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Sexual Function and Related Factors in the Women with Urinary Incontinence Treated by Pelvic Floor Exercise

Damghanian M[1*]

[*1]Department of Reproductive Health, Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Corresponding Author: Department of Reproductive Health, Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Email: Maryam_damghanian@yahoo.com

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Abstract

Background: Urinary incontinence (UI) is a health problem which can affect women's sexual function. Pelvic floor exercise (PFE) is offered as a first-line therapy to women with UI. It has been shown that PFE might improve different dimensions of sexual function; however, few data is available on the sexual function and its related factors in the women with UI treated by PFE.

Objectives: The present study aimed to determine sexual function and its related factors in the women with UI treated by PFE.

Methods: This is a cross-sectional study on 183 married participants with confirmed UI treated by PFE in 2015-2016 using convenience sampling method in Imam Khomeini and Mohebe Yas urogynecology clinics. Data collection tools included demographic information, the Questionnaire for UI Diagnosis (QUID), Incontinence Severity Index (ISI), the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) and the Broom self-efficacy scale. Statistical analysis was run using univariate and multivariate linear regressions via STATA software.

***Results*:** The mean age of patients was 51.43±4.00 years, and the mean of sexual function according to PISQ-12 scale was 23.82±3.28 in women. The mean score of sexual function was less than the median of the scale score. Aging (p=0.018), retirement of husbands (p=0.044), being underweight (p<0.001), the history of abortion (p=0.036) and high self-efficacy in doing PFE (p<0.001) were found to be effective factors in sexual function.

Conclusion: Modifiable factors included being underweight and having self-efficacy in performing PFE, which can be controlled using more management strategies to increase women's self-efficacy in doing PFE.

Keywords: exercise therapy, sexual function, urinary incontinence

Introduction

Sexual health plays an important role in the overall health and wellbeing of individuals, couples, families, and societies [1]. Based on World Health Organization report, sexual health is an important issue in all ages, especially in older women who have health problems that limit their sexual functioning. Health-care workers should pay more attention to this aspect of life, particularly in women with health problems [2]. Urinary incontinence (UI) is one of these health problems which can affect women's sexual function. It is a common disorder around the world, which occurs in all ages, cultures, and ethnic groups [3]. Although the disorder may occur at any age, it is more common in middle-aged and older women [4]. Almost one out of every five women suffers from UI in her life [4].

Despite the fact that a majority of women with UI do not seek treatment for their disorders, sexual problems are one of the most frequent complaints of these women that persuade them to refer to clinics [5].

UI can affect different dimensions of women's quality of life adversely [6]. UI and sexual dysfunctions are reciprocally associated. They have common risk factors that might cause each of them, and therefore both conditions should be considered when women complain about either sexual or urinary problems [7]. Lim et al. (2016) showed that women with UI and their partners suffer from numerous sexual problems such as less sexual intercourse, less sexual satisfaction, more avoidance behavior, and more erectile dysfunction. These problems not only affect women's quality of life and sexual function but also can affect partners' sexual function [8].

Among different types of treatments for UI, pelvic floor exercise (PFE) can be used for treating all kinds of urinary incontinence and improving quality of life [9]. It is assumed that the interventions which improve UI are effective for sexual dysfunction, while, inconsistently, sexual dysfunction deteriorate in some cases [3]. Thiagamoorthy et al. [10], in a review study, indicated that sexual function deteriorates in 37.5% of women following surgery. Surgical treatment is an invasive method, and some women refuse to express their problems due to their unwillingness to undergo surgery and the false suspicion that surgery is the only treatment for UI [11]. Nowadays, pelvic floor exercise (PFE) is offered as a first-line therapy to women with UI [6]. PFE includes several exercises that are used for enhancing the strength of pelvic floor muscles and their power and/or relaxation ability [12]. It has been shown that PFE might improve different dimensions of sexual function [13]; nonetheless, there is inadequate and inconsistent evidence in this respect. While Rivalta et al. [14] and Zahariou et al. [15] reported improvements of sexual function in women performing PFE, Kanter et al. [16] and Lara et al. [17] did not find any significant differences in sexual function after PFE. Due to the lack of adequate evidence on this issue, this study was conducted to determine sexual function and its related factors in women with UI treated by PFE.

