

# The Effect of Education of Physical Activity via Social Networks on the Quality of Life in Menopausal Women: A Randomized Controlled Trial

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#### Abstract

**Background:** As a physiological event, menopause is an important milestone in women's lives. Numerous studies have shown the negative impact of this stage of women's lives on their quality of life. The present study aimed to assess the effectiveness of education about physical activity via social networks on the quality of life of menopausal women.

**Methods:** This randomized controlled trial was conducted at Khormoj, Southwest of Iran, in 2018 on 54 menopausal women (27 experimental group (EG) and 27 control group (CG)). For the EG, a WhatsApp group was created and, every week, three educational written messages, clips, or pamphlets about physical activity and its importance during menopause were sent for 10 weeks. The study outcome (quality of life) was measured via Menopause-Specific Quality of Life Questionnaire (MENQOL) at the onset and one month after the intervention. Data were analyzed through SPSS 19, using independent and paired T-tests.

**Results:** One month post-intervention, there was a significant difference between the EG and CG groups in the total quality of life, and vasomotor, physical and sexual dimensions compared to the CG group ( $P < 0.05$ ). Between the baseline and one month post-intervention, a greater increase in quality of life was observed in the EG than in the CG, giving a mean difference of  $-10.52$  ( $P < 0.0001$ ).

**Conclusion:** The present study showed that holding an educational program using the WhatsApp social network enhanced quality of life of menopausal women.

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**Keywords:** Education, Physical activity, Quality of life, Social networks, WhatsApp

## Introduction

Throughout their lives, women experience several stages including puberty, menstruation, pregnancy, childbirth, and menopause. Reaching any of these stages and passing through them will encounter women with situations and sometimes crises that may affect different aspects of their lives.<sup>1</sup> Meanwhile, as a physiological event, menopause

is an important milestone in women's lives; according to the definition by the World Health Organization, it refers to the cessation of menstruation for 12 months, following the loss of ovarian follicular activity.<sup>2</sup> Various studies carried out in Iran and in the world have shown that the age of menopause could potentially depend on a variety of factors including race, genetic characteristics, socioeconomic status, fertility status, physical activity,

nutrition, sexual behaviors, and diseases.<sup>3</sup> The mean age of menopause has been estimated 50-52 years. In Iran, the mean age of menopause is 51 years.<sup>4-6</sup> Following the incidence of menopause, changes in the hormonal, physical and metabolic processes of the woman's body would lead to many physical, psychological, and social disorders including hot flash, sweating, palpitation, sleep disorder, irritability, lethargy, depression, amnesia, decreased eroticism, painful intercourse, and urinary symptoms.<sup>7-10</sup>

Numerous studies have shown the negative impact of this stage of women's lives on their quality of life. The results of previous studies indicated that menopause women were 3.5 times more likely to be at risk of mental disorders. They were also 5.7 and 3.2 times more likely to be at risk of physical impairment and sexual dysfunction, respectively. According to these studies, menopause could reduce the quality of a person's life regardless of the factors such as age and other demographic variables.<sup>11-14</sup> Therefore, it seems important and inevitable to find some ways to prevent the minimization of the quality of life and to lower the symptoms and complications in menopause women to the possible extent. It seems that using non-medical methods, such as changing and improving lifestyle, can be useful for minimization of the symptoms and complications of this critical period. One of the appropriate health behaviors is to have mobility and do regular physical activities. Regular physical activity might increase the individual's ability to do his/her tasks and to feel healthy, empowered, and self-confident.<sup>15, 16</sup> Doing regular physical activity would reduce blood glucose and blood pressure, stimulate the increase of catecholamins as well as adrenaline and noradrenaline, increase muscle strength, increase aerobic and cardiovascular endurance, and increase balance and coordination.<sup>17, 18</sup>

Social networking is built on the idea of the way should people know and interact with each other. It gives people the power to share making the world more open and connected.<sup>19</sup> Nowadays, social networking has a vital influence on our live as it helps a lot in every aspect of life such as political.

