



The Association Between Menopausal Symptoms and General Health Among Iranian Women With Menopause: A Cross-Sectional Study

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Abstract

Objectives: Health promotion leads to a higher quality of life among women. The present study aimed to investigate the relationship between menopausal symptoms and general health among women with menopause.

Materials and Methods: In this cross-sectional, 600 postpartum women in Ahvaz, Iran were selected and recruited using the randomized cluster sampling method during 2013-2014. The data were collected by the women's demographic characteristics instrument, as well as the Goldenberg's and menopausal symptoms questionnaires. In addition, descriptive statistics and logistic regression were employed for data analysis by the SPSS software, version 19. The statistical tests were performed at 95% confidence interval.

Results: As regards the menopausal symptoms, sleep disorders (39%), myalgia (42.7%), and hot flashes (32.5%) were reported as moderate, severe, and very severe, respectively. Further, 50.2% of the participants had impaired general health. Finally, job, hot flashes, sleep disorders, myalgia, depression, and aggressiveness were associated with general health ($P < 0.05$).

Conclusions: In general, there is a need to improve public health and reduce menopausal symptoms among postmenopausal women since menopause is changed to a crisis in a woman's life.

Keywords: Menopausal symptoms, General health, Goldenberg's questionnaire, Menopausal women, Quality of life

Introduction

Menopause is an important period in a woman's life (1,2). In this stage, menstruation ceases permanently due to a loss of ovarian follicular activities. In addition, it is a transition period between two stages of women's life (3). According to the definition of the World Health Organization, menopause is the normal stage in women's lives, which is related to the transition between fertility and non-reproductive periods (4).

The average age of menopause is 51 years across the world while the increased life expectancy causes that one-third of the women's lives occurs during the menopause. Further, the average menopause age of the Iranian women is 48.1 years, which is lower than that of the developed countries (5,6). During the early menopause transition, women may go through hormone-related physical changes including hot flashes, sleeplessness, irritability, mood swinging, depression, and anxiety (7,8). Furthermore, women's health may decrease during this period due to the hormonal changes and the aging process. Additionally, muscle atrophy, changes in the bone structure, anxiety,

and depression can lead to physical, psychological, and social problems in this period and thus affect their quality of life (9,10).

Women's health is of great importance since they include half of a country's population. In addition, women encounter further hygiene-related issues since women age more than men (11). According to the World Health Organization (WHO), health is defined as the complete physical, psychological, and social well-being while not merely the absence of the disease.

Therefore, the woman's health depends on complex interactions between biological, hygienic behavioral and historical, social, economic, and political aspects of her life (12).

Iranian women similar to women in other developing countries experience physical deficiencies, along with physiological and mental traumas (13). The symptoms of menopause are closely associated with women's quality of life during menopause. In fact, it can affect their physiological, psychological, and social aspects (14).

Exploring the status of Iranian women with menopause,

Received 22 December 2017, Accepted 14 April 2018, Available online 22 May 2018

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Decherney et al reported that mental distress during the menopause period affects personal physiological or mental functions. (15). Further, Govil et al found that women's postmenopausal health reduced due to low socioeconomic conditions, poor pregnancy and menstrual disorders (16). Agha-Mohammadian investigated the association between the intensity of menopause symptoms and depression and anxiety among woman with menopause as well (17). Furthermore, Tarvirdi and Shabani et al (18) found a significant correlation between depression, general health index, hormones, and menopausal symptoms ($P < 0.012$). Similarly, Shakhtrich and Mas'ad conducted research in the disadvantaged areas of South Jordan in order to recognize health disorders among women with menopause and indicated that these women experienced various symptoms and complications associated with menopause (19)

Given the importance of the menopause period in terms of hygienic, cultural and social aspects, as well as the significance of the women's health in every society, the current study sought to explore the relationship between the intensity of menopause symptoms and general health among women with menopause in an urban area of Iran. The findings of this study can be used for planning and providing appropriate care to women with menopause.

Material and Methods

A total of 600 women with menopause who lived in an urban area in Ahvaz, participated in this cross-sectional study during 2013-2014. After obtaining permission from the Menopause Research Center of Ahvaz Jundishapur University of Medical Sciences, the researchers referred to the participants' homes in order to explain the purpose of the study to the women. The women were assured of the confidentiality of the collected data. The inclusion criteria were being within the age range of 45-60 years, being able to read and write in Farsi, passing at least one year from the menstrual period, having no mental health issues and drug abuse, as well as underlying medical conditions and severe stressful events in the past 12 months. However, women who had an experience of traumatic events such as relatives' death in the last year, had a history of mental illness and of drug abuse were excluded from the study.

