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Impact of Performing Health Promotion Model Intervention on Physical Activity of Health Volunteer of Torbat-e-Jam City, Iran

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Authors
Rahimian M.[1] *MSc,*
Mohammadi M.* *PhD,*
Mehri A.[1] *PhD,*
Rakhshani M.H.[1] *PhD*

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*Health Education Department, Health School, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[1]Health Education Department, Health School, Sabzevar University of Medical Sciences, Sabzevar, Iran

Correspondence
Address: 7th Floor, Building No. 2 of SBUMS, Arabi Avenue, Daneshjoo Boulevard, Velenjak, Tehran, Iran. Postal Code: 1983963113
Phone: +98 (21) 22439770
Fax: +98 (21) 22433455
mohammadim@sbmu.ac.ir

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ABSTRACT

Aims Regular physical activity can reduce the burden of chronic diseases, such as heart disease, diabetes, and some cancers, and can prevent early death. This study examined the impact of performing health promotion model intervention on physical activity of the health volunteers.

Materials & Methods This cross-sectional research is part of a three-month Intervening study started in 2015 on 80 health volunteers in Torbat-e Jaam City, Iran, which was selected by multistage random sampling method and participants were divided into two interventional and control groups. A Demographic Questionnaire and The Persian version of International Physical Activity Questionnaire were used to collect data. The data was analyzed in SPSS 16 using independent T, Pearson's correlation coefficient and linear regression tests.

Findings Before the intervention the mean of perceived benefit score was 31.3±4.5 that was evaluated as "good" but self-efficacy and behavior scores were 5.8±4.1 and 912.4±750.8 that were assessed as "poor". Physical activity had positive correlation with perceived benefits, self-efficacy, commitment, positive, emotion and situational influences and a negative correlation with perceived barriers. Overall 66.8% of the physical activity was predicted by Pender's Health Promotion Model variables. There was a significant difference between the mean scores of physical activity and other structures of HPM in the experimental group after the intervention and its score before intervention.

Conclusion Educational program based on Pender's health promotion model is effective in improving physical activity of health volunteers.

Keywords Physical Activity; Attitude of Health Personnel; Health Promotion

CITATION LINKS

[1] Definitions of sedentary in physical-activity-intervention ... [2] Transtheoretical model-based (TTM) interventions to ... [3] Location, timing, and social structure patterns related to ... [4] Predictors of physical activity at 12 month follow-up after ... [5] Predicting actual weight loss: A review of ... [6] Effect of a health education intervention related to ... [7] Promoting physical activity: A guide for ... [8] Assessing stages of exercise behavior change,self-efficacy and ... [9] The study of knowledge, attitude and practice towards physical activity college ... [10] Application of the health promotion model to predict stages of ... [11] A survey on the effects of the pender's health promotion model on ... [12] The survey of Theory of planned behavior constructs regarding girl ... [13] Neighborhood influences on physical activity in middle-aged and ... [14] The effect of health promotion model-based training on ... [15] Students' physical activity: An analysis according to ... [16] A model testing factors that influence physical activity for Taiwanese adults ... [17] Predictive ability of pender's health promotion model for physical activity and exercise in ... [18] Effect of first aid educational program in Health Volunteers, rescue method during disasters in ... [19] Effectiveness of education and its influential factors on empowerment of the health volunteers in the West of Tehran ... [20] Effects of a school-based intervention on the basis of pender's health promotion model to improve physical activity among high school ... [21] Application of the health promotion model in studying physical activity behavior of students in ... [22] Comparing the status of sport activities in women and men working at ... [23] Evaluation of regular physical activity and its association with psychological constructs based on transtheoretical model among ... [24] Prevalence of physical activity among adults in ... [25] effectiveness of a physical activity promotion program on ... [26] Strong and weak principles for progressing from precontemplation to ... [27] The effect of educational program based on Baznef model in the pregnant ... [28] Assessing the effect of educational intervention based on ... [29] Designing and implementing educational program to ... [30] A model-based educational intervention to increase physical activity ...

Introduction

A sedentary lifestyle is undesirable in terms of future health, but formerly sedentary individuals can gain fitness quite rapidly, even with moderate levels of regular physical activity [1] Physical inactivity is a major contributor to non-communicable diseases, e.g. heart disease, diabetes and cancer [2]. Physical activity also reduces the risks associated with cardiovascular disease and diabetes mellitus [3]. Current public health guidelines recommend 150 minutes per week of moderate intensity or 75 minutes per week of vigorous intensity aerobic physical activity for adults in order to obtain health benefits [4].

