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Kadın Cinsel Sağlığı

Sexual dysfunction and associated factors in menopausal women: A correlational study

Menopozdaki kadınlarda cinsel disfonksiyon ve ilişkili faktörler: Bir ilişkisel çalışma

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ABSTRACT

OBJECTIVE: This study aimed to determine the risk of sexual dysfunctions in menopausal women and to detect the associated factors of sexual dysfunctions of women in western Türkiye.

MATERIAL and METHODS: This descriptive and correlational study was conducted with 304 menopausal women who came to the gynecology policlinic of a training and research hospital in Izmir, western Türkiye, between June 2019 and February 2020. Data were collected using the "Descriptive Information Form", and " Female Sexual Function Index (FSFI)".

RESULTS: More than half (258/84.9%) of the menopausal women were at risk of sexual dysfunction with lower scores in the domains of sexual desire, arousal, and satisfaction. Results showed that duration of menopause (ORad 1.34; 95% CI 1.07–1.68) and women under high school (ORad 2.67; 95% CI 1.07–6.70) and those who were obese (ORad 15.09; 95% CI 3.27–69.66) and those who gave vaginal delivery (ORad 2.91; 95% CI 1.11–7.62) was significantly associated with sexual dysfunction.

CONCLUSIONS: Sexual dysfunction was reported with a high prevalence in menopausal women. Sexual function was negatively affected by increased duration of menopause, low education level, obesity, and vaginal delivery. Health professionals (especially gynecologists and gynecology nurses) should provide education and counseling to women regarding the sexual dysfunctions experienced by menopausal women and the associated factors.

Keywords: sexuality, sexual dysfunctions, women's health, FSFI, menopause

ÖZ

AMAÇ: Bu çalışmanın amacı menopozdaki kadınlarda cinsel disfonksiyon riskini saptamak ve kadınların cinsel disfonksiyonları ile ilişkili faktörleri belirlemektir.

GEREÇ ve YÖNTEMLER: Bu tanımlayıcı ve ilişkisel çalışma bir eğitim araştırma hastanesinin jinekoloji polikliğine gelen 304 menopozdaki kadın ile Türkiye'nin batısı İzmir'de Haziran 2019 ve Şubat 2020 tarihleri arasında yürütülmüştür. Veriler "Tanıtıcı Bilgi Formu" ve "Kadın Cinsel Fonksiyon İndeksi (KCFİ)" ile toplanmıştır.

BULGULAR: Menopozdaki kadınların yarısından fazlasının (%258/84,9) cinsel işlev bozukluğu riski altında olduğu ve kadınların cinsel istek, uyarılma ve tatmin alanlarındaki puanların daha düşük olduğu belirlenmiştir. Sonuçlar, menopoz süresinin (ORad 1,34; %95 IC 1,07–1,68) ve lise altı eğitim düzeyi olan (ORad 2,67; %95IC 1,07–6,70), obez olan (ORad 15,09; %95 IC 3,27–69,66) ve vajinal doğum yapan kadınların (ORad 2,91; %95 IC 1,11–7,62) cinsel disfonksiyonla anlamlı düzeyde ilişkili olduğunu göstermektedir.

SONUÇ: Cinsel disfonksiyonun menopozdaki kadınlarda yüksek prevalansta görüldüğü saptanmıştır. Menopoz süresinin uzaması, eğitim düzeyinin düşük olması, obezite ve vajinal doğum yapmak cinsel fonksiyonları olumsuz yönde etkilemiştir. Sağlık profesyonelleri (özellikle jinekolojist ve jinekoloji hemşireleri), menopozdaki kadınların yaşadığı cinsel disfonksiyonlar ve bunları etkileyen faktörler konusunda kadınlara eğitim ve danışmanlık sağlamalıdır.

Anahtar Kelimeler: cinsellik, cinsel disfonksiyon, kadın sağlığı, KCFİ, menopoz

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INTRODUCTION

Sexuality is a complex process associated with the neurological, vascular, and endocrine systems and is an important determinant of women's health status and quality of life.[1–4] It is very difficult to understand because sexuality has a multifaceted and private aspect and is affected by individual and cultural reasons. Many factors throughout life can affect sexuality in women, causing sexual health problems and sexual dysfunctions. Sexual dysfunction in women is expressed as significant distress or difficulty in interpersonal relationships, which is affected by many

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biological, psychological, and individual factors that increase with age.[3,5,6] In studies conducted in different countries, sexual dysfunction in women was frequently measured with the Female Sexual Function Index (FSFI), and the results of the study showed that the risk of sexual dysfunction in women varies between 42–86.6%.[1,7–12] In studies conducted in Türkiye, it was observed that the risk of sexual dysfunction varies between 45.5–78% in women of reproductive age.[3,13–16] Studies in other countries conducted in this area, the risk of sexual dysfunction in women was found to be between 42–86.6%.[1,7–10,12] In previous studies, it was observed that sexual problems and sexual dysfunction significantly negatively affect women's health and quality of life.[5,7,12]