Sampling was performed through cluster random sampling technique in order to recruit the women. Additionally, 40 blocks were randomly selected from the north, south, east, and west regions of Ahvaz. Then, the researchers referred to the women' homes to select their samples. After explaining the aim and procedure of the study and obtaining the informed consent, questionnaires were completed by the women using the interview method. Three questionnaires were used for data collection including the demographic characteristic form, a 28-item questionnaire developed by the Goldberg (GHQ-28), and menopause rating scale (MRS). The demographic

data form contained questions such as age, education, occupation, husband's occupation, monthly income, marital status, smoking status, and a history of pregnancy. In addition, the GHQ-28 questionnaire is a screening instrument used for detecting those individuals who are likely to have or to be at the risk of developing psychiatric disorders (20). This questionnaire encompassed 28 items which measured the women's general health by four subscales including somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression. All the items in the subscales were assessed using the 4-point Likert-type scale. The scores below 7 in each subscale indicated the health status of the individual in that dimension. Further, a cut-off score of this questionnaire was 23 which scores higher than 23 represented one's health problems (20-22). Validity and reliability of this questionnaire were approved by Taghavi et al in Iran and the Cronbach alpha coefficient was found to be 0.72-0.87 for the above-mentioned subscales (23).

Furthermore, the MRS had eleven menopausal symptoms measuring psychological, urogenital, and physical symptoms. Items such as the feelings of depression, nervousness, anxiety, and poor memory were in the psychomotor domain. Additionally, questions related to decreased desire and sexual satisfaction, urinary problems, vaginal dryness, and irritation were included in the urogenital domain. Finally, items like hot flashes, night sweats, heart disease, sleep disorders, and muscle and joint pain were evaluated in terms of physical problems. MRS was based on a 5-point Likert-type scale. The validity and reliability of this instrument were verified in many clinical and epidemiology studies (24,25).

The SPSS software, version 19 was used for data analysis. Quantitative and qualitative data were presented as means and standard deviations (SD), as well as frequencies and percentages, respectively. In addition, the forward LR method was applied to select the best multivariate logistic regression model for independent variables. A $P < 0.05$ was considered as the level of significance.

Results

The mean age and the average number of pregnancies of the women were 55.7 (SD=6.1) years and 4.9 (SD=2.4), respectively. Further, the lowest frequency of education level was high school (13.2%). Furthermore, the majority of participants (72.7%) were housewives and nearly half of them (48%) had a monthly income of \$145-290. About 4.3% of these women were a smoker.

As regards the general health status, 54.3% of the women had physical health problems while 35.5% of them had an anxiety disorder. Additionally, 52.3% of women suffered from social dysfunction while 8.2% and 50.2% of them had depression and impaired general health scores, respectively.

In addition, sleep disorders (39%), myalgia (42.7%),

Table 1. The Frequency Distribution of Menopausal Symptoms

Variable	No No. (%)	Low No. (%)	Moderate No. (%)	Sever No. (%)	Very Severe No. (%)
Hot flashes	5 (8)	84 (14)	176 (29.3)	195 (32.5)	140 (33.3)
Heart disease	8 (1.3)	146 (24.3)	225 (32.5)	194 (32.3)	27 (4.5)
Myalgia	9 (1.5)	62 (10.3)	154 (25.7)	256 (42.7)	119 (19.9)
Sleep disorder	8 (1.3)	130 (21.7)	234 (39)	164 (27.3)	64 (10.7)
Depression	6 (1)	340 (56.7)	170 (28.3)	55 (9.2)	29 (4.8)
Aggressiveness	6 (1)	156 (26)	98 (33)	183 (30.5)	57 (9.6)
Anxiety	44 (7.3)	255 (42.5)	212 (35.3)	57 (9.5)	32 (5.4)
Amnesia	5 (0.8)	422 (70.3)	112 (18.7)	41 (6.8)	20 (3.4)
Loss of libido	8 (1.3)	214 (35.7)	175 (29.2)	151 (25.2)	52 (8.7)
Urinary incontinence	7 (1.2)	292 (48.7)	220 (36.7)	68 (11)	13 (2.2)
Vaginal dryness	6 (1)	206 (34.3)	267 (34.5)	95 (15.8)	26 (4.4)

and hot flashes (32.5%) were found as moderate, severe, and very severe symptoms of menopause, respectively (Table 1).

