# Life may not begin after 60: Sexuality in women after the age of 60

# Original Article

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## **ABSTRACT**

Background: Aging has a powerful impact on the quality of life in general and probably on sexual functioning.

Aim: This study aimed to evaluate the impact of aging on various aspects of female sexuality.

**Patients and Methods:** One hundred and fifty women aged 60 years or older were included in this study. They were all married and free from diseases interfering with sexual activity. The tool used was a self-report questionnaire that included 29 items designed by the investigators. The privacy and anonymity of participants were ensured.

**Results:** Coital frequency decreased with aging; 64.3% of women aged 70–74 years reported no coitus compared with 16.7% of women aged 60–64 years. The frequency of spontaneous sexual desire also decreased with aging; 40% of women aged 70–74 years reported that spontaneous sexual desire has become rare or almost never occurs compared with14.7% of women aged 60–64 years. With aging, lubrication became difficult; 60% of women aged 70–74 years find difficulty in lubrication in more than 50% of sexual encounters compared with25% of women aged 65–69 years and 26.7% of women aged 60–64 years. Dyspareunia and anorgasmia were reported by 100% of women aged 70–74 years.

**Conclusion:** All aspects related to sexual activity declined with aging. Dyspareunia and inability to orgasm are the main complaints in older women.

Key Words: Female, sexuality, sixty years, women

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# INTRODUCTION

The world population is aging and Egypt is no exception. The figures in 2019 indicate that women constitute 43.7% of the 6.9 million Egyptians aged 60+ (6.7% of the population)<sup>[1]</sup>. Life expectancy in Egypt jumped from 38.01 years in 1950 to 71.9 in 2019<sup>[2]</sup>.

The ridiculing of old men and women's sexual behavior that permeated contemporary culture in stories, ballads and jokes, alongside medical literature that characterized old bodies as sexually unappetizing as well as unreproductive, carried the message that sexual activity was not for older people<sup>[3]</sup>.

Sexuality as a topic for discussion is often disregarded intentionally, even among couples, and many times, patients find it difficult to discuss this topic with their doctors. Some have suffered in silence, while others believed that this should be kept sacred and secret, an issue not to be discussed outside the confines of the home. With an increasingly aging population, there is an amplified need to address the sexuality of older adults, which has the likelihood of being ignored by the patients themselves, given that they could be overwhelmed by their health status and also their socioeconomic burdens<sup>[4]</sup>.

The sexual function of older adults is an important aspect of their quality of life that cannot be overlooked<sup>[5]</sup>. Previously, sexual activity was considered to be restricted to procreation and it was presumed to cease once reproduction was over<sup>[6]</sup>. Several reasons have been suggested to be responsible for the declining sexuality in the older age group, some of which are lack of interest, loss of a partner, medical and mental disabilities and financial constraints<sup>[7]</sup>.

Information about female sexuality in aged Egyptian women is lacking. The current study was carried out to bridge the gap in our knowledge in this important field.

## PATIENTS AND METHODS

The current work was a cross-sectional study carried out on 150married women aged sixty years or older. They were recruited from among women attending the outpatient clinic in Benha University Hospital in the period between March 2019 and August 2019.

Before proceeding with the work, approval of the Ethical Committee and Dermatology and Andrology Department in Benha University was obtained.

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The tool used in the study was a self-report questionnaire designed according to Younis *et al.*<sup>[8]</sup>. With addition of some questions specifically for the current study.

The aim of the study and the details of the questionnaire were explained to women before obtaining their informed consent.

To ensure that all gathered information was confidential and the participants remained anonymous, each questionnaire was handed in an open envelope and after filling it, the participant sealed the envelope and placed it in a basket containing other sealed envelopes.

Illiterate women were excluded from the study to ensure that participants could answer the questionnaire themselves to maintain privacy. Also, women were excluded from the study if their husbands did not accompany them.

Women consenting to participate were divided into three groups:

- (1) Group A included 90 women aged 60-64 years.
- (2) Group B included 46 women aged 65–69 years.
- (3) Group C included 14 women aged 70+ years.

#### Data management

The clinical data were recorded on a report form. These

data were tabulated and analyzed using the computer program SPSS version 22 (IBM SPSS Statistics for Windows, Version 22.0; IBM Corp., Armonk, New York, USA) to obtain data on descriptive statistics in the form of frequency and distribution for qualitative data.

A P value less than 0.05 was considered statistically significant, while P value greater than 0.05 was considered statistically insignificant. Intergroup comparison of categorical data was performed using the  $\chi 2$  test and the Fisher exact test.

