

Lifestyle Practices among Menopausal Women in Erbil City, Iraq

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ABSTRACT

Background and Objective: Menopause is the time in a woman's life when she stops having monthly periods, the ovaries stop releasing eggs and stop making hormones estrogen and progesterone, average age 51, 95% 45–55 years of age. Menopause is a transition into a new phase of life. It begins when the menstrual cycle finishes. Lifestyle is a part of life that is actually being realized and encompasses a full range of activities that people do in daily life. A healthy lifestyle includes proper nutrition, physical activity, avoiding drug use, protection against accidents, timely diagnosis of disease symptoms in the physical dimension, emotional control, and adaptation to the environment. The present study aimed to assess the lifestyle practices of menopausal women and find out the relationship between lifestyle and menopause-related symptoms in menopausal women.

Methods: A cross-sectional study was conducted among 300 women who experienced menopause from September 2020 until December 2021 at Primary Health Care (PHC) Centers in Erbil city. The data collection was performed using a questionnaire for interweaving the study participant, and the data were analyzed using descriptive and inferential statistics in Statistical Package for the Social Sciences (SPSS) version 25 at a 0.05 level of significance.

Results: The study findings revealed that most of the study participants were 41 to 69 years old, and most had a natural type of menopause. The most common symptoms of menopause among participants were (anxiety, irritability, hot flushes and sweating, sleeping problems, dryness of the vagina, and joint and muscular discomforts). A significant association was found between eating habits with symptoms in menopausal women. Furthermore, a highly significant association was found between smoking and exercise habits with symptoms in menopause women.

Conclusion: According to the result of the study, the researchers concluded that the majority of women age at menopause between 40 to 49 years old, and the type of menopause is due to the natural causes. Most participants suffered from physical problems during menopause. The results of the study showed that there was a statistically significant association between dairy products with some symptoms in menopause and a highly significant statistical association between smoking and exercise with symptoms in menopausal women.

Keywords: Lifestyle practices, Menopause, Physical symptoms, Psychological symptoms, Sexual symptoms.

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INTRODUCTION

Menopause is when a woman stops having monthly periods, the ovaries stop releasing eggs and stop making hormones estrogen and progesterone, average age 51, 95% 45–55 years of age. Menopause is a transition into a new phase of life. It begins when the menstrual cycle finishes.¹ Perimenopause refers to the several years (duration varies greatly) before and the one year after the last menses. It is typically the most symptomatic phase because hormones fluctuate.² The menopausal transition lasts 4 to 8 years; it lasts longer in women who smoke and younger women at the onset of the menopausal transition; post-menopause refers to the time after the last menstrual period. It is also divided into early and late

stages.² Menopause is not a health problem; some experience it as a time of liberation. However, hormonal changes and other factors involved can cause discomfort.¹ It is a natural event that marks the end of the reproductive years.³ Many women, although not all, experience uncomfortable symptoms before and after menopause, including hot flushes, night sweats, sleep disturbance, and vaginal dryness. These symptoms and physical changes can be managed in various ways, including lifestyle changes such as healthier eating and increased exercise, and by hormone replacement therapy (HRT),³ estrogen is the most effective treatment available for relief of hot flashes and for other menopausal symptoms as well.⁴ Lifestyle is a part of life that is being realized and encompasses

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a full range of activities that people do in daily life. A healthy lifestyle includes proper nutrition, physical activity, avoiding drug use, protection against accidents, timely diagnosis of disease symptoms in the physical dimension, emotional control, and adaptation to the environment.⁵ Nowadays, it is believed that 70% of the diseases are associated with the individual's lifestyle. Many studies have proven the role of lifestyle in modifying symptoms and disease progression.⁶ The prevalence of menopause is estimated to be about 50 million cases worldwide will go into menopause annually.⁷ In 1990 there were 467 million postmenopausal women in the world; by 2030, menopausal women are projected to increase to 1.2 billion worldwide.⁸ The prevalence of menopausal symptoms differs in women according to the areas and countries in which they live. The menopausal symptoms ranges from 74% of women in Europe, 36 to 50% in North America, 45 to 69% in Latin America, and 22 to 63% in Asia.⁹

After reviewing the available literature, it was indicated that there were few studies regarding lifestyle practices among menopausal in Kurdistan and Iraq. Therefore, the researcher intended to assess the lifestyle practices of menopausal women and find out the relationship between lifestyle and menopause-related symptoms in menopausal women.

