Quality of Life of Postmenopausal Women and Their Spouses: A Community-Based Study

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Background: Most women spend more than one-third of their lives after menopause. Due to physiologic changes in that period, menopause can cause a series of symptoms such as vasomotor symptoms, psychologic problems, and sexual dysfunction, which can affect the women's quality of life (QoL) and other family members, especially their spouse.

Objectives: The present study aimed to determine the association between the QoL of postmenopausal women and their husbands.

Patients and Methods: This descriptive-inferential cross-sectional study was conducted according to the census of 2006 in Iran. A total of 400 postmenopausal women aging 50 to 59 years and their spouses in 80 cluster heads of Ilam City residents were selected and studied in collaboration with the Statistical Center of Iran. The required data were gathered using the short-form health survey (SF-36) questionnaire and demographic questionnaire developed by the researcher-trained interviewers. Data were analyzed by SPSS 18 through Kruskal Wallis test, Wilcoxon signed ranks test, and correlation.

Results: The participants' mean age was 54.2 ± 2.8 years for women and 61.1 ± 6.1 years for their spouses. More than half of the women (57%) and about one-third of men (32.8%) were illiterate. The employed educated women aging 50 to 54 years had a higher mean score of SF-36 domains. The difference in education was significant in all domains except for mental health. There was a significant difference in age in all domains except in general health. The mean score of all domains of QoL was significantly less in the illiterate men than in the literate ones ($P < 0.05$). The results of the present study showed a significant correlation ($P < 0.05$) between the couples' QoL, vasomotor symptoms, and aging. Spearman test showed a significant positive correlation in all domains of QoL between postmenopausal women and their spouses (correlation coefficient, 0.48-0.63).

Conclusions: Based on the results of the present study and other performed studies in this regard, menopause, aging, vasomotor symptoms, and education had significant association with the QoL of postmenopausal women. The reduced QoL in postmenopausal women could eventually lead to the reduced QoL of their spouses. Therefore, it is necessary to plan for the education of these women and their husbands to broaden their understanding of the changes of menopause and ways to improve their QoL.

Keywords: Menopause; Quality of Life; Spouses

1. Background

Menopause is the permanent cessation of menstruation, either naturally or artificially, which occurs in women at the age of 51, on average. Due to physiologic changes in that period, menopause can trigger a series of physical symptoms such as vasomotor symptoms and sexual dysfunction as well as psychologic problems such as low self-esteem, loss of memory, impaired concentration, anxiety, and depression (1-3). Life expectancy has been increased due to the new developments in medical sciences. Nowadays, most women spend more than one-third of their lives after menopause. However, despite great advances in medical sciences, most people spend

the rest of their lives with disabilities (4). Aging process in men is often associated with changes in endocrine system and metabolic diseases, urinary incontinence, depression, sexual dysfunction, anxiety, and cardiovascular diseases. Due to the lack of on-time medical consultation with the physician and timely diagnosis, these cases trigger the disease progression and would be untreatable or in the case of treatment, they would be associated with disability and eventually sharp decline in quality of life (QoL) of the middle-aged men (5, 6). Due to aging, in many cases menopause causes the start or aggravation of underlying diseases such as diabetes, osteoporosis,

cardiovascular diseases, atherosclerosis, respiratory diseases, musculoskeletal disorders, and reduced physical activity, which are further complicated along with the changes in social status, leaving home by the children, birth of grandchildren, and the death of parents. Given the different roles of women as a mother and wife, all of these complications affect the QOL of women and their family members, especially their spouse. Due to aging, the husband has the same physical and psychologic conditions (4, 7-10).

Several studies have been done on the QoL of the middle-aged women(9, 11, 12) and men (13), but none of them have examined the association of postmenopausal women's QoL with that of their spouses, especially in cities such as Ilam City with half of the indicators of QoL in comparison to urban areas.

2. Objectives

The purpose of this study was to determine the association of QoL of postmenopausal women with that of their spouses.

