International Journal of General Medicine

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ORIGINAL RESEARCH

# Exercise prescription for Iranian midlife women



This article was published in the following Dove Press journal:
International Journal of General Medicine
18 November 2010
Number of times this article has been viewed

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**Objectives:** The purpose of this study is to determine the effect of a multimodal intervention (including the Women's Wellness Program) on increasing levels of physical activity in Iranian midlife women.

**Study design:** This 12-week study was conducted in women aged 50–65 years living in the general population. Women who were allocated to the intervention group (n = 40) received an intervention, which combined a multimodal program of physical activity and health education. Women in the control group continued their normal physical activities (n = 45).

**Mean outcome measure:** The women completed a questionnaire that included measures for items of interest for this analysis, such as menopausal status, sociodemographic, and exercise and activity levels.

**Results:** Analysis of covariance indicated that the intervention was effective in improving women's physical activity. The test showed that there was a significant difference between intervention and control in current vigorous activity.

**Conclusion:** Physical activity should be encouraged for prevention and reduction of risks for chronic disease and for improvement of health in midlife women. The multimodal intervention program may offer implications for designing and implementing exercise interventions in further studies.

**Keywords:** midlife women, intervention, physical activity, menopause

## Introduction

With a life expectancy of about 80 years, most women are expected to spend one third to one half of their lives as postmenopausal women.[1] Middle age is frequently seen as a marker of decline in women's health, and the most remarkable phase for most women is that of hormonal changes and their associated effects.[2] In women, decreasing ovarian steroid hormone production around menopause affects several metabolic systems, such as the turnover of bone tissues, lipoprotein metabolism, and vessel walls. Health promotion, therefore, in midlife women has become more important due to increased life expectancy of women and consequent postmenopausal complications, such as osteoporosis, atherosclerosis, genital prolapse, and urinary incontinence.[3]

Physical activity has essential physical and psychological benefits for older people, particularly for women. It has been reported in various populations to prevent or reduce the incidence of cardiovascular disease, obesity, osteoporosis, colon cancer, breast cancer, anxiety and depression, and to reduce the frequency of vasomotor symptoms in midlife women.[4–7] Physical activity might be the best prescription for women in midlife to protect their health status.[8] The preventive steps taken during midlife will

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Dovepress
DOI: 10.2147/IJGM.S10807

help build a basic foundation to ensure good health and vitality that extends well into the postmenopausal years.[9] In this study, we address the efficiency of multimodal program in increasing level of activity and if those women using the intervention would able to attain significant improvement in their physical activity.

# Methods

## Sample recruitment

The sample was recruited from a subset of women who were referred to Shahrood health service in Iran. Women were considered eligible for inclusion in the study if they were aged between 50 and 65 years and physically inactive. Physically inactive women are those who do not get the recommended level of regular physical activity including 30 minutes of moderate 5 days per week; or 20 minutes of vigorous exercise 3 days per week.

One hundred fifteen women were selected and asked to fill a consent form. All cases and controls were randomly assigned into an intervention or control group. Randomization was achieved by allocating the surveys as they were received to group 1 (intervention) or group 2 (control) sequentially. Of the 115 women, 55 were invited to take part in the intervention program, and 60 were allocated to control.

## Drop outs

Of the 115 women who began the study, 20 women from group 2 and 15 women from group 1 failed to complete the second questionnaire, leaving 40 women in the control and 40 women in the intervention group eligible for analysis. Primary reasons for drop-outs were family health priorities, planned recreational travel, and a perceived lack of time to complete the program.

## Procedures

Women who were allocated to the intervention group received a combination of physical activity and health education; the women in the control group continued their normal physical activities. Women in both the intervention and control groups received preassessment and postassessment. These assessments were undertaken at T1 (prior to intervention) and T2 (12 weeks from commencement of the intervention).

## Intervention group

The Women's Wellness Program was included in the specific strategies that were used in the intervention group.

