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Mental Health Status, Quality of Life and Associated Factors in Postmenopausal Women: A Cross-Sectional Study

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ABSTRACT

Background & aim: Physiological changes experienced during menopause in women adversely affect their mental health and overall quality of life. This study aimed to investigate the mental health status, quality of life, and associated factors in postmenopausal women.

Methods: This study is a cross-sectional study involving 400 postmenopausal women between April 2022 and February 2023 in Urmia. To select participants, multiple-stage sampling was employed. Data were collected using a demographic information questionnaire, the Symptom Checklist-90 (SCL-90) to measure mental health status, and the Menopausal Quality of Life Questionnaire (MENQOL). The data was analyzed using Pearson correlation test and backward multiple linear regression model with SPSS version 16.

Results: The average age of the participants was 54.26 ± 3.54 years. In examining the mental status, overall psychological symptoms index was 1.42 ± 0.53, and the highest mean was related to the dimension of obsession (1.74 ± 0.72). There was a substantial association between postmenopausal women's mental health and education, employment, and number of children (P< 0.05). In examining the quality of life, the total questionnaire score was 35.79±13.49, and the physical dimension (20.50 ± 8.49) had the highest average. There was a significant association between quality of life and economic position, number of children, and spouse's degree (P< 0.05). There was furthermore a substantial positive correlation between mental health and quality of life.

Conclusion: Based on results, designing supportive interventions to improve the mental health and quality of life of menopausal women seems essential.

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Introduction

Menopause, a natural phase in a woman's life, marks the cessation of reproductive capabilities and the commencement of infertility (1). According to the World Health Organization (WHO), menopause is defined as the absence of menstruation for a consecutive period of 12 months, which is attributed to a decline in ovarian follicular activity (2). This period is associated with a decrease in ovarian hormones and an increase in pituitary gonadotropins, leading to irregular menstrual cycles and finally cessation of menstruation (3). Typically, this transition occurs at the average age of 51, spanning from 45 to 55 years of age (4).

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Menopause is influenced by various factors such as ethnicity, habits, physical condition, and genetic inheritance (5).

During this period, women may encounter various issues that can significantly affect their quality of life. These challenges encompass hot flashes, excessive sweating, heart palpitations, sleep disturbances, irritability, fatigue, depression, memory lapses, reduced sexual desire, vaginal dryness, painful intercourse, urinary symptoms, and a decline in muscle mass (6-8). Although most menopausal symptoms are not life-threatening, they can have adverse effects on women's health across physical, mental, and social dimensions (9). Research indicates that menopause symptoms can affect women's psychological well-being, with those experiencing physical symptoms being more susceptible to mood disorders. Some women may experience intensified mood symptoms due to severe or prolonged menopausal symptoms (10-11). The incidence of depression doubles during this time, and there is some evidence that women are more likely to experience panic attacks, feelings of irritability, sadness, anxiety, hopelessness, and decreased concentration or motivation during and after the menopausal transition (11).

In addition to the impact of menopause symptoms on mental health, numerous studies have demonstrated that menopausal changes significantly impair the overall well-being and quality of life experienced by women (12-13).

Quality of life refers to an individual's perception of their living conditions concerning their cultural and value system, goals, expectations, standards, and interests, which are influenced by various factors such as physical health, mental well-being, beliefs, social interactions, environment, age, gender, and cultural background (14-15). Women's quality of life at the end of reproductive age is greatly influenced by the physical and psychological changes that occur during the menopause transition period (7). The effect is linked to a woman's ability to manage these changes and symptoms, in addition to her overall satisfaction and happiness with her life during this particular period (4). Fallahzadeh's (2020) research indicates that postmenopausal women experience a decline in their quality of life due to physical health-related role limitations (16), and studies have revealed that menopausal symptoms can worsen due to elevated levels of stress and anxiety in women (17-18).

