



# Quality of life and its determinants in postmenopausal women: a population-based study



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## ABSTRACT

**Purpose:** This study aimed to assess quality of life (QOL) and its determinants in Iranian postmenopausal women. **Methods:** This population-based cross-sectional survey was conducted using cluster sampling design. The samples consisted of postmenopausal women aged 40–60 years with total household in Rasht city (north Iran) as the sample frame. Quality of life was assessed by Menopause-Specific QOL (MENQOL) Questionnaire. Mean domain scores and factors related to the higher score of each domain were determined.

**Results:** Findings showed that the mean scores for each domain were: vasomotor:  $2.14 \pm 1.49$ ; psycho-social:  $1.56 \pm 0.85$ ; physical:  $1.91 \pm 0.52$  and sexual:  $1.37 \pm 1.05$ . Comparing the median of the studied domains, physical domain had the worst score in menopausal women. Pain in joint and muscle, one item of physical domain, had the highest score. The univariate analysis demonstrated that women aged 60–65 ( $p < 0.0001$ ), women with postmenopausal stage 5 or more years ( $p < 0.0001$ ), married women ( $p < 0.05$ ), women holding higher education degree ( $p < 0.05$ ), employed women ( $p < 0.05$ ), women with a body mass index (BMI)  $< 18.5 \text{ kg/m}^2$  ( $p < 0.05$ ) and women who do physical activity ( $p < 0.05$ ) showed better QOL. Based on Logistic Regression model, the predictive factors of normal QOL in menopause status were: age, husband education, score of Charlson Comorbidity Index (CCI) and BMI.

**Conclusion:** Our findings suggest that menopause-related symptoms had negative impact on QOL. Confirmation by further research is needed.

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## 1. Introduction

Menopause is regarded as a normal physiological process in every woman's life, which is defined as "the permanent cessation of menstruation due to reduction of ovarian estrogen secretion". This change affects the whole body, and creates symptoms including vasomotor symptoms such as hot flash and night sweat; somatic symptoms like bone and joint complains, and reduction of muscle mass; psychological symptoms such as sleep and mood disorders, impaired memory, lack of concentration, nervousness, depression and insomnia; as well as sexual symptoms including vaginal dryness or atrophy and dyspareunia (Abedzadeh et al, 2011; Blumel et al., 2000). The overall health and well-being of mid-aged women has become a major public health

concern around the world. More than 80% of women experience physical or psychological symptoms in the year approaching menopause with various distress and distribution in their lives, leading to decrease in their quality of life (QOL) (Nisar & Soho, 2009).

QOL has been defined by the World Health Organization (WHO) as the "individuals' perceptions of their position in life in the context of the cultural and value systems in which they live and in relation to their goals, expectation, standards and concerns" (Orley & Kuyken, 1994).

The need to create the term health-related QOL surges, which is defined as the subjective evaluation of the patient directed toward his/her exterior and centered on the impact of his/her health over the capacity to live a satisfactory subjective life (Fallahzadeh, 2010).

Various validated tools have been applied to determine the influence of the climacteric over QOL, among them is the menopause-specific quality of life (MENQOL) questionnaire proposed by Hilditch et al. (1996), which is based upon women's own perspective. This tool has been validated upon a climacteric Chilean population, and used to determine that menopause causes QOL impairment (Blumel et al., 2000).

However, the study of QOL in the post-menopause has become an essential component in clinical practices. Most studies evaluating QOL associated with menopausal symptoms have focused on the impact of treatments such as hormone therapy (Van der Mooren & Kenemans, 2004). Only a few studies have actually addressed the contribution of

**Abbreviations:** QOL, Quality of Life; MENQOL, Menopause-Specific Quality of Life; CCI, Charlson Comorbidity Index; BMI, Body Mass Index.

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socio-demographic factors to the association between menopausal symptoms and QOL (Binfa et al., 2004; Karaçam & Seker, 2007). Furthermore, most studies were conducted in the developed countries with different socio-cultural realities, which may influence not only the perception of QOL but also the experience of menopausal symptoms, because experience of menopause differs extraordinarily among different ethnic groups (Nisar & Soho, 2009). Very little information exists about the QOL of menopausal women in the developing countries.

Given these various contributions, we conducted the present study to assess the menopause-related symptoms and their impact on QOL, and determine factors related to QOL impairment among the post-menopausal women living in Rasht city (north Iran).

## 2. Materials and methods

### 2.1. Study design and subjects

A population-based cross-sectional survey was conducted from Jun 2013 to Jun 2014 in Rasht city, the capital of Guilan province (north Iran). Rasht is the biggest and most populated city of the province with the estimated population of about 639,951 inhabitants in 2013. The population size for women aged between 40 and 60 years was estimated to be 74,582. This represents that about 11.65% of the total population and 22.72% of the total women population were residing in this city in 2013.