3. Patients and Methods

In this descriptive-inferential cross-sectional study, 400 postmenopausal women aging 50 to 59 years and their spouses were enrolled in the city of Ilam City during June 2011. Ilam City is a mountainous city in the west of Iran, with a population of about 550,000 people. Regarding satisfying the QoL indicators, Ilam City is among the semi-important cities. In terms of economics, Ilam City is at a relatively low level. Sampling was performed using randomized, multi-stage, cluster sampling. We randomly selected 80 clusters in Ilam City using Statistical Center of Iran information. In each cluster, five eligible couples aging 45 to 54 years, living in Ilam City, were selected. Sample size was computed with the power of 90 and α of 0.05, $\sigma = 22$ so that the sample size could show the significance 5 score difference between QoL score of men and women. We use the following equation (14):

$$n = \left[\frac{2\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}\right)\sigma}{micro;_1 - micro;_2} \right]^2$$

This research was approved in the Ethics Committee of Tabriz University of Medical Sciences, Tabriz, Iran (code: 5, 4, 2536; date: 20/6/2011). The results presented in this paper are part of a larger study, which evaluated both QoL and sexual function of postmenopausal women and their husbands. Trained interviewers collected the data in a standardized questionnaire through interviews with married couples. The researchers guaranteed the confidentiality of the collected information the couples who had met the inclusion criteria for participating by

referring to the selected subjects' homes. Subjects were allowed to leave the study at will and signed written informed consents. Only one inter viewer was responsible for interviewing each couple. They separately completed the questionnaires in two separate rooms. If the subjects were not at home, the interviewers would refer two more times to their homes in times that the couples were probably at home. Couples' questionnaires were anonymous and they were connected together after completion by using the same codes, which were assigned to them. Individual questionnaires included demographic data and 25 questions out of 36 questions were related to the short-form health survey questionnaire (SF-36). Demographic data included age, the number of living children, occupation, educational level, history of divorce or the death of a previous spouse, vasomotor symptoms, and duration of menstruation cessation for women.

The SF-36 is a public health assessment tool for the QoL. So far, this questionnaire has been used in several studies in different countries (15-18). Validity and reliability of the questionnaire for elderly people in Iran was demonstrated by Eshaghi et al.(19). In this study, the internal consistency of the questionnaire was calculated at 0.88 using Cronbach's alpha.

To obtain scientific validity, the SF-36 and demographic questionnaire were analyzed using content validity. Thus, after coordinating and communicating with Dr Ali Montazeri regarding the SF-36 questionnaire, four of eight domains of the questionnaire were chosen. The questionnaire was distributed among the ten members of the expert instructor, and final approval was achieved. Given the low socio-economic state of the studied literate population and the need to complete the questionnaire by interviewing, the questionnaire seemed to be long. Therefore, a pilot study was performed using the test-retest method; about 30 samples of each questionnaire were completed by the target group. Then to ensure whether the questionnaires have been completed accurately, the questionnaires were completed by the same individuals ten days later. Among the eight domains of QoL that were evaluated by SF-36 questionnaire, questions related to four domains, which were difficult to understand were removed. The selected questions included 25 questions in four domains: two domains from the physical health section including physical performance (10 questions) and general health (5 questions); two domains from the mental health section including mental health (5 questions), happiness (4 questions); and one question for checking up changes in health status within a preceding one year.

3.1. Statistical Analysis

The rating of individuals within each domain was calculated in the range of 0-100. Higher scores indicated better QoL. Kruskal Wallis test was used to find the associa-

tion between demographic variables and the QoL in men and women, separately. Wilcoxon Signed Ranks Test was used to compare the couples' QoL. The association between the QoL of men and women were analyzed using Pearson correlation. Normal assumption was checked by Kolmogorov-Smirnovtest. Data were analyzed using SPSS 18 (SPSS Inc, Chicago, Illinois, the United States). P value < 0.05 were considered statistically significant.