Methods

The present study adhered to a cross-sectional and multicenter design and was carried out in two urogynecology clinics of Emam Khomeini and Mohebe Yas Hospitals in Tehran, Iran in 2015-2016. All married women above 40 years old with confirmed UI treated by PFE for eight weeks entered the study through convenience sampling method. Women without urinary tract infections (diagnosed by urine analysis), history of physical trauma to the urinary tract system, and mental illness were included, and women who did not complete the questionnaire were excluded from the study. The required sample size was calculated based on the results of a study on the correlation between self-efficacy and sexual function (r=0.217), α=0.05 as well as 80 % power of the study [18]. The required sample size consisted of 183 participants who had finished 8 weeks of PFE completely.

$$N=\frac{\left(z_{1-\frac{\alpha}{2}}+z_{1-\beta}\right)^2}{w^2}+3$$

The selection of participants was based on health records in the urogynecology clinics. Then, participants were contacted, and an appointment was arranged. After providing complete explanations and receiving the informed consent of from individuals, we asked them to complete the questionnaires. Data collection tools included self-administered questionnaires as follows:

- The demographic information (such as age, height, weight, menopausal status, marriage age, and specific disease or surgery).
- Questionnaires for UI Diagnosis (QUID) (six questions for Diagnosis of UI types including stress incontinence (score 4 or more for the first 3 questions), urgency incontinence (score 6 or more for the second 3 questions), and mixed incontinence (both of them).
- Incontinence Severity Index (ISI) (consisting of two questions, in which the first one is scored from 1 to 4 and the second one from 1 to 3. Then, the scores of the two questions are multiplied, and an index is achieved. Scores 1 and 2 show mild incontinence, 3 to 6 moderate incontinence, 8 and 9 sever incontinence, and 12 very sever incontinence).
- The Pelvic Organ Prolapse/Urinary

Incontinence Sexual Questionnaire (PISQ-12) (behavioral-emotive (items 1–4), physical (items 5–9), and partner-related (items 10–12) domains). Responses of this part are graded on a five-point Likert scale ranging from 0 (always) to 4 (never). The total score ranges from 0 to 48. Higher scores mean better sexual function.

- Broom self-efficacy scale consisted of two parts, the first part of which is the women's confidence level about their ability to perform the pelvic floor muscles exercise (14 questions), and the second is the women's confidence level about the ability of exercise to prevent unwanted urine loss (9 questions). Each question is scored between 0 and 100. Total score is computed by averaging the sum of all questions. Scores 50 and lower indicate low self-efficacy, 51-74 moderate self-efficacy, and 75 or more high self-efficacy.

Validity and reliability of the QUID, ISI, and PISQ-12 questionnaires in Iran have been reviewed and approved. Sabet ghadam et al. showed a Pearson coefficient of 0.85 for QUID and ISI questionnaires in Iran [19]. Momenimovahed et al. (2015) reported a Cronbach's alpha coefficient of 0.84 for PISQ-12 [20]. Test-retest reliability of the Broom questionnaire was confirmed via a Pearson correlation coefficient of 0.93 and an Internal Correlation Coefficient (ICC) of 0.97.

The statistical analysis was performed using STATA software. Univari ate and multivariate linear regressions were used to determine factors associated with sexual function in women with UI. Since the variable "sexual function" was not normally distributed, robust regression analysis was used [21]. All the variables related to sexual function with P≤0.28 entered the final analysis. Thus, age, marriage age, education, underweight category of Body Mass Index (BMI), obese category of BMI, the history of abortion, normal vaginal delivery type, contraception, husband's age and job, stress incontinence, and low, moderate, and high categories of self-efficacy were subjected to the final regression model. All the p values less than 0.05 were considered statistically significant.

The research proposal was approved in Research Council of Faculty of Nursing and Midwifery and ethics committee of Tehran University of Medical Sciences by 91-11-37-3043-1 code. After obtaining the required permissions, we implemented the sampling procedures. The research objectives, privacy of the participants' information, and voluntary participation in the project were all explained to the participants. After obtaining their informed written consent, we asked the participants to complete the questionnaires.