Menopause is an important period when women experience physical, psychological, and hormonal changes and some related problems. One of the most important problems experienced by women during menopause is sexual dysfunction which is ignored but very common.[1,4–6,10,11] Sexual dysfunctions experienced by women during menopause cause menopause to be more problematic and negatively affect women's sexual health. During menopause, sexual life is affected by the type of menopause, vasomotor, urogenital, psychosocial symptoms, and the physical and psychological changes women experience during this period. Sexual dysfunction and sexual problems during menopause is a health problem that significantly affects the sexual health and sexual life of women. The most common sexual problems and sexual dysfunction in menopausal women are decreased sexual desire, arousal, and satisfaction, orgasmic disorder, loss of lubrication, vaginal dryness, pain, and dyspareunia.[2,3,6,11,17] Previous studies in Türkiye mostly focused on sexual dysfunctions experienced by women of reproductive age.[3,13–15,16] Sexual dysfunctions of women in menopause period and the associated factors of them are neglected. On the other hand, sexuality, sexual dysfunctions and sexual health are multidimensional concepts that continue throughout life. Menopause is an important part of women's lives and during this period, women experience many problems in their sexual lives with the effect of physical and psychological changes. Very few study data examine the sexual dysfunctions of menopausal women in Türkiye.[4,15] However, in our study, we comprehensively determined the risk of sexual dysfunctions and the associated factors in menopausal women in Izmir in western Türkiye, and we revealed the current results and have emphasised the importance of the subject again in our study. Thus, in our study, we have determined in detail the associated factors that health professionals should pay attention to when counselling and educating women in the menopausal period about sexuality, sexual dysfunction, and sexual health. Based on this information; Our study will enable health professionals to detect the risk of sexual dysfunctions in menopausal women at an early stage and it will enable them to take an active role in the care and treatment of women who have this problem. In addition, our study provides health professionals with data on the associated factors of sexual dysfunctions. Based on this rationale, this study aimed to determine the risk of sexual dysfunctions in menopausal women and to detect the associated factors of the sexual dysfunctions of women in Izmir in western Türkiye.

Research Questions

The present study was conducted to answer the following questions;

- What is the risk of sexual dysfunctions in women in the menopause period?
- What are the associated factors of sexual dysfunctions of women in the menopause period?

MATERIAL and METHODS

Study Design and Participants

A descriptive and correlational study was conducted with menopausal women who applied to the gynecology policlinic of a training and research hospital in Izmir in western Türkiye from June 2019 to February 2020. *The population of the study* consists of 1100 women who applied to the gynecology policlinic (for routine control) between January and December 2018. On the other hand, the sample size was calculated with a 95% confidence interval and 0.05 sampling error using the $N=t^2pq/d^2(N-1)+t^2pq$ formula with a known population sampling method and was determined as approximately 280 people.[18] The gynecology policlinic of the designated hospital visited two days a week between June 2019 and February 2020. A total of 448 menopausal women (Women who have amenorrhea for at least 12 months) were invited to participate in this study. During the study, 144 women were not included in the sample because 92 women did not meet the inclusion criteria (29 women were sexually inactive, 16 women were unmarried, 21 women had a psychiatric illness, 19 women did not know Turkish, 7 women were illiterate), 33 women refused the study and 19 women did not complete the questionnaires. This study was conducted with 304 menopausal women. Volunteer women who met the inclusion criteria were randomly selected.

At the end of the study, post-hoc power analyses showed that with an effect size of 0.80 and a 95% confidence interval and 5% error for the ANOVA analyses results showed that 272 individuals were sufficient to complete the study. *This study was completed with 304 sexually active menopausal women.*

Setting

This study was performed in a training and research hospital in Izmir in western Türkiye. Data collection took place over nine months. The reason why the research was conducted in this hospital; it is one of the most preferred hospitals among women, having an obstetrics and gynecology policlinic and easy access (in the city center).

Dependent and Independent Variables of the Study

The independent variables of the study were socio-demographic, obstetric, menopausal period, healthy lifestyle and sexual life characteristics of menopausal women. The dependent variables of the study were the sexual dysfunction levels of menopausal women.

Data Collection Tools

The data of the study were collected using the "Descriptive Information Form" and "Female Sexual Function Index (FSFI)". All forms were collected by face-to-face interview and filled out by the women (self-reporting method). The completion of forms took approximately 15 minutes.

Descriptive Information Form

The "Descriptive Information Form" was prepared by the researchers based on previous studies.[2,3,5,11,17] The form consists of 26 questions about the women's socio-demographic characteristics (age, level of education, partner's level of education, working status, economic status, family type, living place, satisfaction in marriage, duration of marriage) (9 questions), obstetric characteristics (Number of pregnancies, living child, first and last delivery age, mode of delivery, abortion, family planning) (7 questions), characteristics of the period of menopause (Menopause type, duration of menopause, HRT [Hormone Replacement Therapy] use) (3 questions), healthy lifestyle characteristics (BMI, smoking, chronic disease, incontinence, urinary tract infection) (5 questions) and sexual life characteristics (Sexual intercourse frequency, problem with sexual life) (2 questions). To improve the comprehensibility, applicability, and filling time of the "Individual Introduction Form," a pre-application was administered to 10 menopausal women before the research started. The menopausal women included in the pre-application were not included in the study sample. After the pre-application, some of the questions that were found to be difficult to understand were rearranged.

Female Sexual Function Index (FSFI)

The FSFI is a 19-item Likert-type scale that evaluates sexual dysfunction in women. The validity and reliability study of the FSFI was conducted by Rosen et al. in 2000, and the Cronbach's alpha coefficient was found to be 0.82, and the test-retest reliability was found to be 0.79–0.86.[19] The Turkish validity and reliability analysis of the scale was performed by Öksüz and Malhan in 2005. The Cronbach's alpha coefficient of the scale, which was adapted into Turkish, was 0.95, and the test-retest reliability was 0.75–0.95.[20] The scale consists of six separate headings: desire, arousal, lubrication, orgasm, satisfaction, and pain. Each title is scored 0 or between 1 and 6. The lowest score is two (2) and the highest score is thirty-six. A higher score means better function. The FSFI is an important scale in the evaluation of women's sexual functions, and the cut-off point is specified as 26.55.[12,21] The Cronbach's alpha coefficient of the scale in the study was 0.97.