4. Results

Finally, 38 couples were excluded from the study due to lack of desire and 37 couples were excluded for other reasons such as skin diseases, member defects, mental disorders, multiple sclerosis, advanced rheumatoid arthritis, myocardial infarction, enduring complications after stroke (n = 17), < 3 months elapsed from the time of surgery (n = 5), men with two wives (n = 10), and the loss of first degree family members within the recent three months (n = 5); to achieve the calculated sample size, the next ones were selected in each cluster to replace them.

The mean ± SD age of the participants was 54.2 ± 2.8 years for women and 61.1 ± 6.1 years for men. More than half of women (57%) and about one-third of men (32.8%) were illiterate. The majority of women (95%) were homemakers and over one-third of men (38.5%) were retired. About half of couples had four to six living children.

The mean duration of amenorrhea in the studied women was reported to be 53.2 ± 33.1 month. In more than half of the women (50.7%) four or more years were elapsed from cessation of the menstruation. Nearly half of the women (49.5%) evaluated the level of their income

as inadequate. Divorce or death of a previous spouse was reported by 21 cases (5.2%). A total of 288 women (72.0%) had menopause-associated vasomotor symptoms. Urinary incontinence was reported in 135 women (33.8%) and chronic diseases were reported in 197 women (49.3%).

The mean scores of QoL in all four domains of physical performance, general health, mental health, and vitality were significantly higher in women (Table 1).

Median of four domains of QoL was calculated for both men and women. Median scores for physical functioning; general health, mental health, and vitality were respectively 86.67, 85.60, 80.00, and 83.33 in women and 86.67, 81.60, 76.67, and 75.00 in men (Table 1). Spearman test showed a significant positive correlation with a coefficient of 0.48 to 0.63 in each domain of QoL domains in postmenopausal women with their spouses (Table 2).

The age, chronic diseases, education level, occupation, household income adequacy, number of children, and vasomotor symptoms of women had as significant correlation with scores of all domains of QoL in men. The men who aged > 65 years, were illiterate or unemployed, had chronic diseases, insufficient income, ≥ 5 children, or their wives had vasomotor symptoms had lower scores in QoL. The mean score of QoL was lower in men with a history of divorce or the death of a previous spouse as well as in men with > 4 years elapsed from the cessation of their wives' menstruation. This difference was statistically significant in the domains of physical functioning in the case of divorce, and in all domains, except for general health, in the case of elapsed time from the cessation of menstruation (Table 3).

Table 1. Comparison of Quality of Life Score in Postmenopausal Women (n = 400) and Their Spouses (n = 400) in all Domains of SF-36 [a]

Scores of Subscales of SF-36	Postmenopausal women	Spouses of postmenopausal women	Z [b]	P value [c]
Physical Function	76.8 ± 19.2 (86.67)	73.8 ± 21.7 (86.67)	-2.286	0.022
General Health	71.1 ± 29.2 (85.60)	68.1 ± 26.2 (81.60)	-2.883	0.004
Mental Health	74.3 ± 18.8 (80.00)	71.7 ± 17.9 (76.67)	-3.022	0.003
Vitality	73.1 ± 19.6 (83.33)	71.3 ± 19.5 (75.00)	-1.829	0.067

[a] Data are presented as mean ± SD (median).
[b] Based on positive ranks.
[c] P value computed using Wilcoxon Signed Ranks Test.

Table 2. Correlation Coefficients of Quality of Life Subscales of Women and Men (n = 400)

Variables	Husbands Physical Function	Husbands General Health	Husbands Mental Health	Husbands Vitality
Women Physical function	0.507	0.537	0.572	0.528
Women General health	0.484	0.573	0.558	0.563
Women Mental health	0.493	0.541	0.606	0.596
Women Vitality	0.502	0.580	0.624	0.634

Table 3. Mean and Standard Deviation in the Quality of Life of Participating Husbands (n = 400)