Results

Finally, 183 participants completed the questionnaire. The majority of patients who referred to urogynecology clinics were housewives (57.4%). The mean age of patients was 51.43±4.00 years. More than 57% of these women were overweight, 45.5% had the history of abortion, and 42.6% were menopause (Table 1).

Table 1: Characteristics of the premenopausal women and their relation to sexual function

Variables		Number	Percent	β (95%CI)	P Value
Age (year)[a]		51.43	4.00	-0.07 (-0.19, 0.04)	0.214
Husband's age [a]		54.66	7.30	-0.05 (-0.10, 0.02)	0.238
Marriage age (year) [a]		21.89	3.43	0.08 (-0.05, 0.22)	0.257
Education	Illiterate	3	1.64	ref	
	Primary school	23	12.57	1.87 (-2.12, 5.88)	0.356
	Guidance and high school	78	47.54	2.21 (-1.60, 6.03)	0.254
	University	70	38.25	2.26 (-1.57, 6.09)	0.247
Husbands education	Illiterate	9	4.92	ref	
	Primary school	24	13.11	0.67 (-1.90, 3.21)	0.613
	Guidance and high school	90	49.18	1.18 (-1.08, 3.46)	0.304
	University	60	32.79	1.13 (-1.19, 3.46)	0.337
	Job (housewife)	105	57.4	0.39 (-0.60, 1.39)	0.433

Husband's job	Jobless	9	4.92	ref	
	Worker	37	20.22	1.55 (-0.85, 3.97)	0.205
	Staff	29	15.85	1.78 (-0.70, 4.26)	0.159
	Non-governmental	89	48.63	1.72 (-.53, 3.99)	0.134
	Retired	19	10.38	2.62 (0.00, 5.24)	0.050
Salary (million Tooman)	0.5 to 1	21	11.48	ref	
	1 to 2	134	73.22	0.32 (-1.23, 1.88)	0.681
	More than 2	28	15.30	0.53 (-1.37, 2.44)	0.580
BMI	Underweight	2	1.1	-3.50 (-8.52, 1.52)	0.171
	Normal	10	5.5	-2.52 (-7.16, 2.10)	0.283
	Overweight	106	57.9	-2.86 (-7.52, 1.79)	0.226
	Obese	65	35.5		
Parity [a]		3.22	1.2	0.08 (-0.31, 0.49)	0.667
History of abortion (yes)		81	45.5	1.11 (0.15, 2.08)	0.024
Delivery type (NVD)		175	95.63	1.45 (-1.04, 3.94)	0.253
Delivery type (C/S)		63	34.43	0.24 (-0.77, 1.26)	0.633
Contraception	Withdrawal	32	17.49	0.51 (-1.24, 2.26)	0.567
	Condom	25	13.66	0.67 (-0.88, 2.23)	0.396
	Oral contraceptives	38	20.77	1.45 (-0.34, 3.25)	0.112
	Intra uterine device	32	12.02	0.59 (-3.33, 4.52)	0.766
	Tubal ligation	3	1.64	0.05 (-1.36, 1.47)	0.942
	Menopause	63	34.43	ref	
	Any disease (yes)	63	34.43	0.16 (-0.85, 1.19)	0.744
	Any surgery (yes)	59	32.24	-0.52 (-1.55, 0.50)	0.316

In this study almost 35% of the participants had stress UI, 2% urgent UI, and 63% mixed UI. The majority of participants had moderate UI (77%), whereas only 2.73% had very severe UI. The mean score of the total sexual function was 23.82±3.28, and the score was 7.69±2.37, in physical domain was 10.01±2.76 in the behavioral-emotive domain and 6.16±1.63 in partner-related domain (Table 2).