Data Collection

After obtaining ethical approval from the university and the study hospital, the first researcher contacted the relevant nursing departments at the hospital to support this study. The researcher interviewed menopausal women who came to the gynecology policlinic of a training and research hospital for routine control. Before giving the forms, the researcher made explanations about the purpose of the study, the benefits to be obtained from the research, the time they would spend for the interview, and obtained verbal and written consent from the women. Informed consent was obtained from all women included in the study. After signing the consent forms, the recruited menopausal women filled out a "Descriptive Information Form", the Turkish version of FSFI. Filling out the forms took approximately 15 minutes. Researcher were ready to explain the women's questions. All forms were collected by face-to-face interview and filled out by the menopausal women (self-reporting method) in a suitable room of the hospital. The privacy of women was taken care of.

Ethics

Ethical approval was obtained from Izmir Katip Çelebi University Non-Interventional Clinical Research Ethics Committee (Date: 25.04.2019, IRB: 179) and permission from the hospital where the study was conducted

(Date: 10.06.2019, IRB: 67938315/604.02). The study protocol was approved by the institutional review board of the Izmir Provincial Health Directorate. Permission was obtained from the researchers who conducted the Turkish validity and reliability of the scales used in the study. The purpose, nature, confidentiality, anonymity and right of women to refuse to participate in the study were explained to the participants. Written and verbal consent was obtained from woman who voluntarily agreed to participate in the study and met the inclusion criteria. Informed consent was obtained from all woman included in the study. The research was conducted in accordance with the Principles of the Declaration of Helsinki (Good clinical practices, and all applicable laws and regulations).

Data Analysis

The analysis of the data obtained from the research was carried out in the IBM Statistical Package for Social Sciences (SPSS) program version 25.0 statistical package program. Categorical variables were presented as numbers (n), and percentages (%), whereas continuous variables were described using means and standard deviations (SD). The Kolmogorov-Smirnov test was used to evaluate normality. Spearman correlation test was used to show the relationship between FSFI domains and total score with the mean age, marriage duration, and menopause duration (year). Mann Whitney U test and Kruskal-Wallis test were used to test the difference between FSFI domains and total score and groups of categorical variables. The effect of the independent variables on the response variable (FSFI score ≤ 26.55) was assessed by multiple logistic regression, with adjusted odds ratios (ORad) and 95% confidence intervals (95% CIs). For the inclusion of variables in the logistic model, the criterion of $p<0.20$ was established in the multivariate analysis. In all tests, $p<0.05$ was adopted as a significant difference or association.

RESULTS

The mean age and duration of marriage year of the women were 51.14±6.74 and 28.52±9.21, respectively. Of the women, 68.4% had an education level under high school, 82.3% were not working 57.2% had middle income and 82.9% had a vaginal delivery. More details of the socio-demographic and obstetric data for the women are shown in Table 1.

Most of the women were in physiological menopause (73.7%) and the mean of the menopausal year was 5.69±4.98. Most of the women had a normal BMI (73.7%)

Table 1. Characteristics of socio-demographic and obstetric

Characteristics	*Mean ± SD*	
Age	51.14±6.74 (min: 34, max: 67)	
Duration of marriage	28.52±9.21 (min: 5, max: 52)	
First delivery age	23.17±4.93 (min: 14, max: 37)	
Last delivery age	30.27±5.23 (min: 18, max: 45)	
	n	*%*
Education		
Under high school	208	68.4
High school and above	96	31.6
Partner of Education		
Under high school	182	59.9
High school and above	122	40.1
Work		
Working	54	17.7
Not working	250	82.3
Economic status		
Low	76	25.0
Medium	174	57.2
High	54	17.8
Family type		
Nuclear	232	76.3
Extended	72	23.7
Living Place		
Urban	98	32.2
Rural	206	67.8
Satisfaction in marriage		
Satisfaction	280	92.1
Unsatisfaction	24	7.9
Number of pregnancies		
0	12	3.9
1	28	9.2
2	80	26.3
3	74	24.4
4 and above	110	36.2
Living child		
0	12	3.9
1	52	17.1
2	108	35.5
3	80	26.4
4 and above	52	17.1
Mode of delivery†		
Cesarean	50	17.1
Vaginal	242	82.9
Abortion†		
Experienced	92	31.5
Unexperienced	200	68.5
Family planning		
No	32	10.5
Pill	22	7.2
RIA	122	40.1
Condom	46	15.1
Coitus interraptus	82	27.1

SD: Standard deviation; **RIA:** Intrauterine device; †Calculated over: n=292.

and were not smoking (77.6%). The frequency of sexual intercourse was once a week in one-third of the women (34.2%). More details information about the characteristics of the women's period of menopause, healthy lifestyle, and sexual life are given in Table 2.

Risk of sexual dysfunction is observed in 84.9% of women (FSFI score ≤26.55). FSFI-related women; the total score was 18.78±8.65, and the domain score was desire; 2.91±1.15, arousal 2.95±1.53, lubrication 3.32±1.75, orgasm 3.24±1.78, satisfaction 2.96±1.57 and pain 3.38±1.78. In the study, while the scores of lubrication, orgasm, and pain domains were higher, the scores of desire, arousal, and satisfaction domains were lower (Table 3).

A statistically significant negative correlation was found between the women's age, marriage duration, and menopause duration, and FSFI domains and total score. There was a statistically significant difference between extended family, low economic status, unemployed, under high school, unsatisfaction in marriage, not smoking, physiological menopause, using Hormone Replacement Therapy (HRT), obesity, had a chronic disease, incontinence, 4 or more pregnant, vaginal delivery, and FSFI domains and the total score ($p<0.05$). These women experience a higher risk of sexual dysfunction (Table 4).

The results of multiple regression analysis regarding the risk of sexual dysfunction for some characteristics of women in menopause are shown in Table 5. Duration of menopause (ORad 1.34; 95% CI 1.07–1.68) and women with under high school (ORad 2.67; 95% CI 1.07–6.70) and those who were obese (ORad 15.09; 95% CI 3.27–69.66) and those who vaginal delivery (ORad 2.91; 95% CI 1.11–7.62) showed greater chance of risk of sexual dysfunction ($p<0.05$). There was no significant association between the risk of sexual dysfunction and other variables ($p>0.05$) (Table 5).