Participants' Characteristics	Frequency, %	Subscales of SF-36			
		Physical Function	**General Health**	**Mental Health**	**Vitality**
Age, y					
45 - 64	305 (76.25)	77.0 ± 20.6	70.3 ± 26.3	73.6 ± 18.0	73.4 ± 19.5
65 - 84	95 (23.75)	63.4 ± 22.0	60.8 ± 24.7	65.6 ± 16.1	64.5 ± 18.1
Z		5.54	3.15	3.85	4.00
P value		< 0.001	0.006	< 0.004	< 0.001
Education					
Illiterate	131 (32.75)	65.1 ± 20.5	59.0 ± 26.5	66.2 ± 17.8	65.4 ± 18.2
Literate	269 (67.25)	78.0 ± 20.5	72.5 ± 24.9	74.3 ± 17.3	74.2 ± 19.5
Z		-5.82	-4.96	-4.34	-4.29
P value		< 0.001	< 0.001	< 0.001	< 0.001
Household income level					
Inadequate	244 (61.0)	70.1 ± 18.7	63.1 ± 27.4	67.1 ± 18.4	67.3 ± 20.1
Somewhat adequate and adequate	156 (39.0)	80.0 ± 18.7	75.8 ± 22.2	78.8 ± 14.4	77.6 ± 16.7
Z		-4.54	-5.07	-7.11	-5.55
P value		< 0.001	< 0.001	< 0.001	< 0.001
Employment status					
Employed and retired	323 (80.75)	76.0 ± 21.0	70.8 ± 25.4	73.9 ± 17.3	73.9 ± 8.6
Unemployed	77 (19.25)	64.5 ± 22.1	56.7 ± 26.9	62.0 ± 17.3	60.5 ± 19.4
Z		4.3	4.31	5.42	5.63
P value		< 0.001	< 0.001	< 0.001	< 0.001
Divorced/widowed					
Yes	17 (4.25)	58.2 ± 26.7	58.6 ± 27.6	66.4 ± 19.4	62.4 ± 25.6
No	383 (95.75)	74.5 ± 21.2	68.5 ± 26.1	71.9 ± 17.8	71.7 ± 19.1
Z		3.06	1.51	1.25	1.48
P value		0.002	0.131	0.212	0.152
Number of children					
0 - 4	84 (21.0)	81.1 ± 17.3	73.4 ± 24.6	76.4 ± 16.7	75.2 ± 21.3
≥ 5	316 (79.0)	71.9 ± 22.4	66.7 ± 26.5	70.4 ± 18.0	70.3 ± 18.9
Z		4.05	2.09	2.76	2.05
P value		< 0.001	0.037	0.006	0.042
Current vasomotor symptoms in the spouses					
Yes	288 (72.0)	72.0 ± 21.3	66.0 ± 25.5	69.4 ± 17.9	68.8 ± 19.7
No	112 (28.0)	78.5 ± 21.3	73.3 ± 27.3	77.5 ± 16.5	77.7 ± 17.7
Z		-2.73	-2.52	-4.17	-4.36
P value		0.007	0.012	< 0.001	< 0.001
Duration of menopause in the spouse, y					
< 4	197 (39.25)	76.1 ± 22.6	70.4 ± 26.9	74.3 ± 17.4	73.3 ± 20.3
≥ 4	203 (50.75)	71.6 ± 20.6	65.8 ± 25.4	69.2 ± 18.0	69.4 ± 18.6
Z		2.25	1.74	2.87	2.00
P Value		0.034	0.082	0.004	0.046
Chronic diseases					
Yes	138 (34.5)	61.5 ± 22.9	59.5 ± 27.6	65.1 ± 19.0	64.2 ± 19.7
No	262 (65.5)	80.3 ± 18.0	72.5 ± 24.4	75.0 ± 16.3	75.0 ± 18.4
Z		8.31	4.66	5.19	5.41
P value		< 0.001	< 0.001	< 0.001	< 0.001
Urinary incontinence					
Yes	8 (2.0)	55.6 ± 13.7	49.5 ± 19.9	62.5 ± 14.7	61.9 ± 21.4
No	392 (98.0)	74.2 ± 21.7	68.5 ± 26.2	71.9 ± 17.9	71.5 ± 19.5
Z		3.73	2.03	1.47	1.38
P value		0.006	0.043	0.143	0.168

