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ORIGINAL ARTICLE

Determining the Relationship Between the Frequency of Urinary Incontinence, Depression, Anxiety and Stress in Menopausal Women

Menopoz Dönemdeki Kadınlarda Üriner İnkontinans Sıklığı ile Depresyon, Anksiyete, Stres Arasındaki İlişkinin Belirlenmesi

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Abstract

Objective: Though urinary incontinence (UI) is not a life-threatening health problem, it may have significant physical and psychological effects on women's social and family life. Most women delay seeking help since they are embarrassed or do not consider UI a health problem, causing a gradual increase in the symptoms of UI. This study aims to determine the relationship between the frequency of UI, depression, anxiety, stress and quality of life in menopause women.

Method: The sample of this descriptive study comprised 112 participants from Northern Cyprus between October and December 2022. Personal information form, urogenital distress inventory (UDI-6), incontinence impact questionnaire (IIQ-7) and depression, anxiety, stress scale-21 (DASS-21) were used for data collection. The non-parametric Mann-Whitney U test was used for two-group comparison. Spearman's correlation coefficient was used to determine the relationship between two continuous variables. Number, percentage, mean and standard deviation were used as descriptive statistics. Statistical significance was set at $p<0.05$.

Results: The mean scores obtained by the participants with UI from all scales and their subscales were significantly higher than the participants without UI ($p<0.05$). There was a positive, moderate and statistically significant relationship between the UDI-6, IIQ-7 and the depression, anxiety and stress subscales of DASS-21 ($r=0.634$, $p<0.001$; $r=0.449$, $p<0.001$; $r=0.609$, $p<0.001$; $r=0.449$, $p<0.001$, $r=0.492$ $p<0.001$, respectively). In addition, it was also found a positive, moderate and statistically significant relationship between the IIQ-7 and the depression, anxiety and stress subscales of DASS-21 ($r=0.517$, $p<0.001$; $r=0.591$, $p<0.001$; $r=0.619$, $p<0.001$, respectively).

Conclusion: This study found that a higher frequency of UI in menopausal women reduced the quality of life and increased the levels of depression, anxiety and stress.

Keywords: Urinary incontinence, menopause, depression, anxiety, stress

Öz

Amaç: Üriner inkontinans (UI) kadın yaşamını tehdit etmemesine rağmen kişinin aile içi ve sosyal yaşantısını fiziksel ve psikolojik yönden önemli derecede etkileyebilmektedir. Kadınların çoğu utandığı ya da üriner inkontinansı sorun olarak görmediği için sağlık hizmetlerine başvurmakta gecikmektedirler. Bu gecikme UI semptomlarının giderek artmasına neden olmaktadır. Bu çalışmada menopoz dönemdeki kadınlarda UI sıklığı ile depresyon, anksiyete, stres arasındaki ilişkinin belirlenmesi amaçlanmıştır.

Yöntem: Bu tanımlayıcı tipteki araştırmanın örneklemini 05/10/2022 ve 30/12/2022 tarihleri arasında Kuzey Kıbrıs Türk Cumhuriyet'inden toplam 112 katılımcı oluşturmuştur. Araştırmanın verileri araştırmacılar tarafından hazırlanan "kişisel bilgi formu", "ürogenital disstres envanteri (UDI-6), inkontinans etki sorgulaması (IIQ-7) ve depresyon anksiyete stres ölçeği-21 (DASS-21) olmak üzere dört bölümden oluşan online anket ile toplanmıştır. Elde edilen veriler; non-parametrik testlerden, iki grup karşılaştırması için Mann-Whitney U testi kullanılarak yapılmıştır. İki sürekli değişken arasındaki ilişkiyi belirlemek için ise Spearman korelasyon katsayısı kullanılmıştır. Tanımlayıcı istatistiklerden sayı, yüzde, ortalama ve standart değerleri verilmiştir. Testlerin anlamlılık düzeyi için $p<0,05$ değeri kabul edilmiştir.

