





## *Evaluating Affecting Factors on Sexual Function of Menopausal Women*

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### **Abstract**

**Background:** Sexual problems are very prevalent in climacteric periods due to hormonal, social, and physiological changes, and sexual dysfunction of women can affect women's self-confidence, marital relationship, and quality of life.

**Objectives:** This study was done to investigate the relationship between urinary incontinence, vaginal dryness, prolapse, hot flush, and education with the sexual function of menopause women.

**Methods:** This cross-sectional study was done on 408 women who were referred to health care centers in Zanjan, Iran between 2018 and 2019. Sampling was performed using a systematic randomized sampling method. Data collection tools were a checklist consists of questions about socio-demographic and reproductive information and the 19-item Female Sexual Function Index (FSFI) questionnaire. All data were analyzed using SPSS version 16 through regression analysis and a P-value<0.05 was considered significant.

**Results:** The mean age of women was  $47.90 \pm 3.57$  years. This study found the relationship between sexual function score and urinary incontinence ( $\beta=0.18$ ,  $t=3.70$ ,  $p<0.001$ ), vaginal dryness ( $\beta=0.27$ ,  $t=5.73$ ,  $p<0.001$ ), prolapse ( $\beta=-0.14$ ,  $t=-2.97$ ,  $p<0.001$ ), and hot flush ( $\beta=0.16$ ,  $t=3.35$ ,  $p<0.001$ ); however, there was no relationship between primary and university education with sexual function score ( $p<0.343$  and  $p<0.894$ , respectively).

**Conclusion:** Based on the finding of this study, some factors, such as urinary incontinence, vaginal dryness, and hot flush were associated with lower sexual function scores and prolapse was correlated with a higher score of sexual function. There was no significant correlation between sexual function and education level.

**Keywords:** sexual function, menopause, women, Iran

### **Introduction**

Today, life expectancy has increased due to the improvement in the health and quality of life of middle-aged women and most of the women spend 1.3 of their lives in climacteric periods [1]. Menopause is a time when the menstrual period stops for 12 consecutive months from the last period. The age for a woman to reach menopause is 45-55 years worldwide and the average age of menopause in Iran is 48.57 years [2,3].

In other words, menopause is defined as a natural event in women's life that occurs due to depletion

of ovarian stores and a decrease in ovarian hormone secretion, such as estrogen and progesterone [4]. Decreased levels of estrogen and progesterone and increased levels of FSH and LH cause a variety of menopausal symptoms, such as vasomotor symptoms, hot flush, night sweats, and muscular and skeletal problems [5]. Menopausal transition causes a decline in sexual function and vasomotor symptoms, and genitourinary, psychosocial, and sleep disorders are key factors for this problem [6]. Sexual dysfunction in menopause women happen due to

hormonal, social, and physiological changes, and also, some factors, like people's general health, social and physical conditions, life experiences in the past, and the relationship with a sexual partner can affect women's sexual function [7,8]. Sexual dysfunction is more prevalent in menopause women and is about 4 times higher in women at childbearing age [9,10].

Sexual dysfunction is associated with the lack of desire, pain, and arousal, and orgasm disorders [11]. The prevalence of sexual dysfunction in middle-aged women was reported to be 68-86.5%. In Iran, more than 2.3% of menopause women suffer from this problem [6,12]. In a study conducted by Jamali, the prevalence rate of sexual dysfunction in about 746 women aged 50-89 years was reported to be 81.5% [10].

Vaginal dryness, dyspareunia, vaginal bleeding, a decrease in sexual desire, arousal dysfunction, and pain are the most prevalent symptoms of sexual dysfunction in menopause women, which can affect women's quality of life, self-confidence, body image, and marital relationship, and also negatively affect women's physical, emotional, social, and psychological health [11,13].

Sexual function is associated with sociocultural factors, like education, income, and occupation. In a study conducted by Smith et al., there was an inverse relationship between income and sexual function. A high level of annual family income was associated with a lower sexual function score, lower frequency of sexual enjoyment and arousal, and dry sex [14].

