UI prevalence.

We suggest that the elderly who had poor perceived economic condition, aged 80 years and older, twin pregnancy, bladder prolapse seen in terms of the UI to be taken into account in the risk group and more closely monitoring by physicians and nurses.

For the elderly to reduce the frequency of urination at night; fluid intake, with caffeine and alcohol beverages should be told to limit.

REFERENCES

1. Aggozzotti G, Pesce F, Grassi D, Fantuzzi G, Righi E, Vita D, Santacroce S, Artibani W. Prevalence of urinary incontinence among institutionalized patients: a cross-sectional epidemiologic study in a midsized city in northern Italy. Urology 2000;56:245-9. (PMID:10925087).
2. Kuchel GA, DuBeau CE. Urinary incontinence in the elderly (Chapter 30). The American Society of Nephrology 2009;1-5. [Internet] Available from: https://www.asnonline.org/education/distancelearning/curricula/geriatrics. Accessed:08.10.2014.
3. Ateskan U, Mas RM, Doruk H, Kutlu M. Urinary incontinence among the elderly people of Turkey: Prevalance, clinical types and health-care seeking. Turkish Journal of Geriatrics 2000;3(2):45-50.
4. Ozerdogan N. Kizilkaya NB, Yalcin O. Urinary incontinance: Its prevalence, risk factors and effects on the quality of life of women living in region of Turkey. Gynecologic Obstet Invest 2004;58:145-50. (PMID:15237249).
5. Erdogan NO. Female urinary incontinence and the quality of life. I.U.F.N. Journal of İstanbul University Florance Nightingale Nursing Schools 2003;13(51):87-94.
6. Biri A, Durukan E, Maral I, Korucuoglu U, Biri H, Tyras B, Bumin MA. Incidence of stress urinary incontinence among women in Turkey. Int Urogynecol J Pelvic Floor Dysfunct 2006;17:604-10. (PMID:16628373).
7. Laganà L, Bloom DW, Ainsworth A. Urinary incontinence: Its assessment and relationship to depression among community-dwelling multiethnic older women. The Scientific World Journal 2014;2014:708564. doi: 10.1155/2014/708564. (PMID:24982981). [Internet] Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3984862/. Accessed:08.10.2014.
8. Lwanga SK, Lemeshow S. Sample Size Determination in Health Studies: A Practical Manual. World Health Organization, Geneva, 1991, pp 42-56.
9. Bilgili N, Akin B, Ege E, Ayaz S. Prevalence of urinary incontinence and affecting risk factors in women. J Med Sci 2008;28:487-93.
10. Minassian VA, Drutz HP, Al-Badr A. Urinary incontinence as a worldwide problem. Int J Gynaecol Obstet 2003;82:327-38. (PMID:14499979).
11. Filiz TM, Uludag C, Cinar N, Gorpelioglu S, Topsever P. Risk factors for urinary incontinence in Turkish women. A cross-sectional study. Saudi Med J 2006;27(11):1688-92. (PMID:17106542).
12. Patrick DL. Martin ML. Bushnell DM, Yalcin I, Wagner TH, Buesching DP. Quality of life of women with urinary incontinence: further development of The Incontinence Quality of Life Instrument (I-QOL). Urology 1999;53(1):71-6. (PMID:9886591).
13. Folstein MF, Folstein S, McHugh PR. "Mini Mental State" A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 1975;12:189-98. (PMID:1202204).
14. Gungen C, Ertan T, Eker E, Yasar R, Engin F. Reliability and validity of the standardized Mini Mental State Examination in the diagnosis of mild dementia in Turkish population. Turk Psikiyatri Derg 2002;13(4):273-81. (PMID:12794644).
15. Espino DV, Palmer RF, Miles TP, Mouton CP, Linchtenstein MJ, Markides KP: Prevalence and severity of urinary incontinence in elderly Mexican- American women. J Am Geriatr Soc 2003;51(11):1580-6. (PMID:14687387).
16. Amaro JL, Macharelli CM, Yamamoto H, Kawano PR, Padovani CR, Agostinho AD. Prevalence and risk factors for urinary and fecal incontinence in Brazilian women. International Braz J Urol 2009;35:592-8. (PMID:19860938).
17. Arunkalaivanan AS, Morrison A, Jha S, Blann A. Prevalence of urinary and faecal incontinence among female members of the hypermobility syndrome association (HMSA). Journal of Obstetrics and Gynaecology 2009;29(2):126-8. (PMID:19274546).

18. Cetinel B, Demirkesen O, Yalcin O, Kocak T, Senocak M, Itil I. Hidden female urinary incontinence in urology and obstetrics and gynecology outpatient clinics in Turkey: What are the determinants of bothersome urinary incontinence and help seeking behavior? Int Urogynecol J 2007;18(6):659-64. (PMID:17164988).
19. Gunes G, Gunes A, Pehlivan E. Urinary incontinence prevelance among women in the area of Yesilyurt health center. Journal of Turgut Ozal Medical Center 2000;7(1):54-7.
20. Oskay UY, Beji NK, Yalcin O. A study on urogenital complaints of postmenopausal women aged 50 and over. Acta Obstet Gynecol Scand 2005;84(1):72-8. (PMID:15603571).
21. Senturk S, Kara M. The risk factors and prevalence of urinary incontinence at postmenopausal women. Journal of Van Medical Center 2010;17(1):7-11.
22. Koçoğlu D, Akın B. The relationship of socioeconomic inequalities to healthy lifestyle behaviors and quality of life. DEUHYO ED 2009;2(4),145-54. (in Turkish).
23. Ilce A, Ayhan F. The identification of urinary and fecal incontinence in older people and its effects over life quality: briefing and training. Anatol J Clin Investig 2011;5(1):15-23.
24. The NIH Consensus Conference on Urinary and Fecal Incontinence in Adults Report. [Internet] Available from: http://consensus.nih.gov/2007. Accessed: 11.09.2012.
25. Kocak İ, Okyay P, Dundar M, Erol H, Beser E. Female urinary incontinence in the west Turkey: Prevalence, risk factors and impact on the quality of life. Eur Urol 2005;48:634-64. (PMID:15963633).