The health of women in the years following menopause is crucial, given that research has yielded conflicting results regarding the association of factors impacting postmenopausal women's quality of life and mental well-being. It is important to note that women spend one-third of their lives after menopause. Considering the significance of public health, it is vital to emphasize the mental well-being and quality of life of women as they go through menopause (6). Despite extensive research (12, 16), no studies have been conducted on the mental health and quality of life of menopausal women in Urmia's unique socioeconomic and cultural setting. The purpose of this study was to investigate the mental health status, quality of life, and associated factors in postmenopausal women.

Materials and Methods

The current research is across sectional study, focused on the statistical population of postmenopausal women who visited Comprehensive Health Centers in Urmia, Iran, between April 2022 to February 2023.

The sample size was calculated using the following formula (19) with an error rate of 5%, a power level of 95%, f=0.2 (effect size), and k=11 (number of independent variables) (20).

$$n = \frac{(Z_{1-\alpha/2}+Z_{1-\beta})^2}{f^2} + K + 1$$

Based on this estimation and considering a dropout rate of 15%, total sample size required was 400.

In this investigation, a multistage random sampling technique was utilized. Following the compilation of a comprehensive list of health centers situated in both urban and rural regions, a total of five comprehensive health centers and five rural comprehensive health centers were randomly selected from Urmia's north, south, east, west, and center (two centers were randomly selected from each region). After providing the necessary explanations to the heads of each comprehensive health center, the list of menopausal women was received from the Sib system (Integrated health system).

Then, using the table of random numbers (A random number table typically contains rows and columns of 5-digit random numbers. For instance, 85 menopausal women were included in a health center. Out of the total sample size, 5 samples needed to be randomly chosen from them. Firstly, a set of 5 two-digit numbers had to be generated from a random number table. Secondly, by randomly closing the eyes and pointing to the screen, the first number was selected, such as in the ninth column: 27728. In the third step, the initial two digits of this number were 27, falling within the range of women covered by the center, leading to the selection of the 27th person. Moving on to the next number in the bottom row: 84012. In the fourth step, the first two digits of this number were 84, also within the range. Consequently, 5 individuals were chosen from the list of women at that center (2, 16, 27, 76, and 84), and the required sample was selected from each center.

The eligibility criteria for participants included women aged 50 to 65 who had completed at least one year since their last menstrual cycle and did not suffer from any mental illnesses or experienced traumatic events such as the loss of immediate family members or divorce in the preceding year. Additionally, participants were required not to use hormonal drugs or medications (such as Provera or Medroxyprogesterone,) affecting menstruation during the past year, based on their self-reports. Participants who declined or were unable to take part in the study were excluded.

After receiving the code of ethics and necessary permits from Urmia University of Medical Sciences, sampling began. Sampling was done by considering the proportion of postmenopausal women referred to each health center. After obtaining written consent, 400 postmenopausal women who met the admission criteria and expressed interest in participating were recruited for the study.

In this study, data were collected using the Menopausal Quality of Life Questionnaire (MENQOL), the Symptom Checklist-90 (SCL-90), and a demographic information questionnaire (21-22).

The demographic information questionnaire includes details such as age, spouse's age, age at menopause, marital status, number of children, height and weight for calculating BMI, housing status, smoking and drug habits, education level, spouse's education, wife's employment status, spouse's occupation, and economic status.

The SCL-90 psychological symptoms questionnaire evaluates nine mental symptoms, including somatization, interpersonal sensitivity, obsessive-compulsiveness, hostility, phobic anxiety, paranoid ideation, depression, anxiety, and psychoticism, through 90 items. The questionnaire divides the severity of symptoms and common complaints into five levels: none, a little, somewhat, a lot, and very much. The prevalence of 9 diseases was evaluated using the cutoff values of 1>s>0 (usual), 2>s>1 (mild), 3>s>2 (moderate), and 4>s>3 (severe). Furthermore, the GSI index (Global Severity Index) was considered a measure of overall psychological symptoms (23). Questionnaires were completed through a face-to-face interview. The duration of the interview was around 30-40 min.

The quality-of-life questionnaire is categorized into four dimensions: Vasomotor (3 items: -1-3), Psychosocial (7 items: 4-10), Physical (15 items: -11-25), and sexual (2 items: 26 and 27). This questionnaire uses a 4-point Likert scale ranging from 0 to 3. It should be noted that, with increasing MENQOL scores, levels of bother experienced from the symptom are increased as well (21).