SUBJECTS AND METHODS

A quantitative, cross-sectional descriptive study design was conducted on 300 women who experienced menopause from September 2020 until December 2021 at PHC centers and home visits. The inclusion criteria were those women who undergo any type of menopause (natural, surgical, medical, early and late menopause), their age is between 30 to 60 years old, and accept to participate in the study will be included in the research. Exclusion criteria were those women who have psychiatric disorders and were not able to interview will. The Scientific and Ethical Committees (SEC) approved the study at the College of Nursing, Hawler Medical University in Erbil. A non-probability convenient sampling method of menopause women was done, and the data were gathered through a direct interview and observation by using the questionnaire. The researcher constructed a questionnaire after an extensive review of relevant literature. The questionnaire included four parts. The first part contained socio-demographic information about menopause women (age, age at menopause, level of education, occupation, residency, Marital status, BMI, Parity, Menopause types).

The second part was menopausal symptoms (somatic, psychological, and urogenital). The third part was the lifestyle of menopause women (nutrition, exercise, and daily activity). Data were analyzed using the statistical calculations performed in IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. The general information of the menopausal women was presented in mean SD or no (%). The lifestyles and prevalence of symptoms in menopausal women were determined in number and percentage. The association of lifestyles and symptoms of menopausal women was examined in the Pearson chi-squares test. The significant

level of difference was determined in a p-value of less than 0.05.

RESULTS

Table 1 shows the socio-demographic characteristics of the study sample. The highest percentage of women aged was between 51 to 60 (67%) years old, and age at menopause was between 40 to 49 (55%) years old. Regarding the educational level and the place of living, 38% were secondary school graduates, and 92.7% lived in an urban area. In terms of occupation, 69.3% were housewives. Another fact that becomes clear in the study was about marital status; the majority of participants, 77.3%, were married. The body mass index (BMI) data shows that 48.0% of menopausal women had obese weight. Based on the parity, para > 4 represented the highest proportion,

Table 1: Distribution of the demographic data of the study sample (No.:300)

<i>Variables</i>	<i>F</i>	<i>%</i>	<i>Mean + SD</i>
<i>Age in year</i>			
41-50	45	15.0	56.33± 5.05
51-60	201	67.0	
< 60	54	18.0	
<i>Age at menopause</i>			
<40 years	11	3.7	3.24±1.06
40-49	165	55.0	
50-54	124	41.3	
<i>Education level</i>			
Illiterate	112	37.3	
Primary school	46	15.3	
Secondary school	114	38.0	
Institute and college	28	9.3	
<i>Occupation</i>			
Housewife	208	69.3	
Employed	79	26.3	
Self-occupation	7	2.3	
Retired	6	2.0	
<i>Residency</i>			
Urban	278	92.7	
Suburban	14	4.7	
Rural	8	2.7	
<i>Marital status</i>			
Married	232	77.3	
Unmarried	32	10.7	
Widow	27	9.0	
Divorced	9	3.0	
<i>BMI category</i>			
Underweight	4	1.3	29.37±4.67
Normal weight	55	18.3	
Overweight	97	32.3	
Obese	144	48.0	
<i>Parity</i>			
0	5	1.7	32(10.7) Unmarried
1-2	21	7.0	
3-4	91	30.3	
> 4	151	50.3	
<i>Menopause types</i>			
Natural	279	93.0	
Hysterectomy	17	5.6	
Chemotherapy	4	1.3	

50.3%. Assessment of the menopause types indicated that the majority, 93% were natural.