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Bulgular: Çalışmamızda üriner inkontinansı olan kadınların tüm ölçeklerden ve alt boyutlarından aldıkları puanların üriner inkontinansı olmayan kadınlara göre istatistiksel olarak daha yüksek olduğu bulunmuştur (tüm p değerleri <0,05). Çalışmamızda UDI-6 ile IIQ-7, DASS-21 depresyon, anksiyete ve stres alt boyutları arasında pozitif yönde, orta düzeyde ileri düzeyde bir ilişki vardır (sırasıyla r=0,634, p<0,001; r=0,449, p<0,001; r=0,609, p<0,001; r=0,449, p<0,001, r=0,492 p<0,001). Buna ek olarak IIQ-7 ile DASS-21 depresyon, anksiyete ve stres alt boyutları arasında pozitif yönde, orta düzeyde ileri düzeyde bir ilişki bulunmuştur (sırasıyla r=0,517, p<0,001; r=0,591, p<0,001; r=0,619, p<0,001).

Sonuç: Çalışmamızda menopoz döneminde bulunan kadınların UI sorununun artmasıyla yaşam kalitelerinin düştüğü ve depresyon, anksiyete, stres yaşama oranlarının arttığı saptanmıştır.

Anahtar Kelimeler: Üriner inkontinans, menopoz, depresyon, anksiyete, stres

Introduction

Menopause, which may be defined as the final menstural period in biological and medical terms, is a universal event for all middle-aged women (1). This important life stage, which marks the end of the natural reproductive cycle in women, occurs around 51 years of age (2,3). The basic mechanism causing menopause depends on a decrease in estrogen and an increase in follicle stimulating hormone levels (1,4). Accounting to nearly one-third of women's life, menopause is the longest stage of life, during which women experience physical, psychological and social changes (1,5,6). Estrogen hormone deficiency during menopause result with changes in various systems, causing a number of health problems. During this period, pelvic floor muscles may lose their elasticity due to ageing and decreasing levels of estrogen, which in turn, may result in urinary incontinence (UI) and prolapse (7). UI may be defined as the unintentional leakage of urine. Although it may be observed in patients of all age groups, numerous studies have shown that the prevalence of UI increases with age (8). Having a significant effect on morbidity and the quality of life, UI affects the emotional well-being, social functions and general health of menopausal women and may cause depression, low self-esteem, anxiety and stress (8-10). Existing studies have reported that nearly half of the women experiencing UI are worried that the symptoms will worsen in the near future, feel embarrassed about urinary leakage and experience anxiety about the odds associated with the leakage (11). Although UI is not life-threatening, it may significantly affect a woman's family and social life in physical and psychological terms. Most women are reluctant to seek medical help since they feel ashamed or do not consider UI as a significant problem, which in turn, results with a gradual increase in the symptoms of UI (12). Delayed treatment of UI will increase the economic burden of medical care. Therefore, UI problem should be diagnosed earlier and should be evaluated carefully (13,14). Within this context, this study aims to determine the relationship between the frequency of UI, depression, anxiety and stress in menopausal women.

Main Points

- The quality of life of women without urinary incontinence is higher than women with urinary incontinence.
- Women with urinary incontinence have higher depression, anxiety and stress levels than women without.
- As women's quality of life related to urinary incontinence decreases, their depression, anxiety and stress levels increase.

Objectives

This descriptive study was conducted to determine the relationship between the frequency of UI and depression, anxiety and stress in menopausal women living in Norther Cyprus. Research questions included the followings:

1. What is the frequency of UI in menopausal women?
2. What is the level of depression in menopausal women?
3. What is the level of anxiety in menopausal women?
4. What is the level of stress in menopausal women?
5. What is the quality of life in menopausal women?
6. Is there a relationship between UI frequency, depression, anxiety and stress in menopausal women?

