



Prevalence of sexual dysfunction and urinary incontinence and associated risk factors in Turkish women



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ABSTRACT

Objectives: Female sexual dysfunction (FSD) and urinary incontinence (UI) are associated risk factors that might cause each other. No study has investigated prevalence of FSD and UI in the same population. The aims of the study were to investigate the prevalence of FSD and UI and associated risk factors in the same population.

Study design: : The study included 1217 women in 20 provinces, representing the geographical regions of Turkey. Women aged ≥ 18 years with active sexual life in the last 6 months were enrolled. FSD, overactive bladder, UI, depression, and sexual distress were investigated using validated scales. Risk factors that might predict FSD and UI were determined in the same population.

Results: The prevalence of FSD and UI was 52.5% and 14.6%, respectively. Comparing the women with and without FSD, those with FSD were older, had higher body mass index (BMI), less physical exercise, older spouses, lower educational level, and lower rates of smoking and alcohol consumption. The rates of women in menopause and those with a spouse/partner having erection problem and the rates of UI, depression, and sexual distress were higher in the FSD group. Age of spouse, low educational level, not smoking, not consuming alcohol, menopause, not giving consent to spouse/partner to use sexual performance-enhancing drugs when necessary, depression, and sexual distress were the significant risk factors for FSD. Of the women with UI, 56% had overactive bladder symptoms, 32% had stress UI, and 12% had mixed type UI. Comparing the women with and without UI, those with UI were older, had higher BMI, lower educational level, and older spouses. The rate of menopausal women and the rates of FSD, depression, and sexual distress were higher in the UI group. Menopause and FSD were the significant risk factors for UI.

Conclusions: This is the first study to investigate prevalence of FSD and UI in the same population. UI deteriorates sexual functions of women. Therefore, both conditions should be assessed when women complain of either sexual or urinary problems.

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Introduction

Female sexual dysfunction (FSD) is a common problem and unfavorably influences the quality of life. FSD is defined as the persistent/recurrent decrease in sexual desire or arousal, the difficulty/inability to achieve an orgasm, and/or the feeling of pain during sexual intercourse [1]. It has been reported that one of the

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sexual problems could be encountered in about 40–45% of adult females at any time of life [1]. Complex interaction of many genetic, biological, psychological, social and cultural factors plays a role in the etiology of FSD [2]. Pelvic floor dysfunction, which may appear at any time of life, can also lead to problems such as pelvic organ prolapse, dysfunctional bowel disorders, urinary tract infections, urinary incontinence (UI), and sexual dysfunction [3]. UI is a commonly seen problem, and is associated with advanced age and stress, major depression, decreased quality of life, and sexual dysfunction [4]. There is a two-sided interaction between FSD and UI. Stress UI is negatively associated with all aspects of FSD (sexual interest, desire, arousal, lubrication, and orgasm) and positively correlated with dyspareunia and vaginismus [5]. Since these problems are not verbalized as they cause embarrassment in the majority of populations, they may remain underdiagnosed and undertreated. Data on their prevalence in general population are also limited. No study has investigated prevalence of FSD and UI in the same population. Knowing the prevalence of FSD and UI would facilitate to understand the burden caused by these problems on the population. Besides, identifying the risk factors that might cause FSD and UI will provide development of preventable strategies to enhance women's quality of life.

The present study aims to investigate the prevalence of FSD and UI and associated risk factors in Turkish women. For this purpose, the assessments were performed using validated questionnaires in a sample representative of Turkish population.

Methods

Sample and procedure

The present study was carried out in 20 provinces that would represent the geographical regions of Turkey. Totally 1217 women aged ≥ 18 years with active sexual life in the last 6 months were enrolled. Stratified random sampling was used and the quantitative phase of the study was performed within the scope of rules determined prior to the study. The survey was carried out via face-to-face interview at the participants' home and/or workplace. The study design was approved by the Central Ethics Committee, consisting of the members from the Turkish Ministry of Health and University of Mersin School of Medicine. An informed consent was obtained from all women, included in the study.