#### **RESULTS**

#### Demographic data

The most common age group in our study was 60-64 years (60%), followed by the age group of 65-69 years (30.7%). Most women were living in urban areas (53.3%). In terms of educational level, 24% of the participants in the studied group were university graduates and the rest of them had either completed secondary school (40%), or could only read and write (36%). The most common age at which participants menopause 45-49 years (42.7%),and was 69.3% of these women had been subjected to FGC (Table 1).

**Table 1:** Demographic data of the studied women (n=150)

	n%
Age (years)	
60–64	90(60.0)
65–69	46(30.7)
70+	14(9.3)
Educational level	
Can read and write	54(36.0)
Completed secondary school	60(40.0)
Has a university degree	36(24.0)
Residence	
In a city	80(53.3)
In a village	70(46.7)
Age of menopause (years)	
<45	14(9.3)
45–49	64(42.7)
50–54	54(36.0)
55 or older	18(12.0)
Female genital cutting (FGC)	
Yes	104(69.3)
No	46(30.7)

#### Sexual activity of studied women

Coital frequency decreased with aging; 64.3% of participants in group C reported no coitus in the past year compared with 16.7% of women of group A. The frequency of spontaneous sexual desire also decreased with aging; 40% of women aged 70–74 years (group C) reported that spontaneous sexual desire was rare or almost never occurs compared with 14.7% of women aged 60–64 years (group A). The same also applies to the frequency of reaching an orgasm (100% of women in group C rarely or never had an orgasm). The most commonly reported purpose of

intercourse, in all age groups, was feelings of intimacy.

Lubrication became difficult with aging;60% of women in group C find difficulty in lubrication in more than half of their sexual encounters compared with25% of women in group Band 26.7% of women in group A.

Comparison of sexual satisfaction before and after the age of sixty revealed that satisfaction decreases after the age of 60, for example, those who were very satisfied before the age of 60 years but unsatisfied after the age of 60 increased from 10% (group A) to 21.4% (group C) (Table 2).

Table 2: Relation between aging and sexual activity

				Aging	3			
_		-64		-69		-74	Statistical test	
	( n =	90 )	(n =	= 46)	( n =	: 14)		
Changes in sexual behavior after menopause?	n	%	n	%	n	%	FET	p value
Yes	83	92.2	44	95.7	14	100	0.86	0.67
No	7	7.8	2	4.3	0	0.0	0.00	0.07
Coital frequency	( n =	90 )	( n =	46)	( n =	14)		
2-3 times/weak	1	1.1	0	0.0	0	0.0		
Once/weak	9	10.0	3	6.5	0	0.0		
Once/month	32	35.6	13	28.3	1	7.1	15.7	0.029*
<once month<="" td=""><td>33</td><td>36.7</td><td>16</td><td>34.8</td><td>4</td><td>28.6</td><td></td><td></td></once>	33	36.7	16	34.8	4	28.6		
No coitus	15	16.7	14	30.4	9	64.3		
Is coital frequencysuitable?	( n =	75)	( n =	32 )	( n =	= 5 )		
Yes	60	80.0	28	87.5	5	100	2.40	0.46
No, I want more	7	9.3	0	0.0	0	0.0	3.48	0.46
No, I want less	8	10.7	4	12.5	0	0.0		
Frequency of reaching orgasm	( n =	75)	( n =	32 )	( n =	= 5 )		
Almost always	2	2.7	0	0.0	0	0.0		
In $> 50\%$ of the times	10	13.3	3	9.4	0	0.0	0.04	0.4.5
In <50% of the times	38	50.7	18	56.2	0	0.0	8.96	0.15
Rarely or almost never	25	33.3	11	34.4	5	100		
Methods to relieve your sexual tension	( n =	= 7 )	( n =	= 0)	( n =	= 0)		
Masturbate	2	28.6						
Do some activity as cleaning the house	4	57.1	-	-	-	-	-	-
Take a shower	1	14.3						
Purpose of intercourse\$	( n =	75)	( n =	32 )	( n =	= 5)		
My husband's pleasure	10	13.3	3	9.4	0	0.0		
Both (me and my husband)	18	24.0	3	9.4	0	0.0		
To obey God	39	52.0	16	50.0	3	60.0	-	-
To enjoy intimacy	39	52.0	18	56.3	4	80.0		
Difficulty in lubrication	(n = 75)		(n = 32)		(n = 5)			
No	3	4.0	1	3.1	0	0.0		
No, but it takes a longer time than when I was young	24	32.0	11	34.4	0	0.0		0
Yes, but in less than 50% of sexual encounters	28	37.3	12	37.5	2	40.0	3.91	0.71
Yes, in more than 50% of sexual encounters	20	26.7	8	25.0	3	60.0		