Further, independent and intervening variables were simultaneously introduced into the model for each dimension of the general health questionnaire (i.e., physical dimension, anxiety, social dysfunction, and depression), along with the total score of general health in order to assess the relationship between independent variables and individuals' general health using the logistic regression analysis.

Only four items out of 17 independent variables (i.e., 11 and 6 items were related to menopausal symptoms and demographic characteristics, respectively) were significantly correlated with the physical health score. The sleep disorder was the first variable with a significant impact on physical health. Therefore, it can be claimed that more severe sleep disorders led to an increase in physical problems and the odds ratio (OR).

Other factors affecting the women's physical health included hot flashes, myalgia, and the number of

pregnancy. The variable 'number of pregnancy' had the slightest effect on physical problems. The likelihood of physical health disorders was 1.508 times higher in women with three to 6 pregnancies (CI: 0.909 -2.503, OR=1.508) compared to those with less than three pregnancies.

Furthermore, the OR of the hot flashes was 2.04, suggesting that the probability of physical health disorders was 2.04 by moving from mild to average hot flashes (Table 2). Evaluating the relationships between variables and anxiety, 6 variables (i.e., sleep disorders, aggressiveness, amnesia, hot flashes, income, and smoking) affected the women's anxiety such that the ORs of mild to very severe sleep disorders were 3.31, 4.69, and 16.6 respectively. This indicates that women with average, severe, and very severe sleep disorders experienced anxiety disorders 3.31, 4.69, and 16.6 times, respectively, higher compared to those women with mild sleep disorders (Table 3). Additionally, based on the results, job, smoking, hot flashes, myalgia, and amnesia affected women's social function. The least effect was related to job and smoking while the greatest effect belonged to amnesia (Table 4). In addition, the results

Table 2. Factors Affecting Physical Health Disorders Based on the Results of the Logistic Regression Test

Variable		P Value	Odds Ratio	95% CI
Hot flashes	Mild	<0.001	Reference category	-
	Moderate	0.070	2.043	0.944-4.420
	Severe	<0.001	4.184	1.941-9.017
	Very severe	<0.001	8.095	3.428-19.117
Sleep disorder	Mild	<0.001	Reference category	-
	Moderate	<0.001	3.472	1.862-6.474
	Severe	<0.001	5.246	2.593-10.614
	Very severe	<0.001	7.909	3.127-20.004
Myalgia	Mild	<0.001	Reference category	-
	Moderate	0.608	1.255	0.528-2.984
	Severe	0.006	3.188	1.392-7.301
	Very severe	0.001	4.965	1.964-12.552
Pregnancy	Less than 3	0.022	Reference category	-
	3 to 6	0.112	1.508	0.909-2.503
	Above 6	0.006	2.483	1.300-4.745

Table 3. Factors Affecting Anxiety Disorders Based on the Results of the Logistic Regression Test

Variable		P value	Odds Ratio	95% CI
Income	Less than 500 thousand	0.027	Reference category	-
	500 thousand to a million	0.010	0.482	0.275-0.842
	More than a million	0.032	0.485	0.250-0.940
Smoking	Not Smoking	<0.001	Reference category	-
	Smoking	0.049	0.353	0.125-0.995
Hot flashes	Mild	0.002	Reference category	-
	Moderate	0.023	0.388	0.171-0.879
	Severe	0.179	0.585	0.267-1.278
	Very severe	0.528	1.308	0.569-3.010
Sleep disorder	Mild	<0.001	Reference category	-
	Moderate	0.004	3.314	1.473-7.453
	Severe	<0.001	4.698	2.027-10.888
	Very severe	<0.001	16.618	5.956-46.374
Amnesia	Mild	<0.001	Reference category	-
	Moderate	<0.001	2.659	1.615-4.376
	Severe	0.007	2.962	1.346-6.520
	Very severe	0.023	3.870	1.120-12.374
Aggressiveness	Mild	<0.001	Reference category	-
	Moderate	0.486	1.279	0.640-2.558
	Severe	<0.001	4.248	2.130-8.472
	Very severe	<0.001	15.933	5.553-46.005

Table 4. Factors Affecting Social Dysfunction Based on the Results of the Logistic Regression Test