Main outcome measures

A questionnaire was applied to investigate the demographic characteristics of the participants such as age, body mass index (BMI), education, marital status, and smoking as well as their menstrual cycle or menopausal status and their opinions regarding their own and partners' sexual functions. In addition, the participants were investigated regarding the presence of FSD and overactive bladder (OAB), frequency of UI, and depression and sexual distress statuses using validated scales.

Female sexual functions were evaluated with the Female sexual function index (FSFI) [6,7]. The FSFI consists of 19 questions (rated from 0 to 5) and 6 domains including desire, arousal, lubrication, orgasm, satisfaction, and pain. In order to calculate the individual domain score, the scores of individual questions comprising the domain are summed and multiplied by the factor specific to the relevant domain. The total score is calculated by adding the scores of the six domains. The total score of the scale is ranged from 2.0 to 36.0, with higher scores indicating a lesser degree of sexual dysfunction.

Urinary incontinence was evaluated using the Overactive bladder questionnaire-short form (OABq-SF) for OAB and the International Consultation on incontinence questionnaire-short

form (ICIQ-SF) for stress UI. The OABq-SF consists of 8 questions and a score of ≥ 8 indicates presence of OAB. The ICIQ-SF asks the participants to answer the questions considering the last 4 weeks. The total score of the form is 21, with higher scores indicating frequent UI [8].

The Beck depression inventory (Beck-D) contains 21 questions, the lowest point being 0 and the highest point being 3 for each question. The total score of all answers is assessed as follows: 0–9 points: minimal depressive symptoms, 10–16 points: mild depressive symptoms, 17–29 points: moderate depressive symptoms, 30–63 points: severe depressive symptoms [9,10].

The Female Sexual Distress Scale-Revised (FSDS-R), which provides a measure of sexual distress, contains 13 questions, each rated from 0 to 4. The total score ranges from 0 to 52; the higher the score, the higher the level of sexual distress. A score of ≥ 11 effectively distinguishes between women with and without FSD [11].

Statistical analyses

Data were analyzed using the Predictive Analytics Software (PASW) Statistics version 18.0 for Windows (SPSS Inc., Chicago, IL, USA). Descriptive statistics were performed. In comparison of two independent groups, Mann–Whitney *U* test was used for non-normally distributed numerical variables. For categorical variables, multiple and two group comparisons were performed using Chi-square test statistics or Fisher's exact test, where appropriate. Logistic regression analysis was used to determine the risk factors. Level of statistical significance was set at $p < 0.05$. In predicting sexual dysfunction, the receiver operating characteristics (ROC) analysis was performed to determine the cut-off values for total FSFI score and for the score of each domain.

Results

General characteristics of the women included in the present study are demonstrated in Table 1. The cut-off value for the FSFI in predicting sexual dysfunction was determined by ROC analysis as ≤ 27.3 . The cut-off values for the domains were as follows: ≤ 3.9 for desire, ≤ 4.35 for arousal, ≤ 4.35 for lubrication, ≤ 4.20 for orgasm, ≤ 4.60 for satisfaction, and ≤ 4.60 for pain.

Table 1
General characteristics of the subjects.

Characteristics	
Age, year	38.26 \pm 12.70
Body mass index groups	
Underweight	71 (5.8)
Normal	631 (51.8)
Overweight	360 (29.6)
Obese	155 (12.7)
Marital status	
Married	1008 (82.8)
Not married	209 (17.2)
Educational status	
Illiterate–literate	18 (1.5)
Primary school	379 (31.1)
Secondary school	150 (12.3)
High school	446 (36.6)
University and above	224 (18.4)
Smoking	525 (43.1)
Alcohol consumption	182 (15.0)
Physical exercise	308 (25.3)
Menopausal status	246 (20.2)
Irregular menstrual cycle	110 (9.0)

Data are presented as mean \pm standard deviation or number (%), where appropriate.

The prevalence of FSD determined by the FSFI was 52.5% ($n = 639$). The prevalence of UI was found as 14.6% ($n = 178$). Of the women with UI, 56% had only overactive bladder symptoms, 32% had only stress UI, and 12% had mixed type UI. The rate of women having concomitant FSD and UI was 9.9% ($n = 120$), whereas the rate of women with either FSD or UI was 57.3% ($n = 697$). The prevalence rates of sexual dysfunction according to the FSFI are demonstrated in Table 2.