Economic, and educational field s. Flexibility, convenience and accessibility have a vital influence on the use of social networking in education.<sup>20</sup> The phenomenon of social media has become part of Internet culture, and published literature describing social media interventions for chronic disease management are becoming more prevalent.<sup>21</sup> In recent years, instant messaging applications, which can be identified as mobile-based social networks, have started to become popular. Though there are a lot of instant messaging applications that can operate on mobile devices, it is seen that WhatsApp application is one of the most favored mobile-based applications.<sup>22</sup>

Ebrahimi et al. in 2017 indicated a positive role for using WhatsApp software to promote lifestyle, thus improving the level of health of women under study.<sup>23</sup> Also, Estaji et al. conducted a study in 2016 using cellular text messaging that led to self-care promotion in hemodialysis patients under study.<sup>24</sup> Mirghafurvand et al. conducted a study entitled "the influence of aerobic exercise program on the quality of life of pre-menopause and menopause women: a randomized, controlled clinical trial" and found that moderate aerobic exercise was effective in improving the quality of life of pre-menopause and menopause women.<sup>25</sup> Given the influence of menopause on women's quality of life and the fact that it is considered as an indicator for assessment of health status, the present research was conducted to examine the effectiveness of education about physical activity via WhatsApp on the quality of life of menopausal women.

## Methods

### *Trial Design*

This is a concurrent parallel randomized controlled trial. We used simple randomization (flipping a coin); the study objectives were explained to each participant and informed written consent was obtained. The study was approved by the ethics committee of Shiraz University of Medical Sciences. IR.SUMS.REC.1395.184.

### *Participants*

The study population included women who referred to comprehensive health services centers in Khormoj, Southwest of Iran. The inclusion criteria were postmenopausal women, age of 45-60 years, at least one year after the last menstruation, no menopause after surgery, no hormone therapy over the past 6 months, no experience of intense stressful events such as bereavement over the past month, confirmation of the health of women for physical activity by the center physician, Iranian citizenship, and available smartphone. The exclusion criterion was the unwillingness of the participants to continue the study.

### *Intervention*

Experimental group (EG): First, the educational package on physical activity and its importance during menopause, extracted from the book by Allameh,<sup>26</sup> was provided and confirmed by the authorities. Then, we created a WhatsApp group named "Health of Dashti Women". The WhatsApp group was formed and managed by the researcher (who was an obstetrician). Every week, three educational written messages, clips, or pamphlets about physical activity and its importance during menopause extracted from the

educational package were sent to the group members for 10 weeks. In addition to teaching the importance and benefits of doing physical activity in maintaining the health of menopause women, it is advisable to use the stairs instead of the elevator, walking along the path back to your home instead of using a taxi, parking the car away from the destination, hiking, walking with family members after dinner, washing the car by yourself instead of going to the car wash, doing the house chores such as vacuuming the floor, washing windows, gardening by the person, and walking to work. In general, due to the limited number of places and facilities in the area, walking was advised as the cheapest and best middle-aged sport and offered to the EG group to be done at least 30 minutes of fast walking with moderate intensity, at least 5 days a week for one month. Sending messages and answering to questions of group members about menopause and its symptoms and ways to reduce complications and physical activity done by the researcher. The exercise program offered to the EG group included at least 30 minutes of fast walking with moderate intensity, at least 5 days a week for one month. In the case of a number of illiterate samples, we talked with a family member (girl or bride) to explain our messages for them. Given the comments made by the team members or questions posed in the context of menopause, it was clear that the group had read the messages and the researcher had succeeded in communicating with them.

Control Group (CG): No intervention by researchers was provided to the control group (CG).

#### *Instruments*

1. The demographic and background information checklist included age, occupation, level of education, number of children, age of marriage, age of menopause, menopause duration, tobacco use and its type, duration of smoking, duration of physical activity per week, satisfaction from marital life, satisfaction from economic status, and health status.

2. The Menopause-Specific Quality of Life Questionnaire (MENQOL): The questionnaire was designed and standardized by Hildich et al. at the University of Toronto, Canada.<sup>27</sup> The scale has 29 items on symptoms and complications of menopause in 4 domains of vasomotor (3 questions), psychosocial (7 questions), physical (16 questions), and sexual (3 questions). Scoring was based on the Likert scale (1=not at all, 2=partial, 3=somewhat, 4=moderate, 5=relatively severe, 6 = severe). A higher score in each domain indicated deterioration in the quality of life, and a lower score indicated better quality of life. The validity and reliability of the questionnaire were confirmed in Iran by Fallahzade et al. through the Cronbach alpha of 0.85.<sup>28</sup> MENQOL was measured before and one month post-intervention.

#### *Sample Size*

According to the study of Torani et al.,<sup>29</sup> the sample size for the present study was determined to be 25 subjects for each group at a 95% confidence interval and 80% power using the Pocock's formula;<sup>30</sup> considering a 10% drop, we calculated the sample size of 27 subjects for each group.

