ORIGINAL ARTICLE

Quality of life and sexual function of women with urinary incontinence

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Abstract

Aim: The aim of this study was to examine the urinary incontinence (UI) types on the sexual function and quality of life (QOL) of women with UI and the correlation between sexual function and QOL.

Methods: The sample for this descriptive study was comprised of 122 women who presented to obstetrics and gynecology and urology outpatient clinics at university hospitals in Denizli and Izmir, Turkey, who had UI, who were sexually active, who volunteered to participate in the study, and who were chosen by a convenience sampling method. A sociodemographic data collection form, the Female Sexual Function Index (FSFI), and the Incontinence Quality of Life (I-QOL) questionnaire were used for data collection in the study.

Results: The mixed type of incontinence had an effect on the women's quality of life, mixed and stress incontinence affected the FSFI's pain subscale, and the total sexual functioning score was lower for the women with mixed incontinence. Even though the correlation values were low, it was clear that there was a positive correlation between sexual function and quality of life.

Conclusions: Among the incontinence types, a significant difference was determined by the FSFI and I-QOL. Urinary incontinence seems to be the predictor of sexual function and quality of life. As a result, a comprehensive assessment of patients with UI is recommended because this condition has a negative influence on their sexual function and quality of life.

Key words: nurses, quality of life, sexual function, urinary incontinence, urology.

INTRODUCTION

Urinary incontinence (UI) is an undesired leakage of urine that can cause social and hygienic problems. Although it is more prevalent in elderly individuals, incontinence is also a worldwide health problem for young people, affecting more women because of anatomical and physiological factors. Urinary incontinence can be stratified into three main types: stress (urine loss during physical activity that increases the abdominal pressure, such as coughing, sneezing, and laughing), urge (urine loss with an urgent need to void and invol-

untary bladder contraction), and mixed incontinence (both stress and urge types) (Schröder & Abrams, 2009).

Studies indicate that the prevalence of UI varies in different countries. In a study that was done simultaneously in four countries, the prevalence of UI in women in the UK, Germany, and France was 32–34%, whereas in Spain, it was ~15% (Wein, 2005). Other studies indicated that the overall prevalence of UI in young American women was 37–38% (Anger, Saigal, & Litwin, 2006; Diokno, 2003), while the reported prevalence in Turkey ranged from 25.8–49.5% (Ozerdogan, Kizilkaya-Beji, & Yalcin, 2004; Tozun, Ayranci, & Unsal, 2009). The lowest UI prevalence rates were reported from Asia, ranging from 17% in Thailand to 4% in China and Singapore (Diokno, 2003). The variation in prevalence rates might be related to differences in

the studied populations, methods of data collection, and definitions of UI.

The effect of UI on the quality of life (QOL) of women varies according to their religious beliefs. For example, UI has a much more devastating effect on Muslim women than on women of other religions. In the Muslim faith, praying is viewed as a relationship between the person and God (Sange, Thomas, Lyons, & Hill, 2008). Urinary incontinence breaches women's status of ritual purity, thereby creating a barrier to ablution (Van den Muijsenbergh & Lagro-Janssen, 2006).

Although UI leads to various psychological problems, including simple embarrassment, depression, social isolation, diminished QOL, and decreased self-confidence (Karan *et al.*, 2000; Liao *et al.*, 2009; Oztac-Ozerdoğan & Kizilkaya-Beji, 2003; Tomoe, Sekiguchi, Horiguchi, & Toma, 2005), only a minority of women suffering from UI seeks professional help (Wein, 2005).

The sudden feeling of the need to urinate or the leakage of urine during sexual intercourse is one of the most common complaints of women with urinary problems. Dalpiaz *et al.* (2008) reported that the sexual relationships of 19–50% of the women with UI had been negatively affected. Handa, Harvey, Cundiff, Siddique, and Kjerulff (2004) described a significant relationship between UI and a decreased libido, vaginal dryness, and painful sexual intercourse. Moller, Lose, and Jorgensen (2000) found that, while only 2% of a normal population of women who were 40–60 years old had urinary leakage during sexual intercourse, between 12 and 20% of women who had been diagnosed with UI experienced this problem.

