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The effect of menopausal symptoms on the quality of life among postmenopausal Egyptian women

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**ABSTRACT**

**Objective:** The current study aims to assess the prevalence of menopausal symptoms among postmenopausal Egyptian women and their effect on the quality of these women’s lives.

**Study design:** A cross-sectional study was carried out in a tertiary university hospital between January and December 2017. We enrolled 350 postmenopausal women aged 45–70 years. All women were interviewed using the Menopause-Specific Quality of Life (MENQOL) questionnaire after translation into the Arabic language by a certified translation expert. The Mann–Whitney test and the Kruskal–Wallis test were used to compare MENQOL item scores.

**Results:** Low backache was the most common complaint among the study participants (86%). The sexual domain imposed the greatest impact on quality of life (mean = 3.12 ± 1.66), followed by physical (mean = 3.18 ± 0.92), psychological (mean = 3.08 ± 0.98), and vasomotor (mean = 3.01 ± 1.78) domains. Moreover, we found a significant positive moderate correlation between body mass index (BMI) and the total score ($r = 0.689$, $p < 0.001$). Multivariable linear regression analysis found that the best-fitting predictors for the MENQOL score were age ($p < 0.001$), BMI ($p < 0.001$), and exercise ($p < 0.001$).

**Conclusions:** Physical symptoms were the most prevalent symptoms in this study. In general, older women, housewives, hand workers, less physically active women, and those of low socioeconomic status had poor quality of life.

**Introduction**

Menopause is a critical period in every woman’s life, in which women usually struggle with various physical, vasomotor, psychological, and sexual complaints\textsuperscript{1}. According to the World Health Organization, postmenopausal women are those who have not experienced menstrual bleeding for at least 12 months. The mean age of menopause in Egypt is 46.7 years\textsuperscript{2,3}, yet women may experience menopause-related symptoms several years earlier\textsuperscript{4}.

The typical symptoms of menopause include night sweats, hot flushes, vaginal dryness, and sleep disturbance. These usually last for 4–5 years. Also, women commonly experience other symptoms, such as sexual dysfunction, anxiety, depression, memory loss, headache, fatigue, joint pain, and weight gain. These symptoms might also be related to the aging process\textsuperscript{5}. The sharp fall in hormonal levels causes menopause-related symptoms. However, the experience of menopause varies widely between women, ranging from a smooth and non-problematic transition to a long period of imbalances and disruptions\textsuperscript{6}. These variable responses have been linked to genetic, cultural, lifestyle, socioeconomic, education, and dietary factors\textsuperscript{7}.

Since menopause is an inevitable period in every woman’s life, it has been crucial in the scientific community to investigate the various aspects of this important period and their impact on women’s health and quality of life (QoL)\textsuperscript{8}. Several tools have emerged to assess the quality of women’s lives in such a critical stage. Symptoms of menopause have been reported to impose a negative impact on the QoL of perimenopausal women\textsuperscript{9}.

The Menopause-Specific Quality of Life (MENQOL) questionnaire is a validated questionnaire assessing the impact of menopause-related symptoms in women’s lives\textsuperscript{10}. The MENQOL was first introduced by Hilditch et al. in 1996 to assess the presence of menopausal symptoms, their severity, and the degree to which they adversely affect women’s lives. The questionnaire consists of 29 items categorized into four domains: vasomotor, physical, psychological, and sexual\textsuperscript{11}.

Interestingly, the impact of menopause-related symptoms on QoL varied through different stages of menopause. Some studies reported that vasomotor and physical symptoms had a greater impact on postmenopausal women\textsuperscript{7}, while psychological symptoms affect women during menopausal transition much more than in their postmenopausal life\textsuperscript{12}.

In general, women from low-income countries are considered to have poor QoL compared to those from developed countries. Therefore, the current study aimed to assess the prevalence of menopausal symptoms among postmenopausal Egyptian women and their impact on the quality of these women’s lives.
Methods

A cross-sectional study was conducted in the obstetrics and gynecology inpatient wards and outpatient clinics of Suez Canal University Hospital, Ismailia, Egypt between January and December 2017. The medical ethical committee of the Faculty of Medicine, Suez Canal University approved the study before commencement (Institutional Review Board number 3500). Informed consents were obtained from the enrolled women.

