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The Prevalence of Female Sexual Dysfunction and Potential Risk Factors That May Impair Sexual Function in Turkish Women

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Key Words

Women · Sexual dysfunction, female · Risk factors · Turkish

Abstract

Objectives: To detect the prevalence of sexual dysfunction, and also to investigate possible risk factors that may cause sexual dysfunction in the Turkish women. ***Materials and Methods:*** The study consisted of 179 women between the ages of 18 and 66 years living in households from different sociocultural areas. The women were divided into 5 groups according to their ages: 18–27 years (n = 23), 28–37 years (n = 55), 38–47 years (n = 43), 48–57 years (n = 44) and 58–67 years (n = 14). Female sexual function was evaluated with a detailed 19-item questionnaire to assess desire, arousal, lubrication, orgasm, satisfaction and pain. The prevalence of sexual dysfunction was calculated for each domain and compared among the groups. In addition, demographic characteristics and medical risk factors were assessed in all women, and the findings were compared between the women with and without sexual dysfunction. ***Results:*** Based on total sexual function score, 84 (46.9%) out of 179 women had sexual dysfunction. The prevalence of female sexual dysfunction was 21.7% in the ages of 18–27 years, 25.5% in the ages of 28–37 years, 53.5% in the ages of 38–47 years, 65.9% in the ages of 48–57 years and 92.9% in the ages of 58–67 years. The prevalence of sexual dysfunction for each domain also increased with age. To investigate various factors that may cause female sexual dysfunction, no significant differences were detected in smoking history (p = 0.14), marriage age (p = 0.7), the presence of previous pelvic surgery (p = 0.09), and contraception methods used (p = 0.31). However, sexual dysfunction was observed as significantly higher in the presence of older age (p = 0.001), lower educational level (p = 0.012), unemployment status (p = 0.017), chronic disease (p = 0.032), multiparity (p = 0.0027) and menopause status (p = 0.0001). ***Conclusions:*** The prevalence of female sexual dysfunction including desire, arousal, lubrication, orgasm, satisfaction and pain problems increases with age. In addition, the presence of a lower educational level, unemployment status, chronic diseases, multiparity and menopause status are important risk factors that may cause sexual dysfunction.

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Introduction

Understanding of the pathophysiology and new horizons in the treatment of male erectile dysfunction led investigators to research female sexual functioning and also investigate sexual dysfunction in women. Female sexual function includes components of desire (libido), arousal, orgasm and satisfaction. Although female sexual dysfunction is a highly prevalent health problem affecting 25–63% of women [1–5], in the literature, there is limited information on the epidemiology of female sexual dysfunction [6]. The prevalence of female sexual dysfunction has been reported by several groups [1–5]. However, no study has assessed sexual function domains including desire, arousal, lubrication, orgasm, satisfaction and pain to detect the prevalence of sexual dysfunction for each parameter in the same study.

Sexual functions may be affected by various factors such as age, education, depression, history of sexual abuse or sexually transmitted disease, experience of emotional or stress-related problems, and health status [4, 7–9].

The aim of this study was to detect the prevalence of sexual dysfunction using a self-report measurement of sexual functions in the Turkish women. We also investigated possible risk factors that may cause sexual dysfunction in these women.

Materials and Methods

Two hundred women living in households from different sociocultural areas were asked to assess their sexual functions using a self-administered questionnaire. The women were chosen from the same city, Mersin, Turkey, where the university is located. Therefore, this study does not reflect regional differences within the Turkish women. All women were sexually active and had male partners. Participants who fully administered the questionnaire were included in the study. Participants who had no sexual activity within the past month were excluded from the study. Therefore, the study consisted of 179 women (89.5%) between the ages of 18 and 66 years. The women were divided into 5 groups according to their ages: 18–27 years (n = 23), 28–37 years (n = 55), 38–47 years (n = 43), 48–57 years (n = 44) and 58–67 years (n = 14).