Of the women, 14.4% had symptoms of moderate/severe depression determined by the Beck-D, and 25.4% had sexual distress determined by the FSDS-R.

The characteristics of the groups with ($n = 639$) and without ($n = 578$) FSD according to the FSFI score were compared (Table 3).

Table 2

Prevalence rates of sexual dysfunction according to the Female Sexual Function Index (FSFI).

	Prevalence rates (%)
Sexual dysfunction (total score)	52.5
Desire problem	52.5
Arousal problem	44.9
Lubrication problem	50.2
Orgasm problem	39.3
Satisfaction problem	33.6
Pain	43.3

The FSD group consisted of women who were older, had higher BMI, older spouse, lower educational status, lower rates of smoking and alcohol consumption, and less physical exercise. The rate of women in menopause and the rate of women with a spouse/partner having erection problem were higher in the FSD group. The rates of UI, depression, and sexual distress were higher in the FSD group.

In the regression analysis, which was performed to determine the risk factors for FSD (FSFI score being ≤ 27.3), age of spouse, low educational status, not smoking, not consuming alcohol, menopause, not giving consent to the spouse/partner to use sexual performance-enhancing drug when necessary, depression, and sexual distress were found as significant risk factors (Table 4).

The characteristics of the groups with ($n = 178$) and without ($n = 1039$) UI were compared (Table 5). The group with UI consisted of women who were older, had higher BMI, older spouses, and lower educational status. The rate of women in menopause was higher in the UI group. Likewise, FSD, depression, and sexual distress were more common in the UI group.

In the regression analysis performed to determine the risk factors for UI, being in menopause ($p < 0.001$, odds ratio [OR] = 2.048, 95% confidence interval [CI]: 1.39–3.02) and the presence of FSD ($p = 0.005$, OR = 0.573, 95% CI: 0.39–0.85) were found as significant risk factors.

Table 3

Characteristics of the groups with and without female sexual dysfunction.

	<i>n</i>	Women with FSD	<i>n</i>	Women without FSD	<i>p</i>
Age, year	639	41 (18–74)	578	34 (18–80)	<0.001
BMI	639	24.8 (15.2–44.2)	578	23.4 (15.8–42.2)	<0.001
Marital status					
Married	639	539 (84.4)	578	469 (81.1)	0.138
Not married		100 (15.6)		109 (18.9)	
Age of spouse, year	539	48 (21–78)	469	39 (20–78)	<0.001
Educational status					
Secondary school and below	639	355 (55.6)	578	192 (33.2)	<0.001
High school and above		284 (44.4)		386 (66.8)	
Smoking	639	228 (35.7)	578	297 (51.4)	<0.001
Alcohol consumption	639	59 (9.2)	578	123 (21.3)	<0.001
Physical exercise	639	146 (22.8)	578	162 (28.0)	0.038
Being in menopause	639	200 (31.3)	578	46 (8.0)	<0.001
Irregular menstrual cycle	439	58 (13.2)	532	52 (9.8)	0.093
Erection problem in the spouse/partner	576	65 (11.3)	558	10 (1.8)	<0.001
Consent given to the spouse/partner to use sexual performance-enhancing drugs when necessary	504	99 (19.6)	459	131 (28.5)	0.001
Having trouble with the usage of sexual performance-enhancing drugs by the spouse/partner	31	7 (22.6)	22	1 (4.5)	0.120
Female's sexual functions being affected by the erection problem of the spouse/partner	65	37 (56.9)	10	6 (60.0)	1.000
Extent of the effect of spouse/partner's erection problem on the female's sexual functions					
Either affects or does not	37	8 (21.6)	6	0 (0.0)	0.198
Affects		23 (62.2)		6 (100.0)	
Affects very much		6 (16.2)		0 (0.0)	
Urinary incontinence	639	120 (18.8)	578	58 (10.0)	<0.001
ICIQ-SF score	120	6 (0–18)	58	4 (0–15)	0.307
OABq-SF score	120	14.5 (0–31)	58	11 (0–38)	0.025
OABq-SF score group					
<8	120	31 (25.8)	58	26 (44.8)	0.011
≥8		89 (74.2)		32 (55.2)	
Beck-D score	639	8 (0–56)	578	1 (0–32)	<0.001
Beck-D score group					
≤17	639	482 (75.4)	578	560 (96.9)	<0.001
>17		157 (24.6)		18 (3.1)	
FSDS-R score	639	8 (0–52)	578	2 (0–37)	<0.001
FSDS-R score group					
<11	639	378 (59.2)	578	530 (91.7)	<0.001
≥11		261 (40.8)		48 (8.3)	