Table 2: Urinary incontinence situations of the premenopausal women and their relations to sexual function

Variables		Number	Percent	β(95%CI)	P Value
Urinary Incontinence	Stress	64	34.97	1.86 (-1.41, 5.13)	0.263
	Urgency	4	2.19	-0.36 (-1.38, 0.64)	0.475
	Mixed	115	62.84	-0.18 (-1.18, 0.81)	0.717
Levels of severity of incontinence	Mild	14	7.65	ref	
	Moderate	141	77.05	0.93 (-0.86, 2.73)	0.305
	Severe	23	12.57	-0.56 (-2.73, 1.61)	0.610
	Very severe	5	2.73	-1.41 (-4.75, 1.92)	0.405
Self-efficacy	Low	73	40.33	-0.61 (-1.60, 0.38)	0.226
	Moderate	103	56.91	-2.65 (-5.63, 0.33)	0.082
	High	5	2.76	-0.02 (-0.06, 0.01)	0.260
Total sexual function [a]		23.82	3.28	-	-
Sexual function domain	Behavioral-emotive	7.69	2.37		
	Physical domain	10.01	2.76		
	Partner-related	6.16	1.63		

As shown in Tables 1 and 2, in the univariate regression, merely the history of abortion and partner retirement status were statically significant ($p<0.05$).

After the adjustments in marriage age, education, obese category of BMI, normal vaginal delivery type, contraception, husband's age, stress incontinence, low and moderate categories of self-efficacy, the final multivariate regression model

revealed that sexual function was deteriorated with aging (β coefficient: -0.14; 95%CI: -0.02, -0.26; p=0.018). The sexual function score decreased 1.33 times in women with retired husband (95%CI: -0.03, -2.64; p=0.044) and 4.34 times in the underweight patients (95%CI: -2.29, -6.38; p<0.001). Moreover, sexual function in women with the history of abortion decreased by 50 % (95%CI: 0.03, 0.99; p=0.036). In addition, women who had high self-efficacy in doing PFE showed 3.60 times better sexual function (95%CI: 2.11, 5.10; p<0.001) (Table 3).

Table 3: Factors related to sexual function in premenopausal women based on multivariate regression

Variable	β coefficient	95% Confidence interval	Standard Error	t	P> | t |
Age	-0.14	-0.02 , -0.26	0.061	-2.39	0.018
Retired	-1.33	-0.03 , -2.64	0.660	-2.03	0.044
Underweight	-4.34	-2.29 , -6.38	1.035	-4.19	<0.001
History of abortion	0.51	0.99 , 0.03	0.243	2.11	0.036
High self-efficacy	3.60	5.10 , 2.11	0.758	4.76	<0.001
Constant	35.12	42.41 , 27.82	3.694	9.51	<0.001

Discussion

The results of this study indicated that the mean score of sexual function was 23.82±3.28 in UI premenopausal patients. The sexual function score decreased in accordance with aging in women with retired husbands, the underweight patients, and women with a history of abortion. Furthermore, women who had high self-efficacy in performing PFE had a better sexual function score.

The mean score of sexual function was less than the median of the scale score. Pakgohar et al., in a study in Rasht, north of Iran, reported that the mean sexual function score in postmenopausal women with UI was 31.07+/-7.52, which is higher compared to the one in this study [22]. This discrepancy may be due to the cultural varieties and stressful conditions of living in industrial cities like Tehran that can affect sexual function both directly and indirectly. Sacomori et al. (2015), in Brazil and in an interventional study on UI women participating in three physical therapy sessions and performing home-based pelvic floor muscle exercises, showed that sexual function score improved after the treatment [5]. In our study, even in women treated by exercise, the mean score was less than the median score. It seems that more effective management and treatment strategies are needed in the country.

We also found that the sexual function score decreased in accordance with aging, which is consistent with previous studies [7,23]. Hendrickx et al. (2015), in an online survey on sexual difficulties in women, indicated that all sexual difficulties and dysfunctions are significantly related to age [24]. Furthermore, chronic diseases such as diabetes, hypertension, and cardiovascular are more prevalent in older women and can decrease sexual function scores [25].

Our findings showed that in women with retired husbands, the score of sexual function was less than the one in women with occupied husbands. This can be due to aging, worse socioeconomic status, more chronic disease, or more medicine consumption, which may affect sexual function [23-25]. Consistent with this study, Maseroli et al. already indicated that male factors are associated with female sexual dysfunction [26].