Female sexual function was evaluated with a detailed 19-item questionnaire [Female Sexual Function Index (FSFI)] described by Rosen et al. [10]. The questionnaire assessed sexual functioning or problems during the past 4 weeks. According to the FSFI [10], sexual function domains included sexual desire, arousal, lubrication, orgasm, satisfaction and pain during sexual intercourse. Sexual desire was assessed as frequency and level with 2 questions (score range 1–5 for each question). Arousal was assessed as frequency, level, confidence and satisfaction with 4 questions (score range 0–5 for each question). Lubrication was assessed as frequency, difficulty, frequency of maintaining and difficulty in maintaining with 4 questions (score range 0–5 for each question). Orgasm was assessed as frequency, difficulty and satisfaction with 3 questions (score range 0–5 for each question). Satisfaction was assessed as amount of closeness with partner, sexual relationship and overall sex life with 3 questions (score range 0–1 to 5 for each question). Pain was assessed as frequency during vaginal penetration, frequency following vaginal penetration and level during or following vaginal penetration with 3 questions (score range 0–5 for each question). Total score was obtained by adding the 6 domain scores and was calculated multiplying the sum by the domain. Factors were 0.6 for desire, 0.3 for arousal and lubrication, 0.4 for orgasm, satisfaction and pain. Therefore, the total score range was 2–36. Total score >22.7 was considered as normal female sexual function, and total score ≤ 22.7 was considered as sexual dysfunction. Based on total score, the prevalence of sexual dysfunction was calculated. The prevalence of sexual dysfunction was also calculated for each domain and compared among the groups. A score of less than the median value was considered sexual dysfunction for each domain. Therefore, sexual dysfunction for each domain was considered in the presence of a desire score of ≤ 3.6 (score range 1.2–6), an arousal score of ≤ 3.9 (score range 0–6), a lubrication score of ≤ 3.6 (score range 0–6), an orgasm score of ≤ 3.6 (score range 0–6), a satisfaction score of ≤ 3.6 (score range 0–6) and a pain score of ≤ 4.4 (score range 0–6).

In addition, demographic characteristics including age, educational attainment level (primary school, high school or university graduated), marital status (married, unmarried or divorced), marriage age and occupational status (the presence or absence of occupation) were assessed in all women. Risk factors, associated with health and lifestyle, including smoking, drug use, chronic disease (e.g. hypertension, cardiovascular disease, neurological disease, or diabetes), previous pelvic surgery (gynecologic, urologic or colorectal surgeries), menstrual cycle or menopause status, previous pregnancies and contraception methods used were also assessed in all women.

All statistical analyses were performed using a commercially available statistical program (Statistical Package for the Social Sciences, version 9.0). The one-way Anova test and independent t test were used to compare parametric sexual function scores. The χ^2 test was used to compare proportions. Univariate analysis was used to investigate possible risk factors that may cause sexual dysfunction. Odds ratios (OR) and confidential intervals (CI) were also calculated. Probability values of <0.05 were considered significant. The values are given as mean ± standard deviation (SD).

Results

The mean age of the women was 40.3 ± 11.7 years (range 18–66). The mean age was 22.7 ± 2.4 years in the ages of 18–27 years, 31.4 ± 3.3 years in the ages of 28–37 years, 42.8 ± 2.4 years in the ages of 38–47 years, 51.4 ± 2.2 years in the ages of 48–57 years and 61.9 ± 2.3 years in the ages of 58–67 years, revealing statistical significance among the age groups (p = 0.000). Based on the total sexual function score, 84 (46.9%) out of 179 women had sexual dysfunction. As shown in figure 1, the prevalence of female sexual dysfunction increased with age.