Many people with incontinence are not able to talk comfortably about their bladder problems and sexual dysfunction because of a lack of information and embarrassment. Only when their symptoms are advanced do they come to health-care facilities (Ateskan, Mas, Doruk, & Kutlu, 2000). In addition, women's feeling of shame when talking about UI leads to miscommunication, particularly with male doctors, resulting in inadequate health care for Muslim women with UI (Van den Muijsenbergh & Lagro-Janssen, 2006). In a study by Tomoe *et al.* (2005), <5% of the women with complaints of UI had received medical help. The two most common reasons were that these complaints were not considered to be an illness and that the women hesitated to talk about these issues. However, many cases of incontinence are treatable or the symptoms can be managed. As public education on the subject of UI increases, there will be an increase in those willing to seek treatment for incontinence. The most important

principle in the provision of appropriate care is careful diagnosis and treatment. The problems that are related to UI can lead to undesirable physical, psychological, social, and economic outcomes for these individuals and their family and those who give them care (Moller *et al.*, 2000).

A review of previous research indicated that studies generally have evaluated the relationships among UI, the sexual function of women with UI, and UI and QOL in different populations, but there are a few studies proving the relationship between sexual function and QOL in women with UI in the same patient group. The purpose of the present study is to examine the effect of the different types of UI on the sexual function and QOL of women and the correlation between sexual function and QOL.

METHODS

Sample

The sampling was by convenience. We approached the potential participants who had been diagnosed previously with UI on a day that they attended the clinics and recruited them into the study. The inclusion criteria were women who were married, sexually active, diagnosed with UI, and who were wiling to participate. Women with UI that was caused by neurological illnesses or tumors were excluded from the study.

The sample population for this descriptive study was 146 women with UI who were admitted to the Urology Service's Urology Outpatient Clinic or the Urodynamics Clinic in the Obstetrics and Gynecology Outpatient Clinic, Ege University Medical Faculty Hospital or the Obstetrics and Gynecology Outpatient Clinic, Pamukkale University Hospital, Turkey from November 2006 to June 2007. One-hundred-and-twenty-two of the 146 eligible women agreed to participate.

Procedure

Ethical approval was obtained from the institutional review boards of the two study hospitals. The potential participants were approached in the urology and gynecology outpatient clinics, as described above, by the researchers. The study and the content of the consent form were explained to them by using standardized scripts and their confidentiality and voluntary participation were appropriately protected. The participants were advised that their names would not be associated with a report in any way and that they had the right to withdraw from the study at any time. They were assured

that a refusal to participate would not affect the services that they received. Verbal consent was obtained from the participants.

The women who agreed to participate and who met the selection criteria completed the sociodemographic and medical data questionnaire that was developed by the researchers. This information was collected in face-to-face interviews. The women then completed the Incontinence Quality of Life (I-QOL) questionnaire and the Female Sexual Function Index (FSFI) while sitting alone in a quiet room. The I-QOL and the FSFI took an average of 35 min to complete. The researchers next explained how to complete the urinary Severity Index and provided the women with the incontinence pads that were necessary for this measure. The researchers collected the reports of the Severity Index by a phone interview.

Measures

Sociodemographic and medical data questionnaire

The following topics were covered in the questionnaire:

1 Demographic details: age, marital status, income level, educational and occupational status.
2 General health and health habits: weight, height, physical activity, smoking, alcohol intake, chronic illness, pill usage, and severity of UI. Overweight was defined as a Body Mass Index (BMI) >25.
3 Gynecological history: primipara age, parity, number of births, nature of menstrual cycle, previous abdominal surgery, method of childbirth, menopausal status, and current hormone replacement therapy.

