

THE IMPACT OF MENOPAUSAL SYMPTOMS ON THE QUALITY OF LIFE AMONG YEMENI WOMEN IN SANA'A CITY, 2018

ABSTRACT

Background: Menopause is a physiological phenomenon that can strongly affect the quality of life (QOL) of women. **Objectives:** To assess the menopausal related symptoms among participants and their impact on quality of life. To also investigate sociodemographic factors affecting QOL. **Methods:** A cross-sectional study was conducted among 188 perimenopause and menopausal Yemeni women selected randomly from outpatient clinics of the main public hospitals in Sana'a, Yemen. Data was acquired using the Menopause-Specific Quality of Life (MENQOL) questionnaire. **Results:** The mean age at menopause was found to be 47 ± 3.4 . The majority of participants were postmenopausal (71.27 %), and (71.80 %) were married. The most prevalent symptoms were aching muscles and joints (55%), dissatisfaction with personal life (37.7%), night sweat (35%) and avoidance of intimacy (30%). The overall scores of menopausal quality of life for each MENQOL domain indicated that the highest mean score was recorded for physical domain (42.81 ± 17.87), followed by psychosocial (14.11 ± 5.72), then sexual (6.93 ± 2.46), and finally vasomotor domain (4.78 ± 3.10). **Conclusion:** The physical and psychosocial domains had higher mean MENQOL scores than vasomotor and sexual domains. This study focuses on the importance of educating women about menopause, its symptoms and the need to seek medical advice from professionals.

Key words: Menopausal symptoms, Menopause Specific Quality of Life Questionnaire (MENQOL), Quality of life (QOL), Yemeni women.

INTRODUCTION

Menopause is a natural phenomenon that affects all women and occurs in a woman's life 12 months or more after her menstrual period stops due to decrease in ovarian function¹⁻³. The manifestations of menopausal symptoms vary with each individual. Every woman's experience of menopause is unique as she may experience all of the symptoms or none of them⁴. The duration, severity and impact of these symptoms vary from person to person and population to population^{5,6}. These symptoms can be classified based on the time of presentation into acute, subacute, and chronic, which are then grouped into: vasomotor (VMS), somatic, psychological or sexual complaints^{7,8}. Similar to general health, menopause is influenced by a range of cultural, socioeconomic and lifestyle factors which affect women's lives to different levels⁸⁻¹². Quality of life of perimenopause and menopausal women are significantly impacted by social, cultural and economic settings in which they live. They have to adapt to different issues from hot flushes and night sweats to discomfort of vaginal dryness^{4,13}. Adequate elucidation of women and raising the perception of certain changes that arise during menopause aids women with greater preparedness to deal with these changes and ultimately boost their quality of life¹⁴. In the absence of intervention, over 75% of these females will suffer the difficult situation of menopause which can lead to immense stress and disability¹⁴. In Yemen, studies on women's and children's health have been limited, and recently few studies have been conducted and discussed topics related to maternal and child health, including the effect of menopausal symptoms on the quality of life of Yemeni women¹⁵⁻²³.

Furthermore, as a result of the dearth of understanding of changes initiated by menopause, women do not search for medical counsel for relief of difficult menopausal symptoms. This study was performed to evaluate the menopausal related symptoms among participants from Sana'a, Yemen, assess the impact of menopausal symptoms on their quality of life, and analyzing socio-demographic factors that influence QOL. Achieving these objectives is imperative, as menopause has not been comprehensively researched in Yemen. There is only one current study on menopause among Yemeni Women²³. This study will help health care providers to develop plans for these women by providing them better awareness and elucidation of the impact of menopause on QOL and identifying sociodemographic factors related to decline in QOL. This will also help women to help them in early recognize the symptoms of menopause and seek appropriate medical care (such as HRT) if needed, alternative treatment strategies and lifestyle interventions for enhancing QOL particularly through radio and television media in addition to information dissemination by general practitioners.

MATERIALS AND METHODS

A cross-sectional study was carried out among perimenopause and menopausal Yemeni women aged between 35 to 54 years. The sample size (i.e. 188) was calculated using Epi Info version7 program. The participants were chosen based on random selection from female waiting areas in different outpatient clinics of the four major public hospitals in Sana'a using a stratified sampling (Proportionate to size).