Frequency of spontaneous sexual desire	( n =	75)	( n =	32 )	( n :	= 5 )		
Weekly	3	4.0	1	3.1	0	0.0		
Monthly	20	26.7	3	9.4	0	0.0	0.05	0.13
Less than once/month	41	54.7	25	78.1	3	60.0	8.85	0.13
Rarely or almost never	11	14.7	3	9.4	2	40.0		
Satisfaction in sexual life before and after sixty	( n =	75)	( n =	32 )	( n :	= 5 )		
I was very satisfied before but now dissatisfied	9	10.0	6	13.0	3	21.4		
I was moderately satisfied before but now dissatisfied	18	20.0	21	45.7	5	35.7		
I was dissatisfied before and still dissatisfied	8	8.9	9	19.6	3	21.4	25.16	0.001**
I was satisfied before and still satisfied	55	61.1	10	21.7	3	21.4		

FET, Fisher exact test.

Table 3: Dyspareunia in the studied women

	Age										
	60-64 ( n = 90 )		65-69 ( n = 46 )		70+ ( n = 14 )		Statistical test				
	n	%	n	%	n	%	n	%			
Pain during sexual intercourse											
Yes	55	73.3#	24	75.0	5	100					
No	20	26.7	8	25.0	0	0	1.28	0.59			
Non-responders	15	16.7@	14	30.4	9	64.3					
Frequencyof pain											
Almost always	12	16.0	6	18.8	3	60.0					
In > 50% of sexual encounters	21	28.0	11	34.4	2	40.0					
In <50% of sexual encounters	22	29.3	7	21.9	0	0	6.71	0.30			
Rarely or almost never	20	26.7	8	25.0	0	0					
Non-responders	15	16.7	14	30.4	9	64.3					
How do you solve pain problem?											
Consult a doctor	4	7.3	2	8.3	0	0					
Try a lubricant before intercourse	28	50.9	16	66.7	3	60.0					
Avoid intercourse	5	9.1	1	4.2	1	20.0	3.75	0.70			
Do nothing and bear the pain	18	32.7	5	20.8	1	20.0					
Non-responders	35	38.9	22	47.8	9	64.3					
Change in pain after lubricant											
Pain disappears	7	25.0	2	12.5	0	0					
Pain becomes less	17	60.8	10	62.5	2	66.7	2.45	0.64			
No change in pain	4	14.3	4	25.0	1	33.3	2.45	0.64			
Non-responders	62	68.9	30	65.2	11	78.6					
Does pain affect frequency of coitus?											
Yes	50	90.9	24	100	5	100					
No	5	9.1	0	0	0	0	2.09	0.50			
Non-responders	35	38.8	22	47.8	9	64.3					

<sup>\*</sup>Statistically significant at *P*<0.05.

<sup>\*\*</sup>Highly significant at *P*<0.01.

<sup>\$</sup>More than one choice was allowed.

Pain with masturbation						
Yes	2	22.2	2	50.0	0	0
No	7	77.8	2	50.0	0	0
Non-responders	81	90.0	42	91.3	0	0

