

## The Relationship between Physical Activity and General Health among Menopausal Women in Ahvaz, Iran

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### Abstract

**Introduction:** Most women experience significant changes in their general health status during menopause, which negatively affects their quality of life. Physical activity has also been shown to enhance quality of life. However, little is known about the effect of physical activity on women's health during the menopausal transition. This study aimed to determine the relationship between physical activity and general health among menopausal women in Ahvaz, Iran.

**Methods:** This cross sectional study was carried out on 600 menopausal women using cluster random sampling during 2013-2014. Data collection tools were three questionnaires; women's demographic characteristics, the Goldenberg's questionnaire, and International physical activity questionnaire (IPAQ). Data were analyzed using descriptive and inferential statistics through SPSS version 19. The statistical tests were performed at the 95% confidence interval.

**Results:** There was a significant relationship between the total score of physical activity and physical health, social functioning, anxiety and depression ( $p < 0.05$ ), but no significant relationship was found between subscales related to physical activity and general health ( $p > 0.05$ ).

**Conclusion:** Physical activity is effective in improving general health in menopausal women. Proper training and effective interventions for regular physical activity can be important steps to promote the general health of menopausal women.

**Keywords:** Physical activity, General health, Menopause, Women

### 1. Introduction

Women may be faced with some changes in their body attributed to hormonal changes in the menopausal period, including hot flashes, insomnia, irritability, mood swings, depression and anxiety disorders (1-3). It seems that women's health status declines at this time, due to both hormonal changes and aging process. Weakness of bones, changes in skeleton and bone mass and structure, along with anxiety, depression, and other complications causing physical, psychological, and social problems affect women's quality of life (4, 5). Physical activity is an important issue in public health, which has received more attention in recent years (6, 7). Physical activity is different throughout a woman's life and depends on various factors such as general health, body mass index, smoking, and socioeconomic status (8). Physical activity not only decreases the incidence of cardiovascular disease, obesity, breast cancer, colon cancer, osteoporosis, anxiety and depression, but also reduces vasomotor symptoms in women during the menopausal period (6). Women spend one third and sometimes half of their life in this critical period. Physical activity plays an important role in improving health status, especially physical and psychological health in this period and can enhance life expectancy (9, 10). Also in some studies, physical activity has been suggested as an

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intervention to prevent or reduce the severity of some menopause-related health problems (11). Physical activity prevents particular cancers by changing the body's metabolism, insulin resistance and hormonal changes (12, 13). In addition, physical activity contributes to prevent heart disease at this period by creating positive changes in blood pressure. Several studies have shown that regular physical activity is considered the most important component of treatment for high blood pressure during menopause (14-16). Some studies indicate that regular physical activity may improve menopause-related symptoms including physical and psychological symptoms (17, 18). Around 60 minutes of daily physical activity has a desirable effect on menopausal symptoms, especially mental and social functioning (19, 20). In addition, it has a positive impact on mental health problems such as stress, anxiety and depression disorders (17). Furthermore, some cross-sectional studies, concluded that women with low physical activity, present more severe menopausal symptoms (6). It seems that women's health declines during the menopausal transition, affected by both hormonal changes and aging (21, 22). The menopausal transition may also be a source of psychological distress or instability, and the studies found that these women had experienced various symptoms and complications associated with menopause that may negatively impact women's quality of life, which depends on complex interactions among her biology, physical health, psychosocial health, lifestyle, hygienic behavior and the historical, social, economic, and political background of her life (21). The results of the national review in Iran, which were published by the World Health Organization, showed that the prevalence of physical inactivity in urban and rural areas, with emphasis on leisure time physical activity among women aged 15-64, was 76.3 percent (23). While women, compared to men, have physiological reasons such as pregnancy, lactation and menopause and are more likely to suffer from disabilities and physical activity-related diseases (24). Menopausal women are living in certain conditions that can affect their quality of life and some studies have shown a lower incidence or severity of menopausal symptoms among women who are physically active and reported the potential effects of physical activity in reducing menopausal symptoms (25). Given that women spend more than one-third of their lives in postmenopausal period, their quality of life is very important in terms of public health. One of the goals of health for all in the 21st century is improving the quality of life. Therefore, the use and promotion of appropriate models are necessary in improving the quality of life of menopausal women and their health status. Paying more attention to menopausal women's general health and the ways to improve it, by promoting their physical, psychological and social performance, can guarantee their quality of life for more than one-third of their remaining lifetime and give a more fullness of life toward the end of their childbearing years. Given the importance of menopause and its effects on other aspects of women's lives, the present study aimed to determine the relationship between physical activity and general health among postmenopausal women in Ahvaz, Iran, so that we can take a step to improve menopausal women's health and their quality of life by identifying the factors affecting their general health.