Among women, there was also a significant negative correlation between the levels of household income (P < 0.001), reported urinary incontinence, chronic diseases (P < 0.01), history of divorce or death of a previous spouse (P < 0.05), and vasomotor symptoms (P < 0.001) with the scores of each domain of QoL. The mean score of all domains of QoL was higher in women aged 50 to 54 years, educated, employed women, women with < 5 children, and women who < 4 years elapsed from the time of cessation of menstruation. Except for mental health, this difference was statistically significant in terms of age (P < 0.05) in all domains except for general health and in education (P < 0.05) in all domains. However, regarding the elapsed time from cessation of menstruation (P < 0.001) and number of children (P < 0.05), there were no significant differences in none of the domains, except for physical function domain; regarding occupation, the difference was not significant in any of the domains (P > 0.05).

Linear regression analysis showed that the following relation between physical function and men's age: y = 131.76 - 0.80 age. This equation shows that for each increase of year in age, male physical performance is reduced by 0.8 score points (P < 0.001). Linear regression analysis results also showed that the following relation between physical function and women's age: y = 157.75 - 1.35 age. This equation shows that for each year increase in age, female physical performance is reduced by 1.35 score points (P < 0.001). Comparing the regression results of men and women indicated that increasing age was more strongly associated with reduced QoL score in women than in men.

5. Discussion

In both women and men, there was no significant difference in the QoL scores in each of the four investigated domains. The highest obtained score in women and their spouses were related to the domain of physical performance and the lowest one was related to general health domain. The following factors were associated with significant reductions in scores of all investigated domains of QoL in both women and men: chronic diseases, low levels of household income, and menopause-associated vasomotor symptoms but, in women; a history of divorce or the death of a previous spouse were associated with significant reductions in scores of all investigated domains of QoL. In men older age, being illiterate, being unemployed and high number of children (5 ≤) was associated with significant reductions in scores of all investigated domains of QoL. Some factors were associated with the reduction of scores in some of investigated domains of QoL: long elapsed time (≤ 4 years) from the cessation of menstruation in both women and their partners; older age, being illiterate, being a homemaker, and high number of children (5 ≤) in women; and a history of divorce or death of a spouse in men.

In the present study, chronic diseases, older age, and being unemployed were associated with lower scores of QoL in men and women. Rabah et al. showed that aging is associated with reduced QoL, which was consistent with the results of the present study (20) and Aghamolaei et al. They believe that age alone is not the cause of reduced QoL. Instead, it increases the risk of reducing the QoL in the course of developing chronic diseases such as diabetes and hypertension (21). On the other hand, Delhez et al. studied 153 men over 50 to 70 years of age and indicated that aging and reduction of some concerns as well as better mental condition had a better effect on understanding the QoL (5). Williams et al. confirmed these results by studying 2703 postmenopausal women ageing 40 to 65 years (11). They enhance the QoL by reducing stress and achieving some levels of mental relaxation. It seems that the reason for this paradox is the effect of culture on QoL.

Regarding employment, our finding was similar to other studies (11, 22, 23) in this field. This finding, especially in women, may be due to high socio-economic status in employed women. The obtained results of this study and other conducted studies in this regard (11, 22, 24) indicated the direct association of socio-economic status with the QoL. The results of Abedzadeh's study showed that the increase in household income was associated with increase in the QoL of postmenopausal women (12). Some researchers believed that employment was not the only factor for increasing the QoL, while the type of job, number of working hours, and people's satisfaction with their jobs were the other important factors in life satisfaction (22, 25).