The worldwide prevalence of obesity has more than double increased between 1980 and 2008. Statistics from the World Health Organization have shown that 34% of men and 35% of women were overweight (BMI≥25kg/m^2) and that 10% of men and 14% of women were obese (BMI≥30kg/m^2) [5]. The minimum physical activity needed to maintain and improve health is 30 minutes with moderate intensity 5 days a week in adults. To achieve more extensive health benefits, a person should perform 300min or more per week of moderate-intensity activity, 150min per week of vigorous-intensity activity, or an equivalent combination of both.

Physical activity volume is the product of frequency (episodes per week; often expressed as days per week), intensity (level of effort; often expressed as an individual's perception of effort as being light, moderate, or vigorous intensity or as a multiple of resting energy expenditure, known as a MET), and duration (time per episode). Physical activity must have at least moderate intensity to be beneficial to health. Time spent in light-intensity activities (such as light housework) and sedentary behaviors (such as watching TV) do not count toward meeting the aerobic physical activity guidelines [6, 7]. Report of the Health, Treatment & Medical Education Ministry of Iran indicates that above 60% of Iranian homemakers are sedentary [2, 3, 8-12]. Most Americans also are not physically active enough to achieve the health benefits of daily activities [13].

Physical activity levels were initially classified as low- (no activity or some activity reported, but not enough to satisfy the requirements of the other activity categories), moderate- (3 or more days of vigorous-intensity activity for at least 20 minutes per day, 5 or more days of moderate intensity activity or waking for at least 30 minutes per day, or 5 or more days of any combination of walking, moderate intensity, or vigorous intensity activities achieving a minimum of 600MET-min/week), and high intensity (3 or more days of vigorous-intensity activity accumulating at least 1500MET-min/week or 7days of any combination of walking or moderate- or vigorous intensity activities achieving a minimum of 3000METmin/week) by the International Physical Activity Questionnaire (IPAQ) core group.

Many theories and models applied to orientate the physical activity behavior; one of them is Pender's Health Promotion Model [14] that was developed by Nola J. Pender, professor emeritus of the Nursing School at University of Michigan in the United States, and is supported by the concept of health promotion, defined as those focused on the development of resources that can maintain or improve wellbeing. American, Asian and European researchers have often used this health promotion model to study behaviors that lead to health promotion [11, 15]. This model is beneficial because it is not limited to only two or three explanatory variables and consist from perceived benefits of activity, perceived barriers to activity, perceived self-efficacy for activity, interpersonal influences (perceived family support for activity, and perceived friend support for activity) and situational influences which was developed to predict health-promoting [16, 17].

Training health volunteers who are in fact the members of the community seems effective [18]. The health volunteers in Iran are usually homemakers who have enough time and interest, and cover up and educate about 50 families from their neighbors. They are known as not salaried workers and considered a bridge between the community and the health care system [19].

As there have not been any similar studies in Iran in terms of physical activity in health volunteers, this study examined the impact of performing health promotion model intervention on physical activity of the health volunteers.

Materials & Methods

This cross-sectional research is part of a three-month Intervening study started in 2015 on 80 health volunteers in Torbat-e Jaam City, Iran, which was selected by multistage random sampling method and participants were divided into two interventional and control groups. According to the variant parameters and similar studies [10, 14, 20, 21], the number of samples to be tested estimated about 75 that 80 people were taken to ensure the results. The criteria of participating were having at least one year work experience as health volunteers, being healthy enough to do physical activities, not being paralyzed and taking the consent form to participate in the research.

A Demographic Questionnaire (age, occupation, marital status, education level, body mass index and place of residence) and The Persian version of International Physical Activity Questionnaire (IPAQ) were used to collect data. IPAQ is a reporting questionnaire, which has been tested on adults of the 18-65 in 20 countries and approved. This questionnaire asks about the vigorous and moderate physical activities and walking practice during the last three weeks. We can extract and report the rate of physical activity based on the scoring protocol. The rate of physical activity in a week is estimated based on MET minutes/week (MET is a scale that is used to estimate the consumed energy during any physical activity. One MET equals the amount of the energy consumption of a relaxing person). In addition, all physical activities were classified as the multiple of energy consumption rate in the relaxing status. In this standard questionnaire, walking equals 3.3METs, the moderate physical activity equals 4METs and the vigorous physical activity equal 8METs. To calculate the total physical activity in a week, the amount of walking (3.3MET×min×day) should be summed up with the amount of moderate physical activity (4MET×min×day) and vigorous physical activity (8MET×min×day).

The questionnaire was distributed amongst the target group and completed. Educational intervention program with the appropriate content based on information obtained from the pre-test was designed. This program has been implemented in 6 weeks and trained in a matter of week for intervention group. Training topics included the importance of exercise, the benefits of physical activity, the problems caused by lack of exercise and sedentary and ways to reduce the barriers. Post-test was carried out immediately after intervention and three months after it.