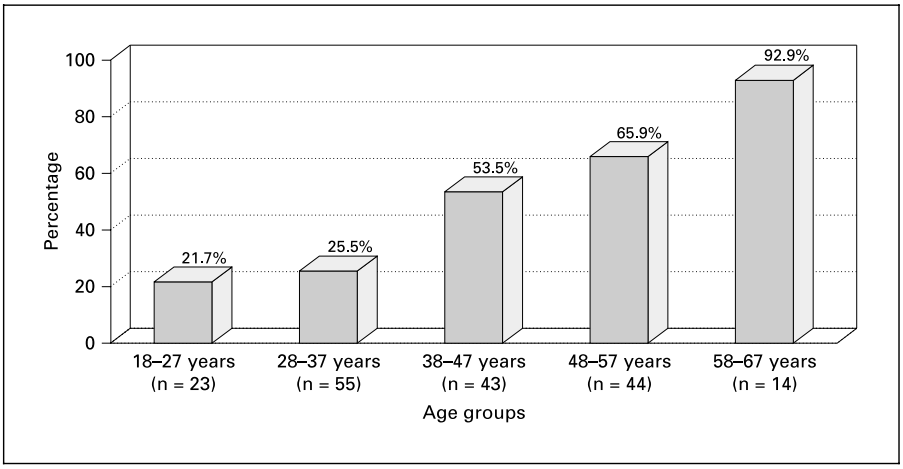

Fig. 1. The prevalence of female sexual dysfunction according to age groups, based on the total score.

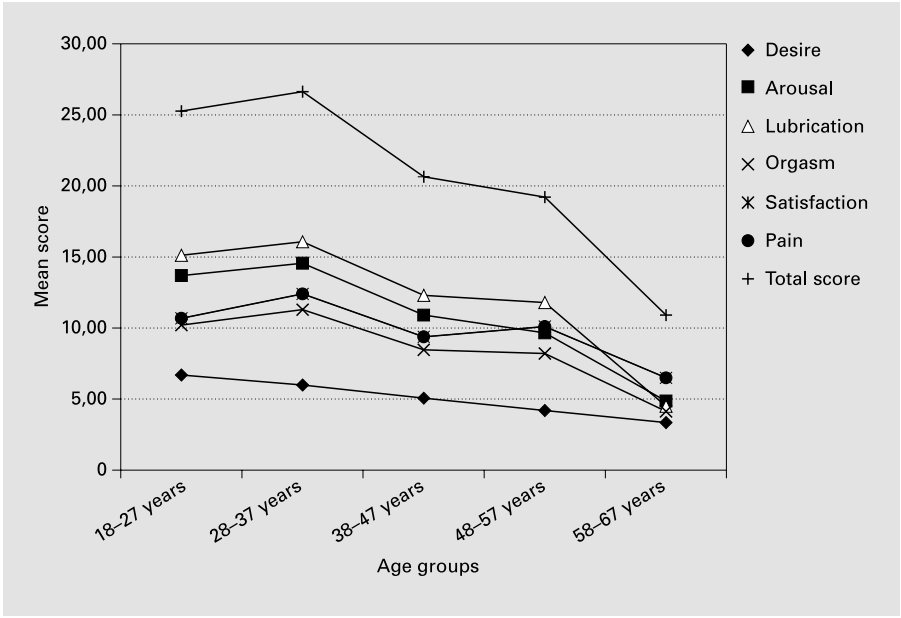

Fig. 2. Mean sexual function scores for each sexual function domain among the age groups.

Sexual dysfunctions were detected as desire problem in 108 women (60.3%), arousal problem in 77 women (43%), lubrication problem in 68 women (38%), orgasm problem in 82 women (45.8%), unsatisfaction in 68 women (38%) and pain problems in 65 women (36.8%). Figure 2 shows sexual function scores for each sexual function parameter as well as total score according to the age groups. There were highly statistically significant differences in desire ($p = 0.000$), arousal ($p = 0.000$), lubrication ($p = 0.000$), orgasm ($p = 0.000$), satisfaction ($p = 0.000$) and pain ($p = 0.000$) among the age groups. Sexual function scores for each parameter decreased with age. As shown in figure 3, the prevalence of sexual dysfunction for each domain also increased with age.

Table 1 lists risk factors and demographic characteristics of the women. To investigate various factors that may cause female sexual dysfunction, no significant differences were detected in smoking history (OR: 1.57; 95% CI: 0.85–2.88; $p = 0.14$), marriage age (OR: 1.01; 95% CI: 0.94–1.08; $p = 0.7$), the presence of previous pelvic surgery (OR: 1.81; 95% CI: 0.9–3.64; $p = 0.09$), contraception methods used (OR: 1.35; 95% CI: 0.75–2.43; $p = 0.31$) between the women with and without sexual dysfunction. However, sexual dysfunction was observed as significantly higher in the presence of older age (OR: 1.09; 95% CI: 1.05–1.13; $p = 0.001$), lower educational level (OR: 2.67; 95% CI: 1.2–5.67; $p = 0.012$), unemployment status (OR: 2.14; 95% CI: 1.14–4; $p = 0.017$), chronic dis-