Table 4: Relation between educational level and some sexual life aspects

				Educationa	ıl level	'		
	Can read a	and write (54)		ned 2ry ol (60)		ersity ee (36)	(FET)	P value
	n	%	n	%	n	%	n	%
Changes in sexual behavior after menopause								
Yes	51	94.4	60	100	30	83.3		
No	3	5.6	0	0.0	6	16.7	10.32	0.002**
Non responders	0	0	0	0	0	0		
Coital frequency								
2-3 times/weak	1	1.9	0	0.0	0	0.0		
Once/weak	5	9.3	4	6.7	3	8.3		
Once/month	15	27.8	17	28.3	14	38.9	4.22	0.89
<once month<="" td=""><td>20</td><td>37.0</td><td>21</td><td>35.0</td><td>12</td><td>33.3</td><td>4.22</td><td>0.89</td></once>	20	37.0	21	35.0	12	33.3	4.22	0.89
No coitus	13	24.1	18	30.0	7	19.4		
Non responders	0	0	0	0	0	0		
Is coital frequencysuitable?								
Yes	34	82.9#	34	80.9	25	86.2		
No, I want more	2	4.9	2	4.8	3	10.3	3.17	0.54
No, I want less	5	12.2	6	14.3	1	3.4		0.54
Non responders	13	24.1@	18	30.0	7	19.4		
Purpose of intercourse								
My husband's pleasure	3	7.5	7	11.9	2	5.0	2.18	0.40
Both (me and my husband)	8	20.0	6	10.2	6	15.0	0.60	0.74
To obey God	18	45.0	23	39.0	17	42.5	1.71	0.43
To enjoy intimacy	21	52.5	23	39.0	15	37.5	0.12	0.94
Non responders	14	25.9	1	1.7	26	72.2		
Frequency of spontaneous desire								
Weekly	2	4.9	1	2.4	1	3.4		
Monthly	8	19.5	9	21.4	6	20.7		
Less than once/month	27	65.9	23	54.8	19	65.5	3.35	0.80
Rarely or almost never	4	9.8	9	21.4	3	10.3		
Non responders	13	24.1	18	30.0	7	19.4		
Main coital problems								
Lack of desire	10	18.5	14	23.3	3	8.3	4.96	0.084
Dryness of vagina	17	31.5	21	35.0	11	30.6	2.02	0.36
Can't reach orgasm	9	16.7	6	10	6	16.7	0.90	0.64
Pain	18	33.3	29	48.3	16	44.4	0.42	0.81
Non responders	0	0	0	0	0	0		

How do you solve pain problem?								
Consult a doctor	1	3.1	1	1.7	4	18.2		
Try a lubricant before intercourse	18	56.3	17	28.3	12	54.5		
Avoid intercourse	2	6.3	4	6.7	1	4.5	5.12	0.54
Do nothing and bear the pain	11	34.4	8	13.3	5	22.7		
Non responders	22	40.7	0	0	14	38.9		
Still interested in sexual activity								
Yes	4	7.4	4	6.7	3	8.3		
No	50	92.6	56	93.3	33	91.7	0.25	1.0
Non responders	0	0	0	0	0	0		
Satisfaction in sexual life before and after 60								
I was very satisfied before but now dissatisfied	9	16.7	5	8.3	4	11.1		
I was moderately satisfied before but now dissatisfied	15	27.8	19	31.7	10	27.8		0.78
I was dissatisfied before and still dissatisfied	8	14.8	6	10.0	6	167	3.36	
I was satisfied before and still satisfied	22	40.7	30	50.0	16	44.4		
Non responders	0	0	0	0	0	0		

FET: Fisher Exact test.

#### **DISCUSSION**

Lindau<sup>[9]</sup> summarized the changes occurring in the sex response cycle in older women. During the excitement phase, there is decreased vaginal blood flow, genital engorgement and lubrication. The plateau phase is prolonged and there is less color change of the labia. Women maintain their capacity for multiple orgasms. However, weaker and less frequent contractions of the perineal muscles occur. During the resolution phase, there is a more rapid loss of vasocongestion than in the younger years.

A sharp decrease in coital frequency with age was observed in our participants. No coitus was reported by 64.3% of women in group C compared with 16.7% of women in group A. This is logical as dyspareunia increases with age, probably due to the difficulty in achieving enough lubrication as reported by women of the present study.

Sexual experiences of a nationally representative American sample of men and women over the age of 50 within the previous year were reported by Schick *et al.*<sup>[10]</sup>. Women reporting no coitus during the past year increased from 42.4% in the age group of 60–70 years to 64.6% in the age group of 80+ years. A similar decrease in coital frequency in 4 European countries was reported by Træen *et al.*<sup>[11]</sup>, although these authors warned that

individuals with more liberal views about sexuality were included in their study, which could have inflated sexual activity. Decline of sexual activity was also reported in a Finish study<sup>[12]</sup>, a German study<sup>[13]</sup>, and an American study<sup>[14]</sup>.

Sexual desire was observed to decline with agein aging our study. Laumann et al.[15] reported that 'lack of sexual interest' was the most common sexual problem reported by sexually active women aged 60-80 years in the United States. An online survey that included 1235 women aged 60-89 years<sup>[12]</sup> found that libido declined with aging. Sexual desire or interest was rare or absent in 31.6% of women aged 60-69 years compared with50% in women aged 80-89 years. Hormonal changes during menopause may impact sexual functioning. A prospective, populationbased study[16] of Australian-born women, observed for 8 years as they passed through natural menopause, reported that low estrogen levels adversely affected sexual interest and responsiveness, but did not affect the frequency of sexual activity. Total testosterone was not significantly affected in that cohort. Moreover, free testosterone levels did not significantly affect any sexual domains. In this respect, Hartmann et al.[17] had a wider point of view. They mentioned that current research depicts women as victims of their bodily and hormonal changes. Instead, life stressors, contextual factors, past sexuality, and mental health problems are more significant predictors of sexual

<sup>\*\*</sup> Highly significant at P < 0.01.

