

## Relationship between self-efficacy with physical activity stages of change in housewives

Seyede Zahra Hashemi<sup>1</sup>, Fatemeh Rakhshani<sup>2</sup>, Razieh Keykhaei<sup>3</sup>, Iraj Zareban<sup>4</sup>, Afsoon Tizvir<sup>5</sup>

*Journal of Research & Health*  
Social Development & Health Promotion  
Research Center  
Vol. 3, No.2, 2013  
Pages: 363-369  
Original Article

1. **Correspondence to:** MSc in Health Education, Students Scientific Research Center, Zahedan University of Medical Sciences, Zahedan, Iran  
Tel/Fax: +98 5413214474  
Email: hashemizahra44@yahoo.com
2. Professor in Health Education, Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran
3. MSc in Health Education, Faculty Member, Zabol University of Medical Sciences, Zabol, Iran
4. Assistant Professor, Zahedan University of Medical Sciences, Zahedan, Iran
5. MD, Karaj University of Medical Sciences, Karaj, Iran

Received: 1 Jan 2011  
Accepted: 5 Jan 2013

How to cite this article: Hashemi SZ, Rakhshani F, Keykhaei R, Zareban I, Tizvir F. Relationship between self-efficacy with physical activity stages of change in housewives. *J Research Health* 2013; 3(2): 363-369.

### Abstract

Despite the benefits of physical activity, women are less physically active than men in most areas. The transtheoretical model is known as a comprehensive model in the field of sport. The purpose of this study was to determine the relationship between self-efficacy with physical activity stages of change among housewives. In the cross-sectional study, 220 housewives aged 19 to 52 were studied. Sampling of the first block was done through simple random method; then sampling continued in other blocks according to sampling number by referring to the doors of the houses and those who wished, entered into the study until the sampling was completed. Data collection was performed by a researcher-made questionnaire whose academic value was determined by content validity, and its reliability was determined by Cronbach's alpha. Data analysis was carried out by SPSS - 18. The results of this study showed that self-efficacy could predict physical activity stages of change. 5.5% of the participants were at pre-contemplation level, 44.1% at contemplation level, 38.6% at preparation level, 4.1% at action level, and 7.7% were at maintenance level. Significant differences were observed between self-efficacy and stages of change ( $P<0/001$ ) and self-efficacy and education level ( $P<0.05$ ) but no significant difference was observed between self-efficacy and age. According to the results of the study, self-efficacy had a significant impact on physical activity engagements; therefore, practical actions should be taken to enhance self-efficacy by relevant institutions.

**Keywords:** Physical Activity, Self Efficacy, Woman

### Introduction

Any motion in daily life such as work, leisure, sporting, and practical activity is considered physical activity. In fact, physical activity includes a wide spectrum of activities such as walking, running, jumping, sporting activities, etc [1]. Proper physical activity in most days of the week can reduce the risk of deaths due to cardiac diseases, and cause reduction in risk factors of colon cancer, diabetes type 2, and hypertension, and also enhance glucose

metabolism, reduce obesity, and increase antioxidants. Proper physical activity reduces the risk of breast cancer, improves musculoskeletal and mental health, and reduces symptoms of stress, anxiety, and depression [2]. The definition of sports varies among different experts National Institutes of Health, recommends 30-60 minutes aerobic exercises, 3 or 4 times a week, for the fitness of the heart and lungs [3].

Low physical activity is one of the most important issues of the 21<sup>st</sup> century that leads to non-communicable diseases such as cardiovascular diseases, diabetes, osteoporosis, psychological disorders, and malignancies [4]. According to the World Health Organization's 2003 statistics, 1.9 million people worldwide lost their lives due to lack of physical activity, and over 60% of adults do not have sufficient physical activity to preserve their health [5].

The findings of a national survey among Iranian adults show that more than 80% of the population is physically inactive [6]. And with regards to women that comprise half the population of the country [15], it can be asserted that their physical activity in most areas is unfortunately less than men [8]. Also, they suffer diseases that are associated with lack of physical activity [9]. Therefore, working on the importance of physical activity in women's community is essential.

To design health education interventions to help the target group people to change, health education professionals utilize appropriate theories and methods in this field. One of these is the transtheoretical model. These models and theories are the guides in health promotion and education activities [10]. The most practical exercise behavior change model is transtheoretical model or stages of change [11]. This is a comprehensive model for studying determinants of behavior [12]. In this model, the assumption is that people can be at different stages of preparation for change, and thus, for change of behavior, people have to get through 5 stages that include pre-contemplation or preintention, contemplation or intention, preparation, action, and maintenance [13]. There have been many studies conducted with pattern of stages of change in relation to exercise and physical activity, both in Iran and in other countries [11, 15, 16, 17, 20, and 22]. Some studies have shown that self-efficacy is a variable that causes reinforcement of regular physical activity [14]. Self-efficacy is an

effective means of behavior follow-up, and also an important dependent in stages of change for adoption of physical activity [7]. Therefore, it was decided to examine women's physical activity status according to stages of change model, and to determine its relationship with self-efficacy.