The validity and reliability of these tools have been confirmed in the studies of Ghazanfarpour et al.(2014) and Alizadeh et al. (2023) (24,25). As for the Menopause-Specific Quality of Life Questionnaire (MENQOL), the reliability of the instrument was assessed using Cronbach's alpha coefficient and the test–retest method. The overall Cronbach's alpha coefficient for the questionnaire was reported as 0.90, indicating excellent internal consistency. The Cronbach's alpha coefficients for the vasomotor, psychosocial, physical, and sexual domains were 0.80, 0.70, 0.80, and 0.30, respectively. Test–retest reliability was also confirmed, with a correlation coefficient of 0.75. Content validity of the Persian version was established by a panel of experts in obstetrics and gynecology, while convergent validity was assessed using Spearman's correlation coefficient and

demonstrated acceptable validity across the majority of questionnaire items (25). As for the Symptom Checklist-90 (SCL-90), the reliability coefficient of the questionnaire was reported to be 0.97, with sensitivity, specificity, and accuracy of 0.94, 0.98, and 0.96, respectively (24).

After receiving the code of ethics and necessary permits from Urmia University of Medical Sciences, data collection was started. The researcher contacted the menopausal women and invited them to participate in the study after providing the necessary explanations and stating the objectives. If the women agreed and met the inclusion criteria, the questionnaires were completed by the participants. If the women declined to participate, another individual was randomly selected as a replacement.

Utilizing SPSS version 16, the collected data were analyzed, and tables were produced to exhibit the central and dispersion indexes. Mean, standard deviation, frequency percentages, and Multiple Linear Regression model were used. All statistical tests were executed with a significance level of 0.05.

Results

In the study, it was found that the menopausal women had an average age of 54.26± 3.54 years, while the average age at menopause was 49.40±2.38 years. Additionally, the majority of these women were married. The patients under investigation exhibited an average BMI of 31.91± 27.18, while the average number of children stood at 3.41 ±1.56, with a notable 60.5% having at least one child. Merely 16% of the female participants possessed a university degree, with an overwhelming 99.7% reporting no history of smoking. In terms of income, 65.4% fell into the middle-class category, and an impressive 83% were homeowners (Table 1).

Table 1. Demographic characteristics of postmenopausal women studied

Variable	Number (%)
Marital status	
Married	296(80.4)
Single	104(19.6)
Education	
College education	60(16)
Undergraduate education	340(84)
Job	
Employed	81(21.5)
Housewife	319(78.8)
Housing situation	
The owner	332(83)
Tenant	68(17)
Husband's education	
College education	73(27.0)
Undergraduate education	327(73)
Husband's job	
freelance job	205(51.2)
Employee	195(49.8)

The quality-of-life questionnaire provided scores for individual dimensions as well as an overall score. The physical dimension had the highest average, and the sexual dimension had the lowest average; the total questionnaire score was 35.79±13.49 (Table 2).

Table 2. Average scores of quality-of-life dimensions in the postmenopausal women studied

Dimension	Mean (SD)
Vasomotor	1.47(0.97)
Psychosocial	1.40(0.62)
Physical	1.37(0.57)
Sexual	1.29(0.98)

The mean quality of life score of postmenopausal women was examined using a multiple linear regression model in the backward technique to investigate the impact of independent factors, including demographic and other collected data. The results of the final model indicated a significant association between economic status variables and quality of life. The average quality of life score for women with favorable economic status was higher compared to those with low economic status (β =16.52, P=0.001). The average score of quality of life who has average economic status was higher than as compared to a woman who has a low economic status (β =14.02, P=0.005). An evident improvement in the standard of living was observed with an increase in the number of children (β =1.45, P=0.029). The average quality of life score for women with guidance education was higher compared to those with illiterate education (β =4.75, P=0.034). The average quality of life score for individuals with a high school education was higher compared to that of women with illiteracy (β =3.97, P=0.007). Similarly, the mean quality of life score was

higher for university-educated women than for illiterate women (β =6.78, P=0.01). No noteworthy correlation was identified between the average quality of life score and other variables (Table 3).