Table 2. Characteristics of a period of menopause, healthy lifestyle, and sexual life

Characteristics	*Mean ± SD*	
Duration of menopause	*5.69±4.98 (min: 1, max: 25)*	
	n	*%*
Menopause type		
Physiological	224	73.7
Surgical	80	26.3
HRT use		
Yes	12	3.9
No	292	96.1
BMI (kg/m2)		
Normal	132	43.4
Overweight	60	19.7
Obese	112	36.9
Smoking		
Yes	68	22.4
No	236	77.6
Chronic disease		
Yes	118	38.8
No	186	61.2
Incontinence		
Yes	92	30.3
No	212	69.7
UTI		
Yes	132	43.4
No	172	56.6
Sexual intercourse		
Frequency		
1/week	104	34.2
2/week	102	33.6
3–4/week	30	9.9
1/month	68	22.3
Problem with sexual life		
Yes‡	24	7.9
No	280	92.1

SD: Standard deviation; **HRT:** Hormon replasman tedavisi; **UTI:** Urinary tract infection; **BMI:** Body mass index 19.8–26 normal, 26.1–29 overweight, 29.1 and above obese; ‡All women with sexual problems experience dyspareunia.

DISCUSSION

Risk of Sexual Dysfunction in Menopausal Women

This study aimed to determine the risk of sexual dysfunctions of women in the menopause period and to detect the associated factors of the sexual dysfunctions of women in Izmir in western Türkiye. Female sexual function index is an important scale and cut-off point of 26.55 in the evaluation of women's sexual functions, and it can evaluate women's sexual functions in a multidimensional way.[12,21] As a result of the research, it was determined that 84.9% (FSFI score ≤26.55) of menopausal women experienced a risk of

Table 3. Risk of sexual dysfunction, FSFI domain, and total score

FSFI	*n*	*%*
FSFI score ≤26.55	258	84.9
FSFI score >26.55	46	15.1
	Mean ± SD	
Desire	2.91±1.15	
Arousal	2.95±1.53	
Lubrication	3.32±1.75	
Orgasm	3.24±1.78	
Satisfaction	2.96±1.57	
Pain	3.38±1.78	
Total score	18.78±8.65	

SD: Standard deviation; **FSFI:** Female Sexual Function Index.

Table 4. Some factors affecting sexual dysfunction and FSFI domain and total score