Also, the decreased level of estrogen and androgen hormones in menopause women adversely affects women's libido and is associated with vaginal atrophy. Atrophy of the vagina can lead to displeasing sexual activity, pain in intercourse, and sexual dysfunction [15]. Chronic diseases, like diabetes, hypertension, heart disease, urinary incontinence, weakness of pelvic floor muscles, and prolapse of pelvic organs are among physical factors that negatively affect sexual function in postmenopausal women [12,16]. The role of sexual function on women's quality of life is clear. Due to an increase in life expectancy, the importance of sexual health in the middle-aged population during climacteric time is obvious [10]. Also, sexual dysfunction affects women's self-esteem and marital relationship [17]. Little attention has been given to sexual

function and factors affecting that in menopause women. This study was done to investigate the effects of income, vaginal dryness, prolapse, urinary incontinence, education, and hot flush on Iranian menopause women's sexual function referring to health centers in Zanjan.

## Methods

The present cross-sectional study investigated affecting factors on women's sexual function in the climacteric period. The study population consisted of postmenopausal women and the samples were taken from those referring to the clinics of the Zanjan University of Medical Science and met the inclusion criteria of study using a systematic randomized sampling method. This study was conducted on 408 postmenopausal women passing at least one year after their last menstrual period and referring to health care systems between September and November 2019. The inclusion criteria were as follows: consent to participate, passing at least one year after the last menstrual period, Iranian race, no mental retardation, living with a spouse, no history of surgery in the past three months, no neoplastic disorders, and no experience of stressful events in last three months.

Initially, all participants filled a checklist that included questions about age, socioeconomic status, employment status of women and their spouse, education level, smoking, number of delivery and pregnancy, number of abortions, menopausal symptoms, such as hot flush, urinary incontinence, prolapse of pelvic organs, vaginal dryness, dyspareunia, history of cardiovascular disease, diabetes, and hypertension.

For assessing female sexual function dimensions, a validated 19-item female sexual function index (FSFI) questionnaire that was described by Rosen et al. was used. Six domains, including sexual desire, arousal, lubrication, orgasm, satisfaction, and pain were analyzed with this questionnaire. FSFI questionnaire consisted of 19 questions scored on a Likert scale from 0 or 1 to 5. For each domain of the questionnaire, the total score was calculated by collecting the scores of questions in each domain and multiplied by its certain factor. The total score was between 2 and 36 and higher scores represent better sexual performance. The cutoff points for all scales and subscales were as follows: overall scale: 28, sexual desire: 3.3,

sexual arousal: 4.3, lubrication: 4.3, orgasm: 4.3, satisfaction: 8.3, and pain: 8.3. Scores above the cutoff point indicate better sexual performance and the overall score below 28 indicates female sexual dysfunction. This questionnaire is a reliable and valid instrument for evaluating women's sexual function, and its reliability and validity have been evaluated in various studies in Iran (Cronbach's alpha values of 0.82 and 0.7) [18,19].

At first, we explained the objectives of the study, and then the written informed consent was obtained from all participants, and they were assured that their information would be remained completely confidential.

All data were analyzed using SPSS version 16 and reported in frequency (percentage) and the mean (SD). Regression analysis was employed to

investigate the role of age, income, urinary incontinence, vaginal dryness, prolapse, education, and hot flush on menopause women's sexual function. A p-value <0.05 was considered statistically significant.

### Results

Out of 408 women who participated in this study, 331 women (81.1%) were housewives, 77 (18.9%) were employed, and 49 (12%) had academic education. The mean $\pm$ SD age of women was 47.90  $\pm$  3.57 years. Also, 46.32% of women had a hot flush, 133 women (32.6%) had urinary incontinence, and 146 women (35.78%) complained about vaginal dryness. Prolapse of pelvic organs was observed in 71 women (17.4%). The mean score of the sexual function index was 22.05  $\pm$  8.02 (Table 1).