Table 2 shows the demonstrated eating, smoking, and exercise habits of menopausal women, 62.3% of women eat three times meals per day, 74.7% drink the tea every day, 41.7% take a low-fat dairy product, 61.7% do not take a calcium supplement and 56.3% not take vitamin D supplement. Assessment of the smoking status indicated that the majority, 89% of the study sample, were non-smokers about the physical activity of women during menopause of the study sample, in

Table 2: Eating, smoking, and exercise habits of the menopausal women among study sample (No.:300)

Variables	Yes F (%)	No F (%)	Total F (%)
<i>Eating Meals per day</i>			
2	84 (28.0)	216 (72)	300 (100)
3	187 (62.3)	113 (37.7)	300 (100)
4	29 (9.7)	271 (90.3)	300 (100)
<i>Drinking tea/ time</i>			
Once	224 (74.7)	76 (25.3)	300 (100)
2-5	58 (19.3)	242 (80.6)	300 (100)
Never	18 (6.0)	282 (94.0)	300 (100)
<i>Types of dairy product</i>			
Full fat	110 (36.7)	190 (63.3)	300 (100)
Low fat	125 (41.7)	175 (58.3)	300 (100)
No fat	65 (21.7)	235 (78.3)	300 (100)
Calcium supplement	115 (38.3)	185 (61.7)	300 (100)
Vitamin D supplement	131(43.7)	169(56.3)	300 (100)
<i>Smoking</i>			
Active and passive	33 (11)	267(89.0)	300 (100)
<i>Exercise</i>			
Walking	68 (22.7)	232 (77.3)	300 (100)
Swimming	12 (4.0)	288 (96.0)	300 (100)
Relaxation and breathing	4 (1.3)	296 (98.7)	300 (100)
Leg raising	20 (6.7)	280 (93.3)	300 (100)
Pelvic floor	2 (0.7)	298 (99.3)	300 (100)

which more than three-quarters of the study sample, 68.7%, had not done exercise during the period of menopause only 31.3% of them did exercise like (walking 72.3%, swimming 12.8%, relaxation and breathing 4.3%, leg raising 21.3%, and pelvic floor 2.1%).

Table 3 demonstrates the association between dairy products with symptoms in menopause women in the study sample. There was statistically significant between dairy products with heart discomfort and physical and mental exhaustion and highly statistically significant between dairy products with urogenital (sexual problems).

Table 4 illustrates an association between some symptoms of menopause with smoking and exercise. Out of all five symptoms, only 2 (Heart discomfort (0.001), Psychological (depression mood) (0.000)) had a statistically significant association with menopause symptoms; about exercises, only 1 (Psychological (depression mood) (0.000)) had a highly statistically significant association with menopause symptoms.

Figure 1 exhibits the physical problems (symptoms) related to menopause. The most common symptoms identified through the questionnaire included mild anxiety 46.3%, mild irritability 45.7%, moderate somatic (hot flushes, sweating) 42.7%, mild sleeping problems 41.7%, mild vaginal dryness 40.3%, and the last common physical problem was moderate joint and muscular discomfort 34.0%.

DISCUSSION

Women’s life includes psychological, social, and emotional aspects they influenced by physiological changes during the menopausal period.¹⁰ Our study described the lifestyle practices among menopause women and menopause-related physical symptoms. The mean age at menopause was found to be 3.24 ± 1.06 years. This finding disagrees with the previous studies carried out in Nigeria by (11) and (12).