	Desire		*Arousal*		*Lubrication*		*Orgasm*		*Satisfaction*		*Pain*		*Total score*	
	*r**	*p*	*r**	*p*	*r**	*p*	*r**	*p*	*r**	*p*	*r**	*p*	*r**	*p*
Age	-0.402	0.000	-0.418	0.000	-0.370	0.000	-0.401	0.000	-0.438	0.000	-0.198	0.001	-0.396	0.000
Duration of marriage	-0.317	0.000	-0.357	0.000	-0.267	0.000	-0.290	0.000	-0.367	0.000	-0.147	0.011	-0.323	0.000
Duration of menopause	-0.357	0.000	-0.472	0.000	-0.427	0.000	-0.405	0.000	-0.487	0.000	-0.184	0.001	-0.430	0.000
	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p
Family type§														
Nuclear	3.01±1.14	0.004	3.06±1.48	0.025	3.45±1.69	0.105	3.41±1.73	0.002	3.07±1.52	0.029	3.48±1.74	0.031	19.51±8.39	0.003
Extended	2.60±1.13		2.58±1.65		2.91±1.88		2.70±1.84		2.58±1.67		3.04±1.86		16.43±9.13	
Economic Status†														
Low	2.90±1.33		2.66±1.70		3.04±2.01		2.90±1.94		2.60±1.71		3.02±1.95		17.14±9.69	
Medium	2.86±1.04	0.177	2.89±1.46	0.003	3.33±1.65	0.102	3.35±1.71	0.262	2.91±1.49	0.001	3.38±1.71	0.016	18.74±8.32	0.017
High	3.11±1.23		3.52±1.40		3.70±1.60		3.37±1.72		3.61±1.42		3.88±1.63		21.20±7.72	
Work§														
Employed	2.79±1.15	0.022	2.71±1.56	0.001	3.10±1.74	0.000	2.97±1.78	0.000	2.73±1.61	0.001	3.07±1.81	0.000	17.39±8.78	0.000
Unemployed	3.24±1.09		3.63±1.20		4.25±1.43		4.14±1.44		3.64±1.24		4.75±1.16		23.68±6.33	
Education§														
Under high school	2.74±1.12	0.001	2.73±1.52	0.000	3.18±1.71	0.027	3.02±1.73	0.000	2.75±1.56	0.001	3.20±1.80	0.105	17.65±8.53	0.000
High school and above	3.28±1.14		3.41±1.46		3.65±1.78		3.71±1.80		3.40±1.51		3.75±1.66		21.23±8.46	
Satisfaction in marriage§														
Satisfaction	2.98±1.13	0.000	3.06±1.47	0.000	3.45±1.68	0.001	3.35±1.73	0.001	3.08±1.50	0.000	3.45±1.72	0.140	19.39±8.29	0.000
Unsatisfaction	2.10±1.10		1.62±1.65		1.87±1.87		1.96±1.84		1.53±1.64		2.56±2.24		11.66±9.82	
Smoking§														
Yes	3.28±1.12	0.013	3.50±1.30	0.006	4.18±1.35	0.000	3.85±1.55	0.000	3.52±1.29	0.004	3.98±1.69	0.001	22.34±7.29	0.000
No	2.81±1.14		2.79±1.56		3.08±1.77		3.06±1.80		2.79±1.61		3.20±1.76		17.75±8.76	
Menopause type§														
Physiological	2.83±1.20	0.041	2.79±1.62	0.024	3.13±1.85	0.023	3.04±1.85	0.001	2.80±1.66	0.015	3.24±1.84	0.106	17.86±9.20	0.018
Surgical	3.13±0.98		3.37±1.15		3.86±1.31		3.81±1.41		3.41±1.17		3.77±1.51		21.36±6.27	
HRT§														
Yes	2.00±0.93	0.005	1.50±1.55	0.003	2.15±2.36	0.031	1.86±2.02	0.010	1.46±1.6	0.002	2.46±2.63	0.405	11.45±11.11	0.008
No	2.95±1.15		3.01±1.51		3.37±1.70		3.30±1.75		3.02±1.54		3.41±1.73		19.08±8.43	
BMI†														
Normal	3.20±1.15		3.30±1.53		3.65±1.77		3.56±1.83		3.29±1.58		3.70±1.77		20.72±8.76	
Overweight	2.86±1.15	0.001	2.90±1.51	0.001	3.41±1.71	0.001	3.17±1.69	0.000	2.92±1.54	0.001	3.52±1.84	0.015	18.78±8.15	0.000
Obese	2.61±1.08		2.56±1.46		2.89±1.66		2.90±1.71		2.58±1.50		2.92±1.67		16.49±8.30	
Chronic disease§														
Yes	2.43±1.10	0.000	2.36±1.64	0.000	2.59±1.91	0.000	2.62±2.02	0.000	2.42±1.71	0.000	2.81±2.05	0.000	15.24±9.68	0.000
No	3.22±1.08		3.32±1.34		3.79±1.45		3.63±1.49		3.30±1.37		3.74±1.47		21.02±7.09	
Incontinence§														
Yes	2.53±1.18	0.000	2.55±1.57	0.004	2.93±1.93	0.003	2.86±1.96	0.034	2.55±1.63	0.007	2.90±2.08	0.013	16.34±9.51	0.003
No	3.08±1.10		3.12±1.49		3.50±1.64		3.40±1.67		3.13±1.51		3.58±1.59		19.84±8.05	
Number of pregnancies†														
1	2.95±1.23		2.72±1.63		3.04±2.25		3.08±2.40		2.74±1.68		3.05±1.93		17.60±10.01	
2	3.00±1.02	0.000	3.15±1.39	0.008	3.63±1.68	0.006	3.35±1.69	0.010	3.16±1.49	0.006	3.66±1.91	0.125	19.96±8.45	0.002
3	3.32±1.13		3.20±1.40		3.63±1.46		3.70±1.42		3.22±1.46		3.41±1.54		20.50±7.57	
4 and above	2.47±1.09		2.52±1.58		2.85±1.74		2.74±1.79		2.53±1.57		3.13±1.79		16.26±8.62	
Mode of delivery§														
Cesarean	3.28±1.09	0.004	3.54±1.10	0.001	3.58±1.36	0.302	3.63±1.59	0.007	3.56±1.14	0.001	3.61±1.52	0.314	21.23±7.33	0.003
Vaginal	2.79±1.14		2.75±1.55		3.22±1.81		3.09±1.81		2.76±1.59		3.28±1.83		17.91±8.78	
Family planning†														
No	2.73±1.21		2.81±1.45		2.83±1.74		2.62±1.92		2.77±1.44		3.90±1.35		17.68±7.76	
Pill	3.21±0.87		3.08±1.38		3.92±1.74		3.85±1.47		3.16±1.45		4.03±1.67		21.28±8.21	
RIA	3.13±1.05	0.003	3.35±1.28	0.000	3.86±1.38	0.000	3.68±1.32	0.002	3.39±1.32	0.000	3.69±1.62	0.002	21.12±6.85	0.000
Condom	3.05±1.36		2.97±1.77		3.18±2.05		3.20±2.23		2.93±1.77		3.11±1.87		18.46±10.46	
Coitus interraptus	2.50±1.11		2.34±1.63		2.64±1.78		2.69±1.91		2.35±1.69		2.69±1.91		15.23±9.25	
Frequency of sexual intercourse†														
1/week	2.97±1.08		2.97±1.26		3.30±1.58		3.23±1.62		2.96±1.28		3.63±1.36		19.08±7.25	
2/week	3.34±0.98	0.000	3.64±1.32	0.000	4.10±1.39	0.000	3.98±1.35	0.000	3.68±1.34	0.000	3.88±1.66	0.000	22.63±7.05	0.000
3–4/week	3.44±1.22		3.60±1.48		3.90±1.61		3.89±1.51		3.60±1.46		3.44±1.49		21.87±8.25	
1/month	1.95±0.89		1.59±1.36		1.96±1.73		1.85±1.88		1.57±1.44		2.22±2.11		11.18±8.24	
Problem with sexual§														
Yes‡	2.20±1.04	0.001	1.82±1.52	0.000	2.00±1.71	0.000	2.16±2.15	0.011	1.80±1.52	0.000	2.40±2.18	0.046	12.39±9.17	0.000
No	2.97±1.14		3.04±1.50		3.44±1.70		3.33±1.72		3.06±1.54		3.46±1.72		19.33±8.40	

SD: Standard deviation; *Spearman corelasyon test; †Kruskal Wallis H test; §Mann Whitney U test; ‡All women with sexual problems experience dyspareunia.