Data are presented as median (minimum–maximum) or number (%), where appropriate. FSD, female sexual dysfunction; BMI, body mass index; ICIQ-SF, International Consultation on Incontinence Questionnaire-Short Form; OABq-SF, Overactive Bladder Questionnaire Short Form; Beck-D, Beck depression inventory; FSDS-R, Female Sexual Distress Scale-Revised.

Table 4
Risk factors for female sexual dysfunction.

	<i>p</i>	OR	95% CI OR
Age	0.083	0.962	0.92–1.01
Age of spouse	0.038	1.049	1.00–1.10
Educational status (secondary school and lower)	0.014	1.564	1.10–2.23
Not smoking	0.001	1.898	1.32–2.73
Not consuming alcohol	0.002	3.234	1.56–6.69
Being in menopause	<0.001	3.283	1.81–5.96
Erection problem in the spouse/partner	0.079	2.326	0.91–5.96
Not giving consent to the spouse/partner to use sexual performance-enhancing drugs when necessary	<0.001	2.370	1.51–3.73
Beck-D score (>17)	<0.001	6.581	3.43–12.64
FSDS-R score (≥11)	<0.001	5.162	3.25–8.19

OR, odds ratio; CI, confidence interval; Beck-D, Beck depression inventory; FSDS-R, Female Sexual Distress Scale-Revised.

Table 5
Characteristics of the groups with and without urinary incontinence.

	<i>n</i>	Women with UI	<i>n</i>	Women without UI	<i>p</i>
Age, year	178	44 (19–68)	1039	36 (18–80)	<0.001
BMI	178	24.97 (16.22–42.24)	1039	23.88 (15.24–44.20)	0.003
Marital status					
Married	178	155 (87.1)	1039	853 (82.1)	0.104
Not married		23 (12.9)		186 (17.9)	
Age of spouse, year	155	47 (22–72)	853	42 (20–78)	0.002
Educational status					
Secondary school and below	178	98 (55.1)	1039	449 (43.2)	0.003
High school and above		80 (44.9)		590 (56.8)	
Smoking	178	76 (42.7)	1039	449 (43.2)	0.897
Alcohol consumption	178	23 (12.9)	1039	159 (15.3)	0.410
Physical exercise	178	51 (28.7)	1039	257 (24.7)	0.267
Being in menopause	178	63 (35.4)	1039	183 (17.6)	<0.001
Irregular menstrual cycle	115	17 (14.8)	856	93 (10.9)	0.213
Beck-D score	178	8 (0–48)	1039	3 (0–56)	<0.001
Beck-D score group					
≤17	178	138 (77.5)	1039	904 (87.0)	0.002
>17		40 (22.5)		135 (13.0)	
FSDS-R score	178	6.5 (0–52)	1039	4 (0–52)	<0.001
FSDS-R score group					
<11	178	111 (62.4)	1039	797 (76.7)	<0.001
≥11		67 (37.6)		242 (23.3)	
FSFI score	178	24.35 (1.20–36.00)	1039	27.40 (1.20–36.00)	<0.001
FSFI score group					
≤27.3	178	106 (59.6)	1039	452 (43.5)	<0.001
>27.3		72 (40.4)		587 (56.5)	

Data are presented as median (minimum-maximum) or number (%), where appropriate. UI, urinary incontinence; BMI, body mass index; Beck-D, Beck depression inventory; FSDS-R, Female Sexual Distress Scale-Revised; Female Sexual Function Index (FSFI).

