Quality of life after the menopause in Iran: a population study

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Abstract

Objective Quality of life (QoL) decreases after the menopause as it has been assessed by several designed tools. The aim of the present research was to assess QoL and determine factors related to its impairment among postmenopausal Iranian women.

Methods This cross-sectional study was conducted through cluster sampling among 480 postmenopausal women in Yazd, Islamic Republic of Iran, in 2008. Data were collected using the menopause quality of life questionnaire (MENQOL) by interviewing. Content validity and Cronbach's alpha were used, respectively, to ensure the validity and reliability of the questionnaires. Inferential and descriptive statistics via SPSS.15 software was used for data analysis.

Results The results showed that the menopausal women have worse QoL scores in vasomotor dimension and higher QoL scores in physical dimension. Univariate analysis showed that there were significant differences in the MENQOL scores by age, number of children, education, postmenopausal stage, employment status, and BMI. Women aged 60–65 ($P < 0.05$), with a university level of education ($P < 0.01$), who had employment ($P < 0.01$), who had postmenopausal stage 5 or more years ($P < 0.05$), with a body mass index ≤ 18.5 kg m^{-2} ($P < 0.05$), and who had significantly lower scores indicating better quality of life. Logistic regression determined that vasomotor score decreased with age. Employment and number of children decreased the risk of having psychosocial scores above the median. Postmenopausal stage ≥ 5 increased the risk for higher scores within the sexual domain, respectively.

Conclusion Menopause causes a decrease in quality of life, which is dependent to work and other socio-demographic variables. Therefore, it is necessary to develop effective intervention programs to improve quality of life after menopause.

Keywords Postmenopausal stage · Estrogens · Climacteric symptoms · Specific quality of life questionnaire

Introduction

Natural menopause is defined as the permanent cessation of menstruation resulting from the loss of ovarian follicular activity that is identified to have occurred after 12 consecutive months of amenorrhea, for which there is no other obvious pathological or physiological cause [1]. Despite the varied—and at times sophisticated—interpretations of menopause, one fact seems clear, namely, that the symptoms appear as a consequence of a sharp fall in hormonal levels. Nonetheless, experience of menopause ranges from a smooth and non-problematic transition to a long period of imbalances and disruptions. Experience of menopause differs extraordinarily among different ethnic groups: indeed, vasomotor symptoms display a higher prevalence in Afro-American and Western women than among Asian women [2–4]. The hypothesis that remains to be explained is whether these differences are to be accounted for by underlying genetic factors or by lifestyle factors, such as diet or physical activity. Quality of life (QoL) has been defined by the World Health Organization as the "individual's perceptions of their position in life in the context of the

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cultural and value systems in which they live and in relation to their goals, expectations, standards and concerns" [5].

Although currently the multidimensionality of the QoL opinion has been accepted, disease on the other hand does not only affect the individual, physically and emotionally, yet it may affect his economic function and his religious and political values. The need to create the term health-related QoL surges, defined as the subjective evaluation of the patient directed toward his exterior and centered on the impact of his health over his capacity to live a satisfactory subjective life [6].

Various validated tools have been used to determine the influence of the climacteric over QoL, among them the menopause-specific quality of life questionnaire (MEN-QOL) proposed by Hilditch et al. [7, 8], which is based upon women's own perspective. This tool has been validated upon a climacteric Chilean population and used to determine that the menopause causes QoL impairment [9]. Most studies evaluating quality of life associated with menopause symptoms have focused on the impact of treatments such as hormone therapy [10–12]. Only a few studies have actually addressed the contribution of socio-demographic factors to the association between meno-pausal symptoms and quality of life [13–15].

However, up to today no research has been done about quality of life and factors associated among Iranian women. The aim of the present research was to assess QoL and determine factors related to its impairment among postmenopausal Iranian women.

Methods

The study took place in Yazd, one of the large cities of the Islamic Republic of Iran, is the center of Yazd Province. The city is located 750 km south of the capital Tehran. It has a dry climate and a population of 750,000, of whom 84% are literate. Women who had lived in Yazd for at least 1 year and had experienced natural menopause were included in this study. Only 16 women (3.3%) refused to participate in the study; they were replaced by 16 other women randomly selected from related areas. This procedure did not have any impact on the results.