Table 5. Multiple logistic regression for risk of sexual dysfunction associated with some characteristics

Variables	OR_{ad}[1]	*95% CI*[2]		*p*
Age	0.10	0.86	1.15	0.962
Duration of marriage	0.95	0.86	1.04	0.228
Duration of menopause	1.34	1.07	1.68	**0.012**
Education (under high school)	2.67	1.07	6.70	**0.036**
Work (not working)	2.11	0.78	5.72	0.142
Smoking (yes)	1.22	0.46	3.23	0.694
Menopause (physiological)	1.23	0.38	3.99	0.729
BMI (obese)	15.09	3.27	69.66	**0.001**
Incontinence (yes)	0.46	0.19	1.11	0.082
Chronic disease (yes)	1.09	0.45	2.64	0.853
Mode of delivery (vaginal)	2.91	1.11	7.62	**0.029**

OR_{ad}: adjusted odds ratio; 95% CI: 95% confidence interval; Multivariable logistic regression model; BMI: Body mass index.

sexual dysfunction. This was a very high rate. This result showed the effect of the menopause process on sexual dysfunctions. Because estrogen decreases during menopause increases the risk of sexual dysfunction.[6,11,17] In addition, this result may have revealed that menopausal women ignore and neglect the problems they experience related to sexual dysfunctions in our study. According to the FSFI score ≤26.55, in previous studies conducted in Türkiye, the risk of sexual dysfunction (45.5–78%) was lower in women of reproductive age than in our study.[3,13–16]

In the study conducted by Gozuyesil et al., in menopausal women, the risk of sexual dysfunction was 82%.[4] These results showed that the risk of sexual dysfunction is increased and neglected in menopausal women in Türkiye. Studies in other countries, the risk of sexual dysfunction was 42% in North America[12], 70.6% in Italy[1], 67% in Brazil[7], and 67.9% in Lithuania.[10] However, in studies conducted in Iran, the risk of sexual dysfunction was 81.5% and 86.6%, respectively.[8,9] In our study, the incidence of sexual dysfunction in menopausal women was higher than in other countries. We would like to draw attention to the fact that the risk of sexual dysfunction in Asian countries was parallel with the findings of our study. The reason for this can be attributed to the region where the studies were conducted, culture, the way women perceive sexuality, and the differences in their mean age.

FSFI Domains and Total Score in Menopausal Women

Sexuality and sexual health are important in women during menopause. Sexual dysfunctions affect both the physical and psychological health of women by disrupting their sexual health and quality of sexual life.[4,9] In the study, the FSFI total score of menopausal women was 18.78±8.65 (51.14±6.74 years; min: 34-max: 67 years), similar to Pérez-Herrezuelo et al. in their study 18.22±10.60 (65.59±7.93 years)[22], Gozuyesil et al. 18.8±8.7 (49.5±6.0; 40–60 years).[4] In addition, the FSFI total score was found to be higher in some studies. These studies are by Jonusiene et al. 22.6±6.64 (56.96±4.78; 45–65 years)[10], Tekin et al. 20.20±7.00 (41–50 years)[16], Cabral et al. 20.9±11.2 (49.8±8.1 years)[7], Jamali et al. 19.31±8.5 (60.10±6.89; 50–89 years)[9], Zhang et al. 21.52±2.85 (58.56 2.01 years)[23] and Cagnacci et al. 21.3±8.06 (52–55 years).[1] In the studies conducted, the mean age of women and the difference in age groups should be taken into consideration. In this study, the mean age of women is lower than in other studies. However, similar to the findings of this study, studies show that women experience sexual dysfunction with age.[1,8,10,22,23] Wylomanski et al. reported that while the FSFI total score was 25.5 in premenopausal women, it was 21.5 in postmenopausal women.[24] In this study, it can be said that the lower FSFI total score of women is the reason why women enter menopause at an earlier age, have a longer period of menopause, and have to struggle with more sexual dysfunction as a result. In addition, the period of menopause is perceived negatively by women in Turkish society, and women may face many different symptoms during this process and this may negatively affect sexual functions.[4,10,22]

Some Associated Factors Sexual Dysfunction and FSFI Domains and Total Score

Age, Duration of Marriage, and Duration of Menopause

The risk of sexual dysfunction increases with increasing female age, duration of marriage, and duration of menopause. Previous studies have shown that age has a negative effect on sexual dysfunction in menopausal women. Increasing age has increased the risk of sexual dysfunction.[1,10,8,14,16,22,23]

In our study, there was a negative correlation between the duration of menopause and the risk of sexual dysfunction.

Ishak et al. and Cagnacci et al. reported that menopause affects sexual dysfunction in their studies.[1,8] Trento et al. in their study with postmenopausal women aged 40–65 years, reported that two-thirds (64%) of women experienced sexual dysfunction.[25] It is known that the menopause process causes hormonal irregularity. Decreased estrogen during menopause causes sexual dysfunction.[6,11,17] Therefore, we think that the increase in the menopause period causes women to experience more sexual problems.

However, we would like to draw attention to the fact that the increase in the duration of marriage increases the risk of sexual dysfunction. We did not expect this result. Because only 7.9% of the women experienced dissatisfaction in their marriage and problems in their sexual lives. This result made us think that women were ignoring and normalizing their sexual dysfunctions and problems of sexual life. In the study of Ishak et al., Tekin et al., and Mamuk & Dissiz, similar to this research findings, it was reported that the increased duration of marriage negatively affected the FSFI score.[8,16,14]

Family Type, Economic Status, Working, Level of Education, and Satisfaction in Marriage

In the study, it was determined that women who live in extended families experience more sexual dysfunction. The people we live within the house affect people in many ways.[26] Still today, the extended family structure is still very common in Turkish society (patriarchal structure). However, living in an extended family also affects married life and partner relations. Women living in extended families (like a grandfather and grandmother) may experience behaviors such as inability to act freely in their sexual life, inability to do what they want, pressure, embarrassment, and hesitation.[27,28] Therefore, it can be said that women living in extended families may have experienced more sexual dysfunction.