Table 3. Related factors on the quality of life of postmenopausal women using linear regression

Variable	β	S. E	Test statistics	P-Value
Economic status (Favorable)	16.52	5.06	3.26	0.001
Economic status (Average)	14.02	4.92	2.85	0.005
Number of children	7.50	2.83	2.65	0.009
Wife's education (Guidance)	4.75	2.23	2.13	0.034
Wife's Education (High School)	3.97	2.19	1.82	0.07
Wif's Education (University)	6.78	2.63	2.58	0.01

The descriptive analysis of the nine dimensions under investigation is derived from the total scores of each aspect divided by the corresponding number of items. The results revealed that the obsessive dimension had the highest average at 1.74 ± 0.72, whereas the psychotic dimension had the lowest average at 0.92 ± 0.58, and the GSI index was determined as 1.42 ± 0.53 (Table 4).

Table 4. The average scores of SCL_90 questionnaire dimensions in the postmenopausal women studied

Dimension	Mean (SD)
Hostility	1.08 (0.63)
Anxiety	1.25 (0.59)
Obsession	1.74 (0.72)
Interpersonal sensitiveness	1.49 (0.72)
Somatization	1.63(0.57)
Psychoticism	0.92 (0.58)
Paranoid ideas	1.43 (0.66)
Depression	1.68 (0.68)
Phobic anxiety	0.99 (0.59)

The investigation focused on the occurrence of various disorders in postmenopausal women. It was found that 56.8% of the participants did not exhibit any signs of hostility. Additionally, 48.8% of the women experienced a mild anxiety disorder, while 54.5% had a mild obsession. Furthermore, 18.3% of the participants displayed moderate interpersonal sensitivity, and only 1.5% reported severe somatization.
Moreover, 63.7% of the women did not exhibit any symptoms of a psychotic disorder. However, 13% had mild paranoid ideas, 30.8% experienced moderate depression, and 38% had mild phobic anxiety (Table 5).

By utilizing a multiple linear regression model in the backward method, the impact of independent variables (including demographic and other collected variables) on the GSI score was examined. The final model demonstrated that education had a significant positive correlation with the GSI score. The average GSI score for individuals with primary education was higher compared to women with no formal education (β =0.36, Pp=0.010). The average GSI score for individuals with guidance education was higher compared to women with no formal education (β =0.49, P<0.001). The average GSI score for individuals with high school education was higher compared to women with no formal education (β =0.67, P<0.001). The average GSI score for individuals with university education was higher compared to a woman who has an illiterate education (β =0.40, P<0.001), suggesting that education played a crucial role in determining the score. The GSI score demonstrated a significant direct correlation with the number of children (β =0.07, P=0.008). The average GSI score for employed individuals was higher compared to women who were housewives (β =0.35, P=0.025). Notably, no other variables were found to be associated with the GSI score, as evidenced in Table 6.

The examination of the relationship between the anxiety and depression components of the SCL90 and the dimensions of the quality of life questionnaire involved the utilization of the Pearson correlation. A positive correlation was found between the depression score on the SCL90 questionnaire and the vasomotor dimension (r=0.16, P=0.002), psychosocial dimensions (r=0.37, P<0.001), physical aspect (r=0.27, P<0.001), and sexual dimension (r=0.15, P=0.003) of the quality-of-life questionnaire. The anxiety score of the SCL90 questionnaire exhibits a notable positive

correlation with the vasomotor dimension (r=0.24, P<0.001), psychosocial dimension (r=0.28, P<0.001), physical dimension (r=0.35, P<0.001), and sexual dimension of the quality-of-life questionnaire (r=0.28, P<0.001).

Ultimately, a substantial positive correlation (r=0.45, P<0.001) was observed between the scores of the SCL90 and the quality-of-life questionnaire.