Sampling was conducted based on the cluster method. Each cluster included 30 households in different sections of the city. The choice of 30 households for the cluster size was based on 1-day performance capacity of the data collection group of two interviewers. The statistical framework used was based on the household lists available in health department in Yazd Province. Selecting the cluster was done systematically. At the first stage, the number of households for each area was cumulated, and then the sampling interval was computed. A random start was

selected. The household in the area corresponding to this number was the starting point for first cluster selected. Each succeeding sampling followed the same procedure.

Measurements

From previous studies, it is known that the maximum for the scores obtained for each MENQOL domain is 2.73 and the estimated SEM is 0.3. Thus, a total of 318 women were needed. As cluster sampling was used, the sample size was multiplied by 1.5 (design effect), so 480 cases for a sample size were needed.

Quality of life was measured using the MENQOL questionnaire [8] and [16]. This questionnaire is a 29-item validated instrument that evaluates the effects of the items, divided into four domains, physical (16 items), vasomotor (3 items), psychosocial (7 items), and sexual (3 items) on quality of life in postmenopausal women. An expert person translated it into Persian, and to ensure an adequate translation, it was translated back into English by an English native, and this new version was again translated into Persian (backward-translate technique). Moreover, in these women, a number of demographic variables were recorded, including age, marital status, education, work, and socio-economic level; they were also asked about the age of menarche and menopause, and the number of children living with them. The systematic scoring for each of the four MENQOL domains is identical. The seven-point Likert scale used during the administration of the MEN-QOL is transformed for scoring and data analysis. For each of the 29 items, this seven-point Likert scale is ranging from 0 to 7. A "zero" is equivalent to a woman responding "no", indicating she has not experienced this symptom in the past month. A "one" indicates that the woman experienced the symptom, but it was not at all bothersome. Scores "two" through "seven" indicate increasing levels of bother experienced from the symptom and correspond to the "1" through "6" check boxes on the MENQOL. Once each item has been manipulated into a 0–7 score, each domain is scored by averaging the manipulated values. Hence, the average for each domain is constrained between 0 (not at all a problem; respondent selected "no" for each item in the domain) and 7 (respondent reported experiencing each symptom in the domain at the highest degree of bother).The impact of vasomotor symptoms on the quality of life of participants was assessed by asking questions on the interference of hot flashes during normal daily activities in the past 4 weeks.

At baseline, participants self-reported marital status, age at menopause, and age at menarche. Socio-demographic factors included age, education, income, number of children, and employment status. Level of education was categorized as less than literate, elementary, guidance, high

school, and university. Employment status was classified as employed and unemployed. The weight of the woman was measured to the nearest 0.1 kg taken without shoes and with minimum clothing. Height was measured to the nearest centimeter with the woman standing on a flat surface erect against a wall using a tape measure and headboard. Body mass index (BMI) was calculated and categorized as underweight (BMI < 18.5), normal (BMI 18.5–25), overweight (BMI 25–30), and obese (BMI $\geq$ 30).The survey was conducted between July and September 2008. On average, each interview lasted 20 min.

Data analysis

Data analysis was performed using SPSS version 15. Data are presented as means, standard deviations, percentages, odds ratios, and confidence intervals. Differences in the MENQOL subscale scores by age, education, number of children, income, and BMI were compared using Kruskal–Wallis test.

Logistic regression was used to assess the simultaneous influence of different variables on QoL; the four domains examined in the survey were considered as a dependent variable and socio-demographic variables as independent variables. To categories QoL, the criterion of the median was used, women with a score below percentile 50 were defined as normal, and those with a score above it as impaired. The entry of the variables into the model was considered with a 20% significance level, and the stepwise procedure was applied. Moreover, in order to demonstrate the internal consistency of the four components studied (physical, vasomotor, psychosocial, and sexual) in the translated test, we checked the values of all the subjects with the Cronbach's alpha test. The coefficients were 0.77 for the vasomotor subscale, 0.68 for the physical subscale, 0.79 for the psychosocial subscale, and 0.92 for the sexual symptoms subscale.

Results

The response rate was 97% with only a few refusals. This study included 480 women aged 40–65. The mean age of the women was 55.68(SD = 6.22, range: 40–65). Thirty-four percent of menopausal women were illiterate, and 4.2% of them were highly educated; 82.5% were housewives and 10.6% were employees; 0.4% were single and 96.6% had spouse. Table 1 presents the demographic and other characteristics for enrolled patients.