The data from the questionnaire was then extracted and analyzed in SPSS 16 using independent T (for comparison the scores of physical activity of the participants according to demographic parameters), Pearson's correlation coefficient (to determine the correlation between physical activity and HPM parameters), and linear regression (to determine the predictors of health promotion model parameters) tests.

Findings

The mean age of participants was 25.1±2.5 years, height was 159.2±5.8cm and weight was 63.8±10.4kg. There was no significant difference between the scores according to educational levels, age groups, BMI score, marital status, habitat and experience as a health volunteer duration.

Before the intervention the mean of perceived benefit score was 31.3±4.5 that was evaluated as “good” but self-efficacy and behavior scores were 5.8±4.1 and 912.4±750.8 that were assessed as “poor”.

Figure 1) Comparison of mean of health promotion model structure in two groups before and after intervention

Parameters	Experimental group			Control group		
	Before	After	p Value	Before	After	p Value
Physical Activity	1038.4± 802.1	2483.8±745.2	0.001	786.6±682.6	817.3±331.1	0.776
Perceived benefits	32.0±4.4	39.8±0.7	0.001	30.6±4.3	32.9±2.1	0.001
Perceived barriers	13.2±2.9	3.5±1.1	0.001	14.9±3.3	13.7±2.2	0.002
Self-efficacy	6.7±4.4	14.3±1.0	0.001	5.0±3.6	6.6±3.3	0.001
Interpersonal influences	7.2±2.6	7.9±2.4	0.001	6.5±2.7	6.7±2.4	0.021
Modeling	6.3±3.8	6.9±3.4	0.007	5.7±3.7	5.7±3.3	0.952
Commitment	4.1±2.6	10.5±1.1	0.001	3.1±2.2	3.5±2.3	0.006
Competing preferences	6.3±2.7	10.8±1.2	0.001	6.6±2.9	7.2±2.0	0.035
Positive emotion	12.2±3.8	17.6±1.5	0.001	11.0±4.2	11.7±3.7	0.003
Situational influences	3.6±3.5	5.0±3.2	0.001	2.9±2.5	3.0±2.5	0.046

Physical activity had positive correlation with perceived benefits, self-efficacy, commitment, positive, emotion and situational influences and a negative correlation with perceived barriers. Overall 66.8% of the physical activity was predicted by Pender's Health Promotion Model variables.

Before the intervention there was no statistically significant difference between the two groups in terms of physical activity and other health promotion model constructs. There was a significant difference between the mean scores of physical activity and other structures of HPM in the experimental group after the intervention and its score before intervention (Figure 1).

Discussion

This study explored the situation of physical activity in health volunteers of Torbat-e Jaam City, Iran, and assessing the impact of HPM based intervention on health volunteer's physical activity. Our results showed that 61% of participants not have appropriate physical activity while the expected level of physical activity of health volunteers was higher than the rest of the people. This results is consistent with some researches [3, 6, 14, 22, 23] that have shown the physical activity in Iran is low; while the physical activity is an important determinant of health and is associated with reduced risk of chronic diseases (cardiovascular diseases, diabetes, obesity, and certain form of cancers).

The findings from our study support the importance of perceived self-efficacy, plus emotion and commitment to plan for health volunteers, suggesting that a high level of self-efficacy is associated with similarly high levels of physical activity planning. These results are in consistence with several researches [14, 15, 17, 25].

In our survey, the average score of perceived benefits after the intervention was higher in the experimental group than the control group as the average score of perceived barriers after the intervention in the experimental group was lower than the control group that consist with Taymoori *et al.* [20] and Prochaska [26]. This variable seemed to have more influence on physical activity for health volunteers. The results suggest that to increase the benefits and reduce the barriers of physical activity, serious considerations are needed to encourage health volunteers to participate in physical activity.

The results of the recent study showed an increase in feelings of pleasure associated with physical activity in the experimental group compared with the control group after educational intervention. The results also showed physical activity was promoted in experimental group immediately after educational intervention program and 3 months after it, but unchanged in control group, which are similar with Karimi & Eshrati [14], Teerarungsikul *et al.* [25], Shakeri *et al.* [27], Hanifeh *et al.* [28], Solhi *et al.* [29] and Sanaeinasab *et al.* [30].

From the limitations of this study is that data were measured by a self-report questionnaire and it is possible that responses were biased because of self-presentational concerns. The importance of physical activity is well-known as a component that promotes the health of the population, and if encouraged in health volunteers by educational intervention programs, it will contribute to reduce health risks on families. Health volunteers are the key health education professionals responsible for developing knowledge about health education and health promotion and behavioral intervention strategies to increase physical activity among families.

Conclusion

Variables from the HPM model predict physical activity/exercise participation in health volunteers. Educational program based on Pender's health promotion model is effective in improving physical activity of health volunteers.

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Conflicts of Interests: We certify that there is no conflict of interests in this manuscript.

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