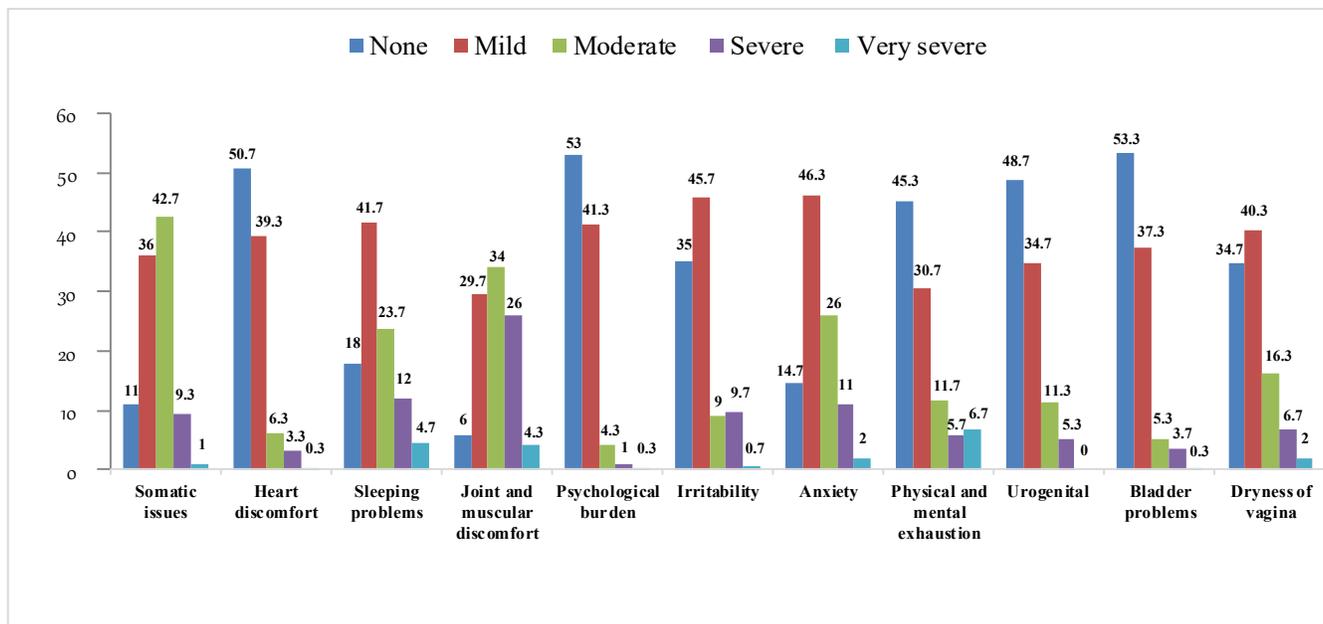


Figure 1: Distribution of physical problems related to menopause among participants

Table 3: Association of the eating habit with symptoms in menopause women among study sample (No.:300)