Of the women included in this study, 46.4% (n = 222) were overweight and 19.7% (n = 94) were obese based on BMI calculations. The mean age at menarche was

Table 1 Characteristics of postmenopausal women aged 40–65

Variables	n (%)
Age(years)	
40–44	13 (2.7)
45–49	70 (14.6)
50–54	126 (26.2)
55–59	135 (28.1)
60–65	136 (28.3)
Education level (women)	
Illiterate	163 (34)
Elementary	168 (35)
Guidance	45 (9.4)
High school	62 (12.9)
University	42 (8.8)
Employment	
Work as a paid employee	84 (17.5)
No employment	396 (82.5)
Body mass index	
<18.5	4 (0.8)
18.5–25	158 (32.9)
25–30	222 (46.2)
≥30	94 (19.6)
Number of children	
0	7 (1.5)
1	11 (2.3)
2	35 (7.3)
3	81 (16.9)
4	104 (21.7)
5≥	241 (50.2)
Postmenopausal stage	
Less than 5 years ago	186 (40.7)
5 or more years	271 (59.3)

13.11 $\pm$ 1.6, and the mean age at menopause was 48.31 $\pm$ 5.03(95% CI: 47.85–48.78) with a median of 49 years. The mean number of children was 4.79 $\pm$ 2.19; 1.5% of them had no children. Of all the women studied, 186 (40.7%) had been postmenopausal for less than 5 years and 271(59.3%) for more than 5 years.

The overall mean scores obtained for each MENQOL domain were vasomotor: 3.66 $\pm$ 1.71 (median 4); psychosocial: 2.90 $\pm$ 1.48 (median 2.83); physical: 2.48 $\pm$ 1.04 (median 2.5); and sexual: 2.88 $\pm$ 2.31 (median 3.33). The mean scores, adjusted for age, educational level, and income, are shown in Table 1.

The scores in the four domains of the specific QoL questionnaire for menopause at different ages are also shown in Table 2. In vasomotor, physical, and sexual domains scores, women aged 60–65 reported higher quality of life scores than 40 to 44-year-olds and 45 to 59-year-olds, respectively ($P < 0.05$).

Table 2 Adjusted mean scores per domain in postmenopausal women according to age, education level, and income level

Characteristic	Vasomotor	Psychosocial	Physical	Sexual
Age (years)				
40–44	3.69 ± 1.57	2.76 ± 1.03	2.85 ± 1.29	2.77 ± 2.38
45–49	4.03 ± 1.77	2.55 ± 1.44	1.92 ± 1.09	2.51 ± 2.29
50–54	3.64 ± 1.66	2.76 ± 1.51	2.41 ± 1.07	2.86 ± 2.29
55–59	3.87 ± 1.66	3.04 ± 1.52	2.57 ± 0.94	3.38 ± 2.25
60–65	3.29 ± 1.74	3.10 ± 1.45	2.73 ± 0.93	2.59 ± 2.35
P-value	0.016	NS	0.0001	0.024
Education level (women)				
Illiterate	3.80 ± 1.70	3.37 ± 1.44	2.76 ± 0.94	2.80 ± 2.49
Elementary	3.55 ± 1.68	2.87 ± 1.42	2.62 ± 1.02	3.14 ± 2.23
Guidance	3.04 ± 1.68	2.52 ± 1.60	2.10 ± 1.60	3.02 ± 2.10
High school	3.65 ± 1.70	2.67 ± 1.42	2.39 ± 0.91	3.14 ± 2.19
University	4.45 ± 1.45	2.20 ± 1.31	1.45 ± 0.91	1.74 ± 2.19
P-value	0.011	0.0001	0.0001	0.004
Income level				
Low	3.76 ± 1.63	3.00 ± 1.51	2.47 ± 0.97	3.25 ± 2.25
Middle	3.68 ± 1.71	3.02 ± 1.49	2.63 ± 0.96	2.94 ± 2.33
High	3.61 ± 1.74	2.61 ± 1.44	2.17 ± 1.15	2.62 ± 2.29
P-value	NS	0.033	0.0001	NS

The menopause-specific quality of life improved with the level of education. Women with university education had significantly lower scores compared with all the other education levels, in psychosocial, physical, and sexual domains ($P < 0.001$). The mean scores for quality of life in vasomotor dimension in terms of education level were 3.80 ± 1.70, 3.55 ± 1.68, 3.04 ± 1.68, 3.65 ± 1.7, and 4.45 ± 1.45, respectively, for illiterate, elementary guidance, high school, and university education level women. The highest scores in this category belong to university women and the lowest scores are among guidance women. The mean scores of quality of life in psychosocial dimension in terms of education level were 3.37 ± 1.44, 2.87 ± 1.42, 2.52 ± 1.60, 2.67 ± 1.42, and 2.20 ± 1.31 relatively for illiterate, elementary guidance, high school, and university education level women.