While other studies showed that sexual dysfunction was more common in obese women, [7,27] in this study, the underweight patients had a lower sexual function score. This unexpected finding might be explained by lower estrogen levels in underweight women, which could contribute to lower sexual function in these women [28].

Women with a history of abortion had lower sexual function scores. Dundar et al. (2016) showed that female sexual function score decreased three months after termination of pregnancy, which can be related to anxiety, feeling of guilt, pessimism about future pregnancies, disturbed self-perception, and loss of confidence in intimate relationships [29].

Women who had higher self-efficacy in performing PFE had a better sexual function score. One of the predictors of improvements in the sexual function is higher compliance to PFE and its strength [5]. Therefore, strategies to enhance self-efficacy in women with UI have

been assessed. In this respect, Sacomori et al. (2015) showed that these strategies are as effective as exercise mastery is [30].

This study was limited in several ways. For instance, some factors such as cultural prejudices and psychosocial status influenced the way in which questions were answered, which was beyond the control of the researcher. Second, researcher had little information about the quality of exercising and did not monitor how the exercise was performed by the specimens. Using convenience sampling method can be declared as another limitation of this study.

According to the findings, the sexual function declined in accordance with aging, as a non-modifiable factor in our study. Besides, the sexual function decreased in accordance with modifiable factors such as being underweight. Higher self-efficacy in performing PFE led to better sexual function. Hence, we suggest more effective management strategies for increasing self-efficacy of women in carrying out PFE.

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Conflict of interest

The authors declare no conflicts of interest

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References

1. Khosla R, Say L, Temmerman M. Sexual health, human rights, and law. Lancet. 2015; 386(9995): 725-26.

2. Lusti-Narasimhan M, Beard JR. Sexual health in older women. Bull World Health Organ. 2013; 91(9): 707-709.

3. Celik DB, Kizilkaya Beji N, Yalcin O. Sexual function in women after urinary incontinence and/or pelvic organ prolapse surgery. J Clin Nurs. 2014; 23(17-18): 2637-48.

4. Athanasiou S, Grigoriadis T, Chalabalaki A, Protopapas A, Antsaklis A. Pelvic organ prolapse contributes to sexual dysfunction: a cross-sectional study. Acta Obstet Gynecol Scand. 2012; 91(6): 704-709.

5. Sacomori C, Cardoso FL. Predictors of improvement in sexual function of women with urinary incontinence after treatment with pelvic floor exercises: a secondary analysis. J Sex Med. 2015; 12(3): 746-55.

6. Angelini K. Pelvic Floor Muscle Training to Manage Overactive Bladder and Urinary Incontinence. Nurs Womens Health. 2017; 21(1): 51-57.

7. Çayan S, Yaman Ö, Orhan İ, et al. Prevalence of sexual dysfunction and urinary incontinence and associated risk factors in Turkish women. Eur J Obstet Gynecol Reprod Biol. 2016 8; 203: 303-308.

8. Lim R, Liong ML, Leong WS, Khan NAK, Yuen KH. Effect of Stress Urinary Incontinence on the Sexual Function of Couples and the Quality of Life of Patients. J Urol. 2016; 196(1): 153-58.

9. Cacciari LP, Dumoulin Ch, Hay-Smith E J. Pelvic floor muscle training versus no reatment, or inactive control treatments, for urinary incontinence in women: a cochrane systematic review abridged republication. Braz J Phys Ther. 2019; 23(2): 93-107.

10. Thiagamoorthy G, Srikrishna S, Cardozo L. Sexual function after urinary incontinence surgery. Maturitas. 2015; 81(2): 243-47.

11. Jack K, McLean SM, Moffett JK, Gardiner E. Barriers to treatment adherence in physiotherapy outpatient clinics: a systematic review. Man Ther. 2010; 15(3): 220-28.

12. Bo K, Frawley HC, Haylen BT, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for the conservative and nonpharmacological management of female pelvic floor dysfunction. Int Urogynecology J. 2017; 28 (2): 191-213.