## **2. Material and Methods**

### **2.1. Research design and Selection criteria**

This cross sectional study was carried out on 600 women with menopause during 2013-2014 in Ahvaz, Iran. After obtaining permission from the Menopause Research Center of Ahvaz Jundishapur University of Medical Sciences, the researchers referred to participants' residences and after explaining the objectives of the study and obtaining informed consent from the participants, sampling was done. The questionnaires were completed by a specially trained team. Inclusion criteria included: being an Iranian national, being aged between 45-60 years, being at least one year from their last menstrual period, absence of mental health problems and drug use, absence of underlying medical conditions, and absence of experiencing severe stressful events for the past 12 months. Exclusion criteria included: unwillingness to continue to participate in the study, and experience of a traumatic event such as the death of a relative in the last year, a history of mental illness and drug use.

### **2.2. Sampling**

Sampling was performed through cluster random sampling, so that after the map of Ahvaz city was prepared from Planning and Budget Organization, 40 blocks were randomly selected among each of four regions of the city (North, South, East, West). To select the participants, we referred to participants' residences and selected qualified women. After obtaining their consent, explaining the aims of the study and how to carry out the research as well as ensuring the trust in results, a questionnaire was completed by a researcher.

### **2.3. Measurement tools**

Data collection were carried out by a face to face interview. Data collection tools were three questionnaires. The first questionnaire was a demographic characteristics of menopausal women; the second questionnaire was a 28-item questionnaire by Goldberg and the third questionnaire was an International physical activity questionnaire.

### **2.3.1. Demographics Questionnaire:**

Demographic data including age, education, occupation, husband's occupation, monthly income, socioeconomic status, marital status, smoking status and number of pregnancies.

### **2.3.2. General Health Questionnaire:**

The GHQ-28 was developed by Goldberg in 1978 as a screening tool to detect those likely to have or to be at risk of developing psychiatric disorders (26). The GHQ-28 is a 28-item measure of emotional distress in medical settings. Through factor analysis, the GHQ-28 has been divided into four subscales. These are: somatic symptoms (items 1-7); anxiety/insomnia (items 8-14); social dysfunction (items 15-21), and severe depression (items 22-28). All items are assessed using four-point Likert scale (0-1-2-3). Each subscale has seven questions, and obtaining the scores below 7 indicates the health status of person in that dimension, and scores above seven suggests the presence of disorder in the relevant dimension. The minimum score obtained by any person is zero and the maximum score is 84. This screening questionnaire has a cut-off score of 23 and obtaining scores higher than 23, represents one's health problems (26, 27). The GHQ-28 has been translated into Persian by Taghavi and colleagues. The reliability and validity of questionnaire were confirmed by Taghavi et al. and it has been widely used in Iran by researchers. In a study by Taghavi et al. the exploratory factor analysis showed an acceptable fitness. Varimax rotation indicated 4 factors which explained 50 percent of the total variance. Cronbach's alpha coefficient was from 0.72 to 0.87 for the subcategories. Thus, the results indicate that GHQ- 28 is a valid scale for use in Iran (28).

### **2.3.3. International Physical Activity Questionnaire (IPAQ):**

One of the most commonly applied is the International Physical Activity Questionnaire (IPAQ), developed in 1996 as an instrument for use in adults across diverse countries and populations. The IPAQ questionnaire data was cleaned in accordance with IPAQ protocol and the final results suggest the IPAQ questionnaire is a valid and reliable instrument for use in many settings and in different languages (29, 30). This questionnaire has been divided into five subscales including 1. Job related physical activity, 2. Transportation physical activity, 3. Housework, house maintenance and caring for family, 4. Recreation, sport and leisure time physical activity and 5. Time spent sitting (30, 31). Questions about physical activity at the levels of low, moderate, and high were calculated based on MET for different activities. Physical activities were classified at three levels: 1. Lack of physical activity, 2. Physical activity: they had energy consumption between MET-min 600-1500 per week, and 3. they had energy consumption over MET-min 1500. The International Physical Activity Questionnaire (IPAQ) was developed as a self-reported questionnaire for cross-national assessment of PA, and has been used in 96 countries throughout the world. In addition, its reliability and validity have been confirmed and are available in the worldwide network (32) and also confirmed by Kelishadi et al. in Iran (33).