Variables	Frequency (%)					p-value
	None	Mild	Moderate	Severe	Very severe	
<i>Heart discomfort</i>						
<i>Type of dairy product</i>						
Full fat	49 (44.5)	52 (47.3)	6 (5.5)	2 (1.8)	1 (0.9)	0.035
Low fat	68 (54.4)	47 (37.6)	8 (6.4)	2 (1.6)	0 (0.0)	
No fat	35 (53.8)	19 (29.2)	5 (7.7)	6 (9.2)	0 (0.0)	
<i>Vitamin D supplement</i>						
Yes	71 (54.2)	44 (33.6)	11 (8.4)	4 (3.1)	1 (0.8)	0.222
No	81 (47.9)	74 (43.8)	8 (4.7)	6 (3.6)	0 (0.0)	
<i>Psychological (Depressive mood)</i>						
<i>Type of dairy product</i>						
Full fat	60 (54.5)	46 (41.8)	3 (2.7)	1 (0.9)	0 (0.0)	0.854
Low fat	62 (49.6)	54 (43.2)	6 (4.8)	2 (1.6)	1 (0.8)	
No fat	37 (56.9)	24 (36.9)	4 (6.2)	0 (0.0)	0 (0.0)	
<i>Vitamin D supplement</i>						
Yes	72 (55.0)	49 (37.4)	7 (5.3)	2 (1.5)	1 (0.8)	0.499
No	87 (51.5)	75 (44.4)	6 (3.6)	1 (0.6)	0 (0.0)	
<i>Physical and mental exhaustion</i>						
<i>Type of dairy product</i>						
Full fat	55 (50.0)	34 (30.9)	13 (11.8)	5 (4.5)	3 (2.7)	0.013
Low fat	52 (41.6)	47 (37.6)	12 (9.6)	4 (3.2)	10 (8.0)	
No fat	29 (44.6)	11 (16.9)	10 (15.4)	8 (12.3)	7 (10.8)	
<i>Vitamin D supplement</i>						
Yes	69 (52.7)	31 (23.7)	16 (12.2)	6 (4.6)	9 (6.9)	0.134
No	67 (39.6)	61 (36.1)	19 (11.2)	11 (6.5)	11 (6.5)	
<i>Urogenital (Sexual problems)</i>						
<i>Type of dairy product</i>						
Full fat	60 (54.5)	37 (33.6)	10 (9.1)	3 (2.7)	0 (0.0)	0.001
Low fat	68 (54.4)	41 (32.8)	11 (8.8)	5 (4.0)	0 (0.0)	
No fat	18 (27.7)	26 (40.0)	13 (20.0)	8 (12.3)	0 (0.0)	
<i>Vitamin D supplement</i>						
Yes	63 (48.1)	45 (34.4)	15 (11.5)	8 (6.1)	0 (0.0)	0.969
No	83 (49.1)	59 (34.9)	19 (11.2)	8 (4.7)	0 (0.0)	
<i>Bladder problems</i>						
<i>Type of dairy product</i>						
Full fat	54 (49.1)	45 (40.9)	8 (7.3)	2 (1.8)	1 (0.9)	0.390
Low fat	71 (56.8)	44 (35.2)	6 (4.8)	4 (3.2)	0 (0.0)	
No fat	35 (53.8)	23 (35.4)	2 (3.1)	5 (7.7)	0 (0.0)	
<i>Vitamin D supplement</i>						
Yes	77 (58.8)	39 (29.8)	8 (6.1)	7 (5.3)	0 (0.0)	0.084
No	83 (49.1)	73 (43.2)	8 (4.7)	4 (2.4)	1 (0.6)	

The present study showed that the studied sample had poor health-promoting behavior regarding their lifestyle during the menopausal period. This agrees with a study done in Iran by Bakouei *et al.*¹³ and Egypt by Abdelhalim, *et al.*¹⁰ On the other hand, the finding contradicts the finding by Yoshany, *et al.*¹⁴ mention that menopause women there are in a healthy lifestyle have less severity of menopausal symptoms.

In the present study, there was a significant relationship between the dairy product and heart discomfort, physical and mental exhaustion, and urogenital (sexual problems) symptoms during the menopause period among the study sample. This study agrees with the result of a study conducted by Mirghafourvand, *et al.*¹⁵ In addition, there was no significant relationship between the dairy product and other menopausal

symptoms like psychological (depressive mood) and bladder problems.

Although the prevalence of tobacco use among women is increasing, many Iraqi women avoid smoking due to cultural context, tobacco use-related stigma, and religious beliefs, which could be an important indicators in reducing menopausal symptoms. Furthermore, in the present study, there was a significant relationship between smoking and some items of the menopausal symptoms that includes heart discomfort, psychological (depressive mood), and physical and mental exhaustion severity. These results agree with the finding of the study by (15). Our findings also demonstrated no significant relationship between smoking and urogenital (Sexual problems) and bladder problems.

Table 4: Association of the smoking and exercise habits with symptoms in menopause women among study sample (No.:300)