Material and Methods

Population and Sampling

Menopausal women living in Northern Cyprus constituted the population. Since it was not possible for the researchers to identify the participants in the digital environment, convenience sampling was used as a non-random sampling method. Using an online survey, the researchers reached 112 participants between 05.10.2022 and 30.12.2022. Voluntary participants aged 40-60 years, who could read and write in Turkish and experienced menopause in the last 12 months, were included to the study.

Data Collection Procedures

After obtaining ethical permission, online survey was sent to women via social media. The introduction of the survey provided information about the aim of the study and included a consent form. Confidentiality of participants was maintained. The survey was completed in approximately 10 minutes.

Data Collection Tools

The online survey was composed of four parts, namely, personal information form, urogenital distress inventory (UDI-6), incontinence impact questionnaire (IIQ-7) and depression, anxiety, stress scale-21 (DASS-21).

Personal Information Form
The form was prepared by the researchers in line with the literature and consisted of 14 questions on descriptive characteristics, such as age, education level, type of birth and the type and duration of menopause (14-16).

UDI-6
UDI-6 was developed by Shumaker et al. (1994) to measure the effects of UI on women's quality of life. The original scale, which consisted of 30 questions, was transformed into a short form with six questions by Uebersax et al. (1995) and adapted into Turkish by Çam et al. (2004)(17-19). The UDI-6 measured stress on three subscales, namely, irritative, stress and obstructive/discomfort or voiding difficulty symptoms. Items were scored on a 4-point Likert scale, ranging from 0 (not at all) to 3 (greatly). Possible scores, which ranged from 0 to 18, were converted into percentages, with higher scores indicating a lower quality of life. Cronbach's alpha of the Turkish version of the inventory was 0.74 (17). Cronbach's alpha in our study was 0.78.

IIQ-7
IIQ-7 was also developed by Shumaker et al. (1994) to measure the effects of UI on women's quality of life. The original 19-item questionnaire was shortened to seven questions by Uebersax et al. (1995) and adapted into Turkish by Çam et al. (2004) (17-19). The IIQ-7 had four subscales, namely, physical activity, travel, social relations and emotional health. Items were scored on a four-point Likert scale, ranging from 0 (not at all) to 3 (greatly). Possible scores ranged from 0 to 21 and converted into percentages, with higher scores indicating lower quality of life (17). Cronbach's alpha of the Turkish version of the inventory was 0.87. Cronbach's alpha in our study was 0.91.

DASS-21
The original scale, which was first developed by Lovibond and Lovibond (1995), included 42 items and later was shortened to 21 items (20). Adapted into Turkish by Sarıçam (21), DASS-21 had three subscales, namely depression, anxiety and stress. Items were scored on a 4-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Subscales were evaluated separately and higher scores obtained from each subscale indicated higher levels of depression, anxiety or stress. Test-retest correlation coefficients of depression, anxiety and stress subscales in the Turkish version of the scale were 0.68, 0.66 and 0.61, respectively (21). Test-retest correlation coefficients of depression, anxiety and stress subscales in our study were 0.70, 0.76 and 0.82, respectively.

Statistical Analysis
SPPS version 25.0 was used to analyze the data. Normality and homogeneity of variables were assessed by Shapiro-Wilk and Levene tests. The non-parametric Mann-Whitney U test was used for two-group comparison. Spearman's correlation coefficient was used to determine the relationship between two continuous variables. Number, percentage, mean and standard deviation were used as descriptive statistics. Statistical significance was set at $p<0.05$.

Ethical Considerations
Ethical approval was obtained from Scientific Research and Publication Ethics Boards of East Mediterranean University (no: ETK00-2022-0042, dated: 12.01.2022).