Discussion

In the present population-based study that was performed using the FSFI, the prevalence rate of FSFI was determined to be 52.5% in Turkey. In the earlier studies conducted in a limited number of regions in Turkey, the prevalence of FSD was reported as 46.9% [12] and 48.3% [13]. In the literature, the population-based studies conducted using the FSFI have reported varying prevalence rates from 5.8% to 46.2% for FSD [14–16].

Evaluation of the domains of the FSFI revealed that the primary problem in the present study was associated with desire by 52.5%. Furthermore, the prevalence rates of other problems were 44.9% for arousal, 50.2% for lubrication, 39.3% for orgasm, 33.6% for satisfaction, and 43.3% for pain. Although Burri and Spector [14] reported lower prevalence rates in their population-based study, they determined desire as the most common sexual complaint by 21.4%, as was in the present study. In addition, they reported the point prevalence rates for the problems to be 11.4% for arousal, 8.7% for lubrication, 8.8% for orgasm, and 10.4% for satisfaction; only 6.0% of women reported sexual pain in their study. The prevalence rates reported by Jaafarpour et al. [15], which were 45.3% for desire, 37.5% for arousal, 41.2% for lubrication, 42.0% for

orgasm, 44.5% for satisfaction, and 42.5% for pain, were closer to those found in the present study. Safarinejad reported the prevalence rates for the FSFI domains as follows: 35% for desire, 30% for arousal, 33.7% for lubrication, 37% for orgasm, 31.5% for satisfaction, and 26.7% for pain [16].

Among the risk factors for FSD, demographic characteristics have been the subject of investigation in many studies. Advanced age has been reported as one of the significant risk factors for FSD [12,13,15,17,18]. In the present study, the mean age was significantly higher in the women with FSD than in the women without FSD (median, 41 years vs. 34 years). There are studies investigating marital status as a risk factor for FSD; however, data on this subject are limited since many studies have been conducted in only married people. In their study, Safarinejad found the rate of FSD to be lower in individuals who were not married [16]. There are studies reporting a relation between duration of marriage and FSD [15,17,18]. In the present study, no difference was determined between the women with and without FSD in terms of marital status. Low educational level has been reported to be associated with FSD [12,15,19,20]. In the present study, the rate of women with low educational level (secondary and lower educational level) was found to be higher in the group with FSD than in the group

without FSD (55.6% vs. 33.2%). Studies have demonstrated that the prevalence of FSD is higher during postmenopausal period [12,13,16–18]. In the present study, the rate of women in menopause was also higher in the group with FSD than in the group without FSD (31.3% vs. 8.0%).

Life-style characteristics have also been investigated among the factors influencing FSD. Low physical activity is one of the risk factors for FSD [16]. In the present study, the rate of physical exercise was lower in the group with FSD than in the group without FSD (22.8% vs. 28%). Although a relation between BMI and certain sexual functions has been reported, no remarkable difference was determined between obese and non-obese women in terms of FSD [21]. In the present study, although women with FSD had a higher BMI, risk factor analysis indicated that BMI was not a significant risk factor. While some studies have demonstrated a relation between smoking and FSD [13], some have not [12,15,16]. In their study, Amidu et al. [22] evaluated age, marital status, educational status, exercise, alcohol, and smoking as the risk factors for FSD and determined alcohol intake as the only risk factor for FSD according to the logistic regression analysis. In the present study, the rates of smoking and alcohol consumption were lower in the group with FSD. Not smoking or not consuming alcohol was found as significant risk factors for FSD.

Partner-related characteristics and problems may also be risk factors for FSD [23]. Jiann et al. [24] evaluated the partners together and reported significant correlation between female sexual functioning and male erectile function. Advanced age of the partner [15,17,18] and presence of premature ejaculation [17,25] and erectile dysfunction [16,17,25] in the partner have been reported as the risk factors for FSD. In the present study, the age of the spouses was higher in the group with FSD than in the group without FSD (median age, 48 years vs. 39 years) and spouse being at an advanced age was found as a risk factor for FSD. The rate of erectile dysfunction in the spouse/partner was significantly higher in the group with FSD than in the group without FSD (11.3% vs. 1.8%); however, this was not found to be a significant risk factor. The rate of women giving consent to their spouses to use sexual performance-enhancing drugs was lower in the group with FSD and not giving consent to the spouse to use sexual performance-enhancing drugs was found as a significant risk factor.