**Table 1: Socio-demographic information and common symptoms of the participants**

Category		N=408
Age		47.90 $\pm$ 3.57
income		2.34mil $\pm$ 1.57
Education	Illiterate	110(27)
	Non-academic	249(61)
	academic	49(12)
job	Housewife	331(81.1)
	employer	77(18.9)
Urinary incontinency	Yes	133(32.60)
	no	275(67.40)
Vaginal dryness	Yes	146(35.78)
	no	262(64.22)
prolapse	Yes	71(17.40)
	no	337(82.60)
Hot flashes	Yes	189(46.32)
	no	219(53.68)
Sexual function		22.05 $\pm$ 8.02

The results of regression analysis to investigate the relationship between different variables and female sexual function is reported are Table 2.

The correlation between the quantitative variable (income) and the scores of sexual function was detected.

**Table 2: Regression analysis of female sexual function based on income, urinary incontinency, vaginal dryness, prolapse, hot flush, and educational level**

		Sexual function	t	Un-Standard Beta	standard Beta	P-value
<b>Constant</b>	mean	15.80	11.43	1.38	-	p<0.001
<b>Income</b>	R coefficient	0.19	1.35	0.42	0.08	0.182
<b>age</b>	R coefficient	0.16	1.14	0.37	0.07	0.203
<b>Urinary incontinency</b>	yes	18.29	3.70	3.29	0.18	p<0.001
	no	23.37				
<b>Vaginal dryness</b>	yes	19.16	5.73	4.93	0.27	p<0.001
	no	22.96				
<b>Prolapse</b>	yes	22.70	-2.97	-3.04	-0.14	p<0.001
	no	21.91				
<b>Hot flush</b>	yes	20.10	3.35	2.60	0.16	p<0.001
	no	23.73				
<b>Education</b>	primary	19.94	-0.94	-0.90	-0.05	0.343
	academic	22.23	0.13	0.19	0.008	0.894
R <sup>2</sup> =0.20		AdjustedR <sup>2</sup> =0.19		F=12.76		

Urinary incontinence with a standard coefficient of 0.18 showed a statistically significant difference ( $\beta=0.18$ ,  $t=3.70$ ,  $p<0.001$ ). A lower score of female sexual function was detected in women who had a history of urinary incontinence (18.29) in comparison with women without this problem (23.37).

Women with vaginal dryness had a lower score (19.16) of sexual function ( $\beta=0.27$ ,  $t=5.73$ ,  $p<0.001$ ) in comparison with others (22.96). The history of prolapse with the standard coefficient of -0.14 was significantly related to sexual function ( $\beta=-0.14$ ,  $t=-2.97$ ,  $p<0.001$ ). Women with prolapse had a higher level of sexual function (22.7) compared with others without prolapse (21.91). Hot flush with a standard coefficient of 0.16 decreased the sexual function score ( $\beta=0.16$ ,  $t=3.35$ ,  $p<0.001$ ).

To evaluate the effectiveness of education as a multilevel variable, artificial coding (based on non-university education reference class) was used. The primary and university education, respectively with standard coefficients of -0.05 and 0.008 had different sexual function scores versus non-university education, but this difference was not significant ( $p<0.343$  and  $p<0.894$ ).

## Discussion

Increasing age, decreased levels of estrogen, and menopause transition cause several sexual problems [16]. The general aim of this study was

to investigate the effect of different factors on the sexual function of menopause women. The relationship between hot flush, vaginal dryness, prolapse, urinary incontinence, and education level with the sexual function was evaluated. The average score of women's sexual function was  $22.05\pm 8.02$ .

In studies conducted to examine the relationship between pelvic floor muscles (PFM) strength and sexual function, a positive association was found between them, and people with sexual dysfunction had weaker PFM in comparison with women without sexual dysfunction [20,21].

More strengths of PFM may lead to increasing sexual excitement and orgasm response due to better contraction of PFM [21]. Pelvic floor dysfunction includes urinary and fecal incontinence, fecal retention, and pelvic organ prolapse that can lead to sexual dysfunction [20]. The prevalence of sexual dysfunction in menopausal women with prolapse was reported to be 66.7% and there was a positive relationship between sexual dysfunction and prolapse [22]. Another study reported the prevalence of 74.6% for female sexual dysfunction in women with prolapse [23]. Likewise, Vurgec et al. in their study reported that sexual dysfunction was more prevalent in women with a prolapse [24], which was not consistent with the results of the present study. In our study, the average score of sexual function in women with prolapse was higher than others, which might be due to the presence of

some other factors affecting sexual function. The risk of prolapse increases with aging, and this could be due to a decrease in estrogen levels [23]. Age, menopause, obesity, and stage of prolapse may be the risk factors for sexual dysfunction in women with prolapse [22].