Results

Table 1 presented the descriptive characteristics of the participants. Accordingly, 50.9% were aged 51-55 years, 83% were married, 37.5% were graduates of primary school, 67% had an income equal to expenses, 53.6% did not have any chronic disease, and 76.8% did not smoke. The number of gravidity and parity were two or less for 50.9% and 58.9% of the participants, respectively. Additionally, 79.5% experienced normal menopause, duration of menopause was maximum 12 months for 26.8% of the participants, 70.5% never received hormone therapy and 82.1% did not receive prior education on menopause. Finally, 25.9% had normal weight and 38.3% experienced UI.

Table 2 presented the mean scores obtained from the UDI-6, IIQ7 and DASS-21. The mean scores obtained from UDI-6 and its subscales of irritative, stress and obstructive/discomfort symptoms were 29.61±20.37, 43.15±25.46, 26.19±27.28, and 26.19±27.28, respectively. The mean scores obtained from the IIQ-7 and its physical activity, travel, social relations and emotional health subscales were 22.58±25.05, 20.24±27.23, 21.13±29.69, 19.94±29.16, and 28.13±32.81, respectively. Finally, the mean scores obtained from the depression, anxiety and stress subscales of DASS-21 were 4.76±2.95, 4.79±3.04, and 4.32±3.02, respectively.

Table 3 presented the scores obtained by the participants with and without UI from the UDI-6, IIQ7 and DASS-21. Accordingly, the mean scores obtained by the participants with UI from all scales and their subscales were statistically significantly higher than the participants without UI ($p<0.05$).

Finally, Table 4 presented the relationship between the mean UDI-6, IIQ7 and DASS-21 scores. Accordingly, there was a positive, moderate and statistically significant relationship between the UDI-6, IIQ-7 and the depression, anxiety and stress subscales of DASS 21 ($r=0.634$, $p<0.001$; $r=0.449$, $p<0.001$; $r=0.609$, $p<0.001$; $r=0.449$, $p<0.001$, $r=0.492$ $p<0.001$, respectively). We also observed a positive, moderate and statistically significant relationship between the IIQ-7 and the depression, anxiety and stress subscales of DASS 21 ($r=0.517$, $p<0.001$; $r=0.591$, $p<0.001$; $r=0.619$, $p<0.001$, respectively). The findings indicated that the levels of depression, anxiety and stress increased in menopause women as their UI-related quality of life decreased.

Table 1. ***Descriptive Characteristics (n=112)***		
Variables	**n**	**%**
Age (in years) (Mean= 52.22±4.68)		
40-45	13	11.6
46-50	18	16.1
51-55	57	50.9
56-60	24	21.4
Marital status		
Married	93	83
Single	19	17
Education		
Primary school	42	37.5
Secondary school	19	17
High school	29	25.9
University and above	22	19.6
Income level		
Less than expenses	4	3.6
Equal to expenses	75	67
More than expenses	33	29.5
Chronic diseases		
Yes	52	46.4
No	60	53.6
Smoking		
Yes	26	23.2
No	86	76.8
Gravidity (Mean= 2.82±1.34)		
0-2	57	50.9
≥2	55	40.1
Parity (Mean= 2.38±0.95)		
0-2	66	58.9
≥2	46	41.1
Type of birth		
Normal	58	51.8
C/S	54	48.2
Type of menopause		
Natural	89	79.5
Surgical	23	20.5
Duration of menopause (in years) (Mean= 2.10±0.80)		
<1	30	26.8
1-5	41	36.6
6-10	41	36.6
Hormone therapy		
Used to receive	29	25.9
Never received	79	70.5
Currently receives	4	3.6
Table 1. ***continued***		
Variables	**n**	**%**
Education on menopause		
Yes	20	17.9
No	92	82.1
BMI (Mean= 28.29±4.80)		
Normal weight (18.5-24.9)	29	25.9
Overweight (25-29.9)	46	41.1
Class I obesity (30-34.9)	21	18.8
Class II obesity (35-39.9)	16	14.3
Presence of UI		
Yes	49	54.8
No	63	56.2
BMI=body mass index, UI=urinary incontinence		