Variables	Severity	Smoking		p-Value	Exercise		P- Value
		Yes F (%)	No		Yes F (%)	No	
Heart discomfort	None	11(7.2)	141(92.8)	0.001	50(53.2)	102(49.5)	0.872
	Mild	15(12.7)	103(87.3)		37(39.4)	81(39.3)	
	Moderate	2(10.5)	17 (89.5)		5 (5.3)	14(6.8)	
	Severe	4(40.0)	6 (60.0)		2 (2.1)	8 (3.9)	
	Very severe	1(100.0)	0(0.0)		0 (0.0)	1 (0.5)	
Psychological (Depressive mood)	None	23 (14.5)	136 (85.5)	0.000	60 (63.8)	99 (48.1)	0.012
	Mild	6 (4.8)	118 (95.2)		34 (36.2)	90 (43.7)	
	Moderate	1 (7.7)	12 (92.3)		0 (0.0)	13 (6.3)	
	Severe	2(66.7)	1 (33.3)		0 (0.0)	3 (1.5)	
	Very severe	1(100.0)	0(0.0)		0 (0.0)	1 (0.5)	
Physical and mental exhaustion	None	14 (10.3)	122 (89.7)	0.081	39 (41.5)	97 (47.1)	0.679
	Mild	5(5.4)	87(94.6)		30 (31.9)	62 (30.1)	
	Moderate	7(20.0)	28(80.0)		14 (14.9)	21 (10.2)	
	Severe	3(17.6)	14 (82.4)		4 (4.3)	13 (6.3)	
	Very severe	4(20.0)	16(80.0)		7 (7.4)	13 (6.3)	
Urogenital (Sexual problems)	None	17 (11.6)	129 (88.4)	0.963	41 (43.6)	105 (51.0)	0.534
	Mild	11 (10.6)	93 (89.4)		34 (36.2)	70 (34.0)	
	Moderate	3 (8.8)	31 (91.2)		12 (12.8)	22(10.7)	
	Severe	2 (12.5)	14 (87.5)		7 (7.4)	9 (4.4)	
	Very severe	0 (0.0)	0(0.0)		0 (0.0)	0 (0.0)	
Bladder problems	None	23 (14.4)	137 (85.6)	0.326	56 (59.6)	104 (50.5)	0.121
	Mild	7 (6.2)	105 (93.8)		33 (35.1)	79 (38.3)	
	Moderate	2 (12.5)	14 (87.5)		2 (2.1)	14 (6.8)	
	Severe	1 (9.1)	10 (90.9)		2 (2.1)	9 (4.4)	
	Very severe	0 (0.0)	1 (100.0)		1 (1.1)	0 (0.0)	

Regular exercise is an important factor in preventing the development of heart discomfort, psychological (depressive mood), physical and mental exhaustion, urogenital (sexual problems), and bladder problems during menopause. Regular aerobic exercises have been suggested as the most effective approach to control the above issues. In our study, the result showed a significant effect of exercise on psychological (Depressive mood) severity during the menopausal period, which is consistent with the study conducted by Mirghafourvand, *et al.*¹⁶ On the other hand, was no significant relationship between the severity of menopausal symptoms like heart discomfort, physical and mental exhaustion, urogenital (Sexual problems), and bladder problems during the menopause period due to the unpracticed exercise or physical activity during the menopause period. Functional disabilities and chronic pain in postmenopausal women are major reasons for this population's avoiding physical activities Yoshany, *et al.*¹⁴

CONCLUSION

According to the discussion and interpretation of the study findings, researchers concluded that the majority of women age at menopause between 40 to 49 years old, and the type of menopause is due to the natural causes. Most participants suffered from physical problems during menopause. The results of the study showed that there was a statistically significant difference between dairy products with some symptoms in menopause and a highly significant statistical association between smoking and exercise with symptoms in menopausal

women.