Income status was associated with psychosocial, physical, and sexual domains scores; women who were in the high income group had significantly lower scores compared with all the other groups ($P < 0.05$). The mean scores, adjusted for number of children, postmenopausal stage, and body mass index, for each domain are shown in Table 3.

Number of children did not significantly impact on the vasomotor, psychosocial, and sexual domains scores ($P > 0.05$). However, in the physical domain women who had not children had significantly lower scores from those who had children ($P < 0.05$).

In the vasomotor domain, overweight women and obese women had higher scores than underweight and normal women ($P < 0.05$). In the psychosocial, physical, and sexual domains, there were no significant differences between BMI groups ($P > 0.05$).

In the psychosocial, physical, and sexual domains, women who had postmenopausal stage less than 5 years ago had significantly lower scores from those who had postmenopausal stage 5 or more years ($P < 0.05$). However, in the vasomotor domain, there was no significant difference between two groups ($P > 0.05$).

Additionally, the effect professional status on QoL was evaluated. Housewives had higher impaired QoL than women with paid work in the psychosocial and sexual domains. However, in the vasomotor and physical domains housewives had better QoL than women with paid work (vasomotor, 3.61 ± 1.68 vs. 3.92 ± 1.83, $P < 0.069$; psychosocial, 3.03 ± 1.45 vs. 2.31 ± 1.48; $P < 0.0001$; physical, 2.60 ± 1.00 vs. 2.94 ± 1.05; $P < 0.0001$; sexual, 2.98 ± 2.34 vs. 2.38 ± 2.12; $P < 0.016$).

The logistic regression models were used to determine factors associated with four domains of the specific QoL, and the results are shown in Table 4.

The results showed more than >45% of women had scores above the median for each domain of the questionnaire. In the logistic regression (Table 4), the final stepwise model showed that vasomotor score decreased with age. Work decreased the risk of having psychosocial and physical scores above the median. Postmenopausal stage ≥5 years increased the risk for having sexual scores above the median.

Discussion

The present cross-sectional study aimed at assessing QoL, using the MENQOL, among postmenopausal women and determining correlation between QoL impairment and its determinants. To our knowledge, this is the first time the MENQOL questionnaire has been administered and evaluated in an Iran population-based sample to assess the impact of the menopause experience on QoL. Menopause transition was related with several physical and mental changes that may impact women's health outcomes.

Several researchers have found that the menopause causes both physical and psychiatric disorders and leads to significant decrease in energy expenditure and fat free mass. Blumel et al. [14] found that the peri- and postmenopausal phase both impair QoL; however, the present study could not determine QoL among the different stages of the climacteric, as it was drawn upon a postmenopausal population.

Table 3 Adjusted mean scores per domain in postmenopausal women according to number of children, postmenopausal stage, and body mass index

Characteristic	Vasomotor	Psychosocial	Physical	Sexual
Number of children				
None	4.52 ± 1.14	3.33 ± 1.34	2.33 ± 0.99	1.85 ± 1.90
1	4.12 ± 1.57	3.28 ± 1.49	2.57 ± 1.28	2.90 ± 2.19
2	3.84 ± 1.94	3.08 ± 1.61	2.55 ± 1.04	2.48 ± 2.25
3	3.38 ± 1.62	2.69 ± 1.54	2.37 ± 1.02	3.00 ± 2.25
4	3.64 ± 1.70	2.72 ± 1.47	2.16 ± 0.98	2.80 ± 2.30
5≥	3.72 ± 1.69	3.01 ± 1.45	2.66 ± 1.02	2.96 ± 2.37
P-value	NS	NS	0.001	NS
Postmenopausal stage				
Less than 5 years ago	3.89 ± 1.65	2.72 ± 1.43	2.27 ± 1.09	2.71 ± 2.29
5 or more years	3.60 ± 1.73	3.07 ± 1.48	2.65 ± 0.98	3.11 ± 2.33
P-value	0.090	0.020	0.0001	0.060
Body mass index				
Underweight (< 18.5)	1.08 ± 0.74	2.58 ± 0.64	1.98 ± 0.73	2.00 ± 2.37
Normal (18.5 ≤ 25)	3.88 ± 1.65	2.87 ± 1.53	2.39 ± 1.09	2.86 ± 2.34
Overweight (25 ≤ 30)	3.67 ± 1.70	2.90 ± 1.49	2.47 ± 1.00	3.08 ± 2.34
Obese(≥30)	3.45 ± 1.77	2.98 ± 1.42	2.73 ± 1.01	2.46 ± 2.14
P-value	0.010	NS	0.092	NS