Table 2. ***Mean Scores Obtained from UDI-6, IIQ-7 and DASS-21 (n=112)***		
	$\overline{X}$ ± SS	**Min-max**
UDI-6 total	29.61±20.37	0-94.44
Irritative symptoms	43.15±25.46	0-100
Stress symptoms	26.19±27.28	0-100
Obstructive/discomfort symptoms	26.19±27.28	0-100
IIQ-7 total	22.58±25.05	0-100
Physical activity	20.24±27.23	0-100
Travel	21.13±29.69	0-100
Social relations	19.94±29.16	0-100
Emotional health	28.13±32.81	0-100
DASS-21		
Depression	4.76±2.95	0-15
Anxiety	4.79±3.04	0-18
Stress	4.32±3.02	0-18
DASS-21=depression, anxiety, stress scale-2, UDI-6=urogenital distress inventory, IIQ-7=incontinence impact questionnaire		

Discussion

Urinary incontinence has serious medical, physical, social, psychological and economic impact on women. Although it increases with age, UI may be observed in not only elderly but also in the young and middle-aged population. The incidence of UI increases with the effect of decreasing estrogen hormone during menopause. Within this context, this study aimed to determine the relationship between the frequency of UI, depression, anxiety and stress, The findings were discussed in light of the literature on the relationship between the UDI-6, IIQ-7 and DASS-21 scores.

Table 3.
Comparison of UDI-6, IIQ-7 and DASS-21 Scores Obtained by the Participants with and without Urinary Incontinence (n=112)

	With UI (n=49)		**Without UI (n=63)**		**Statistical analysis**
	$\bar{X}$ ± SS	**Median [IQR]**	**$\bar{X}$ ± SS**	**Median [IQR]**	
UDI-6 total	42.38±23.23	38.89 [38.89]	21.66±13.31	22.22 [22.22]	Z=-4.506 **p<0.001**
Irritative	53.10±26.04	33.33 [33.33]	36.96±23.20	33.33 [33.33]	Z=-3.030 **p<0.001**
Stress	41.09±30.50	33.33 [50.00]	16.91±20.31	16.67 [33.33]	Z=-4.162 **p<0.001**
Obstructive/discomfort	32.95±26.10	33.33 [33.33]	11.11±13.61	0 [16.67]	Z=-4.695 **p<0.001**
IIQ-7 total	42.64±26.39	42.86 [42.86]	10.08±13.46	4.76 [14.29]	Z=-6.229 p<0.001
Physical activity	44.44±29.20	44.44 [44.44]	5.15±9.05	0 [11.11]	Z=-4.733 **p<0.001**
Travel	41.09±33.99	33.33 [66.67]	8.70±17.76	0 [66.67]	Z=-5.511 **p<0.001**
Social relations	39.53±32.74	33.33 [66.67]	7.73±22.90	0 [0]	Z=-5.729 **p<0.001**
Emotional health	42.25±37.15	33.33 [66.67]	19.32±26.45	0 [33.33]	Z=-3.263 **p=0.001**
DASS-21					
Depression	5.58±3.15	6 [4]	4.26±2.85	4 [5]	Z=-2.354 **p=0.019**
Anxiety	5.65±3.18	6 [4]	3.41±2.54	3 [4]	Z=-2.000 **p=0.045**
Stress	5.28±3.32	6 [4]	3.72±2.67	4 [4.50]	Z=-2.586 **p=0.010**

Z=Mann-Whitney U test, significant at the level of p<0.05, DASS-21=depression, anxiety, stress scale-2, UDI-6=urogenital distress inventory, IIQ-7=incontinence impact questionnaire, UI=urinary incontinence, IQR=interquartile range