Women in the intervention group undertook a 12-week program, which was a multimodal intervention consisting of a physical activity and health education program consultation by a registered nurse. Topics covered included health information for women, such as recommended nutrition and physical activity information specific to women's health. The program was introduced to and discussed by the intervention group prior to onset.

A consultation by a registered nurse and individual health education and goal setting session were provided to each woman.

This intervention included cognitive–behavioral strategies aimed at increasing positive lifestyle changes in midlife women.

Women received a second consultation at the end of the 12 weeks, and exercise records were collected. All participants recorded their frequency of performing aerobic exercise, with the goal being 5–7 exercise sessions per week to adhere to the physical activity component of the intervention.

## Control group

The women in the control group completed surveys at T1 and T2 and continued their normal daily activities.

## Instruments

Women in both the intervention and the control groups received preassessment and postassessment sessions. These assessments were undertaken at T1 (prior to intervention) and T2 (12 weeks from commencement of the intervention). The women completed a questionnaire, which included measures for items of interest for this analysis, such as menopausal status, sociodemographic, and exercise and activity levels.

Exercise and activity levels were measured using the Monica Optional Study of Physical Activity questionnaire (MOSPA). The questionnaire was developed by World Health Organization (WHO) and was used to assess physical activity in 13 WHO-MOSPA centers in nine countries.[10] The strength of the MOSPA questionnaire is that it assesses all dimensions of physical activity including household, occupational, leisure time, and transportation activity. The validity and reliability of MOSPA have been established in the WHO-MOSPA questionnaire.[10]

# Results

Women who agreed to participate in this study were aged between 50 and 65 years (mean age, 58.3 years). Data for this variable were normally distributed, and the independent

*t*-test comparison of the control and intervention groups showed that there was no significant difference between them for the age variable.

## Physical activity in intervention and control groups at baseline of the study

An independent *t*-test was conducted to determine the differences between intervention and control groups' leisure-time activity at the baseline of the study. General daily activity included activity such as housework, caring for children, shopping, or activity at work. Exercise was excluded.

The test revealed no significant differences between the intervention and control groups in leisure time activity. During the past year, there had been no significant differences between intervention and control groups in the months they did exercise. With regards to long-term exercise, there were no significant differences between the intervention and control groups in the years they did exercise. In the weekly exercise levels, there was no significant relationship between the intervention and control groups determined at the baseline of the study (Table 1).

## Current vigorous physical activity

With reference to vigorous activity, women were categorized into four activity levels: 1) no physical activity weekly, 2) only light physical activity, 3) vigorous physical activity at least 20 minutes once or twice a week (vigorous activity causes shortness of breath, a rapid heart rate, and sweating), 4) vigorous physical activity for at least 20 minutes three or more times per week.

An analysis of covariance test was conducted to determine differences between intervention and control in vigorous activity. The test showed that there was a significant difference between intervention and control in current vigorous activity. To interpret the significant interaction of time and group, independent Bonferroni pairwise comparisons were conducted between the intervention and control groups over the two time points. This test showed that, even after controlling for baseline differences, the intervention group had significantly higher physical activity levels than the control group ($P = 0.00$) (Table 2).

**Table 1** Comparison of exercise between intervention and control groups at baseline of the study

| | Group | Mean | SD | Σ |
|---|---|---|---|---|
| Daily exercise | Intervention | 2.68 | 0.55 | – |
| | Control | 2.85 | 0.76 | 0.12 |
| Weekly exercise | Intervention | 2.73 | 1.22 | – |
| | Control | 3.17 | 1.88 | 0.84 |
| Months of exercise | Intervention | 6.44 | 3.74 | – |
| | Control | 8.00 | 4.10 | 0.73 |
| Years of exercise | Intervention | 1.55 | 0.51 | – |
| | Control | 1.48 | 0.50 | 0.64 |