Table 4 Risk factors associated with presenting higher scores (above the median) four different items of the quality of life questionnaire

Risk factor vasomotor (score > 4)	OR	P-value	CI
Age			
40–44	1		
45–49	3.20	0.068	(0.89–11.4)
50–54	1.20	0.76	(0.36–4.04)
55–59	1.22	0.74	(0.37–4.07)
Psychosocial (score > 2.83)			
Work	0.37	0.001	(0.20–0.67)
Number of children			
0	1		
1	0.207	0.186	(0.02–2.14)
2	0.073	0.024	(0.008–0.70)
3	0.13	0.08	(0.015–1.26)
Physical (score > 2.5)			
Work	0.39	0.002	(0.22–0.70)
Sexual (score > 3.33)			
Postmenopausal stage ≥5	1.69	0.028	(1.06–2.68)

Previous studies that examined the association between menopausal symptoms and socio-demographic, lifestyle, health, and psychosocial factors reported that lower socio-economic status, education, and age are related to vasomotor, psychological, and somatic symptoms [17], [18] and [19], the results were confirmed in this study.

In general, being younger, having low education, and having higher BMI resulted in poorer menopause-specific QoL on many of the MENQOL domains. Older women had a significantly better HR-QOL compared with younger women. Studies have shown that there is a decline in the prevalence of vasomotor, somatic, and psychological symptoms after menopause [3, 20]. Additionally, older women may have learned to handle with menopausal symptoms over time.

Being overweight or obese has also been associated with having poor quality of life [21]. Women with high BMI levels have been shown to be more likely to experience vasomotor symptoms [19, 22, 23].At the opposite end of the BMI continuum, women with low BMI report higher numbers of hot flashes as well, when compared to women with a BMI in the normal range[19, 24]. Among Swedish women, obesity has also been found, in accordance with the results of the present research, to be related to increased vasomotor symptoms [25]. In this study, 66.9% of the population had a BMI ≥25, which is similar to other studies [15, 19].

Women who had higher level of education and were employed had higher quality of life. Other studies have reported that women with high education levels experienced fewer symptoms during menopause [26] and [19]. Interestingly, it is found that consistently among several studied populations, the intensity of vasomotor, physical, and sexual symptoms in several populations has been

related to lower educational level, the United Arab Emirates being an exception. Being employed and having a high level of education may be indicators of high income levels and increased access to healthcare or level of awareness of available coping mechanisms for menopausal symptoms. In this study, number of children had a significant effect on physical domain scores, which is consistent with the results of studies from Turkey [15].

Logistic regression analysis showed that only lower age as an independent risk factor for higher vasomotor scores. Ojeda, in a multivariate evaluation of menopausal symptoms, found that they only depended on the age and number of children [27].

Occupation also decreased the risk for higher physical dimension scores. This dimension explores items related to flatulence, muscle and joint pains, sleeping disorders, decrease in physical strength, weight gain, lacking of energy, low backache, etc., all of which may in fact be associated to the obese state [28].

Some study limitations consist the following. Women were questioned to recall symptoms in the past 4 weeks. Although recall could be differently biased based on different characteristics of women, we believe that this is a reasonable time frame for recall of many of our questions. Furthermore, since this is a descriptive study, we assessed the relation between factors and quality of life. We were unable to assess the impact of these factors on change in quality of life over time.

Regardless of these limitations, our study had several strengths. The study sample was population based, consisting of women with different characteristics. The characteristics of the women in this study were similar to those of women in the general population in the Iran. Therefore, findings from this study could be representative of women in this age group in the Iran.

Other studies showed that menopausal symptoms reduce the quality of life level in all dimensions. Many women suffer from these symptoms from average to high severity and receive no service from health centers, which is not clear why. The findings of this study showed that it seems necessary to offer consultations to develop women's knowledge of menopausal health. It is advised that the Ministry of Health and Treatment gives the menopause health care a higher priority.

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