Incontinence-Quality of Life questionnaire

Wagner, Patrick, Bavendam, Martin, and Buesching (1996) developed the first version of the I-QOL tool with 28 questions for the purpose of determining the QOL of patients with UI in the USA. Patrick *et al.* (1999) revised the tool and, in the development of the European version, decreased the number of questions to 22 following psychometric measurement analyses. There is one American version and four European versions that have been tested for validity and reliability and the tool has been translated into 11 languages.

The I-QOL has three subscales, which are limiting behaviors, psychosocial impacts, and social isolation. The 22-item I-QOL is scored on a five-point Likert-type scale (1 = "excessive", 2 = "a lot", 3 = "moderately", 4 = "somewhat", and 5 = "never"). The scores from every item in the I-QOL are totaled and divided by the total number of items. For easier interpretation of the scores, the total score is converted, with 0 representing the lowest QOL and 100 representing the highest QOL. High scores indicate a better QOL. Oztac-Ozerdoğan and Kizilkaya-Beji (2003) adapted the I-QOL for the Turkish culture and found it to be valid and reliable. The range of the internal consistency coefficients was 0.88–0.92, the average Cronbach's alpha was 0.96, and the test-retest reliability was 0.93–0.97.

Female Sexual Function Index

Rosen, Brown, Heiman, Leiblum, and Meston (2000) developed the FSFI in the USA for the purpose of determining women's sexual function. It is a 19-item multidimensional tool that assesses sexual problems or functions in the previous 4 weeks. The tool has six subscales, which are desire, arousal, lubrication, orgasm, satisfaction, and pain. Each item is scored from 0–5. The highest possible score is 36 and the lowest is 2. High scores indicate better sexual function. A total score of <26.55 has been determined to indicate sexual dysfunction (Wiegel, Meston, & Rosen, 2005). The FSFI was adapted for the Turkish culture in 2005 in two separate studies by Aygin and Aslan (2005) and by Oksuz and Malhan (2005) and the tool was found to be valid and reliable in both studies. The range of the internal consistency coefficients was 0.70–0.96, the average Cronbach's alpha was 0.98, and the test-retest reliability was 0.75.

Severity Index

Sandvik *et al.* (1993) developed the Severity Index, which characterizes the degree of incontinence. The Severity Index comprises the following two questions: "How often do you experience urine leakage?" (0 = "never", 1 = "less than once per month", 2 = "one or several times per month", 3 = "one or several times per week", 4 = "every day and/or night") and "How much urine do you lose each time?" (1 = "drops or little" and 2 = "more"). The total score is the score for the first question multiplied by the score for the second question (0 = "dry", 1–2 = "slight", 3–4 = "moderate", and 6–8 = "severe").

The Severity Index was evaluated with a 24 h "pad-weighing" test. A pad-weighing test was carried out at home by the participants. They had been provided with 12 medium-sized incontinence pads and had been instructed to wear a preweighed pad during the day and night during a 24 h period. They were to change the pads when required, but before disposal, the pads were reweighed and the weight gain was noted.

Data analysis

The mean, standard deviations, and percentiles were estimated by a descriptive analysis. The demographic and other characteristics of the women with UI were measured by a one-way ANOVA and χ^2-test. To compare the FSFI and I-QOL scores according to the severity and type of UI, Kruskal-Wallis variance analysis (Bonferroni correction) was used. In addition, with respect to the incontinence, a partial correlation was used to indicate an association among sexual function (FSFI), QOL (I-QOL), and the demographic variables.

The data were analyzed by using the Statistical Package for the Social Sciences (version 11.0; SPSS, Chicago, IL, USA). Statistical significance was set at $P < 0.05$.