History of psychological problems is also a risk factor for FSD [14,16]. The present study determined that depression and sexual distress were the risk factors for FSD. Moreover, UI and OAB were more common in the women with FSD; however, these parameters were not found to be significant in the risk factor analysis.

In the present study, the prevalence of UI in sexually active adult females in Turkey was determined as 14.6%. In the population-based studies, the prevalence of UI among adult females has been reported between 17% and 27%, with an increase in the prevalence with increasing age [26–29]. Reported risk factors for UI include advanced age, obesity, low educational level, menopause, gynecological diseases, and chronic diseases [28,30]. In the present study, the women with UI were older and had higher BMI, lower educational level, and older spouse than those without UI. In addition, being in menopause, FSD, depression, and sexual distress were more common in the group with UI. The risk factor analysis revealed that menopause, depression, sexual distress, and FSD were significant risk factors. We are in the opinion that sociocultural structure of populations (conservative, patriarchal, liberal etc.) and the study designs lead to different risk factors reported in different studies. Inclusion of only married individuals in some studies, evaluation of the partners only by asking questions to the women or not even considering the partners, exclusion of the individuals with chronic/psychological disorders or those with drug/substance abuse prior to the study, and not evaluating some parameters lead the studies to report different risk factors.

Our study has some limitations. Pelvic floor dysfunction is considered symptoms of the urinary, pelvic organ prolapse, sexual and bowel problems. For this study, we have assessed presence of urinary incontinence and sexual functions, using validated questionnaires. We have not assessed bowel problems, and not examined in the women to diagnose pelvic organ prolapse. In addition, receiving any treatment for the UI or FSD would affect outcomes of the study. We have not assessed use of any treatment for both FSD and UI in women included in the study.

Conclusions

FSD and UI usually remain underdiagnosed and undertreated conditions. This is the first study to investigate prevalence of FSD and UI in the same population. Menopause, depression, and sexual distress are important risk factors in determining FSD, and UI deteriorates sexual functions of women. Therefore, both conditions should be assessed when women complain of either sexual or urinary problems.