## **2.4. Statistical analysis**

Statistical analysis was carried out using SPSS version 19 (IBM© SPSS© Statistics version 19 (IBM© Corp., Armonk, NY, USA). Quantitative data were computed as means and standard deviations (SD) and qualitative data were presented as frequencies and percentages. Kolmogorov-Smirnov test and standard deviation methods were used to determine the normal distribution of data, and Spearman correlation coefficient and logistic regression was analyzed. The forward LR method was used to choose the best multivariate logistic regression model for independent variables such as age, education, occupation, monthly income, socioeconomic status, marital status, smoking, number of pregnancies, indoor work, outdoor work, movement and displacement and exercise. A p-value less than 0.05 was considered significant throughout the study.

## **2.5. Research Ethics**

The Ethics Committee of Ahwaz Jundishapur University of Medical Sciences approved the study design (dated 18.4.2013). Written informed consent was obtained from the participants after offering a comprehensive explanation of the study procedure.

## **3. Results**

The mean age of participants was  $55.73 \pm 6.1$ . The average number of pregnancies was  $4.96 \pm 2.44$ . The lowest and highest frequency of educational level was elementary school (10.66%) and high school (30.33), respectively. In terms of women's job, the majority (72.68%) were housewives, and (40%) of them were self-employed. Most of them (48%) had monthly income of 5,000,000 to 10,000,000 Rials and 4.33 % of them were addicted to smoking. Assessing the relationship between parity, education, occupation, income and physical health, showed that those who had 3 to 6 pregnancies than the reference group (pregnancy less than 3) had two fold higher odds of physical health disorder (CI= 0.356- 0.967, OR=2.01). In addition, it was found that women who experienced more than 6 pregnancies had two and a half times the odds of physical health disorder (CI= 0.444- 0.987, OR=2.55) than the

reference group. In terms of education, those with a university level of education experienced low (62%) physical disorders (CI= 0.233-0.643, OR=0.384). Those who had income level more than 10 million Rials had lower (20%) physical problems than others (CI= 0.343- 0.877, OR=0.829). Anxiety was 4 times higher in those with more than 6 pregnancies than the reference group (CI= 1.487- 6.213, OR=4.03). Those with a university level of education had 56% lower odds of anxiety than the reference group (CI= 0.635- 2.119, OR=1.56). The working group experienced anxiety three times higher than the reference group (CI= 0.739- 3.522, OR=2.98). Additionally, only 26% of people who had income level higher than 10 million Rials, had anxiety (CI= 0.158- 0.749, OR=0.74). The odds of depression were 7.29 times higher in those women with more than 6 pregnancies than in other women (CI= 1.614- 8.063, OR=7.29), and employed people had 2.62 times higher odds of depression than other reference groups (CI= 0.739- 3.225, OR=2.62). On the other hand, the odds of depression were 50% lower in people with a university education than that of in the reference group (CI= 0.038- 1.756, OR=0.52). Assessing the relationship between pregnancy and social functioning indicated that those with more than 6 pregnancies had 88% higher odds of social function disorder (CI= 0.934- 3.800, OR=1.88) than the reference groups. In addition, the working group had 82% higher odds of social function disorder than the reference groups. On the other hand, those who had a university level of education had 21% lower odds of social function disorder than the reference groups (CI= 0.302- 2.115, OR=0.79). In total, the investigation of the relationship between demographic factors and general health revealed that those who had higher than 6 pregnancies, had almost two and half times higher odds of general health disorder (CI= 2.193- 5.015, OR=2.445). Additionally, working people had almost twofold higher odds of general health disorder than the reference groups (CI= 1.708- 5.904, OR=2.035). On the other hand, those with a university level of education had 60% lower odds of general health disorder than the reference group (CI=0.302- 0.874, OR=0.302). Examining the relationship between physical activity and physical health, indicated that only those who had regular physical activity or exercise had 63% lower odds of physical health disorder (CI=0.372- 0.777, OR=0.375), while no significant relationship was found in other areas of physical activity. In examining the relationship between physical activity and social functioning, a significant relationship was found in relation to total physical activity score. So that, people with moderate score had 61% lower odds of social functioning disorder than others (CI=0.201- 0.763, OR=0.392), while no significant relationship was found in other areas. Regarding physical activity and anxiety, only those with a moderate total score in physical activity had 55% lower odds of anxiety (CI=0.224- 0.905 OR=0.450). Regarding relationship between depression and physical activity, those who had moderate movement and displacement had 5 times higher odds of depression than the reference group (CI=1.011- 5.313, OR=4.958), while no significant relationship was found in other areas. Finally, to examine the relationship between physical activity and general health, logistic regression tests showed that people who had moderate physical activity had 43% lower odds of health problems compared to the reference group (CI=0.243- 0.929, OR=0.475) (Table 1).