Table 5. Frequency distribution of severity of mental disorders among postmenopausal women studied

Dimension	No disorder	Mild	Medium	Sever
	Number (%)	Number (%)	Number (%)	Number (%)
Hostility	227 (56.8%)	142 (35.5%)	30 (7.5%)	1 (0.3%)
Anxiety	154 (38.5%)	195 (48.8%)	51 (12.8%)	0 (0%)
Obsession	54 (13.5%)	218 (54.5%)	114 (28.5%)	14 (3.5%)
Interpersonal sensitiveness	125 (31.3%)	187 (46.8%)	73 (18.3%)	15 (3.8%)
Somatization	52 (13.0%)	271 (67.8%)	71 (17.8%)	6 (1.5%)
Psychoticism	255 (63.7%)	132 (33.3%)	13 (3.3%)	0 (0%)
Paranoid ideas	141 (35.3%)	194 (48.5%)	52 (13.0%)	13 (3.3%)
Depression	59 (14.8%)	214 (53.5%)	123 (30.8%)	4 (1.0%)
Phobic anxiety	221 (55.3%)	152 (38.0%)	27 (6.8%)	0 (0%)

Table 6. Related factors on GSI score in the postmenopausal women studied

Dimension	β	S. E	Test statistics	P_Value
Education (Primary)	0.36	0.14	2.59	0.010
Education (Guidance)	0.49	0.11	4.20	<0.001
Education (High school)	0.67	0.11	5.95	<0.001
Education (University)	0.40	0.09	4.12	<0.001
Occupation (Employed)	0.35	0.13	2.26	0.025
The number of children	0.07	0.03	2.69	0.008

Discussion

The purpose of this study was to investigate the mental health status, quality of life, and associated factors in postmenopausal women.

The physical dimension was found to have the lowest quality of life score in the present study. This finding aligns with the researchers' findings by Abdi et al. (2014) (26), Ibrahim et al. (8) and Barati et al. (2021) (27). In contrast, Makvandi et al. (2013) (28) found that the vasomotor dimension and hot flashes were linked to the lowest quality of life score. This inconsistency may be attributed to various factors, including cultural and social disparities, lifestyle choices of menopausal women, meteorological conditions, and dietary patterns.

The study reveals a direct correlation between economic position and quality of life. The results are consistent with the research conducted by Barati et al. (2021) (27), and in this context, Li et al. reported low economic status as the most important factor affecting increased menopausal symptoms or prolonged menopausal symptoms (29). Additionally, the findings are compatible with the research conducted by Fallahzadeh et al. (2011) (30). The research conducted in Tehran, which discovered no correlation between economic position and quality of life (31), contradicts the notion. This inconsistency may be due to a range of factors, including cultural and social disparities and the lifestyle choices of menopausal women. Typically, individuals with lower socioeconomic status experience a diminished quality of life. Women belonging to higher socioeconomic groups may have an advantage in managing menopausal symptoms due to their ability to receive prompt referrals to specialists and adequate nutrition. Furthermore, studies suggest that individuals with a favorable financial status are more likely to invest in their health (32-33).

A significant correlation was identified in the present investigation between the quality of life of postmenopausal women and the educational background of their spouses. The findings of this study revealed that postmenopausal women

married to highly educated husbands experienced an enhanced quality of life. Charandabi et al.'s (2015) study results showed that individuals with higher level of education tend to have greater awareness and understanding of the symptoms and issues faced by menopausal women. The timely assistance and support from spouses can significantly impact the psychological well-being of menopausal women, ultimately enhancing their overall quality of life (34).

In this study, a notable enhancement in the standard of living was observed as the number of children increased. This finding aligns with the research conducted by Abedzadeh et al. (35), while it contradicts the findings of Blumel et al. (2000) (36) and Foroud et al. (2014) (37). Seemingly, as the number of children rises, enhanced parent-child interactions, the development of affection, reduced loneliness, and increased parental support during middle age, positively impact the psychological well-being of menopausal women. Consequently, this has significantly contributed to the improvement of their quality of life (38).