In the study, it was determined that women who are low-income status, unemployed, and under high school experience more sexual dysfunction. Similarly, It has been reported that in the study of Tekin et al. primary school graduates, low-income, unemployed[16]; in the study of Mamuk & Dissiz primary school graduates[14]; in the study of Aşkin et al. low-income women experience more sexual dysfunction.[13] We would like to draw attention to the similar findings in previous studies in Türkiye. Unfortunately, the social status of most of the women in Türkiye is not at the desired level. Low-income levels, unemployment, and low education levels can cause increased life stressors, anxiety, and future anxiety.[27] This can lead to a decrease in the quality of life of women and problems in their sexual lives. In addition, women with these socio-demographic characteristics have difficulties in accessing health services.[17,25,27] For this reason, women may not have received health services regarding their sexual problems, they may have postponed their problems, and thus these problems may have increased.

The study determined that women who are unsatisfied with marriage experience more sexual dysfunction. Unsatisfaction in marriages (mostly women) causes some problems in married life. These problems change in many areas such as professional issues, the economy, making basic decisions, and sexual life.[27,28] Women who are unsatisfied in their marriage are not expected to be happy in their sexual lives.[29–31] In this context, women who are unsatisfied in their marriage may be at higher risk of sexual dysfunction.

Smoking, Menopause Status, HRT, Chronic Disease, Obesity, and Experience Incontinence

Although sexuality and sexual function are important in women during menopause, sexual dysfunctions affect women's physical, psychological, and emotional health in many ways.[3,5,6,22] In this study; sexual dysfunction was found to be worse in women who do not smoke. This finding in our study was surprising. In previous studies, it was stated that women who smoke were more likely to experience sexual dysfunction. Because smoking causes chronic diseases by disrupting the function of many systems, including the cardiovascular system[32] and chronic diseases increase the risk of sexual dysfunction.[33,34] However, the risk of sexual dysfunction was higher in non-smokers in our study. This result may be because only one-fourth of the women in our study were smokers (22.4%). Also, we think that the duration of exposure to cigarettes and the amount of cigarettes smoked daily are important.

Another important finding in our study was that women with normal menopause had a higher risk of sexual dysfunction compared to women with surgical menopause. Previous studies have indicated that surgical menopause causes more sexual dysfunction.[33,35] However, the fact that women in Türkiye experience menopause at an earlier age (47–48 age) than women in other countries causes them to be exposed to menopausal symptoms for a longer period.[36] This may have caused women with normal menopause to experience more sexual dysfunction compared to women with surgical menopause. In addition, in our study, there was a significant negative correlation between the duration of menopause and sexual functions (r=-0.430, p=0.000). This result also supported our findings.

In this study, sexual dysfunction is seen more in those who use HRT. The previous study was similar to our study.[10] This finding in our study was surprising. Because the use of HRT was an important option to reduce genitourinary symptoms in menopausal women and reducing sexual problems (dyspareunia etc.).[37,38] However, we found the opposite result in our study. We think that this is because very few of the women in our study were using HRT (3.9%).

In our study, women with chronic diseases had a higher risk of sexual dysfunction. Previous studies were similar to our study.[13,14,33] Chronic diseases increase the risk of sexual dysfunction. Because chronic diseases, their treatments, and the side effects of the drugs used can cause sexual dysfunctions.[33,34] Therefore, we think that women with chronic diseases have a higher risk of sexual dysfunction in our study.

In this study; sexual function was found to be worse in women who obesity and experience incontinence. According to Cagnacci et al. reported more sexual dysfunction in obese women.[1] Also it is stated that women who experience psychological, somatic, and urogenital complaints due to menopause experience more sexual dysfunction in some studies.[2,4,10,22]

However, women with obesity and incontinence may have problems with their body image and self-esteem as well as their physiological problems.[1,31,33,39] When we think that sexuality concerns the whole body; It is an expected result that women who have problems with body image and self-esteem experience more sexual dysfunction in their sexual lives.

Number of Pregnancies, Mode of Delivery, Family Planning Method

In this research; It was determined that women with 4 or more pregnancies and who had vaginal delivery experienced more sexual dysfunction. It was consistent with our study in previous studies.[13,14,16,40–42] Increasing number of pregnancies and vaginal delivery are important factors that cause pelvic floor dysfunction by causing pelvic relaxation, nerve damage, and pelvic muscle deformities in women.[43] Pelvic floor dysfunction leads to deterioration in sexual functions.[44] Therefore, these women may have experienced more sexual dysfunction.

In this research, it was determined that women who used the withdrawal method experienced more sexual dysfunction. Previous studies were parallel to our study.[8,13,16] The withdrawal method is a traditional method that depends on the male's self-control and reduces sexual desire and satisfaction by interrupting sexual intercourse.[45] Therefore, women who use the withdrawal method may be at higher risk of experiencing sexual dysfunction. In addition, increased vaginal dryness and dyspareunia with the effect of decreasing estrogen during menopause also cause sexual life to be negatively affected.[23,25] When all these reasons come together, we think that the risk of experiencing sexual dysfunction increases.

Frequency of Sexual Intercourse and Problems with Sexual

In this study, the sexual functions of women who had problems in sexual (dyspareunia 24/7.9%) were found to be worse. It has been stated that the study of Trento et al. women experiencing sexual complaints and vaginal dryness[25]; the study of Zhang et al. women experiencing vaginal dryness, dyspareunia, and vaginal maturation (evaluating estrogen secretion)[23]; the study of Cagnacci et al. women who experience vaginal atrophy, vaginal dryness, and dyspareunia experience excessive sexual dysfunction.[1]

In this study, the sexual functions of women who had sexual intercourse once a month were found to be worse. Mamuk & Dissiz and Ishak et al. reported that the frequency of sexual intercourse affects sexual dysfunction.[8,14] Similar to the research findings in the studies, it is reported that as the number of sexual intercourse decreases, women who have problems with sexual intercourse experience more sexual dysfunction.[8,14,23,25]

Multiple Logistic Regression for Risk of Sexual Dysfunction Associated with Some Characteristics

Duration of menopause, women with under high school education, those who were obese, and those who gave vaginal birth was a factor that significantly increased the risk of sexual dysfunction in women from Türkiye.