The sample consisted of the women aged 40–60 years. Inclusion criteria were complete cessation of menstruation, and lack of menstruation for at least 12 consecutive months without any drug induction or medical interventions (such as hysterectomy, oophorectomy, chemotherapy and radiotherapy); no hormones were used within the last 6 months; having the ability to communicate verbally to answer the questions, ability to speak in Persian language, and living in Rasht city at least for one year.

### 2.2. Sample size

According to the previous study, the percent of impaired QOL in the menopausal women was 22.7 (Abedzadeh et al., 2011). It was determined that 675 menopausal women were needed to detect medium-sized effect, with 95 percent power at a significant level of 5%, assuming a design effect of 2.5.

### 2.3. Sampling process

A cluster random sampling design was used to select the participants. Based on the sample size, 34 clusters in different sections of the city were picked out systematically. Since, Rasht Electrical Distribution Company covered the total households of the city, first, the statistical framework consisting of the numbers and addresses of the households was determined based on the household lists available in the company. Next, 34 households as cluster heads were selected systematically with specified sampling interval. Then nearly 20 menopausal women were randomly assigned to the study group from each cluster by moving to the right and left sides of the picked households. After selecting a woman matched to the study inclusion criteria described above, two trained interviewers gave a description of the study and requirements for participation, and administered the study protocol. This procedure was continued until the samples were completely collected. Each interview was lasted for about 30 min.

### 2.4. Measurements

The enrolled women signed informed consent, and filled out a questionnaire administered by the trained interviewers. The questionnaire consisted of two parts: The first part was focused on socio-demographic, lifestyle and obstetric characteristics such as age, educational level,

husband's educational level, occupation status, marital status, date of the last menstrual period, menarche age, menopause age, body mass index (BMI), physical activity and Charlson's Comorbidity Index (CCI).

BMI was calculated by weight/height squared ( $\text{kg}/\text{m}^2$ ) in all participants. Weight and height were measured by the researchers. The weight was measured by using an electronic scale to the nearest 100 gram, which was performed without shoes and with least clothing. The height was measured by using a tape measure to the nearest 0.5 centimeter, which was done with the participant standing on a flat surface against a wall.

Physical activity was defined as doing at least 150 minutes of moderate-intensity aerobic physical activity including walking, cycling and participating in sports throughout the week. Aerobic activity was performed in bouts of at least 10 minutes duration (WHO, 2010).

Charlson Comorbidity Index: The CCI is one of the most widely used and validated methods for predicting one-year survival based on comorbidity data. The Charlson score consists of 19 different disease comorbidity categories, each allocated a weight of 1, 2, 3 or 6 based on the adjusted relative risk of one-year mortality and summed to provide a total score. The relative risk of one year mortality for each increasing point of the index was 2.3 (95% confidence interval 1.9–2.8), and the overall model was a highly predictor of mortality ( $p < 0.0001$ ) (Needham et al., 2005).

The second part of the questionnaire deals with QOL assessment. Menopause-Specific Quality of Life (MENQOL) Questionnaire, which was developed by Hilditch et al. (1996) at the University of Toronto, Canada, was used to assess the QOL in this study. The questionnaire consists of 29 items in four domains; vasomotor (3 items), psychosocial (7 items), physical (16 items) and sexual (3 items). The vasomotor domain assesses hot flashes, night sweats, and sweating. The psychosocial domain determines the psychological well-being of the individual by including items about anxiousness, memory, and feeling blue. The physical domain evaluates such items as flatulence, bloating, pain, tiredness, sleeping, energy and weight gain. The sexual domain investigates about changes in sexual desire, vaginal dryness, and intimacy. The systemic scoring for each domain is identical. Each item can be checked as present or not-present. If not-present, the participant goes to the next item; if present, the item is converted into a seven-point Likert scale according to its severity from 0 to 6. Score "0" indicates not experienced and not at all bothered; score "one" indicates that the symptom was experienced, but it was not at all bothersome; and scores "two" through "six" indicate elevating levels of bother experienced from the symptom. The average for each domain is constrained between 0 and 6.

The MENQOL, previously translated into Persian, was validated first by applying the questionnaire on a pilot sample of menopausal women. Cronbach's alpha for the scale as a whole was 0.81, indicating a good reliability. For content validity, an expert panel of ten specialists in gynecology and midwifery was asked to comment independently on necessity in order to calculate the content validity ratio (CVR), and relevancy, clarity and simplicity in order to calculate the content validity index (CVI) of the items. The CVR for the total scale was 0.90, indicating a satisfactory result. The CVI was found to be 0.91, suggesting that it had a good content validity.

### 2.5. Ethical approval

The Ethical Committee of Guilan University of Medical Sciences approved the study protocol. A description of the study and requirements for participation was given to all enrolled women, and written informed consent was obtained, where detailed information was offered about the research, and confidentially was assured.

### 2.6. Statistical analysis

Data collected from the questionnaire were coded, entered into statistics package for social sciences (SPSS, version 21.0, Chicago, IL) and

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