RESULTS

The mean age of the women with UI who participated in this study was 44.76 ± 6.87 years and the average BMI was 27.27 ± 4.30 (Table 1). The average primipara age of the participants was 22.08 ± 3.52 years with

Table 1 Demographic and other characteristics of the patients with three types of urinary incontinence

Characteristic	Stress UI ($n = 61$)	Mixed UI ($n = 23$)	Urge UI ($n = 38$)	*P*-value
Mean age (SD)[†]	44.00 ± 6.73	45.86 ± 7.60	45.31 ± 6.66	0.4540
Body Mass Index[†]	26.90 ± 3.75	28.47 ± 4.93	27.42 ± 4.70	0.3250
Primipara age[†]	22.62 ± 3.28	21.59 ± 4.23	21.55 ± 3.36	0.2800
Parity[†]	2.29 ± 1.20	2.60 ± 1.26	2.10 ± 0.92	0.2490
Education level[‡]				0.1660
<8 years	30 (49.2%)	16 (69.6%)	24 (63.2%)	
12 years or university level	31 (50.8%)	7 (30.4%)	14 (36.8%)	
Occupation[‡]				0.0150
Employed	20 (32.8%)	1 (4.3%)	14 (36.8%)	
Unemployed	41 (67.2%)	22 (95.7%)	24 (63.2%)	
Income[‡]				0.4980
Low	33 (54.1%)	9 (39.1%)	20 (52.6%)	
Moderate	26 (42.6%)	14 (60.9%)	16 (42.1%)	
High	2 (3.3%)	–	2 (3.3%)	
Abdominal surgery[‡]				<0.0001
No	30 (49.2%)	12 (52.2%)	34 (89.5%)	
Yes	31 (50.8%)	11 (47.8%)	4 (10.5%)	
Chronic disease[‡]				0.4740
No	42 (68.9%)	11 (47.8%)	21 (55.3%)	
Diabetes mellitus	6 (9.8%)	4 (17.4%)	6 (15.8%)	
Hypertension	3 (4.9%)	1 (4.3%)	4 (10.5%)	
Other	10 (16.4%)	7 (30.4%)	7 (18.4%)	
Method of childbirth[‡§]				0.1520
Normal spontaneous	45 (80.4%)	15 (68.2%)	32 (88.9%)	
Cesarean	11 (19.6%)	7 (31.8%)	4 (11.1%)	
Menopausal status[‡]				0.0770
Premenopausal	45 (73.8%)	11 (47.8%)	26 (68.4%)	
Postmenopausal	16 (26.2%)	12 (55.2%)	12 (31.6%)	
HRT[‡]				0.3740
Non user	11 (73.3%)	12 (92.3%)	8 (72.7%)	
User	4 (26.7%)	1 (7.7%)	2 (27.3%)	
Severity[‡]				<0.0001
Slight	38 (62.3%)	6 (26.1%)	17 (44.7%)	
Moderate	23 (37.7%)	13 (56.5%)	11 (28.9%)	
Severe	–	4 (17.4%)	10 (26.3%)	

[†]Statistical analysis was carried out by using the one-way ANOVA; [‡]statistical analysis was carried out by using the χ^2-test; [§]$n = 93$ because seven women had not delivered a child. HRT, hormone replacement therapy; UI, urinary incontinence.

Table 2 Effect of the severity of urinary incontinence on quality of life and sexual function

Variable	Slight (*n* = 61)	Moderate (*n* = 47)	Severe (*n* = 14)	*P*-value
I-QOL				
Limiting behaviors	8.23 (2.50)	7.93 (2.85)	8.83 (1.84)	0.630
Psychosocial impacts	8.46 (2.15)	8.01 (2.53)	9.04 (1.81)	0.369
Social isolation	8.04 (1.02)	8.94 (1.30)	7.15 (1.91)	0.396
Total I-QOL	71.44 (19.72)	67.98 (22.89)	76.55 (15.67)	0.561
FSFI				
Desire	3.11 (1.21)	2.75 (1.08)	2.95 (1.29)	0.400
Arousal	3.54 (1.16)	3.28 (1.14)	3.49 (1.12)	0.328
Lubrication	3.86 (1.35)	3.89 (1.26)	3.94 (1.31)	0.785
Orgasm	3.80 (1.34)	3.60 (1.35)	3.94 (1.31)	0.605
Satisfaction	4.56 (1.06)	4.00 (1.46)	4.42 (1.18)	0.124
Pain	4.39 (1.41)	4.30 (1.57)	4.88 (1.63)	0.296
Total FSFI	23.28 (5.2)	21.78 (9.77)	23.37 (5.44)	0.245

Kruskal-Wallis variance analysis and Bonferroni correction were carried out for all the items. FSFI, Female Sexual Function Index; I-QOL, Incontinence Quality of Life questionnaire.