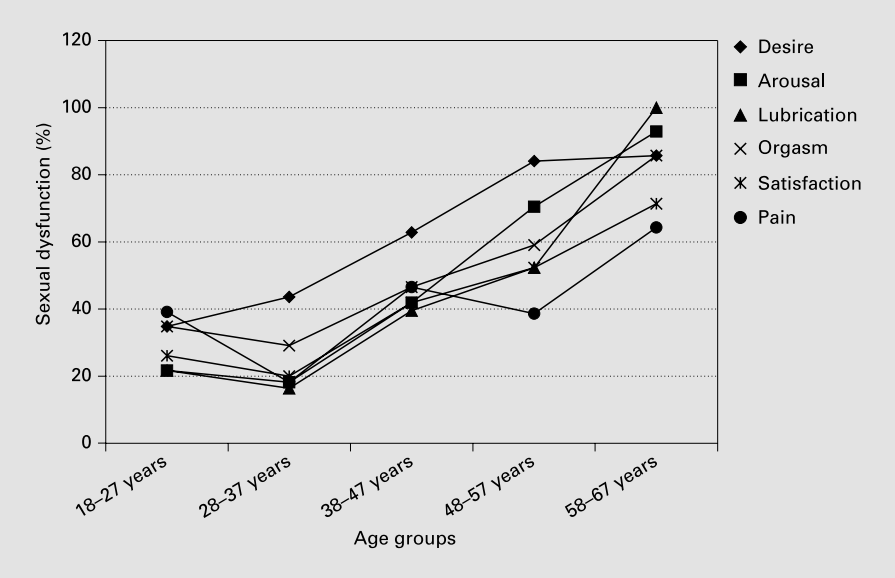

Fig. 3. The percentage of women with sexual dysfunction based on each domain score among the age groups.

Table 1. Risk factors and demographic characteristics of the women

	n	%
Education		
Primary and/or high school graduated	127	70.9
University graduated	52	29.1
Occupational status		
Employment	66	36.9
Unemployment (and/or housewife)	113	73.1
Marital status		
Married	156	87.1
Unmarried or divorced	23	12.9
Smoking history		
Presence	74	41.3
Absence	105	58.7
Chronic medical disease		
Presence	66	36.9
Absence	113	63.1
Previous pelvic surgery		
Presence	45	25.1
Absence	134	74.9
Menstruation status		
Menstrual cycle (+)	126	70.4
Menopause	53	29.6
Contraception use		
–	86	48
+	93	52
Pregnancy and delivery		
Presence	136	76
Absence	43	24

Table 2. The comparison of sexual function scores between the women with menstrual cycle and menopause

Parameters	Menstruation (+) (n = 126)	Menopause (+) (n = 53)	p value[1]
Age	34.9 ± 3 9	53.5 ± 5.7	0.000
Desire	5.76 ± 1.9	3.9 ± 1.74	0.000
Arousal	12.92 ± 5.2	8.38 ± 5	0.000
Lubrication	14.39 ± 5.61	9.92 ± 6.46	0.000
Orgasm	10 ± 4.45	7 ± 4.55	0.000
Satisfaction	10.24 ± 4.23	7 ± 4.55	0.000
Pain	10.96 ± 4.59	9.11 ± 5.48	0.041
Total score	24 ± 7.79	16.97 ± 8.72	0.000

[1] Independent t test.

ease (OR: 1.91; 95% CI: 1.05–3.42; p = 0.032), multiparity (OR: 1.55; 95% CI: 1.16–2.07; p = 0.0027) and menopause status (OR: 4.23; 95% CI: 2.1–8.54; p = 0.0001). For example, the women with menopause ran a more than 4-fold risk of having sexual dysfunction. To compare sexual functions between the women with menstrual cycle and menopause, as shown in table 2, sexual function scores were statistically significantly higher in the women with menstrual cycle than in the women with menopause (p = 0.000 for sexual desire, p = 0.000 for arousal, p = 0.000 for lubrication, p = 0.000 for orgasm, p = 0.000 for satisfaction, p = 0.041 for pain and p = 0.000 for total score between the two groups).