Study population

Women were recruited from the postmenopausal population presenting to the outpatient clinics or admitted to the inpatient wards at Suez Canal University Hospital and their female relatives who were between 45 and 70 years of age. A woman was defined as postmenopausal if 12 months had passed after her last menstruation. Meanwhile, we excluded women with induced menopause, who underwent a simple hysterectomy, who were currently receiving hormonal therapy, and who had medical conditions such as diabetes, hypertension, cardiac disease, and thyroid disorders, as these may mislead our results. Additionally, women who refused to participate in this study were excluded.

Sample size

The sample size was calculated using the Dawson and Trapp formula for cross-sectional studies, based on the fact that 16% of Egyptian women are menopausal according to the Ministry of Health and Population estimates. Thus, 350 subjects were needed to test our hypothesis.

Study procedure

Two tools were used to collect the data from the selected patients:

1. An interviewing sheet, designed by the researchers and used to obtain subjects’ sociodemographic data such as age, residence, occupation, education level, and frequency of exercising per week, along with their menstrual history. Also, a woman’s weight and height were measured, and her body mass index (BMI) was calculated and recorded. During the interview, the socioeconomic status (SES) of the women was determined according to the modified SES scale by El-Gilany et al. This scale assesses SES based on seven domains, including occupation, family, family possessions, economic, home sanitation, health care, and education and culture. For easy analysis, we categorized SES into low, middle, and high according to cut-off points based on the mean score of the SES scale and the first, second, and third quartiles.

2. The MENQOL questionnaire, designed by Hilditch et al., was used to evaluate QoL.

All interviews were conducted by the same investigator (A.S.I.M.) after attendance at a training program on qualitative research methods before running the in-depth interviews. To ensure that questionnaire responses were accurately collected, the investigator did not conduct more than three interviews in a day, the interviews were conducted in a private room without recording the participants’ names or addresses to ensure confidentiality, and the investigator used a tape recorder for data collection after asking for permission from the study participants. The investigator clarified any item in a simplified language and ensured that all items were answered. The duration of the interview was approximately 25–30 min for each participant.

Items of the MENQOL questionnaire

The MENQOL questionnaire assesses the presence of menopausal symptoms, their severity, and the degree to which they adversely affect women’s lives. The questionnaire consists of 29 items categorized into four domains:

1. The vasomotor domain (three items), assessing hot flushes, night sweats, and sweating.
2. The psychosocial domain (seven items), evaluating the psychological well-being of the individual through the items of dissatisfaction with personal life, feeling anxious or nervous, experiencing poor memory, accomplishing less than used to do, feeling depressed or down, impatience with other people, and willing to be alone.
3. The physical domain (16 items), assessing the items of flatulence, aching in muscles or joints, feeling tired, difficulty in sleeping, aches in back of neck or head, decrease in physical strength, decreased stamina, feeling lack of energy, drying skin, facial hair, weight gain, changes in appearance, texture, and tone of skin, feeling bloated, low backache, frequent urination, and involuntary urination when laughing or coughing.
4. The sexual domain (three items), assessing the changes in sexual desire, vaginal dryness during intercourse, and avoiding intimacy.

Translations and validation

The original MENQOL questionnaire was translated into the Arabic language by a certified translation expert without any alteration or loss of MENQOL concepts. The translated version of the questionnaire was examined for accuracy and piloted to ensure its clarity. Although the MENQOL questionnaire’s validity has been tested among Arab women, its validity has not been tested among Egyptian women before. Therefore, we tested its validity and reliability before commencing the study by the test–retest method. The MENQOL questionnaire was introduced to the participants at the beginning of the study and then reintroduced after 2 weeks.
Statistical analysis

Regarding data entry, the 7-point Likert scale used during administration of the MENQOL questionnaire was converted to an 8-point scale during data entry; a score of 1 indicates that the woman has not experienced this specific symptom in the past month; a score of 2 indicates that the woman experienced the symptom, but it did not bother her; and scores of 3–8 correspond to an increasing level of the bothering symptom. The score of each domain was represented by the mean scores of the items forming this domain and ranged from 1 to 8.

The systematic scoring for each of the four MENQOL domains was identical. The severity of menopausal symptoms was represented as: mild symptoms, represented by scores 2–4; moderate symptoms, represented by scores 5 and 6; and severe symptoms, represented by scores 7 and 8.