2.29 ± 1.14 parity. Of the participants, 57.4% had ≤ 8 years of education and 42.6% had >8 years of education. Most of the women (71.3%) were unemployed. Of the women, 50.8% had low, 45.9% had moderate, and 3.3% had high income. We noted that 37.7% of the women had undergone abdominal surgery, 39.3% had a chronic illness, 80.7% had a normal spontaneous delivery, whereas 17.2% had a cesarean delivery. Moreover, 67.2% of the women were in the premenopausal period and 6.6% of them had received hormone treatment.

In the comparison of the demographic, general health, and gynecological history variables of the women with UI, there were no significant differences in the type of incontinence for age, BMI, age at first childbirth, number of live childbirths, educational level, income level, history of abdominal surgery, presence of a chronic illness, menopausal status, use of hormone replacement therapy, and method of childbirth ($P > 0.05$), but in the advanced analysis, stress UI ($P = 0.0001$) and mixed UI ($P = 0.001$) were significantly more common than urge UI in the women who had a history of abdominal surgery, while mixed UI was more common in the women who were not employed ($P = 0.015$) (Table 1).

With regard to the severity of UI, 50% of the women had slight, 38.5% had moderate, and 11.5% had severe incontinence. The most common type of UI that the women had was stress UI (50%), followed by urge UI (31.1%) and mixed UI (18.9%). There were significant differences between the type of incontinence and the severity of UI ($P = 0.001$). In the advanced analysis, a slight level of severity was significantly higher in those women with stress incontinence ($P = 0.0001$) and a

moderate level of severity was higher in the mixed incontinence group than in the stress and urge incontinence groups ($P = 0.0001$). The severity of UI did not have a significant effect on the women's QOL ($P = 0.561$) and sexual function ($P = 0.245$) (Table 2).

Table 3 shows the women's scores from the 28-item I-QOL and the 19-item FSFI. Their total I-QOL score was 70.70 ± 20.63 and their total sexual function score was 22.71 ± 5.48. The group with mixed UI had a significantly lower psychosocial QOL than the stress UI ($P = 0.036$) and the urge ($P = 0.012$) UI groups, but there were no other significant relationships between the type of UI and the other subscales.

In the examination of the influence of the type of incontinence on sexual function, the mixed UI ($P = 0.002$) and the stress UI ($P = 0.021$) groups had significantly lower sexual pain scores than the urge UI group. The mixed UI group had a significantly lower total FSFI score than the stress UI ($P = 0.006$) and the urge UI ($P = 0.036$) groups.

Table 4 indicates the correlation values between the FSFI and I-QOL scores. There were significant positive correlations between the total FSFI score and the pain subscale with the total I-QOL score and the three subscales of the I-QOL (limiting behaviors, psychosocial impacts, and social isolation). Similarly, there were significant positive correlations between orgasm and the total I-QOL and limiting behaviors subscale scores. There were no significant correlations between desire, arousal, lubrication, satisfaction, and the I-QOL scores.

The total FSFI and I-QOL scores correlated with the BMI. Only sexual desire showed a negative association

Table 3 Distribution of sexual function and quality of life scores according to the women's type of urinary ıncontinence