### Method

In this cross-sectional study, 220 housewives, residing in an apartment block in a borough of Zahedan city were studied in 2011. Given confidence coefficient of 95% and test power of 90% with 5% error and 14% performance prevalence of women's physical activity behavior according to the reported health indices of Islamic Republic of Iran in 2009, initial sample size was determined 180 people. Considering the possibility of fallouts due to lack of availability or exclusion from study, an additional 40 people was included, making a total of 220 people.

A simple random sampling method using table of random numbers was used. Sampling began with the first block number out of list of numbers in the residential complex randomly, then, other blocks, according to the order of sampling number began, and by visiting each house, people were included in the study, if they wished, and thus completed the required sample size. Variables investigated were age, education level, self-efficacy construct, and stages of change construct in transtheoretical model. The data collection tool in this study was a researcher-made questionnaire that included demographic details and transtheoretical constructs consisting of stages of behavior change and self-efficacy of people in terms of physical activity. Validity of the questionnaire was determined using content validity method by issuing the questionnaire to 10 experts in the field and implementing their opinions. For reliability of the questionnaire, Cronbach's alpha and test-retest method was used by

conducting a pilot study and issuing the questionnaire to a target group of 30 people twice with two weeks interval. For internal consistency of questions Cronbach's alpha was 72% and Spearman-brown coefficient was 85%, which were acceptable for the purpose of this study.

The number of questions for the stages of change section was 5, and for the self-efficacy section 6. There were 3 options for self-efficacy questions, based on Likert scale (agree, disagree, and no comment), each scoring 1-3 marks. The theoretical range of scores was 6 (the least self-efficacy level) to 18 (the most self-efficacy level). Stages of change were measured with 5 questions, and each person would decide the stage they were in. These 5 stages were:

1. Pre-contemplation: In this stage, people have no intention to do physical activities for the next 6 months.
2. Contemplation: People intend to begin physical activity in the next 6 months.
3. Preparation: People plan to have physical activity for the next month.
4. Action: Those that regularly and for 6 months perform physical activity.
5. Maintenance: People with more than 6 months of regular and sustained physical activity [10].

In order to comply with ethical considerations, the aim and nature of the study was explained to all participants, and they entered the study voluntarily. Data were analyzed with SPSS software, using frequency distribution, variance analysis, and independent t-test. Level of significance was considered  $P < 0.05$ .

### Results

In this study, 220 housewives with the mean age  $31.9 \pm 5.86$  years participated. According to the results, 12 people (5.5%) were in the pre-contemplation stage, 97 (44.1%) in the contemplation stage, 85 (38.6%) in the

preparation stage, 9 (4.1%) in action stage, and 17 people (7.7%) in the maintenance stage.

**Table 1** The relationship between self-efficacy and demographic variables in participants' physical activity

	Mean	SD
Education level		
Elementary and pre-high school	14.96	( $\pm 2.48$ )
High school	15.62	( $\pm 2.37$ )
University	16.24	( $\pm 1.89$ )
ANOVA		$P = 0.012$
Age		
Less than 35 years	15.47	( $\pm 2.35$ )
Over 35 years	15.68	( $\pm 2.41$ )
Independent t-test		$P = 0.882$

Based on the results (Table 1), in comparison of mean and standard deviation of self-efficacy score with education level, after initially proving significant in the one-way ANOVA, Tukey post hoc test revealed a significant difference between different levels of education in terms of self-efficacy behavior score ( $P < 0.01$ ). However, the correlation between self-efficacy and age was insignificant ( $P > 0.05$ ).

In this study, comparison of self-efficacy score and physical activity stages of change showed that there was a significant difference between the mean of groups in terms of stages of behavior change (from pre-contemplation to maintenance stage) and the level of self-efficacy ( $P < 0.01$ ) (Table 2).