The analysis of the studies on Turkish women showed that the prevalence of UI ranged from 40.6% to 51.6% (21-23). In our case, UI was observed in 54.8% of the participants. The review of the literature reveals a number of studies supporting our finding. Karan et al. (24) observed UI in 50% of menopause and 21% of non-menopause women. Kocaöz and Eroğlu (25), on the other hand, found that 60.6% of menopause and 38.6% of non-menopause women experienced UI. Both studies reported that menopause increased the prevalence of UI. The study of Altintas al. (26) found that only 18.5% of the women complained about UI. Another study conducted in South Korea reported that 59% of the women with UI complained about the problem, 79.7% shared their problem with their friends but only 23.2% consulted a health professional (27). Zhu et al. (28) found that 25% of the Chinese women with UI consulted a physician. These findings imply that women do not consider UI as a serious problem but as a normal consequence of aging since the problem is not a life-threatening one (29).

The mean UDI-6 score of the participants was 29.61±20.37. The most common type of incontinence was irritative symptoms (43.15±25.46), and the stress and obstructive/discomfort symptoms were equally common (26.19±27.28). Yücel et al. (30) found that the prevalence of UI frequency was 28.2%. Another study reported mixed incontinence in 52.5% of women, stress incontinence in 27.5% and urge incontinence in 20% of women (31). This difference may be due to the fact that the studies were conducted in different regions with different age groups.

As a common problem affecting the psychological, physical, social and economic welfare of women, UI has a negative impact on the quality of life as the problems leads to restrictions in social life and daily activities, psychological morbidity and changes in sexual functions (15,16). Higher scores obtained from the IIQ-7 indicate deterioration of the quality of life. In our case, the mean IIQ-7 score was 22.58±25.0, indicating moderate quality of life. Emotional health (28.13±32.81), travel (21.13±29.69), physical activity

Table 4.
Relationship Between the Mean UDI-6, IIQ-7 and DASS-21 Scores (n=112)

		UDI-6 total	Irritative	Stress	Obstructive	IIQ-7 total	Physical activity	Travel	Social relations	Emotional health	DASS- 21 depression	DASS-21 anxiety	DASS-21 stress
UDI-6 total	**r**	1.000	0.818	0.874	0.648	0.634	0.637	0.553	0.515	0.478	0.449	0.609	0.492
	p		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Irritative	**r**	0.818	1.000	0.619	0.260	0.479	0.528	0.507	0.386	0.273	0.279	0.471	0.269
	p	**<0.001**		**<0.001**	**0.006**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.004**	**0.003**	**<0.001**	**0.004**
Stress	**r**	0.874	0.619	1.000	0.475	0.454	0.477	0.433	0.373	0.309	0.266	0.409	0.352
	p	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.001**	**0.005**	**<0.001**	**<0.001**
Obstructive	**r**	0.648	0.260	0.475	1.000	0.629	0.568	0.458	0.544	0.595	0.474	0.470	0.558
	p	**<0.001**	**0.006**	**<0.001**		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
IIQ-7 total	**r**	0.634	0.479	0.454	0.629	1.000	0.891	0.729	0.816	0.812	0.517	0.591	0.619
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Physical activity	**r**	0.637	0.528	0.477	0.568	0.891	1.000	0.632	0.736	0.602	0.444	0.502	0.475
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Travel	**r**	0.553	0.507	0.433	0.458	0.729	0.632	1.000	0.755	0.398	0.225	0.313	0.396
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**0.017**	**0.001**	**<0.001**
Social relations	**r**	0.515	0.386	0.373	0.544	0.816	0.736	0.755	1.000	0.565	0.375	0.424	0.465
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**<0.001**	**<0.001**
Emotional health	**r**	0.478	0.273	0.309	0.595	0.812	0.602	0.398	0.565	1.000	0.635	0.628	0.682
	p	**<0.001**	**0.004**	**0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**<0.001**
DASS- 21 Depression	**r**	0.449	0.279	0.266	0.474	0.517	0.444	0.225	0.375	0.635	1.000	0.790	0.791
	p	**<0.001**	**0.003**	**0.005**	**<0.001**	**<0.001**	**<0.001**	**0.017**	**<0.001**	**<0.001**		**<0.001**	**<0.001**
DASS- 21 Anxiety	**r**	0.609	0.471	0.409	0.470	0.591	0.502	0.313	0.424	0.628	0.790	1.000	0.738
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**
DASS- 21 Stress	**r**	0.492	0.269	0.352	0.558	0.619	0.475	0.396	0.465	0.682	0.791	0.738	1.000
	p	**<0.001**	**0.004**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	