<sup>#</sup> Percentage among responders in all the table.

<sup>@</sup> Percentage of non-responders among the whole group in all the table

interest among women in their midlife than menopause status itself. Evaluation and treatment approaches require consideration of the full range of contextual factors, including relationship quality, personality factors, past experience, and mental and physical health.

Depletion of estrogen during menopause can lead to symptoms of vulvar and vaginal atrophy (VVA) in women. VVA is a component of the genitourinary syndrome of menopause and collectively includes changes to the labia majora/minora, clitoris, vestibule/introitus, vagina, urethra, and bladder<sup>[18]</sup>. Approximately 50% of postmenopausal women have VVA symptoms<sup>[19]</sup>. These symptoms may include vaginal dryness, irritation, itching, dysuria, and/or pain or bleeding with sexual activity<sup>[20]</sup>.

The prevalence of dyspareunia in our sample was 75% and reached 100% in women above the age of 70. Figures of women reporting moderate to severe symptoms of vaginal dryness or dyspareunia in association with menopause range from  $27^{[21]}$  to  $60\%^{[22]}$ .

A higher level of education may be associated with an increase in a woman's sexual knowledge and ability to express her dissatisfaction. In the present study, there was a high statistically significant correlation between educational level and changes in sexual behavior after menopause. The highest coital frequency was reported by women with a university degree. Yağmur and Orhan<sup>[23]</sup> examined sexual functions of women before and after menopause in 5200 Turkish women. Low educational level, low-income status and menopausal status were risk factors for sexual dysfunction. Laumann et al.[24] provided some explanations for the correlation between low level of education and sexual dysfunction. Differing priorities and expectations for sexual activity exist in women with different levels of education. Also, there are different stressors in the lives of women with different educational

When we asked our participants to compare their sexual satisfaction before and after the age of 60, the most reported response was 'I was satisfied before and still satisfied'.12% of the participants were very satisfied before but were now dissatisfied. In a previous work<sup>[25]</sup>, age was a strong predictor of sexual satisfaction for married women as 66.7% of women aged 50 or older were dissatisfied compared with 17.5% in the age group 20-29 years. Among 156 married Korean women over 65 years old, Choi et al.[26] found that 14.1% were dissatisfied or very dissatisfied. The authors of this Korean study attributed this sexual dissatisfaction to unavailability of husband, insufficient education on sexuality or lack of counseling. So they stressed on the importance of counseling programs that can help the elderly to sufficiently express their opinions about sexuality.

#### **LIMITATIONS**

The study was carried out in a limited geographical area and it is recommended to repeat it on a wider geographical scale so that the information obtained could be more representative of the sexuality of Egyptian women. Also, due to the sensitive nature of the participant, many women refused to participate, which limited the number of participants.

### **CONCLUSION**

Aging has a negative impact on the female sexual function. All aspects of a sexually active lifestyle such as coital frequency, frequency of spontaneous sexual desire, orgasm and lubrication declined with aging. Dyspareunia is the main complaint in older women.

#### **CONFLICT OF INTEREST**

There are no conflicts of interest.

#### REFERENCES

- 1. Central Agency for Public Mobilization and Statistics. Population Estimates by Sex, Age Group and Total Egypt. Available at: https://www.capmas.gov.eg/Pages/StaticPages.aspx?page\_id=5035.[AccessedDecember 3, 2019].
- 2. Egypt Life Expectancy 1950-2019. 2019. Available at: <a href='https://www.macrotrends.net/countries/EGY/egypt/life-expectancy'>Egypt Life Expectancy 1950-2019</a><a href='https://www.macrotrends.net. [Accessed December 3, 2019].
- 3. Toulalan S. 'Elderly years cause a total dispaire of conception': old age, sex and infertility in early modern England. Soc Hist Med2016; 29:333-359.
- 4. Olatayo A A, Kubwa O O, Adekunle A E.Sexuality in Nigerian older adults. Pan Afr Med J2015; 22:315.
- 5. Gelfand M M.Sexuality among older women. J Women Health GEN-B2000; 9(Suppl 1):15-20.
- 6. Covey H C. Perceptions and attitudes toward sexuality of the elderly during the middle ages. Gerontologist 1989; 29:93-100.
- Lindau S T, Schumm L P, Laumann E O, Levinson W, O'Muircheartaigh C A, Waite L J. A study of sexuality and health among older adults in the United States. New Engl J Med2007; 357:762-774.
- 8. Younis I, El-Esawy F, Abdel-Mohsen R. Is female orgasm an earth-moving experience: an Egyptian