The inclusion criteria: women that have not menstruated for a period of 3-12 months or had irregular menses within the last one year, women aged between 35 and 54 years, and those that attend the outpatient clinics of the main public hospitals in Sana'a (AL-Thawra, AL Kuwait, AL Gumhory, AL-Sabeen hospitals).

Data collection: The respondents were given guaranteed discretion of information, and then voluntary verbal permission was acquired from them. The reliability of the questionnaire was assessed using a pilot study that was conducted on 20 participants. Prior to administering the questionnaire, it was translated to Arabic language and disseminated among 20 participants that attend outpatient clinics of major public hospitals in Sana'a. The

questionnaire was finalized based on notes and remarks of participants who responded to the pretest questionnaires, and then translated back to English. The questionnaire comprises two sections. The first part covers sociodemographic characteristics, and the second section involves assessment of QOL using the menopause specific quality of life (MENQOL) questionnaire^{8,5}.

Data analysis

Analysis was carried out using epi info version 7. Sociodemographic characteristics and the frequency of menopausal symptoms were presented as means, standard deviations, and percentages. The total score of each item was the sum of scores, the higher score, the worse quality of life (poor QOL) and vice versa. The mean score was considered as cut-off for QOL evaluation. Student-T, ANOVA tests and Mann-Whitney/Wilcoxon, Kruskal-Wallis tests were utilized to comparatively analyze the QOL scores between each domain and selected demographic variables. The statistical significance was fixed at $P < 0.05$.

RESULTS AND DISCUSSION

This study is an attempt to resolve that the impact of menopausal symptoms experienced by women on their normal daily activities. This is important, as understanding the problems associated with menopause, at the onset, can provide solutions and treatment measures, eventually improving the QOL of a woman. With respect to the demographic characteristics selected for this study, the mean age of menopause was found to be 47.9 ± 3.4 (Table 1) which is consistent with some earlier studies performed in Yemen²³, and Middle East countries²⁵⁻³⁰. However, the mean age is lower compared to those reported in western countries which varied between 50.1 to 52.8 years³¹, but higher in countries such as India which recorded 45.02 ± 4.35 ³². As regards the level of education, majority of the participants (77.66%) are illiterate, with only a small proportion having high education (3.7%) (Table 1).

Studies have reported variations in menopausal symptoms of women across the world. For instance, Asian women experience less vasomotor and psychological symptoms compared to women in Western countries [35]. The assessment of menopausal quality of life (MENQOL) for each domain analyzed in this study indicated that physical domain has the highest mean score (42.81 ± 17.87), followed by psychosocial (14.11 ± 5.72) then sexual (6.93 ± 2.46) and finally vasomotor (4.78 ± 3.10) (Table 2).

The physical menopausal symptoms are mild in severity which indicates a good QOL (Table 2). This finding is consistent with a study conducted in Riyadh, SA³². However, majority of the menopausal women in this study frequently experience muscle or joint aches (55.30%) which is in agreement with other studies carried out in Asian countries³⁶, Egypt (51.2%)³⁴, but higher than value reported in a similar study performed in Yemen (9.8%)²³, and lower than those recorded in Saudi Arabia (83.9%-96.1%)^{24,28}, Malaysia (80.1%)³⁷, Ibadan, Nigeria (74%)³⁸ and Ethiopia (65.9%)³⁹.

In addition, less than half of the participants (32%) complained about feeling lack of energy, which was lower than that reported from Makkah, SA (61.3%)⁴⁰ and Bangladesh (92.90%)³³. Also observed, (24%) reported flatulence or gas pain and (25%) mentioned feeling bloated, while (21.80%) reported frequent urination which is similar to a finding in Ibadan, Nigeria (18.3%)³⁸. Here, the lowest physical symptoms were drying skin (3%) and involuntary urination (2%), which is inconsistent with the finding of a study performed in Egypt (36.0%)³⁴. This study also revealed that very few participants reported they experience weight gain (1%) and increased facial hair (0.50%) which are lower than the value recorded by a study conducted in West Bengal, India (5%)⁴¹. This disparity in the frequency of symptoms is considered to be random i.e. non-specific to the menopause and may be due to several factors, which is more plausible due to hormonal imbalance resulting from lifestyle changes, culture, genetics, diet, higher BMI or may be related to increase in age.