The collected data were analyzed using IBM Statistical Package for Social Sciences software (SPSS), 21st edition. For assessment of data homogeneity, all outcome domains showed a skewed distribution with prior confirmation through the Kolmogorov–Smirnov test, where the Kolmogorov–Smirnov statistic was 0.0176 for the vasomotor domain, 0.0156 for the psychosocial domain, 0.087 for the physical domain, 0.091 for the sexual domain, and 0.091 for the total MENQOL score and their p-values were <0.001 for all domains. The Kaiser–Meyer–Olkin test for sampling adequacy of the 29 items in the current scale was 0.852. Cronbach’s α coefficient of the total MENQOL score was 0.82. The other Cronbach’s α coefficients of subscales were 0.91 for the vasomotor domain, 0.6 for the psychological domain, 0.75 for the physical domain, and 0.9 for the sexual domain.

Continuous data were expressed as mean ± standard deviation and categorical data as frequencies and percentages. As data were not normally distributed, the Mann–Whitney U-test and the Kruskal–Wallis test were used to compare MENQOL item scores; the pairwise comparison was estimated using Bonferroni correction. Pearson’s correlation analysis was used to assess the correlations between MENQOL domains versus age and BMI. Multivariable linear regression analysis was used to assess predictors of the total MENQOL score of the study participants. Results were considered statistically significant at p < 0.05.

Results

We interviewed 361 women selected by a convenience sampling method from the waiting areas of outpatient clinics and inpatient wards. Nonetheless, 11 women refused to participate in this study due to the sensitive questions related to their sexual functioning, and they were excluded. Eventually, 350 women met our selection criteria and agreed to be enrolled in our study.

Table 1 presents a summary of the sociodemographic characteristics of the study participants. The mean age was 55.99 ± 6.16 years. The included women were predominantly aged ≥55 years (53.1%), were married (84.3%), had secondary (40.3%) or high school education (24.3%), were housewives (46.3%), were living in rural regions (63.1%), were of intermediate socioeconomic class (65%), usually exercised fewer than three times a week (84.6%), were overweight (42.9%), and had mean BMI of 26.3 ± 3.98. Meanwhile, 44.3% of the participants were in the first 5 years after menopause.

Table 2 presents the frequency of QoL domains among the study participants. Physical symptoms were the most commonly reported among the women, including mainly low backache (79.1%) and feeling lack of energy (78.3%). Meanwhile, the most prevalent vasomotor symptom was sweating (62.3%). Regarding the psychological domain, the most frequent complaints were being impatient with other people (73.4%) and feeling anxious (70.9%). As for the sexual symptoms, vaginal dryness during intercourse (78.9%) was the most frequent symptom. The total mean score of the MENQOL questionnaire was 3.1 ± 0.84 points.

Table 3 presents the associations between sociodemographic characteristics and QoL domains of the study participants. In general, we found a statistically significant association between the total QoL score and age (p < 0.001), occupation (p = 0.017), exercise (p < 0.001), SES (p < 0.001), and time since menopause (p < 0.001). However, residency
did not significantly affect any of the QoL domains. Concerning the effect of education, we found that women with postgraduate degrees had a significantly higher mean score in the psychological domain. Regarding age, older women (>55 years) had the highest mean scores in all domains.

Meanwhile, for occupation, housewives had the highest mean scores in the psychological domain while hand workers had the highest mean scores in the physical domain (p = 0.017 and 0.027, respectively). Regarding the physical activity, those who exercised fewer than three times a week had the highest mean scores in all domains. Similarly, females of low SES had the highest scores in the psychological (p = 0.005), physical (p = 0.002), and sexual (p < 0.001) domains. Finally, females who presented a long time since menopause had significantly higher scores in all domains compared to their counterparts (p < 0.001).

**Table 4** presents the correlation of age and BMI with different QoL domains. We found that there was no correlation between age and the vasomotor (r = 0.169, p = 0.002) or sexual (r = 0.212, p < 0.001) domains. However, there was a significant weak correlation between age and the psychological (r = 0.393, p < 0.001) or physical (r = 0.437, p < 0.001) domains. Regarding BMI, there was no correlation with the vasomotor domain (r = 0.285, p < 0.001). However, there was a significant weak positive correlation with the psychological

(r = 0.437, p < 0.001) and sexual (r = 0.471, p < 0.001) domains and a moderate correlation with the physical domain (r = 0.577, p < 0.001). Finally, there was a significant positive weak correlation between age and total QoL score (r = 0.474, p < 0.001) (Figure 1). Meanwhile, there was a significant positive moderate correlation between BMI and total QoL score (r = 0.689, p < 0.001) (Figure 2).