- experience. Hum Androl2015; 5:37-44.
- Lindau S. Chapter 47. Sexuality, sexual function, and the aging woman. In:Halter J B, Ouslander J G, Tinetti M E, et al. editors. Hazzard's Geriatric Medicine and Gerontology. 6th ed. New York, NY: McGraw-Hill; 2009.
- 10. Schick V, Herbenick D, Reece M, Sanders S A, Dodge B, Middlestadt S E, Fortenberry J D. Sexual behaviors, condom use, and sexual health of Americans over 50: Implications for sexual health promotion for older adults. J Sex Med2010; 7 (Suppl 5):315–329.
- 11. Træen B, Štulhofer A, Janssen E, Carvalheira A A, Hald G M, Lange T, Graham C. Sexual activity and sexual satisfaction among older adults in four European countries. Arch Sex Behav 2019; 48:815-829.
- 12. OKontula, EHaavio-Mannila. The impact of aging on human sexual activity and sexual desire. J Sex Res2009; 46:46-56.
- 13. Beutel M E, Stöbel-Richter Y, Brähler E. Sexual desire and sexual activity of men and women across their lifespans: results from a representative German community survey. BJU Int2008; 101:76-82.
- Thompson W K, Charo L, Vahia I V, Depp C, Allison M, Jeste D V. Association between higher levels of sexual function, activity, and satisfaction and selfrated successful aging in older postmenopausal women. J Am Geriatr Soc2011; 59:1503-1508.
- 15. Laumann, E O, Glasser, D B, Neves, RCS, MoreiraJrED. A population-based survey of sexual activity, sexual problems and associated help-seeking behavior patterns in mature adults in the United States of America. Int J Impot Res. 2009; 21:171-178.
- 16. Dennerstein L, Lehert P, Burger H. The relative effects of hormones and relationship factors on sexual function of women through the natural menopausal transition. Fertil Steril 2005; 84:174–180.
- 17. Hartmann U, Philippsohn S, Heiser K, Rüffer-

- Hesse C. Low sexual desire in midlife and older women: personality factors, psychosocial development, present sexuality. Menopause 2004; 11(6 Pt 2):726-740.
- 18. Lev-Sagie A. Vulvar and vaginal atrophy: physiology, clinical presentation, and treatment considerations. Clin Obstet Gynecol2015; 58:476–491.
- 19. Parish S J, Nappi R E, KrychmanML, Kellogg-Spadt S, Simon J A, Goldstein J A, Kingsberg S A. Impact of vulvovaginal health on postmenopausal women: a review of surveys on symptoms of vulvovaginal atrophy. Int J Womens Health2013; 5:437–447.
- 20. Simon J A, Kokot-Kierepa M, Goldstein J, Nappi R E.Vaginal health in the United States: results from the Vaginal health: insights: views and attitudes survey. Menopause2013; 20:1043–1048.
- 21. Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. J Sex Med2009; 6:2133–2142.
- 22. Pastore L M, Carter R A, Hulka B S, *et al.* Self-reported urogenital symptoms in postmenopausal women: Women's Health Initiative. Maturitas 2004; 49:292–303.
- 23. Yağmur Y, Orhan İ. Examining sexual functions of women before and after menopause in Turkey. Afr Health Sci2019; 19:1881-1887.
- 24. Laumann E O, Nicolosi A, Glasser D B, Moreira ED Jr, Brock G, Paik A, *et al.* GSSAB Investigators' Group. Sexual problems among women and men aged 40–80 y: prevalence and correlates identified in the Global Study of Sexual Attitudes and Behaviors. Int J Impot Res. 2005; 17:39–57.
- 25. Younis I, El-Habbaq D M, Al-Awady M A, Mostafa A. Sexual satisfaction in women and its predictors. Hum Androl. 2019; 9:14-20.
- 26. Choi K B, Jang S H, Lee M Y, Kim K H. Sexual life and self-esteem in married elderly. Arch Gerontol Geriatr. 2011; 53:e17-e20.