Another prevailing menopausal symptom revealed in this study was vasomotor symptoms. The occurrence of vasomotor symptoms in our study showed moderate severity, which indicates average QOL. (33.50%) of the participants complained of hot flashes which is in accordance with studies performed in Qena, Egypt (37.2%)³⁴, Makkah, SA. (29%)⁴⁰, although lower than values reported in Yemen(100%)²³, Western, Turkey (96%)¹³, Alexandria Egypt (90%)²⁹, in Abha, SA (81%)²⁸, Riyadh, SA (71.0%)²⁴, Ethiopia (65.9%)³⁹ and India (60%)⁴¹. Furthermore, 35.10% reported night sweating as a menopausal symptom which is similar to the finding of a study performed in Northern India (36%)⁴². However, this result is lower than that reported in Abha, SA (80.7%)²⁸, but higher than that of a study conducted in Ibadan, Nigeria (18%)³⁸. Vasomotor symptoms are generally associated with hormonal changes during menopause periods, hence this disparity is due to hereditary or socio-cultural diversity⁴¹.

The moderate severity of the prevalence of psychosocial symptoms in this study indicates average QOL (Table 2). The most common psychosocial symptom is disaffection with personal life (37.77%), which is consistent with that of Riyadh, SA (36.5%)²⁴, but lower than in Ethiopia (46.0%)³⁹ and Makah, SA (44.8%)⁴⁰. (31.38%) of participants in this study, experienced depression which is lower than that in Qena, Egypt (41.2%)³⁴, Ethiopia (46.0%)³⁹ and West Bengal, India (88%)⁴¹ but higher than that in Korea (5.9%)⁴³ and Yemen (5.5%)²³. This wide difference in results is probably due to methodological disparity and economic situation of Yemen, thus the depression may not be a menopausal entity, but a result of the current financial struggles. Likewise, complaints about anxiety or nervousness was (29.79%), which is higher compared to

findings of previously in Yemen (14.5%)²³, but lower than that in Makkah, SA (52%)⁴⁰, and Abha, SA (89.0%)²⁸. The occurrence of poor memory was (25.53%) in the current study, which was relatively lower compared to that of Erbil city, Iraq (58.6%)²⁷ and Hyderabad Pakistan (62.10%)⁴⁴.

The moderate severity of the prevalence of sexual symptoms indicates average QOL (Table 2). (25.68%) of the participants had vaginal dryness, which is similar to (26%) reported in West Bengal, India⁴¹ and (26%) in Makkah, SA⁴⁰ but higher than (8.5%) in Saudi Arabia⁴⁵ and lower than (82%) in Yemen previously²³, (30.0%) in Qena, Egypt³⁴ and (51.8%) in Iraq²⁷. Moreover, (30.41%) of the participants avoided intimacy. This finding is compatible that in Erbil, Iraq (34.6%)²⁷, in Turkey (39.7%)¹³ and in Qena, Egypt (38.4%)³⁴ reported lower values.

Regarding the relation between MENQOL in different domains and menopausal status of participants (Table 3), the perimenopause group showed a comparatively higher and significantly different mean score for physical symptoms ($P=0.007$). This finding is consistent with studies conducted in Riyadh, SA^{2,24} and Korea⁴⁶. Similarly, perimenopause group recorded the highest mean score for psychosocial symptoms, although without significant difference compared to the other menopausal statuses. Likewise, the postmenopausal group recorded the highest mean score for the sexual domain but without statistical significance, which is consistent with studies of Malaysia³⁷, Jordan⁴⁷ and India⁴⁸, but contradicts that of Nigeria where perimenopause group complained the most about sexual symptoms³⁸. The surgical menopause group recorded the highest mean score of vasomotor symptoms without statistical significance. This finding is consistent with a study conducted in Britain that revealed that surgical menopause group complained from the most about vasomotor symptoms⁴⁹. This could be attributed to variation in levels of hormones, such as follicular-stimulating hormone and estrogen that occur in the course of menopausal transition, which gradually leads to decline in physical, psychosocial, vasomotor QOL⁴⁹.