**Table 1.** The relationship between physical activity and physical health, social functioning, anxiety, depression and general health based on logistic regression test

Variables		Sig (physical health)	Sig (social functioning)	Sig (anxiety)	Sig (depression)	Sig (general health)
Indoor work	Low	0.335	0.784	0.434	0.380	0.256
	Moderate	0.707	0.494	0.199	0.912	0.114
	High	0.893	0.770	0.369	0.251	0.583
Outdoor work	Low	0.908	0.903	0.913	0.970	0.520
	Moderate	0.707	0.971	0.705	0.965	0.630
	High	0.714	0.498	0.734	0.811	0.452
Movement and displacement	Low	0.282	0.498	0.160	0.143	0.178
	Moderate	0.197	0.239	0.056	0.048	0.111
	High	0.336	0.970	0.997	0.999	0.320
Exercise	Low	0.354	0.781	0.535	0.997	0.155
	Moderate	0.035	0.911	0.282	0.830	0.232
	High	0.158	0.503	0.641	0.998	0.256
Total physical activity	Low	0.893	0.230	0.081	0.115	0.094
	Moderate	0.719	0.006	0.025	0.730	0.030
	High	0.973	0.090	0.175	0.126	0.202

#### **4. Discussion**

Menopause is a natural process occurring around the age of 50 and women spend approximately one third of their life in menopausal period. Physical, psychological, and social problems are associated with this period, and have negative impacts on women's quality of life (34). The present study also investigated the relationship between some demographic characteristics and physical activity among menopausal women, and their impact on different subscales of general health, in which general health included physical health, social functioning, anxiety and depression. The results showed significant relationship between items of general health and some demographic characteristics such as the number of pregnancies, occupation, and educational level. As the number of pregnancies increases, individuals' level of general health will reduce so that employed people have a lower level of general health. In terms of education, as the educational level of people increases, individuals' level of general health will enhance compared with the reference group. Most studies also showed that the level of education is one of the factors influencing the quality of life in menopausal women, so that as the level of education of people is lower, their mental problems will increase. In other words, people with a higher education level, have higher access to information sources, so they will have better life quality (35, 36). In fact, higher education is often associated with higher income and greater opportunities in employment and social life. These women have better access to health care services and medical advice, which can lead to a better level of their health (37). Many studies have shown that menopausal women's quality of life will increase, not only by hormone therapy, but also by making changes in diet and lifestyle and regular physical activity (38). In this study, those who exercised moderately had a lower level of physical disorder compared to the reference group. In total, people who had moderate physical activity had better levels of general health and social functioning, and the level of anxiety was lower in them. Some studies suggest that the level of adaptability and quality of life in menopausal women improve after six weeks of an exercise program (34). In some other studies, the relationship between physical activity and menopausal symptoms was measured. The results of these studies showed that physical activity can increase and improve the quality of life and self-respect in menopausal women (21). Although, in this study, when compared to other studies, no significant relationship was found between physical activity and the general health of menopausal women, it could be evidence that the menopausal women are deprived from proper and regular physical activity and exercise. Given that the same moderate physical activity could affect general health, it seems that government and health care centers could encourage women to do regular and planned physical activities by holding training classes, proper programs, increasing women's awareness, and creating a positive attitude towards this period of life. These strategies can help women to guarantee their physical health in pre-menopausal years, and promote their general health in all areas, leading to improvement of their quality of life after menopausal period. In addition, given the key role of social support in improving menopausal women's quality of life, the participation of other family members, especially menopausal women's husbands in their public health promotion programs, and the establishment of social support networks to provide emotional support and appropriate tool for menopausal women, will certainly contribute to promote their general health, and thereby their quality of life will be enhanced. Regarding the strengths and limitations of the study, using face-to-face interviews and administration of the questionnaire by researchers were the strong points of this study, mitigating the problems concerning the completion of the questionnaire by individuals with low literacy. Research limitations included recall bias which was related to recall the items of general health because participants expressed their symptoms during the previous month.

#### **5. Conclusions**

In summary, the findings of this study showed that a significant percentage of women during menopause do not engage in physical activity even at low levels. This can have a direct impact on various aspects of their general health. Given that this period accounts for more than one-third of women's life and menopause-related physical and mental health problems affect different aspects of their lives, the use of scientifically based sports activities that can be done with minimum facilities is recommended as a tool to promote the health of this population. In addition, further research is needed on the type of sports programs and how to do them in order to benefit this important social group.

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#### **Conflict of Interest:**

There is no conflict of interest to be declared.

### Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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