Variable		P value	Odds Ratio	95% CI
Occupation	Housewife	<0.001	Reference category	-
	Self-employed	0.034	0.408	0.179-0.933
	Labourer	0.170	2.097	0.728-6.042
	Employee	<0.001	0.272	0.131-0.565
Smoking history	Not Smoking	<0.001	Reference category	-
	Smoking	0.020	0.319	0.122-0.836
Hot flashes	Mild	<0.001	Reference category	-
	Moderate	0.103	0.558	0.276-1.126
	Severe	0.412	1.335	0.669-5.117
	Very severe	0.015	2.512	1.196-5.275
Myalgia	Mild	<0.001	Reference category	-
	Moderate	0.961	0.981	0.446-2.157
	Severe	0.042	2.156	1.027-4.525
	Very severe	0.001	4.052	1.774-9.255
Amnesia	Mild	0.002	Reference category	-
	Moderate	<0.001	2.036	1.233-3.361
	Severe	0.002	3.478	1.582-7.649
	Very severe	0.560	1.369	0.476-3.936

indicated that hot flashes, heart diseases, sleep disorders, myalgia, depression, and the number of pregnancy influenced depression. The effects of hot flashes were negative and the women with moderate hot flashes (CI: 0.028-0.549, OR=0.124) were 88% less likely to experience depressive disorders compared to those with mild hot flashes (Table 5). Further, as regards the assessment of the association between independent variables and the total score of general health, six independent variables were related to menopausal symptoms and affected the total score such that sleep disorders and the job had

the highest and lowest impacts, respectively (Table 6). Statistically significant relationships were found between age, the women's job, their husbands' job, education, monthly income, and menopausal symptoms ($P<0.005$). Furthermore, the relationship between smoking, amnesia, and loss of sexual desire statistically significant.

Discussion

Menopause exposes the women to numerous changes including hot flashes, night sweating, dizziness, heart palpitations, atrophic vaginitis, sleep disorders, myalgia,

Table 5. Factors Affecting Depression Based on the Results of the Logistic Regression Test

Variable		P Value	Odds Ratio	95% CI
Hot flashes	Mild	0.007	Reference category	-
	Moderate	0.006	0.124	0.028-0.549
	Severe	0.001	0.087	0.021-0.363
	Very severe	0.013	0.167	0.041-0.686
Heart disease	Mild	0.025	Reference category	-
	Moderate	0.314	2.157	0.484-9.619
	Severe	0.010	7.446	2.613-34.364
	Very severe	0.039	7.320	1.106-48.457
Sleep disorder	Mild	0.002	Reference category	-
	Moderate	0.484	0.571	0.119-2.742
	Severe	0.928	1.075	0.226-5.117
	Very severe	0.044	5.354	1.046-27.398
Myalgia	Mild	0.052	Reference category	-
	Moderate	0.209	3.156	0.526-18.927
	Severe	0.859	0.855	0.153-4.783
	Very severe	0.325	0.415	0.572-2.388
Depression	Mild	<0.001	Reference category	-
	Moderate	0.010	4.992	1.476-16.879
	Severe	<0.001	12.955	3.360-49.951
	Very severe	<0.001	47.675	10.763-211.184
Pregnancy	Less than 3	0.007	Reference category	-
	3 to 6	0.010	6.327	1.567-25.537
	Above 6	0.002	10.403	2.432-44.487

Table 6. Factors Affecting Public Health Problems Based on the Results of the Logistic Regression Test

Variable		P Value	Odds Ratio	95% CI
Occupation	Housewife	0.006	Reference category	-
	Self-employed	0.040	0.390	0.195-0.956
	Labourer	0.230	7.130	0.620-7.33
	Employee	0.010	0.372	0.174-0.794
Hot flashes	Mild	<0.001	Reference category	-
	Moderate	0.101	0.508	0.226-1.141
	Severe	0.394	1.453	0.665-3.173
	Very severe	0.003	3.852	1.572-9.44
Sleep disorder	Mild	0.007	Reference category	-
	Moderate	0.030	3.05	1.473-6.341
	Severe	<0.001	4.166	1.891-9.178
	Very severe	0.007	6.271	2.193-17.93
Myalgia	Mild	0.007	Reference category	-
	Moderate	0.318	0.607	0.328-1.616
	Severe	0.556	1.326	0.518-3.395
	Very severe	0.556	2.568	0.597-7.270
Depression	Mild	0.002	Reference category	-
	Moderate	0.001	2.357	1.401-3.966
	Severe	0.014	3.045	1.254-7.397
	Very severe	0.136	2.597	0.740-9.106
Aggressiveness	Mild	0.004	Reference category	-
	Moderate	0.027	2.079	1.087-3.975
	Severe	0.001	3.395	1.695-6.801
	Very severe	0.009	4.080	1.427-11.664