Discussion

Female sexual dysfunctions have been categorized as four groups: sexual desire disorders (hypoactive sexual desire disorder and sexual aversion disorder), sexual arousal disorder, orgasmic disorder and sexual pain disorders (dyspareunia, vaginismus and other sexual pain disorders) [6]. Several questionnaire measures of female sexual function have been used in the literature [10–12]. Previous prevalence studies assessed one of the following dysfunctions: desire disorders, arousal disorder, orgasmic disorder and sexual pain disorders. However, such studies lacked the assessment of lubrication problems and satisfaction. Therefore, we chose the FSFI, described by Rosen et al. [10], to assess female sexual function including desire, arousal, lubrication, orgasm, satisfaction and pain. The FSFI is a self-report measurement of female sexual function [10]. The questionnaire scores determine the status of sexual functioning; however, the questionnaire does not have criteria to determine sexual dysfunction. Therefore, we decided to use a cutoff score to investigate the prevalence of female sexual dysfunction for each parameter of sexual functioning.

Desire, arousal phase and orgasm disorders are among the most common presenting problems in clinical settings [2, 4]. In our study, sexual dysfunctions were detected as desire problem in 60.3%, arousal problem in 43%, lubrication problem in 38%, orgasm problem in 45.8%, satisfaction problem in 38% and as pain problems in 36.8% of the women. Sexual dysfunction for each parameter increased with age. Laumann et al. [4] found overall prevalence of female sexual dysfunction as 43% in the United States, which is similar to our study. When comparing each sexual function domain, they reported low sexual desire in 22%, arousal problems in 14% and sexual pain in 7% of the women. However, women over the age of 60 years were not included, and menopausal status has not been assessed in their study. Goldmeier et al. [5] reported the prevalence of female sexual dysfunction as 20% at a genitourinary clinic. In another study by Rosen et al. [3], female sexual dysfunction was noted as a lack of sexual pleasure in 16.3% and a lack of lubrication in 13.65% of 329 women aged 18–73 years from an outpatient gynecology center. However, these studies do not reflect prevalence of female sexual dysfunction because of the study population consisting of women with gynecological problems. In our study, 46.9% of the women had sexual dysfunction, and the prevalence of female sexual dysfunction increased with age.

Although it is known that male erectile dysfunction is associated with aging, hypertension, cigarette smoking, hypercholesterolemia, depression, uremia and cardiovascular disease [9, 13, 14], there is limited literature on risk factors that may develop female sexual dysfunction. Based on published studies, risk factors for female sexual dysfunction include age, lower educational attainment, depression, uremia, history of sexual abuse or sexually transmitted disease, overall state of general happiness and physical health [4, 5, 7, 9, 14, 15]. Laumann et al. [4] assessed risk factors associated with health, lifestyle and sexual experience. However, they did not assess menopause status and clinical risk factors such as previous pelvic surgery, and chronic disease. In the present study, no significant differences were detected in smoking history, marriage age, the presence of previous pelvic surgery, and contraception methods used between the women with and without sexual dysfunction. However, our study showed significantly higher prevalence of sexual dysfunction in the presence of older age, lower educational level, unemployment status, chronic disease, multiparity and menopause status. Our results are consistent with the study of Laumann et al. [4] showing that women with a lower educational level run more risk of experiencing sexual problems.

Avis et al. [16] investigated the relationship between menopause status and sexual functioning in 200 women who had sexual partners. They found menopause to be related to lower sexual desire, but not to all aspects of sexual functioning. They finally concluded that menopause status has a smaller impact on sexual functioning than health or other factors. In contrast to Avis et al. [16], in the present study, the women with menopause ran a more than 4-fold risk of having sexual dysfunction. Sexual functioning including desire, arousal, lubrication, orgasm, satisfaction was statistically significantly lower in the women with menopause than in the women with menstrual cycle. However, pain was significantly higher in the women with menopause than in the women with menstrual cycle.

Conclusions

The prevalence of female sexual dysfunction including desire, arousal, lubrication, orgasm, satisfaction and pain problems increases with age. In addition, the presence of a lower educational level, unemployment status, chronic diseases, multiparity and menopause status are important risk factors that may cause sexual dysfunction.

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