REFERENCE

1. Peacock K, Ketvertis KM, Doerr C. Menopause StatPearls Publishing, *Treasure Island* (FL), 25 Mar 2021Cited by: PMID: 33760453
2. Lobo RA. Hormone-replacement therapy: current thinking. *Nat Rev Endocrinol* 2017; 13:220 -231. doi: 10.1038/nrendo.2016.164. Epub 2016 Oct 7. Affiliations expand PMID: 27716751 . DOI: 10.1038/nrendo.2016.164
3. Tepper PG, Brooks MM, Randolph JF Jr., Crawford SL, El Khoudary SR, Gold EB, et al. Characterizing the trajectories of vasomotor symptoms across the menopausal transition. *Menopause* 2016; 23:1067-74.
4. Crandall CJ, Manson JE, Hohensee C, Horvath S, Wactawski-Wende J, LeBlanc ES, et al. Association of genetic variation in the tachykinin receptor 3 locus with hot flashes and night sweats in the women's health initiative study. *Menopause* 2017; 24:252-61.
5. Naghibi F, Golmakani N, Esmaily H, Moharari F. The relationship between life style and the health-related quality of life among the girl students of high schools in Mashhad, 2012-2013. *The Iranian Journal of Obstetrics, Gynecology and Infertility*. 2013;16(61):9-19.
6. Amiri A, Rkshshany F, Farmanbar R. The effect of educational program based on BASNEF model on healthy lifestyle of taxi drivers in Langroud. *Journal of Torbat Heydariyeh University of Medical Sciences*. 2014;1(4):45-54.
7. Massart F, Reginster JY, Brandi ML (2001). "Genetics of menopause-associated diseases". *Maturitas*. 40 (2): 103–16. doi:10.1016/s0378-5122(01)00283-3. PMID 11716989.
8. Hill K (1996). "*The demography of menopause*". *Maturitas*.

- 23 (2): 113–27. doi:10.1016/0378-5122(95)00968-x. PMID 8735350.
9. Palacios S, Henderson VW, Siseles N, Tan D, Villaseca P (2010). “Age of menopause and impact of climacteric symptoms by geographical region”. *Climacteric*. 13 (5): 419–28.
 10. Ehab Abdelhalim, Abo Ali, Ayat Oka, Menopausal symptoms and health-promoting lifestyle behaviors among women in Tanta, Egypt: An analytic cross-sectional study, May 2021. *The Egyptian Family Medicine Journal* 5(1):125-140 DOI:10.21608/efmj.2021.34033.1037.
 11. Adedapo B, Ande, Oruerakpo P, Omu, Oluyinka O, Ande, Nelson B, Olagbuji, Features and perceptions of menopausal women in Benin City, Nigeria, *Journal of Annals of African Medicine*, Year : 2011 | Volume : 10 | Issue : 4 | Page : 300-304 (assessed on 17 December 2019)].
 12. Adekemi Eunice Olowokere, Titilayo Olubunmi Tope-Ajayi, Abiola Olubusola Komolafe, Lifestyle practices and menopause-related symptoms among women in rural communities of Ado-Ekiti local government area, Nigeria First Published November 16, 2020. Research Article Find in PubMed. <https://doi.org/10.1177/2053369120971427> *Journal of Indexing and Metrics SAGE*.
 13. Sareh Bakouei, Fatemeh Bakouei, Shabnam Omidvar, Afsaneh Bakhtiari Health-Promoting Behaviors and Their Predictors in Iranian Women of Reproductive Age: A Cross-Sectional Study *Int Q Community Health Educ*. 2017 Oct;38(1):3-8. doi: 10.1177/0272684X17747053. Epub 2017 Dec 11.
 14. Nooshin Yoshany, Seyed Saeed Mazloomi, Narjes Bahri, Mahdiyeh Khaleghi Moori, Fahad S Hanna, Association between Lifestyle and Severity of Menopausal Symptoms in Postmenopausal Women, Article in *Electronic Journal of General Medicine* · April 2020. 17(5), em222 e-ISSN: 2516-3507.
 15. Hashemi S, Ramezani Tehrani F, Simbar M, Abedini M, Bahreinian H, Gholami R. Evaluation of sexual attitude and sexual function in menopausal age; a population based cross-sectional study. *Iran J Reprod Med*. 2013; 11:631–636. [PMC free article] [PubMed] [Google Scholar].
 16. Mojgan Mirghafourv and, Azam Baheiraei, Saharnaz Nedjat, Eesa Mohammadi, Sakineh Mohammad-Alizadeh, Reza Majdzadeh. A population-based study of health-promoting behaviors and their predictors in Iranian women of reproductive age *Health Promotion International*. January 2014;30(3) DOI:10.1093/heapro/dat086 Source PubMed.