Multivariable linear regression analysis was used to assess predictors of the total MENQOL score. We found that the best-fitting predictors for the MENQOL score of our participants were age (p < 0.001), BMI (p < 0.001), and exercise (p < 0.001). For every 1-year increase in age, there is an increase in the MENQOL score of 0.034 points (odds ratio = 1.28 (95% confidence interval 1.023 to 1.047; p < 0.001). Moreover, for every increase in BMI of 1 kg/m², there is an increase in the MENQOL score of 0.105 points (odds ratio = 1.63 (95% confidence interval 1.091 to 0.131; p < 0.001), while menopausal females who exercised more often had a MENQOL score 0.38 points lower than those who exercised less (odds ratio = 0.80 (95% confidence interval 0.59 to 0.781); p < 0.001).

The $R^2$ coefficient of determination represents the percentage of variability of the dependent variable that can be explained by the regression equation. In our study ($R^2$ = 0.547), 54.7% of the variability of the dependent variable (total MENQOL score) can be explained by the regression model presented in **Table 5**. The standardized coefficient represents the amount of change in the outcome variable that would be expected per unit change in the predictor (when all other variables in the equation are held constant).

**Discussion**

Menopause-related symptoms can be severe enough to affect women’s personal and social functioning and to impact their QoL negatively19. The most frequently reported symptom in the current study was low backache. This could be linked to a high mean age of women within this study, which may be associated with a higher prevalence of osteoporosis and, consequently, low backache. After the menopause, bone resorption significantly exceeds bone formation resulting in net bone loss. Therefore, we supposed that low backache could be attributed to osteoporosis. However, we did not assess the bone density among participants so we could not prove our suggestion.

In regard of each domain, we found that the most prevalent symptoms were low backache in the physical domain, vaginal dryness during intercourse in the sexual domain, sweating in the vasomotor domain, and being impatient with other people in the psychological domain. Physical symptoms were the most prevalent, which is consistent with previous studies. Interestingly, Sharma et al.20 reported that younger age was associated with vasomotor symptoms, and increasing age was associated with psychological and rheumatic symptoms.

Ibrahim et al.4 reported that the most prevalent symptoms in their study were joint and muscular pain, followed by sleep problems and hot flushes. They clarified the high
In general, we found a significant association between QoL, age, occupation, exercise, and SES. Older women, housewives, those who exercised fewer than three times a week, and those of low SES had poor QoL. Norozi et al. found a significant association between the QoL of postmenopausal women and their age, educational level, marital status, and employment status. Concerning the impact of age on QoL, we found that women with increasing age had a higher MENQOL score, and thus a poorer QoL. Similarly, Ibrahim et al. indicated that older women were more susceptible to have poor QoL. On the contrary, Karmakar et al. reported that women aged ≤50 years had significantly higher scores in the vasomotor, psychological, and physical domains; however, the difference in sexual domain scores was statistically insignificant. Fallahzadeh found similar results and clarified that the prevalence of menopause-related symptoms decreases after

prevalence of joint and muscular pain by the lack of exercise, inadequate supplementation, and obesity. Similarly, other studies described joint and muscle pain as the most common menopause-related symptom. This difference is possibly explained by the different mean age of the enrolled women between these studies and ours.

The mean total score of the MENQOL questionnaire in the current study was 3.1 ± 0.84 points. The sexual domain imposed the greatest impact on QoL (mean = 3.12 ± 1.66), followed by the physical (mean = 3.18 ± 0.92), psychological (mean = 3.08 ± 0.98), and vasomotor (mean = 3.01 ± 1.78) domains. Similarly, Mohamed et al. found that the highest mean MENQOL score was observed in the sexual domain, followed by psychosocial, then vasomotor, and, finally, physical symptoms. It is noted that the physical and psychological symptoms of menopause, along with low sexual functioning, can lead to a sense of inferiority and negative body image with poor QoL.
menopause; therefore, their negative impact on QoL decreases. Fallahzadeh also indicated that older women might have learned to handle menopause-related symptoms over time.