The menopausal specific quality of life (MENQOL) mean scores were obtained for the different domains in relation to sociodemographic factors of participants. Higher MENQOL scores indicate poorer QOL, and vice versa. This study found that mean scores for physical, vasomotor and psychosocial domains were significantly higher among participants who used HRT, with values of ($P=0.002$), ($P=0.001$) and ($P=0.01$) respectively (Table 3), as compared to those who had not used HRT. Their mean scores for sexual domain were also higher, but without statistical significance. This can be explained by the fact that a few participants used natural HRT as herbal remedies and vitamins for relieving menopausal symptoms, thus the absence of quality controls and unpredictability in the purity, potency and absorption of herbal remedies can result in under or over-dosing, eventually causing the treatment to be ineffective. Similarly; a cohort study among past hormone therapy users in Britain who had defaulted in their treatment were more prone to hot flashes and night sweats⁴⁹. Furthermore, higher mean scores were recorded for vasomotor, psychosocial, and sexual symptoms among participants who not used oral contraceptives, while physical symptoms were more prevalent among users without significance association. Participants who had chronic diseases and smoking habit exhibited significantly higher vasomotor symptoms at ($P=0.03$) and ($P=0.004$), respectively, and displayed more physical, psychosocial, sexual symptoms without significance. This finding is comparable with a study in Australia that revealed a relation between vasomotor symptoms and smoking¹. Similar findings were reported in Mexico⁵⁰ and Korea⁵¹. However, a study performed in Riyadh, SA reported that smoking had no effect on the MENQOL score². This varying effect may be explained by the perplexing effects of chronic illness and the aging process which may impact on menopausal symptoms. Also, the nicotine contained in cigarettes, which like caffeine is a vasoconstrictor, so smokers are more likely to experience more hot flashes^{50,51}.

In addition, participants who chew khat had significantly higher scores for physical and psychosocial symptoms at ($P=0.02$) and ($P=0.03$), respectively. They also exhibited higher scores for vasomotor symptom, but without significance. On the other hand, participants who do not chew khat had higher scores for sexual symptom without significance. This is plausible as the side effects of chewing khat include insomnia, anxiety, psychosis, decreased appetite and energy loss²³.

Regarding BMI, this study found no association with all the menopausal symptoms. However, physical, vasomotor symptoms were more prevalent among the overweight participants. A similar finding has been reported in Italy⁵², Mexico⁵⁰ and Norway⁵³. Conversely, more complaints were received from participants with normal weight with respect to psychosocial symptoms, while the underweight participants complained the most of sexual symptoms. This finding is consistent with a study carried out in Turkey, which revealed no association between BMI and menopausal symptoms⁵⁴. It is apparent that hormonal changes during the menopausal transition contribute to increased abdominal obesity, which in turn heightens physical and psychosocial symptoms.

Contrarily, a study in Turkey showed that women with no education had non-significantly higher scores of physical, psychological and vasomotor symptoms⁵⁹. Similarly, a study in Isfahan revealed a significant association between psychosocial symptoms and employed women but with a significant difference⁶⁰, whereas a study in Turkey demonstrated that vasomotor score was significantly higher among housewives⁵⁹. This finding possibly indicates that awareness among educated Yemeni women towards menopausal symptoms and their impact on QOL was lower as compared to those who were not educated. In fact, a few employed women among

the participants experienced more symptoms, thus employment may initiate more stress in some women facing menopause compared to those who are jobless.

With regards to residence, the vasomotor, psychosocial, sexual symptoms were more dominant among participants who lived in rural areas while physical symptoms were more prevalent among participants who lived in urban areas. On the contrary, a study conducted in Ranbir, India revealed significantly higher scores of psychosocial, physical symptoms with respect to the residence place⁶¹. This disparity in frequency of symptoms may be due to differences of culture, lifestyle, and diet.

In relation to marital status, married participants complained more commonly of physical and vasomotor symptoms, while psychosocial symptoms were more prevalent among divorced participants. This finding is consistent with some studies performed in Isfahan, Iran⁶⁰ and England⁵⁸. In fact, majority of the participants were married and complained about suffering from sexual symptoms, which may be due to hormonal changes in the menopause phase, leading to a decline in sexual desire and vaginal dryness. In contrast, the complaints from divorced participants about psychosocial symptoms may be due to the absence of social support and stability with a spouse⁵⁸.

In addition, a few participants with high income level had higher mean scores of psychosocial, sexual symptoms, while participants with low income level had higher scores of vasomotor symptoms. Physical symptoms were more prevalent among participants with moderate level income. Unexpectedly, only a few of the participants with high income had better QOL. In contrast, study conducted in India reported an association of higher income with lower scores and better QOL⁶².