	Stress UI (*n* = 61)	Mixed UI (*n* = 23)	Urge UI (*n* = 38)	*P*-value
I-QOL				
Limiting behaviors	8.54 (2.40)	7.29 (2.58)	8.56 (2.39)	0.180
Psychosocial impacts	8.55 (2.19)	7.33 (2.21)	8.87 (2.10)	0.036
Social isolation	24.40 (7.81)	20.51 (9.05)	24.91 (7.26)	0.144
Total I-QOL	73.00 (19.47)	62.00 (20.59)	74.57 (18.57)	0.117
FSFI				
Desire	3.15 (1.15)	2.46 (1.06)	2.42 (1.25)	0.063
Arousal	3.45 (1.21)	3.08 (1.00)	3.44 (1.31)	0.279
Lubrication	3.76 (1.45)	3.53 (1.08)	4.18 (1.18)	0.387
Orgasm	3.95 (1.35)	3.35 (1.02)	3.57 (1.39)	0.118
Satisfaction	4.44 (1.22)	3.75 (1.33)	4.19 (1.41)	0.113
Pain	4.37 (1.48)	3.66 (1.58)	5.10 (1.14)	0.004
Total FSFI	23.14 (5.7)	19.86 (4.18)	23.42 (5.24)	0.020

Kruskal-Wallis variance analysis and Bonferroni correction were carried out for all the items. FSFI, Female Sexual Function Index; I-QOL, Incontinence Quality of Life questionnaire; UI, urinary incontinence.

Table 4 Correlation between sexual function and quality of life

Measure	Total I-QOL	Limiting behaviors	Psychosocial impacts	Social isolation
Total FSFI	0.24**	0.25**	0.22**	0.20**
Desire	0.12	0.14	0.11	0.07
Arousal	0.18	0.17	0.18	0.15
Lubrication	0.11	0.09	0.12	0.08
Orgasm	0.20**	0.26*	0.13	0.19
Satisfaction	0.16	0.18	0.14	0.16
Pain	0.24**	0.23**	0.26*	0.19

*$*P < 0.01$, $**P < 0.05$. The partial correlation was done by controlling the incontinence groups. FSFI, Female Sexual Function Index; I-QOL, Incontinence Quality of Life questionnaire.

with the BMI ($r = -0.19$, $P = 0.034$), whereas the other subscales of the FSFI and the I-QOL score did not ($P > 0.5$). Similarly, the total FSFI score correlated with age ($r = -0.32$, $P = 0.0001$), desire ($r = -0.22$, $P = 0.013$), arousal ($r = -0.20$, $P = 0.022$), lubrication ($r = -0.24$, $P = 0.013$), and orgasm ($r = -0.32$, $P = 0.008$). Satisfaction ($r = -0.35$, $P < 0.0001$) showed an inverse correlation with age, whereas pain did not. When the total I-QOL score correlated with age ($r = -0.31$, $P = 0.0001$), all the domains in the I-QOL questionnaire, namely limiting behaviors ($r = -0.35$, $P = 0.0001$), psychosocial impacts ($r = -0.27$, $P = 0.003$), and social isolation ($r = -0.31$, $P = 0.001$), showed a negative correlation with age.

DISCUSSION

Our results showed significant differences between the type of incontinence and the QOL and sexual function

of the women. Even though the correlation values were low in this study, it was clear that there was a positive correlation between sexual function and QOL.

Urinary problems have a negative effect on women's sexual life. The primary problems are the leakage of urine during sexual intercourse (18–34%) and painful sexual intercourse (Dalpiaz *et al.*, 2008; Korda, Braun, & Engelmann, 2007; Salonia & Zanni, 2004). These problems affect women so much that they avoid sexual intercourse, which decreases their QOL (Oztac-Ozerdoğan & Kizilkaya-Beji, 2003). Salonia and Zanni studied 216 women with UI and/or lower urinary tract symptoms, as compared to 102 healthy women, and reported that the women with UI had significantly lower desire, lubrication, satisfaction, and pain scores than the control group and that the women with urge incontinence had more orgasm dysfunction. In the studies of Demir *et al.* (2007) and Guvel, Yaycioglu, Bagis, and Savas (2003), the FSFI score in the healthy

women was 26.9 ± 7.8 and 27.2 ± 6.2, respectively. In this study, the total sexual function score was 22.71 ± 5.48. When the total score is <26.55, it indicates sexual dysfunction (Wiegel *et al.*, 2005). Considering this fact, our results support the conclusion that the women with UI in this study experienced sexual dysfunction. Oh *et al.* (2008) mentioned that the women with stress UI had more frequently experienced pain during intercourse and coital incontinence than those with an over-active bladder, which is made worse by urinary urgency with or without urge UI. Similarly, in this study, the women in the stress and mixed UI groups experienced more sexual pain than those in the urge UI group.