#### *Randomization*

Qualified women were randomly selected from the household lists; then, they were randomly assigned, following unrestricted randomization procedures (flipping a coin), to one of the two groups, EG and CG. Randomization concealed the sequentially numbered, opaque, sealed, and stapled envelopes.

#### *Statistical Analysis*

Data were analyzed using SPSS 19. Kolmogorov-Smirnov statistical test was used to assess normal distribution of data. The independent t-test was used to compare inter-group differences, paired t-test was deployed to compare intra-group differences, and Mann-Whitney and Wilcoxon tests were used for nonparametric data. The Chi-square test was used to compare the categorical variables. Results were considered significant at  $P < 0.05$ .

## **Results**

Table 1 shows the Demographic characteristics of the EG and CG groups. Chi-square statistical test showed that there was no significant difference between the EG and CG groups in the job, education level, smoking, and marital satisfaction. Mean and SD of age in the EG group were  $4.32 \pm 53.67$  and in CG group,  $4.03 \pm 54.15$  ( $P = 0.67$ ). Marital age in the EG group was  $19.37 \pm 5.66$  and in the CG group  $19.22 \pm 5$  ( $P = 0.91$ ). Menopause age in the EG group was  $47.93 \pm 2.66$  and in the CG group  $48.41 \pm 3.32$  ( $P = 0.65$ ). Menopause duration in the EG group was  $5.74 \pm 3.77$ , and in the CG group  $5.74 \pm 3.23$  ( $P = 1$ ).

At pre-intervention, there was no significant difference between the EG and CG groups in the quality of life and its dimensions. About one month post-intervention, there was a significant difference between the EG and CG groups in total quality of life and vasomotor, physical, and sexual dimensions compared to the CG group ( $P < 0.05$ , Table 2).

Comparison of the mean and SD of quality of life and its dimension pre- and post-intervention in the experimental and control groups is shown in Table 3.

The mean changes and SD of the quality of life among the EG and CG groups are shown in Table 4. The mean change from baseline to one month post-intervention in total quality of life was significant between the EG and CG groups (mean difference  $-10.52$ ,  $P < 0.0001$ ).

**Table 1:** Baseline Demographic and Clinical Characteristics

	Control	Intervention	P value
Age	54.15±4.03	53.67±4.32	0.67
Occupation			0.146
Housewife	23 (85.2)	19 (70.4)	
Working	1 (3.7)	6 (22.2)	
Retired	3 (11.1)	2 (7.4)	
Education level			0.201
Illiterate and primary school	21 (77.8)	14 (51.9)	
Junior high school	3 (11.1)	7 (25.9)	
Diploma	2 (7.4)	2 (7.4)	
University education	1 (3.7)	4 (14.8)	
Smoking			0.501
Yes	7 (25.9)	4 (14.8)	
No	20 (74.1)	23 (85.2)	
Marital satisfaction			0.488
Very high	18 (66.7)	14 (51.9)	
High	5 (7.4)	6 (22.2)	
Medium	5 (18.5)	6 (22.2)	
Low	1 (3.7)	0	
Very low	1 (3.7)	1 (3.7)	
Exercise duration (hours per week)	1.93±1.99	0.85±1.37	0.026

Values are expressed as means±SD or No. (%)

**Table 2:** Comparison of Mean and SDs of the quality of life and its dimension in the Experimental and Control Groups

Domain	Pre intervention		P value	Post intervention		P value
	Control	Experimental		Control	Experimental	
	Mean±SD	Mean±SD		Mean±SD	Mean±SD	
Vasomotor	8.70±4.46	8.07±4.33	0.601	8.44±4.22	5.96±2.94	0.015
Psycho-social	18.93±7.28	18.04±6.33	0.634	19.52±7.28	16.48±5.81	0.096
Physical	36.37±10.32	34.78±9.21	0.552	37.67±10.28	30.70±7.65	0.007
Sexual	13.52±4.06	11.81±3.51	0.106	13.52±3.97	10.67±3.32	0.006
Total	77.52±17.94	72.70±5.33	0.304	79.15±18.07	63.81±6.81	0.001

**Table 3:** Comparison of mean and SDs of the quality of life and its dimension pre- and post-intervention in the experimental and control groups