CONCLUSION

The quality of life of women is affected by symptoms associated with menopause. This study confirmed the negative impact of menopausal symptoms on QOL. The Yemeni women selected for this study complained more commonly of physical and psychosocial symptoms as compared to vasomotor and sexual symptoms. The most prevalent symptoms were aching muscles and joints, dissatisfaction with personal life, night sweat and avoidance of intimacy. However, there was a variation in severity of symptoms, as reflected by the average QOL. In spite of the acknowledged benefits of hormone replacement therapy (HRT), especially for relieving vasomotor and sexual symptoms, none of the participants used HRT mainly because majority are poorly informed about its availability and utility. Few participants used herbal products. However, there is no consistent evidence to support their efficacy and safety.

RECOMMENDATION

Health facilities and health service providers should be encouraged to actively participate in educating menopausal women about improving their quality of life and engaging in HRT, especially women undergoing surgical menopause, alternative treatment strategies and lifestyle interventions. More community-based research is needed to address postmenopausal women's health needs and quality of life using a larger sample population and different geographic locations, rather than a facility-based study, when possible.

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CONFLICT OF INTEREST

There is no conflict of interest with this research.

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Characteristics	Frequency %
Age group in years	
<37	36(19)
37-49	92(49)
>49	60(32)
Menopausal status	
Postmenopause	134(71.28)
Perimenopause	29(15.43)
Surgical menopause	25(13.29)
Marital status	
Married	135(71.81)
Widow	39(20.74)
Divorced	11(5.85)
Single	3(1.60)
Number of children	
1-3 children	22(11.70)
4-7 children	87(46.28)
>7 children	69(36.70)
No children	10(5.32)
Education status	
Illiterate	146(77.66)
Read & write	25(13.30)
Basic school	7(3.72)
Secondary school	3(1.60)
University & higher studies	7(3.72)
Employment status	
Employed	9(4.79)
Unemployed	179(95.21)
Family income	
High income	2(1.06)
Moderate income	54(28.72)
Low income	132(70.22)
Residence place	
Urban	126(67.02)
Rural	62(32.98)
Physical activity	
Yes	110(58.51)
No	78(41.49)
BMI	
Underweight <22	34(18)
Normal 22-32	124(66)
Overweight >32	30(16)
Chronic diseases	
Yes	91(48.40)
No	97(51.60)
Type of disease	
HTN	34(37.36)
DM	36(39.56)
Heart disease	18(19.78)
Cancer	3(3.30)
Oral contraceptives	
Users	96(51.06)
Not users	92(48.94)
HRT	
Users	9(4.79)
Not users	179(95.21)

Smoking	
Yes	61(32.45)
No	127(67.55)
Chewing khat	
Yes	115(61.17)
No	73(38.83)

Table 2: Frequency of menopausal symptoms among participants (n=188) (Sana'a, Yemen 2018):