13. Ferreira CHJ, Dwyer PL, Davidson M, De Souza A, Ugarte JA, Frawley HC. Does pelvic floor muscle training improve female sexual function? A systematic review. Int Urogynecol J. 2015; 26(12): 1735-50.

14. Rivalta M, Sighinolfi MC, De Stefani S, et al. Biofeedback, electrical stimulation, pelvic floor

muscle exercises, and vaginal cones: A combined rehabilitative approach for sexual dysfunction associated with urinary incontinence. J sex med. 2009; 6(6): 1674-77.
15. Zahariou AG, Karamouti MV, Papaioannou PD. Pelvic floor muscle training improves sexual function of women with stress urinary incontinence. Int Urogynecol J Pelvic Floor Dysfunct. 2008; 19(3):401-406.
16. Kanter G, Rogers RG, Pauls RN, Kammerer-Doak D, Thakar R. A strong pelvic floor is associated with higher rates of sexual activity in women with pelvic floor disorders. Int Urogynecol J. 2015; 26(7): 1-6.
17. Lara LAdS, Montenegro ML, Franco MM, et al. Is the sexual satisfaction of postmenopausal women enhanced by physical exercise and pelvic floor muscle training? J Sex Med. 2012; 9(1): 218-23.
18. Haddadi S, Ghodrati Mirkouhi M, Akbari Kamrani M. The Relationship Between Self-Efficacy and Sexual Function in Patients with Type II Diabetes. Bali Med J. 2016; 5(3): 11-16.
19. Sabetghadam S, Pakgohar M, Vasegh Rahimparvar F. The relationship between quality of life & sexual function with help-seeking in postmenopausal women with urinary incontinence in Rasht 2012. [dissertation]. Tehran: Tehran University of Medical Sciences; 2012. [In Persian]
20. Momenimovahe Z, Pakgohar M, Montazeri A. Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12): psychometric validation of the Iranian version. Int Urogynecol J. 2015; 26(3): 433-39.
21. Rousseeuw PJ, Leroy AM. Robust regression and outlier detection. New York: John wiley & sons; 2005.
22. Pakgohar M, Sabetghadam S, Rahimparvar SF, Kazemnejad A. Sexual function and help seeking for urinary incontinence in postmenopausal women. J Women Aging. 2016; 28(1): 2-8.
23. Jafarzadeh Esfehani R, Fazel N, Dashti S, et al. Female Sexual Dysfunction and its Associated Risk Factors: An Epidemiological Study in the North-East of Iran. J Midwifery Reproductive Health. 2016; 4(1): 498-505.
24. Hendrickx L, Gijs L, Enzlin P. Age-related prevalence rates of sexual difficulties, sexual dysfunctions, and sexual distress in heterosexual women: results from an online survey in flanders. J Sex Med. 2015; 12(2): 424-35.
25. Camacho ME, Reyes-Ortiz CA. Sexual dysfunction in the elderly: age or disease? Int J Impot Res. 2005; 17(S1): S52-S6.
26. Maseroli E, Fanni E, Mannucci E, et al. Which are the male factors associated with female sexual dysfunction (FSD)? Andrology. 2016; 4(5): 911-20.
27. Nackers LM, Appelhans BM, Segawa E, Janssen I, Dugan SA, Kravitz HM. Associations between body mass index and sexual functioning in midlife women: The Study of Women's Health Across the Nation (SWAN). Menopause. 2015; 22(11): 1175-81.
28. Nappi RE, Polatti F. Continuing Medical Education: The Use of Estrogen Therapy in Women's Sexual Functioning (CME). J Sex Med. 2009; 6(3): 603-16.
29. Dundar B, Dilbaz B, Karadag B. Comparison of the effects of voluntary termination of pregnancy and uterine evacuation for medical reasons on female sexual function. Eur J Obstet Gynecol Reprod Biol. 2016; 199: 11-15.
30. Sacomori C, Berghmans B, Mesters I, de Bie R, Cardoso FL. Strategies to enhance self-efficacy and adherence to home-based pelvic floor muscle exercises did not improve adherence in women with urinary incontinence: a randomised trial. J Physiother. 2015; 61(4): 190-98.