**Table 2** The self-efficacy in terms of physical activity and relationship to stages of change

Stages of change	Mean (SD)	P-value*
Pre-contemplation	12.58( $\pm 1.62$ )	
Contemplation	15.04( $\pm 2.63$ )	
Preparation	16.40( $\pm 1.92$ )	0.012
Action	16.40( $\pm 1.47$ )	
Maintenance	16.94( $\pm 1.19$ )	

\* ANOVA

It can be seen from table 3 that the highest level of self-efficacy in terms of physical activity is related to the question “If there is an interrupt in physical activity, I can resume the activity from the beginning.” and the lowest self-efficacy level related to the question “Although people around me do not care about physical activity, I can encourage them to be physically active.”. The results of the study indicated that there was a direct and

significant correlation between self-efficacy and stages of behavior change ( $P=0.01$ ,  $t=0.212$ ).

**Table 3** The relative and absolute frequency distribution of participants' self-efficacy questions in physical activity

	Agree	No comment	Disagree	Total
<i>Self-efficacy questions</i>	n(%)	n(%)	n(%)	n(%)
I can make life full of activity	173 (78.6)	31(14.1)	15(6.8)	219(99.5)
I can have physical activity at home at no cost	154 (70)	31 (14.1)	35 (15.9)	220 (100)
With all problems I have, I can still do my physical activity	168 (76.4)	25 (11.4)	26 (11.8)	219 (99.5)
Even though they do not care for physical activity, I can encourage people around me to do physical activity	140 (63.6)	51 (23.2)	29 (13.2)	220 (100)
I can walk as much as possible instead of driving	172 (78.2)	14 (6.4)	34 (15.5)	220 (100)
If my physical activity is interrupted, I can resume it	181 (82.3)	26 (11.8)	13 (5.9)	220 (100)

## Discussion

The results of the present study showed the status of participating women in terms of stages of change in physical behavior. Also, self-efficacy construct is an important factor in physical activity behavior from the contemplation to practical stage and maintenance of this behavior. According to the results, in terms of stages of change in physical activity behavior, most participants were in the stage of contemplation (44.1%) and the fewest participants were in the stage of action (4.1%). This result is in line with results of some previous studies [15, 16, and 17]. Perhaps, the reason for similarity between the results with other studies is definition of

regular physical activity. All these studies have identified a particular criterion for physical activity similar to that in the present study.

The noteworthy point in the results of this study is the low proportion of people in the action and maintenance stages. This indicates that the process of behavior change from pre-contemplation to action and maintenance stages occurs very sluggishly, and that people are unwilling to change status quo. Accordingly, design of appropriate health messages in the area of starting regular physical activity and informing the public, particularly those groups in pre-contemplation and contemplation stages is

recommended. Prochaska and DeKlemente believe that people in contemplation and preparation stages are those that know benefits of behavior change far outweighs the impediments, and this judgment helps them decide to change [7]. Similar to some other studies, the results of this study showed that a high number of participants (87%), having acquired and understood this information, have realized the benefits of physical activity [18].

Also, this study showed a significant difference between different levels of stages of change in physical activity in terms of mean self-efficacy score. These results agree with the results of some related studies [19]. One of the reasons for high levels of self-efficacy in people in action and maintenance stages compared to those at stages before these is that they have not experienced being more active yet, and do not believe in its effectiveness in life [17]. However, by entering stages of action and maintenance, they realize the positive effect of physical activity in life, and this increases self-efficacy in these people. Therefore, the best predictor is stages of change in self-efficacy, which increases with progress in stages of change [20]. It is necessary to consider self-efficacy as an important factor in physical activity because self-efficacy is an associative principle in awareness and behavior and belief in one's ability for performing that behavior [21].

The present study showed that there is a significant difference between different levels of education in terms of self-efficacy mean score [22]. A reason for this could be higher intellectuality due to education, and more familiarity of educated people with benefits and impediments of physical activity. Hence, they feel they have to exert more effort in physical activity to increase positive effects of

activity in physical and mental health, and to reduce negative effects of inactivity [17].

### **Conclusion**

According to the results, one sixth of participants in the study were at the action and maintenance stages and had regular physical activity in their lives for a time, and since they had been through all previous stages and reached the stage of definite behavior change, thus, the need for further investigations in influential factors in difference between this group and groups in prior stages to action is felt. In this way, effective interventions can be developed for progress of those still in pre-contemplation and contemplation stages. Based on the findings of this study, self-efficacy factor has an important role in performing physical activity; therefore, its promotion should be fully supported by relevant organizations such as physical education organization and universities.

### **Acknowledgements**

This article is derived from Health Education MSc thesis (code number 015), and was conducted with the financial support of the Research and Technology Viceroy of Zahedan University of Medical Sciences. The author wishes to thank all those that assisted in this study.

### **Contributions**

Study design: FR, AT

Data collection and analysis: SZH, IZ

Manuscript preparation: SZH, RK

### **Conflict of interest**

"The authors declare that they have no competing interest".

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