Symptoms present	Very much	Much	Somehow	Little	Not at all
Physical symptoms	Frequency (%)				
Flatulence or gas pains	37(19.70)	46(24.50)	26(13.80)	51(14.90)	28(27.10)
Aching muscles or joints	51(27.10)	104(55.30)	14(7.40)	10(5.30)	9(4.80)
Feeling tired	45(23.90)	65(34.60)	29(15.40)	25(13.30)	24(12.80)
Feeling a lack of energy	37(19.70)	61(32.40)	18(9.60)	41(21.80)	31(16.50)
Aches in back of neck	45(23.90)	99(52.70)	18(9.60)	14(7.40)	12(6.40)
Decrease in physical strength	33(17.60)	67(35.60)	25(13.30)	51(27.10)	12(6.40)
Decrease in stamina	16(8.50)	39(20.70)	38(20.20)	68(36.20)	16(8.50)
Drying skin	7(3.7)	20(10.6)	47(25)	30(16)	84(44.70)
Weight gain	9(4.80)	2(1.10)	33(17.60)	18(9.60)	126(67)
Increased facial hair	1(0.50)	1(0.50)	181(96.30)	1(0.50)	5(2.70)
Changes in appearance	33(17.60)	2(1.10)	9(4.80)	11(5.90)	133(70.70)
Feeling bloated	42(22.30)	48(25.50)	32(17)	21(11.20)	45(23.90)
Low back pain	57(30.30)	100(53.20)	11(5.90)	6(3.20)	14(7.40)
Frequent urination	7(3.70)	41(21.80)	41(21.80)	17(9)	82(43.60)
Involuntary urination	4(2.10)	6(3.20)	18(9.60)	16(8.50)	144(76.60)
vasomotor symptoms					
Hot Flashes	28(14.90)	63(33.50)	26(13.80)	24(12.80)	47(25)
Night Sweats	8(4.30)	66(35.10)	55(29.30)	16(8.50)	43(22.90)
Sweating	1(0.50)	17(9)	40(21.30)	32(17)	98(52.10)
Psychological symptoms					
Dissatisfaction of Personal Life	36(19.15)	71(37.77)	44(23.40)	26(13.83)	11(5.85)
Feeling Anxious or Nervous	37(19.68)	56(29.79)	14(7.40)	49(26.06)	16(8.51)
Poor Memory	18(9.57)	48(25.53)	23(12.23)	34(18.09)	65(34.57)
Accomplishing less than I used to	33(17.55)	57(30.32)	24(12.77)	42(22.34)	32(17.02)
Feeling down/depressed	21(11.17)	59(31.38)	39(20.74)	37(19.68)	32(17.02)
Being impatient with other people	27(14.36)	57(30.32)	35(18.62)	47(25)	22(11.70)
Feelings of wanting to be alone	13(6.91)	40(21.28)	38(20.21)	48(25.53)	49(26.06)
Sexual symptoms					
Change in sexual desire	1(0.68)	24(16.22)	44(29.73)	56(37.84)	23(15.54)
Vaginal Dryness	9(6.08)	38(25.68)	29(19.59)	26(17.57)	46(31.08)
Avoiding intimacy	17(11.49)	45(30.41)	45(30.41)	23(15.54)	18(12.16)
Relation with husband	16(8.51)	23(12.23)	40(21.28)	46(24.47)	63(33.51)

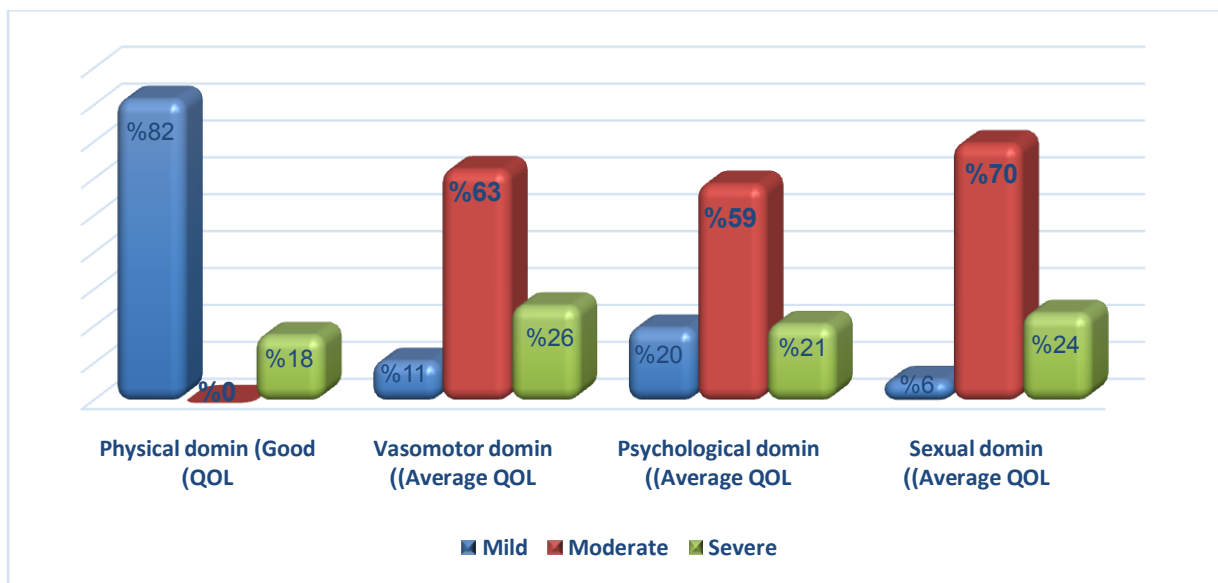


Figure 1: Effect of menopausal symptoms on the quality of life (physical, vasomotor, psychosocial and sexual).
Table 3: The MENQOL mean scores in different domains (QOL) by menopausal status(n=188) (Sana'a, Yemen 2018):