r Spearman's correlation coefficient; significant at the level of p<0.05, UDI=urogenital distress inventory, IIQ-7=incontinence impact questionnaire, DASS-21=depression, anxiety, stress scale-21

(20.24±27.23) and social relations (19.94±29.16) were the problematic dimensions, respectively. Demir and Beji (32) found that women with UI faced difficulties in performing activities, such as traveling for more than 30 minutes (36.6%), doing minor housework (30.5%), participating in recreational activities (36.3%) and participating in social activities outside the home (38.4%).

The mean scores obtained by the participants from the depression, anxiety and stress subscales of DASS-21 were 4.76±2.95, 4.79±3.04, and 4.32±3.0, respectively. This finding indicated that the participants experienced depression, anxiety and stress at the same rates. Existing studies reported that urinary incontinence increases the psychological problems experienced by women (33,34). A meta-analysis that analyzed 20 randomized controlled trials reported that women with UI experienced higher levels of depression and anxiety than those without UI (35).

Existing studies reported that women with UI, which is a physically and psychologically devastating problem, have lower level of self-confidence, higher level of anxiety and are prone to social isolation (36). Supporting the literature, this study found that UDI-6, IIQ7 and DASS-21 scores of the participants with UI were significantly higher than the participants without UI ($p<0.05$).

We found a positive and moderate correlation between the UDI-6, IIQ-7 and the depression, anxiety and stress subscales of DASS-21 ($r=0.634$, $p<0.001$; $r=0.449$, $p<0.001$; $r=0.609$, $p<0.001$; $r=0.449$, $p<0.001$, $r=0.492$ $p<0.001$, respectively). This finding implies that experiencing UI reduced the quality of life and increased the levels of depression, anxiety and stress in menopausal women. Existing studies report that UI has serious negative effects on women's physical, social, professional and educational life. Parallel to our findings, various studies reported that UI negatively affects the quality of life in women (37-39). Increase in the frequency of UI and decrease in the quality of life may result with problems, such as stigmatization, social isolation and embarrassment, which, in turn, may increase the levels of depression, anxiety.

UI has significant impact on women's mental health and quality of life. It is not a natural part of ageing that should be tolerated (34). Therefore, studies to increase awareness on this hidden endemic in society, whose exact prevalence is known, may be conducted.

Study Limitations

The results of this research will contribute to the literature; however, there are some limitations. Although online data collection is advantageous in terms of the fast and broad participation of the volunteers, collecting data from individuals who have a certain education level, who have online access, and who can use the digital environment, can be seen as a limitation of the study. Therefore, the results do not fully represent every segment of society.

Conclusion

This study found that a higher frequency of UI in menopausal women reduced the quality of life and increased the levels of depression, anxiety and stress. UI is a common health problem in the society, which increases even more during menopause. Due to this reason, further attention should be paid on this important community health problem. Within this context, nurses may conduct training programs to raise the awareness of menopause women on UI. Further prevalence studies are required to reveal the importance of the problem. Therefore, studies to increase awareness on this hidden endemic in society, whose exact prevalence is known, may be conducted. In addition, providing training and consultancy services regarding the necessary practices for strengthening the pelvic floor muscles in the premenopausal period may reduce the incidence of urinary incontinence in the menopausal period.

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