In this study, increased duration of menopause (5.69±4.98 years) was determined as a risk factor for sexual dysfunction (34 to 67 years of age). This may be because the increased duration of menopause causes women to experience more menopausal symptoms and sexual problems (vaginal dryness, dyspareunia, etc.). In the literature, it is stated that the menopausal symptoms experienced by women cause sexual problems.[46,47] Similarly, Trento et al. study identified menopausal women (40 to 65 years of age) experiencing sexual problems and vaginal dryness[25], Pérez-Herrezuelo et al. study identified menopausal women (65.59±7.93 years) experiencing urogenital symptoms[22], Cagnacci et al. study identified menopausal women (40 to 55 years of age) experiencing vaginal dryness, dyspareunia, vaginal

atrophy as a risk factor for sexual dysfunction.[1] Although there are age differences among the women included in the study, the increase in the duration of menopause causes more menopause symptoms and triggers the risk of sexual dysfunction.

In the study, it was determined that women with an under high school had a 2.7 times higher risk of sexual dysfunction. Similarly, in Türkiye[14], Brazil[48], Lithuania[10], Korea[49], and Spain[50] also found a higher risk of sexual dysfunction in women with low education levels. The reason for these results may be that women in the period of menopause are not considered as a risk group regarding sexuality and sexual health and that the counselling services and information about sexuality and sexual health in countries are insufficient (symptoms experienced during menopause and sexuality and sexual health, etc.).

It has been reported that there is a significant relationship between obesity and sexual dysfunction. This may be due to the effect of the pathophysiology of obesity on sexual functions, dissatisfaction with the body image experienced by obese and menopausal women, feeling their cats worthless, and/or social norms.[51] In this study, it was determined that obese women have a 15.1 times higher risk of sexual dysfunction. In parallel, Bag et al., Cagnacci et al. and Pious & Amaresha studies indicate that obesity causes sexual dysfunction.[1,31,39]

It is stated that vaginal delivery causes sexual dysfunctions.[40–42] In our study, there is a 2.9 times higher risk of sexual dysfunction in women who have vaginal delivery. According to Tavares et al., Dabiri et al., and Kabakian-Khasholian et al. studies show that vaginal delivery causes sexual dysfunction.[40–42] The reason for this may be that most of the vaginal deliveries are intervened (induction, episiotomy, etc.), adversely affecting the pelvic muscles, and nerve damage (perineal trauma, spontaneous laceration, etc.).[44,45]

Strengths and Limitations

In conclusion, in this study, we aimed to determine the risk of sexual dysfunctions of women in the menopause period and to detect the associated factors of the sexual dysfunctions of women in Izmir in western Türkiye. Sexual dysfunctions in women with menopause are one of the important health problems that are ignored, postponed, and neglected in Türkiye. Therefore, our study sheds light on the risk of sexual dysfunction and its associated factors in women with menopause in Izmir in western Türkiye. This is an essential strength of this research. Our research has some limitations. First, the study sample consisted of menopausal women who came to the gynecology policlinic. The second limitation is that the sample of the research is limited to one hospital. Another limitation of our study was that the subject of the research was sexuality and sexual dysfunctions, which have a high level of privacy in Türkiye. Therefore, some of the women did not want to answer the questions or refused to participate in the study. But, the data of the study were collected in nine months. This process provided diversity in the sample population in terms of introductory characteristics of women in menopause. This is one of the strengths of this research. At the same time, ethics committee permission for the study and institutional approvals were obtained from the training and research hospital where the research was conducted. Necessary explanations were given to the menopausal women about the study, and their written and verbal consent was obtained. All forms were collected by face-to-face interview and filled out by the menopausal women in a suitable room of the hospital. The privacy of women was taken care of. This is another strength of this research. In addition, the research group consists of two academicians who are experts in women's health and gynecological diseases. After the data collection process, the questions asked by the menopausal women were answered, and training and consultancy were provided about the subjects they wanted to receive information about menopause, sexuality, and sexual dysfunctions.

CONCLUSIONS

As a result of the study, our study showed that the vast majority of menopausal women were at risk of sexual dysfunction. In the study, while the scores of lubrication, orgasm, and pain domains were higher, the scores of desire, arousal, and satisfaction domains were lower. In addition, some descriptive characteristics of the women (age, duration of the marriage, living in an extended family, unemployed, low-income status, under high school, unsatisfaction in marriage, not smoking, physiological menopause, using HRT, obesity, chronic disease, with incontinence) and some obstetric characteristics (four or more pregnant, vaginal delivery, using withdrawal method), increased duration of menopause, decreased frequency of sexual intercourse and having problems with sexual negatively affect sexual functions. More specifically, from the results of multiple regression analysis, a relationship was found between the duration of menopause, low education level, obesity, vaginal delivery, and the risk of sexual dysfunction. Strategies and suggested solutions need to be developed by health professionals (especially gynecologists and gynecology nurses) to improve sexual dysfunctions experienced by menopausal

women. It is recommended that quantitative and qualitative studies in which sexual function and quality of sexual life of menopausal women are evaluated together and the associated factors them are taken into consideration should be conducted with different sample groups.

Ethics Committee Approval
The study was approved by Izmir Katip Çelebi University Non-Interventional Clinical Research Ethics Committee. (date and number of approval: 25.04.2019/179).

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Conflict of Interest
No conflict of interest was declared by the authors.

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