	Domains of MENQOL			
	Physical	Vasomotor	Psychosocial	Sexual
Menopausal status				
Perimenopause	31.27±9.02	4.83±3.11	15.89±4.01	6.81±2.55
Postmenopausal	24.86±10.60	4.76±3.19	13.90±5.73	7.02±2.43
Surgical menopause	23.64±11.45	4.84±2.68	13.16±7.01	6.57±2.63
P value	P=0.007*	P=0.9	P=0.1	P=0.7

*Kruskal-Wallis test

Table 4: The MENQOL mean scores in different domains of participants across sociodemographic factors (n=188) (Sana'a, Yemen 2018):

Socio-demographic factors	Domains of MENQOL			
	Physical	Vasomotor	Psychosocial	Sexual
Education				
Illiterate	26.31±11.02	4.84±3.13	14.21±5.98	6.80±2.62
Read & write	24.08±9.72	4.64±3.13	13.92±5.22	6.87±1.75
Basic school	21.85±5.87	6.14±2.41	12.43±3.99	7±1.78
Secondary school	14.66±4.93	2±2	10.66±5.13	7.33±1.15
University & higher studies	27±11.22	4±3.16	15.85±2.67	9±2.53
P value	P=0.2	P=0.3	P=0.6	P=0.3
Employment status				
Employed	28.77±11.42	4.55±4.79	16±4.24	8.13±2.29
Unemployed	25.53±10.69	4.79±3.12	14.01±5.77	6.85±2.46
P value	P=0.3	P=0.8	P=0.3	P=0.1
Residence place				
Rural	24.56±10.38	5.19±3.12	14.25±6.35	7.15±2.45
Urban	26.24±10.88	4.58±3.08	14.04±5.41	6.82±2.47
P value	P=0.3	P=0.2	P=0.8	P=0.4
Family income				
High	25±22.62	4.5±3.54	15±14.14	9.50±2.12
Moderate	25.85±12.53	4.53±3.15	14±5.83	6.66±2.51
Low	25.64±9.83	4.90±3.09	14.14±5.61	7±2.43
P value	P=0.8	P=0.7	P=0.9	P=0.2
Chronic disease				
Yes	26.58±10.92	5.28± 3.03	14.54±5.79	7.07±2.34
No	24.85±10.52	4.32±3.12	13.70±5.65	6.80±2.56
P value	P=0.3	P=0.03*	P=0.3	P=0.5
Oral contraceptive used				

Users	26±11.51	4.73±3.01	14.09±5.73	6.75±2.22
Not users	25.36±9.88	4.85±3.21	14.13±5.75	7.14±2.74
P value	P=0.8	P=0.7	P=0.9	P=0.3
HRT				
Users	39.66±8.03	7.88±2.20	18.66±4.38	7.85±1.95
Not users	24.98±10.36	4.63±3.06	13.88±5.69	6.87±2.48
P value	P=0.002**	P=0.001*	P=0.01*	P=0.3
Habit				
Smoking				
Yes	27.45±11.38	5.70±3.39	15.47±5.89	6.94±2.63
No	24.84±10.32	4.34±2.86	13.45±5.54	6.92±2.38
P value	P=0.7	P=0.004*	P=0.02*	P=0.9
Chewing Khat				
Yes	27.08±11.08	5.11±3.22	14.82±5.69	6.89±2.57
No	23.49±9.79	4.27±2.86	13±5.63	6.98±2.27
P value	P=0.02**	P=0.07	P=0.03*	P=0.8
Physical activity				
Yes	21.37±8.71	4.41±2.98	12.26±5.45	7.20±2.05
No	31.78±10.36	5.31±3.22	16.72±5.06	6.60±2.85
P value	P=0.001**	P=0.5	P=0.001*	P=0.1
BMI				
Underweight <22	24.60± 12.79	4.48± 3.59	12.96±6.52	5.28±1.95
Normal 22-32	25.54 ±10.52	4.74± 2.98	14.29±5.83	5.17±1.80
Overweight >32	27.12 ±25.92	5.18 ±3.23	14.25±4.51	5.25±1.71
P value	P=0.6	P=0.6	P=0.5	P=0.9

*T-test, **Mann-Whitney test

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