Genitourinary symptoms of menopause are associated with the sexual dysfunction of women. Nazarpour et al. assessed 405 postmenopausal women aged 40 to 60 years and showed a significantly positive correlation between urogenital score and sexual dissatisfaction, decreased sexual intercourse, and a sexual relationship after menopause [25].

Lack of lubrication during intercourse and vaginal dryness cause dyspareunia, which can lead to the avoidance of sexual activity [25]. In the present study, a significant relationship was found between a lower score of sexual function and vaginal dryness. Also, vaginal dryness during sex and dyspareunia may cause sexually-related individual distress and decreased libido [26]. Pain during sex is one of the consequences of female sexual dysfunction. Dyspareunia can reduce sexual performance and also improving dyspareunia can cause a reduction in orgasmic disorders [27]. Worsley et al. showed a direct correlation between vaginal dryness and low sexual desire [26]. In another study, Cagnacci et al. reported an inverse relationship between sexual function and vaginal dryness, and also vaginal dryness negatively affected all dimensions of sexual function, including libido, arousal, lubrication, orgasm, and satisfaction [28].

Another variable examined in the present study affecting the sexual function of women was urinary incontinence. A lower sexual function score was related to urinary incontinence, which is consistent with the results reported by Kaur et al. [29]. de Menezes Franco. et al. examined the relationship between PFM strength and sexual dysfunction in postmenopausal women and showed a weak association between a sexual function with the severity of urinary incontinence [21]. Fear of leakage during intercourse, dyspareunia, shame, depression, and negative body image are some factors that negatively affect the sexual function of women with urinary incontinence [30].

Emotional, cultural, social, and physical factors may affect female sexual function [16]. Merghati-

Khoei, et al. observed a significant relationship between a low level of education and low scores of sexual function [31]. Jafarzadeh Esfehiani et al. in their study reported the correlation between sexual dysfunction and a low level of education [32]. In another study conducted by Vurgec et al, the correlation between sexual function and education level was indicated and sexual function score increased with increasing education level [24], which was not consistent with the results of this study. This discrepancy may be due to the differences in the age or cultural differences of the studied population.

Some studies have mentioned a link between the quality of life, menopausal symptoms, and sexual function during the climacteric period [33]. Based on the findings of this study, the hot flush was related to a lower score of sexual function. Hot flush can cause shame and also negatively affect women's self-confidence and perception of sexual attractiveness [34]. Chedraui et al. reported that lower sexual function scores were associated with the hot flush intensity. Smith et al. in 1927 assessed women aged 45-55 years old and showed a weak inverse correlation between sexual activity and hot flush. Women without complaint of hot flush reported more pleasure from sexual function, and also less vaginal dryness than women with hot flush [14]. Likewise, Merghati-Khoei in their study found no significant correlation between severity and frequency of hot flush and sexual function [31]. This difference might be due to differences in the studied population or environmental factors.

Based on the findings of this study, effective factors on sexual function during the climacteric period are different. Sometimes, the results are contradictory based on place, type of research, time, and studied population [12].

This study had some limitations. Urinary incontinence and prolapse were examined through self-report and it is more effective to be done by gynecological and physical examinations. The second limitation was the assessment of the sexual function of women based on the mother's self-report and not paying attention to partners' variables that affect sexual function. The third limitation was the cross-sectional design of this study.

## Conclusion

Based on the findings of the present study, the sexual dysfunction of postmenopausal women is rooted in some physical and gynecological problems, such as hot flush, urinary incontinence, and vaginal dryness. There is a need for healthcare providers, especially midwives to screen and diagnose sexual dysfunction that can help postmenopausal women to have proper counseling, treatment, and prevention.

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## Conflict of interest

The writers report there is no conflict of interest in this study.

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