Oztac-Ozerdoğan and Kizilkaya-Beji (2003) studied 625 women and reported that the type of UI and urine leakage during sexual intercourse significantly worsened the women's QOL. Similarly, Simeonova, Milsom, Kullendorff, Molander, and Bengtsson (1999) and Tomoe *et al.* (2005) mentioned that the women with urge or mixed UI had a lower QOL than those with stress UI. In this study, in line with these results, the women with mixed UI had a lower psychosocial QOL than the women in the other two groups. The reason for this, as mentioned in these articles, is that women with mixed UI cannot keep control of their symptoms, so they avoid any outdoor activities, such as shopping or spending time with their friends. In addition, the women with mixed UI have more depressive symptoms and feelings of inevitableness than those with urge and stress UI. Furthermore, Sange *et al.* (2008) and Van den Muijsenbergh and Lagro-Janssen (2006) noticed in their studies that, during *namaz* (Muslim prayer), women have to perform different movements, such as standing, bending, and sitting, while reciting the verses of the Quran. These actions can cause urinary leakage for women with UI. This process of leaking urine and cleansing can have a negative effect on the individual's psychosocial QOL, although we did not examine the effect of *namaz* in this study.

In addition, the findings from this study indicated that sexuality in the women with UI had a positive effect on their QOL because, as the sexual function total scores increased and pain decreased, the women's QOL scores also increased. Similarly, as the orgasm scores increased, the QOL total scores and limiting behaviors subscale scores were positively affected.

Multiple factors related to female UI, including aging and BMI, have a negative impact on the QOL and sexual function of women (Karan *et al.*, 2000; Liao *et al.*, 2009). In a study of women with a mean age of 43.4 ± 6.1 years by Kizilkaya-Beji, Yalcin, Ayyildiz-Erkan, and Kayir (2005), the younger women had better sexual arousal than the older women, but their age did not have an effect on the other aspects of sexual function. In the present study, according to the correlation results, the five domains of the FSFI (desire, lubrication, arousal, satisfaction, and orgasm) decreased with advancing age, whereas sexual desire decreased with overweight. With respect to the correlation of the I-QOL score with age and the BMI, limiting behaviors, psychosocial impacts, and social isolation decreased with increasing age, whereas there was no association with the BMI.

The study has some limitations. It was a cross-sectional design and used self-report assessments on many important variables. Moreover, although the study was conducted in Turkey, which consists mainly of Muslims (~98%), our results may not be generalizable to a Muslim population due to the lack of information on women's religious exercises.

CONCLUSION

In this study, the type of UI affected the QOL and sexual function of the women. Mixed UI was the one that had the greatest impact on their QOL, whereas the mixed and stress types had the greatest impact on their sexual function. In addition, although the correlation values were weak, sexual function had a positive association with QOL.

In this sense, as part of the health-care team, nurses and midwives have important responsibilities in assessing the women who come to obstetric and gynecology or urology clinics for the risk factors of UI (frequent childbirth, obesity, genetic factors, etc.) and in informing the women about the prevention of UI (exercises, planned childbirth, etc.). Seminars for improving women's health need to be planned so that they can be taught that, although the possibility of having UI is high with the physical changes that occur in women with aging, they do not have to live with the results and that UI is an easily treated health problem. Attention also needs to be drawn to the fact that UI, when not treated, can be a multidimensional problem that has a negative effect on the sexual function and QOL of women. In the general health-care area, nurses (who are responsible for correctly guiding individuals for health protection, improvement, and early diagnosis of disease) have influential roles in the prevention and treatment of UI, which primarily begin with comprehensive diagnosis.

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