In the examination of the mental state of postmenopausal women in the present study, the highest average was related to the dimension of obsession, and the study's results indicate a significant correlation between education and mental health in postmenopausal women. This aligns with the findings of Sharif's research (39). Numerous studies conducted in Iran on postmenopausal women have demonstrated a high prevalence of mental disorders among individuals with limited education or illiteracy (40-41). This could be attributed to their lack of knowledge and inability to employ effective coping strategies to address life's challenges. Furthermore, enhanced education leads to increased awareness and the development of more suitable approaches for adapting to the environment (42-43).

The study revealed a substantial link between women's profession and their mental health, which is consistent with the findings of Noorbala et al. (2004) (44) and Sadeghi et al. (2011) (45). However, the research results were not consistent with the previous comparable studies (42-43). This inconsistency is probably due to the interaction, communication, and intimacy that working individuals have with their colleagues in the workplace, which housewives may lack (38).

In the present study, a significant relationship was seen between the number of children and mental health. According to the study conducted by Sadeghi et al. (45), a significant link was observed between the number of children and mental health. However, in contrast to the findings of Sharif et al. (2002) (39), this discrepancy cannot be explained by differences in cultural-social context, race, religion, attitude, or tools.

Recent research has revealed a substantial relationship between the mental health of postmenopausal women and various domains of their quality of life. Additionally, a significant positive correlation was identified between the scores obtained from the quality-of-life questionnaire and the SCL90 questionnaire, highlighting a robust connection between the two assessments. A positive correlation was found between the depression score on the SCL90 questionnaire and the vasomotor, psychosocial, physical, and sexual dimensions of the quality-of-life questionnaire. The anxiety score of the SCL90 questionnaire exhibits a notable positive correlation with the vasomotor, psychosocial, physical, and sexual dimensions of the quality-of-life questionnaire. This study aligns with the results obtained by Seydi et al. (2014) (46) and Wieder-Huszla et al. (2014) (47). The mental well-being of postmenopausal women is influenced by their quality of life. Numerous scholars have regarded health as a fundamental and crucial aspect of quality of life, as it directly impacts an individual's overall sense of well-being. The age range of 50 to 65 years is a critical period for women's health, significantly impacting their sense of well-being and quality of life. Their attitudes and emotions towards these changes, along with their physical and psychological sensitivity, are key factors in this context (48).

One of the strengths of the study was the evaluation of the quality of life and mental health of postmenopausal women in Urmia for the first time. The main limitation of this research is not measure the variables of emotional support of the spouse, the type of relationship with the spouse, and satisfaction with married life based

on standard questionnaires. Therefore, it is suggested to address these issues in postmenopausal women in future studies.

Conclusion

The results of the study revealed that the lowest quality of life score was connected to the physical dimension and symptoms of fatigue, pain in the muscles and joints, and a lack of strength and energy. Additionally, there is a significant correlation between quality of life and financial status, as well as the number of children and the level of education of menopausal women's spouses. Notably, a substantial correlation was found between the dimensions of quality of life and mental health, as well as between the overall mental health and the overall quality of life. Prioritizing the overall health of women, particularly their mental wellness, can bring about several advantages for both individuals and society, ultimately leading to an elevated quality of life. Comprehensive health centers can provide essential healthcare services for women in the postmenopausal stage. To prevent mood disorders, it is suggested to screen and identify menopausal women who are prone to mental health problems and provide adequate counseling for mental health assessment and treatment during menopause.

Declerations

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Conflicts of interest

The authors declared no conflicts of interest.

Ethical considerations

This article is the result of a research project approved by Urmia University of Medical Sciences, Urmia, Iran. Informed consent was obtained from the research subjects.

Code of Ethics

This study has a code of ethics from the Ethics Committee of Urmia University of Medical Sciences. code of ethics (IR.UMSU.REC.1399.245).

Use of Artificial Intelligence (AI)

We have not used any AI tools or technologies to prepare this manuscript.

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Authors' contribution

AY, HN, SD, and ZS contributed substantially to the study design. HN and ZS carried out the data collection. AY, HN, and SD conducted data analysis and interpretation. AY and HN prepared the first draft of the manuscript. All authors reviewed the manuscript critically and read and approved its final version.

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