Domain	Control		P value	Experimental		P value
	Pre intervention	Post intervention		Pre intervention	Post intervention	
	Mean±SD	Mean±SD		Mean±SD	Mean±SD	
Vasomotor	8.70±4.46	8.44±4.22	0.166	8.07±4.33	5.96±2.94	<0.001
Psychosocial	18.93±7.28	19.52±7.28	0.001	18.4±6.33	16.48±5.81	<0.001
Physical	36.37±10.32	37.67±10.28	0.001	34.78±9.21	30.70±7.65	<0.001
Sexual	13.52±4.06	13.52±3.97	1	11.81±3.51	10.67±3.32	<0.001
Total	77.52±17.94	79.15±18.07	0.002	72.70±5.33	63.81±6.81	<0.001

**Table 4:** Comparing the Mean Changes (Follow Up-Baseline) and SDs of the quality of life among the Experimental and Control Groups

Domain	Control	Experimental	Mean Difference	P value
	Mean changes±SD	Mean changes±SD		
Vasomotor	-0.25±0.94	-2.11±2.08	-1.86	0.0001
Psychosocial	0.59±0.80	-1.56±1.53	-2.15	0.0001
Physical	1.30±1.59	-4.07±2.40	-5.37	0.0001
Sexual	0±0.39	-1.5±1.17	-1.5	0.0001
Total	1.63±2.48	-8.89±3.78	-10.52	0.0001

## Discussion

This study was conducted to investigate the effects of

education based on regular physical activity on the quality of life in menopause women. The results showed that implementing an educational program using the

WhatsApp social network led to a significant increase in the quality of life in the EG group compared to the CG group. In the study of Bustanchi et al.,<sup>31</sup> with the aim of determining the effect of virtual education on the quality of life in asthmatic patients in Tohid Hospital in Sanandaj, the quality of life after the intervention in the experimental group improved compared to the control group. In Atashi et al.'s<sup>32</sup> study with the aim of investigating the effect of e-learning on the quality of life in patients with stroke, after the intervention, the quality of life in the intervention group was significantly higher than the control group. Virtual education is independent of time and place and a person can learn the necessary training at different hours of the day. This method is used as the main part of healthcare in most developed countries. The motto of the World Health Organization is to provide full health care to all patients, especially chronic patients, and introduces the use of e-learning as a suitable communication channel between the patients and their caregivers.<sup>32</sup> Studies have shown that if only educational information is provided, the effect lasts for a week and a short-term change occurs, while using an educational medium such as the WhatsApp social network along with sharing educational materials to provide information can have an effect that lasts up to 4 months and if the training is given as a multidimensional intervention, its effect will last for years.<sup>33</sup>

In this study, one month after the intervention, a significant improvement was observed in vasomotor, physical, and sexual dimensions in the EG group compared to the CG group. In the study carried out by Mirghafurvand et al.<sup>25</sup> with the purpose of evaluating the effect of aerobic exercise program on perimenopause and menopause women, 12 weeks after the intervention, a significant improvement was observed in vasomotor and physical dimensions in the EG group compared to the CG group; this is consistent with the results of our study.

In this study, one month after the intervention, no significant improvement was observed in the psychosocial dimension in the EG group compared to the CG group. In a study carried out by Mirghafurvand et al.,<sup>25</sup> 12 weeks after the intervention, a significant improvement was observed in psycho-social dimension in the group EG compared to the CG group. This is not consistent with the present study, which may be due to a difference in the type of intervention. In the present study, the intervention was held using distance learning, whereas in Mirghafurvand's study, the intervention was to form Group training and face to face learning. One of the most important benefits of physical activity is its social dimension. Participating in group exercises increases the social interactions and the individual becomes aware of his abilities and this leads to self-esteem and self-confidence.

#### *Limitations of the Study*

One of the limitations of this study was the

relatively short follow up period of one month. It would be needed to evaluate the effects over a longer follow up period. The limitations of distance learning were having a smart phone, being able to use it by people, and being able to read and write and connect to the Internet at reasonable speed. These restrictions will eliminate the number of participants in the plan. Of course, these people are more vulnerable. We tried to eliminate or minimize this restriction with the help of family members who lived with their family members, such as daughter, son, or bride of the family. Another limitation of the present study was the lack of measurement of physical activity.

#### **Conclusion**

The present study showed that implementing an educational program using the WhatsApp social network enhances the quality of life of menopausal women. In this regard, it is suggested that virtual education in postmenopausal women care programs should be considered as a useful, up-to-date and practical educational method.

**Conflict of Interest:** None declared.

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