As for the impact of occupation, housewives had significantly higher scores in the psychological domain. This is consistent with two previous studies. Abedzadeh et al. explained that employed women had higher self-esteem and better social support, and thus their QoL was better than unemployed women. Meanwhile, hand workers had higher scores in the physical domain. Their greater dependence on physical skills may explain their poorer physical QoL.

Figure 1. Correlation between age and total Menopause-Specific Quality of Life (MENQOL) score.

Figure 2. Correlation between body mass index (BMI) and total Menopause-Specific Quality of Life (MENQOL) score.
Although we did not find a significant association between QoL and education in general, women with postgraduate degrees had a significantly higher score in the psychological domain and thus a poor psychological life compared to less educated women. The reason for this finding is unclear. Karmakar et al. demonstrated that literate women had a significantly higher score in the physical domain compared with illiterate women. However, they reported that the difference in the other domains was insignificant. On the contrary, Abedzadeh et al. reported that illiterate women had higher scores in the physical and psychosocial domains. They indicated that a higher educational level was associated with better health, easier access to healthcare, higher income, and more opportunities in the women’s social and working life.

Meanwhile, we found insignificant associations between a woman’s residency and her QoL. Contrary to our finding, Sharma and Mahajan reported that somatic, psychological, and urogenital symptoms were higher in rural women than in urban women. They clarified that rural women struggled with low SES, lack of education, and poorer access to health services. Meanwhile, and similarly to our finding, Yohanis et al. found an insignificant difference in QoL between rural and urban women. In their study, women of rural communities were more open to the changes they have experienced since menopause and accepted menopause as a natural process that happens to every woman.

Moreover, those who exercised fewer than three times a week had the highest mean scores in the four domains. This suggests that women with better physical activity tend to have better QoL. Similarly, Ganapathy and Furaikh found that physically active women had better QOL scores in the physical, psychological, vasomotor, and sexual domains compared to women who had a sedentary lifestyle and were physically inactive. Some indicated that physical activity is associated with better health and can prevent the occurrence of several diseases. Several other mechanisms have been proposed to explain the observed relation between physical activity and physical and psychological symptoms, including diversion from stressful stimuli, enhanced brain aminergic synaptic transmission, improved self-efficacy, and increased levels of endorphins. Meanwhile, several studies have reported that physical activity did not impact vasomotor or sexual domains significantly. However, the reason behind the inconsistency of the results is unclear.

In the present study, those of low SES had the highest scores in the psychological, physical, and sexual domains. Ganapathy and Furaikh found that higher-income women had lower MENQOL scores in all four domains compared to those in the lower-income group. Moreover, Ibrahim et al. reported that low SES was associated with poor QoL. Women of high SES usually have a less stressful life, better access to health services, better education, and higher satisfaction, which probably explains our finding.

On multivariable linear regression analysis, we found that increasing age, higher BMI, and lower exercise frequency were associated with higher MENQOL scores, and thus poorer QoL. Fallahzadeh found that higher BMI was associated with poor QoL in the vasomotor domain only; however, logistic regression analysis in that study showed that BMI was not a significant independent risk factor for higher vasomotor scores.

### Limitations

This study has some limitations. First, women may have given false or unreliable responses to sensitive questions, especially those addressing their sexual functioning. However, we tried to create a confidential atmosphere to help them share such personal information. Second, the present study is a cross-sectional study which only reveals the presence of an association but does not describe the direction of such an association. Third, we did not control some of the confounding factors, such as the age of the woman and exercise. Thus, the woman’s QoL could be influenced by these factors rather than her menopausal symptoms. Finally, the study was conducted at a single hospital and does not necessarily represent the whole Egyptian community.

### Conclusion

Physical symptoms were the most prevalent menopausal symptoms in the current study. Moreover, the sexual domain imposed the greatest impact on QoL, followed by the physical, psychological, and vasomotor domains. There is a significant correlation between QoL, age, occupation, exercise, and SES. Further multicentric studies with larger samples are needed to report more representative results. Future research should address menopausal women’s health needs to improve the quality of their lives.

**Potential conflict of interest** The authors declare that they have no conflict of interest.
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