References

- [1] Lewis RW, Fugl-Meyer KS, Corona G, et al. Definitions/epidemiology/risk factors for sexual dysfunction. *J Sex Med* 2010;7:1598–607.
- [2] Kingsberg SA, Woodard T. Female sexual dysfunction: focus on low desire. *Obstet Gynecol* 2015;125:477–86.
- [3] Doumouchtsis SK, Chrysanthopoulou EL. Urogenital consequences in ageing women. *Best Pract Res Clin Obstet Gynaecol* 2013;27:699–714.
- [4] Laganà L, Bloom DW, Ainsworth A. Urinary incontinence: its assessment and relationship to depression among community-dwelling multiethnic older women. *Sci World J* 2014;2014:708564.
- [5] Wehbe SA, Kellogg S, Whitmore K. Urogenital complaints and female sexual dysfunction. Part 2. *J Sex Med* 2010;7:2304–17.
- [6] Rosen R, Brown C, Heiman J, et al. The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther* 2000;26:191–208.
- [7] Kettaş E, Çayan F, Efesoş O, Akbay E, Çayan S. The effect of renal transplantation for end-stage renal disease on female sexual function and depression. *J Sex Med* 2010;7(12):3963–8.
- [8] Sarici H, Ozgur BC, Telli O, Doluoglu OG, Eroglu M, Bozkurt S. The prevalence of overactive bladder syndrome and urinary incontinence in a Turkish women population; associated risk factors and effect on Quality of life. *Urologia* 2014;83(2):93–8.
- [9] Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psychiatry* 1961;4:561–71.
- [10] Kettaş E, Çayan F, Akbay E, Kiykim A, Çayan S. Sexual dysfunction and associated risk factors in women with end-stage renal disease. *J Sex Med* 2008;5(4):872–7.
- [11] Derogatis L, Clayton A, Lewis-D'Agostino D, Wunderlich G, Fu Y. Validation of the female sexual distress scale-revised for assessing distress in women with hypoactive sexual desire disorder. *J Sex Med* 2008;5:357–64.
- [12] Çayan S, Akbay E, Bozlu M, Canpolat B, Acar D, Ulusoy E. The prevalence of female sexual dysfunction and potential risk factors that may impair sexual function in Turkish women. *Urol Int* 2004;72:52–7.
- [13] Oksuz E, Malhan S. Prevalence and risk factors for female sexual dysfunction in Turkish women. *J Urol* 2006;175:654–8.
- [14] Burri A, Spector T. Recent and lifelong sexual dysfunction in a female UK population sample: prevalence and risk factors. *J Sex Med* 2011;8:2420–30.
- [15] Jaafarpour M, Khani A, Khajavikhani J, Suhrabi Z. Female sexual dysfunction: prevalence and risk factors. *J Clin Diagn Res* 2013;7:2877–80.
- [16] Safarinejad MR. Female sexual dysfunction in a population-based study in Iran: prevalence and associated risk factors. *Int J Impot Res* 2006;18:382–95.
- [17] Ibrahim ZM, Ahmed MR, Sayed Ahmed WA. Prevalence and risk factors for female sexual dysfunction among Egyptian women. *Arch Gynecol Obstet* 2013;287:1173–80.
- [18] Hassanin IM, Helmy YA, Fathalla MM, Shahin AY. Prevalence and characteristics of female sexual dysfunction in a sample of women from Upper Egypt. *Int J Gynaecol Obstet* 2010;108:219–23.
- [19] Jiann BP, Su CC, Tsai JY. Is female sexual function related to the male partners' erectile function. *J Sex Med* 2013;10:420–9.
- [20] Zhang H, Fan S, Yip PS. Sexual dysfunction among reproductive-aged Chinese married women in Hong Kong: prevalence, risk factors, and associated consequences. *J Sex Med* 2015;12:738–45.
- [21] Kolotkin RL, Zunker C, Østbye T. Sexual functioning and obesity: a review. *Obesity (Silver Spring)* 2012;20:2325–33.
- [22] Amidu N, Owiredu WK, Woode E, et al. Incidence of sexual dysfunction: a prospective survey in Ghanaian females. *Reprod Biol Endocrinol* 2010;8:106.
- [23] Jahan MS, Billah SM, Furuya H, Watanabe T. Female sexual dysfunction: facts and factors among gynecology outpatients. *J Obstet Gynaecol Res* 2012;38:329–35.

- [24] Jiann BP, Su CC, Yu CC, Wu TT, Huang JK. Risk factors for individual domains of female sexual function. *J Sex Med* 2009;6:3364–75.
- [25] Zhang H, Yip PS. Female sexual dysfunction among young and middle-aged women in Hong Kong: prevalence and risk factors. *J Sex Med* 2012;9:2911–8.
- [26] Bedretdinova D, Fritel X, Panjo H, Ringa V. Prevalence of Female Urinary Incontinence in the General Population According to Different Definitions and Study Designs. *Eur Urol* 2015;S0302-2838(15). 00702-2.
- [27] Zhang L, Zhu L, Xu T, Li Z, Gong J, Liu Q, Liu X. A population-based survey of the prevalence, potential risk factors, and symptom-specific bother of lower urinary tract symptoms in adult Chinese women. *Eur Urol* 2015;68:97–112.
- [28] Ge J, Yang P, Zhang Y, Wang Q, Lu Y. Prevalence and risk factors of urinary incontinence in Chinese women: a population-based study. *Asia Pac J Public Health* 2015;27:1118–31.
- [29] Andersson G, Johansson JE, Garpenholt O, Nilsson K. Urinary incontinence-prevalence, impact on daily living and desire for treatment: a population-based study. *Scand J Urol Nephrol* 2004;38:125–30.
- [30] Menezes M, Pereira M, Hextall A. Predictors of female urinary incontinence at midlife and beyond. *Maturitas* 2010;65:167–71.