**Abbreviation:** SD, standard deviation.

# Discussion

Exercise and fitness are vital because women are dramatically at risk for osteoporosis and fracture, heart disease, and chronic diseases such as diabetes and breast cancer. The results of the study showed a significant relationship between taking a multimodal intervention and increasing the level of activity. The multicomponent intervention appears to be the most hopeful way to increase activity. These interventions include patient goal setting, written exercise prescriptions, individual physical activity regimens, and mailed or telephone follow-up support provided by specially trained staff. The belief in one's ability to accomplish behaviors successfully is seen as a major reason for choosing the amount, time, and type of activity that women undertake. Similarly a randomized controlled trial was conducted by Elley et al[11] to assess the effectiveness of the "green prescription" program in general practice which included verbal and written advice about physical activity to patients during normal consultations. Exercise specialists continued this support by telephone and mail. Control patients received the usual care only. The results of the study showed significant changes in physical activity, quality of life, cardiovascular risk, and blood pressure over the 12-month period of the study. Also, due to the significance of exercise in the prevention of disease such as osteoporosis and cardiovascular disease, it may be essential for health and exercise specialists to intervene to increase levels of activity.[12] Observational research suggests that the success of an intervention is affected by individual factors, such as motivation, social support, health, beliefs, and education, and by organizational factors, such as resources, convenience, and type of physical activity.[13,14] Previous studies have shown that success in making lifestyle changes can be improved by appropriate social support.[14] For example, a recent trial of health system-sponsored telephone support by trained health educators revealed increased physical activity in the patients.[15,16] Behavioral support provided by health educators' increases activity and fitness levels compared with modest counseling efforts.[16] Also, studies suggest that specific counseling advice such as a detailed exercise prescription may result in higher maintenance rates. Moreover, short physical

**Table 2** Comparison of exercise levels in case and control group at baseline of study and at three months

| | Occasion | | | | | |
|---|---|---|---|---|---|---|
| | Preintervention | | | Postintervention | | |
| | Case mean (SD) | Control mean (SD) | Σ | Case mean (SD) | Control mean (SD) | Σ |
| Monthly | 2.52 (1.00) | 2.72 (1.43) | 0.31 | 3.27 (1.18) | 2.71 (1.37) | 0.00 |
| Vigorous | 2.54 (0.76) | 2.62 (0.95) | 0.89 | 3.01 (0.88) | 2.50 (0.83) | 0.00 |

**Abbreviation:** SD, standard deviation.



activity counseling may help the patient's improvement through the stages of behavior change, which makes it more possible for them to increase their physical activity when advised to perform exercise in the future.

Understanding the individual factors that might affect physical activity is necessary to design an intervention with the highest chance of participation and adherence to recommended physical activity behaviors.[17] For example, Cohen-Mansfield et al[18] found barriers to exercise to be highly related to motivators. Poor health could reduce an older adult's ability to exercise and is also frequently mentioned as a motivator for increasing physical activity. Other motivators for being more active include having more time, having more information on exercise benefits, or living nearer to an exercise facility.[19] Physical activity is a complex process, which may be affected by other variables. Considering the barriers that might affect physical activity is necessary to design an intervention with the highest chance of participation and adherence to recommended physical activity behaviors.

## Conclusion

Behavioral and biological changes that occur during the menopausal transition highlight the importance of behavioral change interventions to prevent or reduce the changes associated with menopause.[13,16,19–21] Physical activity should be encouraged for prevention and reduction of risks for chronic disease and for improvement of health in midlife women.[13,22–28] The study revealed that a multimodal intervention could increase the level of activity in midlife women. Women stated that they felt physically and mentally better, and the program motivated them into being more active. They mentioned that the program was easy to understand and follow, and the concept of the program was well organized and useful for them. This is an important finding as attitudes to exercise is a difficult health behavior to change. Alternatives to traditional group-based interventions, such as helping midlife women to exercise at home during leisure time, are necessary to improve health promotion for this population.

The results of this study may have implications for designing and implementing exercise interventions in further studies. Women who intend to be healthy need to choose a regular approach to maintain their health. To achieve this goal, health professionals who are aware of the effect of regular exercise on the physical and psychological problems of women in midlife and beyond can help them to increase their physical activity.

## Disclosure

The author reports no conflicts of interest in this work.

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