arthralgia, inability to concentrate, and poor memory which are all associated with a reduction in the level of estrogen during menopause (26-28). In the present study, the most common menopausal symptoms were the intensity (moderate, severe, and very severe) of sleep

disorders (39%), myalgia (42.5%), and hot flashes (23.2%), respectively. The results of the study by Parhizgar (29) in Iran demonstrated that women complained about the pain in their bones (63.1%) and the loss of sexual desire (39.1%).

Additionally, Shohani et al (30) reported that women with menopause complained about musculoskeletal (76.7%), urogenital (i.e., the dryness of vagina and the loss of sexual desire) (42%), and vasomotor (55.3%) problems, as well as high blood pressure (37.3%), mild depression (32%), mild anxiety (22.7), and memory disorders (39.2%). Similarly, Sharanya Shre et al (31) found that 24% of the participants complained about mild to severe hot flashes while half of them reported cardiac issues (49%) and disturbed sleep (48%). Based on the findings of the present research and similar other studies, the majority of women complained about musculoskeletal problems and hot flashes which were the most common symptoms of menopause correlated with the reduction of estrogen during this period. In the current study, the majority of disorders were related to the physical dimension while the influence of depression was found negligible. In addition, Parvin et al found that women with menopause had problems in all dimensions of mental health and their physical problems including hot flashes, sleep disorders, headache, and limb pain. They further reported other problems such as sexual problems, loneliness, isolation, and communication issues, especially with their husbands (1).

Jahanfar et al emphasized (32) that physical problems were common among women with menopause whereas reports on depression and restlessness were less common. This is in line with the findings of the present study. Hot flashes, sleep disorders, joint soreness, and the number of pregnancy influenced physical problems among women with menopause in the above-mentioned study. Li et al referred to mental and emotional changes as the most frequent problems among women with menopause (33). However, other researchers attributed depression and mental problems to various factors such as personal and cultural issues, a previous history of depression, education level, regular exercise, premenstrual syndrome, the husband's presence, economic level, smoking, job, and adaptation to the lifestyle (30–34). In the current study, heart diseases, sleep disorders, joint soreness, depression, and high number of pregnancy influenced women's depression. Furthermore, analyzing the effects of menopausal symptoms on general health (i.e., physical problems, anxiety, social dysfunction, and depression) and the total score of general health it was found that hot flashes, joint soreness, and sleep disorders were widespread symptoms in all the dimensions of general health disorders. Additionally, the intensity of symptoms worsened general health disorders. Choi indicated that women with lower levels of education experienced highly severe depression during the menopause period. This is in agreement with the findings of the present study. In addition, Whiteman et al reported that smoking had an exacerbating effect on hot flashes. The effect of

smoking on menopausal symptoms could be due to the reduced estradiol concentrations, which worsened several symptoms (35). The jobs of women and their husbands were significantly associated with menopausal symptoms. However, there was a reverse and statistically significant relationship between monthly income and all the observed symptoms ($P < 0.005$) such that individuals with higher levels of income represented fewer symptoms.

Interviewing and administering the questionnaire by the researchers decreased the effect of data collection from individuals with low literacy on the findings.

Conclusions

Based on the results, a significant percentage of women with menopause experienced disorders in their general health, which could be related to individual characteristics of women and the severity of menopausal symptoms. In conclusion, since menopause is a very critical period in a woman's life, enhancing public health while reducing the symptoms of menopause among postmenopausal women is of great importance.

Limitation of the Study

The random selection of women reduced the selection bias in this study. With regard to recall bias, the general health and MRS questionnaires were used since they questioned the women to express their symptoms during the previous month.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Ethical Issues

The present study was adapted from a research project in a meeting of Research Council of Ahvaz Jundishapur University of Medical Sciences, Iran under the Ethics Code of AJUMS.REC. 1392. 96 dated 2013.06.22. Further, the written informed consent was signed by the women after providing them with a comprehensive explanation regarding the aim and method of the study.

Financial Support

This study was financially funded and supported by Ahvaz Jundishapur University of Medical Sciences, Iran.

Acknowledgments

We would appreciate all the individuals who assisted us in accomplishing this study including the Research Deputy of AJUMS and the women who participated in this study.

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