Chronic diseases are among the factors that affect sexual function and are associated with reduced QoL (26, 27). Lack of access to health care, increasing the risk of disease, and disability from diseases (28) may be a major cause of people's reduced QoL. Blumel et al. showed that the number of children is associated with QoL, and these results were inconsistent with the results of the present study (23). Increasing the number of children in the family causes the parents to have fewer opportunities to perform their own tasks and these factors reduce QoL. In addition, it imposes more heavy costs on the families due to increasing stress and parental responsibilities (22, 28). The main reason for this issue could be due to a decrease in the average score of QoL in married couples.

Except for the psychologic domain, the QoL in all domains was higher in literate than illiterate women and men (28). The obtained results in 13 countries around the world in 2010 confirmed the direct association between the educational level and enhanced QoL (29). However, Skevington et al. believed that educational level was not the sole factor that increased the QoL; in other words, the type and level of culture of the studied population were contributing factors in the association between educational level and life satisfaction (29). The obtained results of this study showed that the QoL score of couples with a history of divorce or the death of a previous spouse was lower and this

decrease was more significant in women. Lu has expressed that the experience of losing the spouse and other stresses have triggered discomfort and loss of individuals' peace (30). This may be related to psychologic stress due to feelings of losing someone who was premenopausal, a factor reducing the QoL for people in the course of life.

About 72% of the studied women reported vasomotor symptoms. Results of a study in the United States on postmenopausal women aging 40 to 65 years showed that vasomotor symptoms were one of the factors reducing the QoL in postmenopausal women (11). Vasomotor symptoms are likely to affect the quality of sleeping, sexuality, and erotic associations leading to reduced QoL (28). Due to the adverse effects of vasomotor symptoms on the sex life of individuals, it seems that this problem reduces their QoL with an effect on the sexual function in postmenopausal women partners.

The results of the present study showed the reduction of QoL with the elapsing time from menstruation cessation. This issue was consistent with the obtained results from the studies of Nisar and Sohoo (31). Ozkan et al. study showed that although there was an association between QoL and duration of menopause, it was not a predictors of QoL (32). We did not find a study for investigating the effect of this factor on the QoL in spouses of postmenopausal women. It seems that amenorrhea and menopause also affect the sexual function of their husbands due to negative effects on sexual function of women (28, 33) and this could be the reason for the decline in their husbands' QoL.

Urinary incontinence was one of the reasons for the decline in women's QoL in all domains and it was one of the two significant domains in men. Studies show that urinary incontinence can cause sexual dysfunction in men and women (26, 34) and this could be the reason for the decline in their husbands' QoL. In most of the conducted studies in Iran and other countries (19, 21, 29), men had a higher QoL scores than women did. However, based on the results of the present study, women had a higher life quality compared with men. It seems that the issue was due to the effect of cultural, social, and economic differences of different societies on the QoL (22, 31).

Results of the present study showed a relative strong association between the QoL of postmenopausal women and their spouses. Avis et al. found that poor QoL in each of the couples with the effect on family relations among married couples might result in incompatibilities, failed connections, lack of satisfaction from life, and decreased QoL of couples or other family members (35). Due to the significant effect of physical and psychologic conditions on women's QoL during the transition period of menopause in the remaining years of life, QoL is considered as one of the important components of healthcare. On the other hand, due to the close association between the age of menopause onset and severity of menopausal symptoms by factors such as culture, economic and social circumstances, residency, race, and the woman's attitude about

this period (31), further studies are with the control group before menopause and comparing the scores in different societies with different cultures are recommended.

This study had some strength despite its limitations of population such as culture, high and low level of education, and age of the participants. According to our knowledge, there was no similar study on this subject. The strengths of this study were an appropriate sample size, using of the QoL standard questionnaire SF-36. Based on the results of this study, menopause affects the QoL of both postmenopausal women and their husbands. The results of this study can be useful for health authorities in terms of promoting health care and provides awareness regarding middle-aged women's health.

Authors' Contributions

Sakineh Mohammadalizadeh Charandabi, Nazanin Rezaei, Sevil Hakimi, Ali Montazeri, Safoura Taheri, Hamid Taghinejad, and Kourosh Sayehmiri were responsible for the study conception, design, literature review, data analysis, and manuscript preparation and editing.

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