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Original Article

# The association between health-promoting lifestyle profile and chronic diseases with self-efficacy in performing health behaviors among Iranian elderly: A cross-sectional study

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## Abstract

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## Introduction

Health-promoting lifestyle profile (HPLP) includes behaviors that prevent diseases and promote health. Self-efficacy is one of the most important factors that affect adopting a healthy lifestyle. This study was conducted to investigate the association between HPLP and chronic diseases with self-efficacy in performing health behaviors among the elderly living in Shiraz.

## Methods

In this cross-sectional study 382 elderly aged over 60 years were selected from two Older People's Associations and a medical clinic in Shiraz (2017). Healthy lifestyle and self-efficacy were assessed by using the HPLP-II scale and self-rated abilities for health practice scale (SRAHPS-), ADL daily activity and IADL life instrument activity scales. Data were analyzed by descriptive statistics, ANOVA, (Tukey's post-hoc test), Pearson's correlation coefficient and linear regression using SPSS v.22 at 0.05 significance.

## Results

The mean scores of the HPLP-II ( $134.29 \pm 26.82$ ) & SRAHPS were ( $65.03 \pm 17.73$ ). All demographic variables, except age, had a significant relationship with healthy lifestyle behaviors ( $P < 0.001$ ). Also self-efficacy was significantly correlated with healthy lifestyle behaviors ( $r = 0.246$ ,  $P < 0.001$ ) and predicted 49.6% of the variance of healthy lifestyle behaviors.

## Conclusion

It seems that all aspects of healthy life style and self-efficacy should be considered in designing and implementing health promotion interventions for the elderly.

## Introduction

A healthy lifestyle is an important part of everyone's wellbeing and is potentially achievable by organizing behavioral patterns. An individual's viewpoint towards a healthy lifestyle is affected by social, economic, and cultural factors [1]. A health-promoting lifestyle refers to all behaviors

aimed at preventing diseases and harm as well as maintaining and promoting health. These behaviors include following a healthy diet, physical activity (PA), stress control, and no smoking. Using multifactorial behavioral patterns, people can gain insight into common behaviors that are



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intertwined with meaningful patterns, which may reflect their social status, including age, ethnicity/race, gender, and demographical characteristics [2]. Nowadays, chronic diseases are regarded as health hazards for the elderly as they may suffer from multiple diseases simultaneously. Studies have shown that adopting health-promoting behaviors in older ages can enhance life expectancy and quality of life and reduce the severity of diseases, disabilities, and treatment costs [3]. In this regard, self-efficacy as one of the factors affecting the adoption of a health-promoting lifestyle was first introduced by Bandura in 1997 and refers to the ability to perform healthy behaviors [4]. The person's feelings about controlling, facilitating, and changing behaviors play a pivotal role in changing his/her behaviors. Self-efficacy refers to the ability to perform a specific behavior [5]. Also, perceived self-efficacy is an important factor to perform and manage behaviors [6]. Considering the importance of self-efficacy, the present study was conducted to evaluate the importance of the health-promoting lifestyle profile (HPLP) and its relationship with perceived self-efficacy and also its impact on the disease in the elderly in order to design appropriate interventions.

## Methods

This cross-sectional study was done on 382 subjects referring to two older people's associations and a clinic in Shiraz in 2017. According to a previous study, considering  $\alpha=0.05$ ,  $P=0.54$ , and accuracy of 0.052, and also using the formula (determine the sample size to estimate an attribute in the community), the sample size was estimated to be 382 subjects (191 males and 191 females). The subjects were selected through random sampling

[7]. The inclusion criteria were the age of 60 years or more, being illiterate, living in Shiraz, having no physical disability and Alzheimer's disease, and willingness to participate in the research.

## Data collection instruments

Data were collected by using three questionnaires, including a questionnaire assessing the participants' demographic information (Age, sex, education level, job, marital status and history of diseases with a definite diagnosis from a physician) the Health-Promoting Lifestyle Profile II (HPLP- II), and the Self-Rated Abilities for Health Practice Scale (SRAHPS).

Lifestyle was evaluated using the Health Promoting Lifestyle Profile II (HPLP-II). HPLP-II has 25 items that are divided into six dimensions, including physical activity (8 items), stress management (8 items), nutrition (9 items), health responsibility (9 items), spiritual development (9 items), and interpersonal relationships (9 items). The items are answered on a 4-point Likert scale (from 1 to 4). The validity and reliability of the questionnaire were reported to be 0.82 and 0.78, respectively [7]. The cronbach's alpha coefficient of the Persian version was 0.82 for the total scale and ranged from 0.64 to 0.91 for the subscales [8]. Self-efficacy was assessed using the SRAHPS (28 items). The items of SRAHPS were answered on a 5-point Likert scale ranging from 0 to 4. The validity and reliability of the questionnaire were reported to be 0.84 and 0.69, respectively [9].

The ADL daily activity scale questionnaire (10 questions), IADL life instrument activity questionnaire (8 questions), a score of 3-0 with validity and reliability, 0.82 and 0.75, respectively were used.



## Data analysis

We used descriptive statistics (frequency, mean & SD) for demographic variable and, analysis of variance (ANOVA) and Tukey's post-hoc test, Pearson's correlation for ordinal variable (HPLP-II & SRAHPS score) linear regression (for predicting self-efficacy) and independent samples t-test through using SPSS 22 at 0.05 level of significance.

## Results

Most subjects were in the age group of 60-64 years (Table 1). Also 91.9% participants were married. Regarding income level 25.4% of the participants had no income. The prevalence of smoking, consuming narcotics drugs (opium), and using hookah was 9.7%, 6.2%, and 2.9%, respectively. The Cardiovascular diseases & hypertension (26.75%) was the most common chronic diseases among elderly (Table 1). The mean and standard deviation scores of the ADL daily activity scale and IADL life instrumental activities were  $19/5 \pm 0/95$  and  $14/19 \pm 2/15$  respectively. The prevalence of smoking among the elderly was 9/7%, opium 2/6% and water pipes 2/9%.

The mean overall HPLP-II ( $134.29 \pm 26.82$ ) and SRAHPS score ( $65.04 \pm 17.73$ ) in this study. Besides, the mean score of lifestyle was higher in males than in females ( $136.21 \pm 28.69$  vs  $132.36 \pm 24.73$ ). Also, among the six HPLP-II dimensions males obtained higher scores in PA and stress management compared to females. The score of participants' self-efficacy showed that they were moderately able to perform healthy behaviors. In addition, the lowest and highest scores belonged to PA ( $14.33 \pm 7.82$ ) and well-being ( $17.63 \pm 6.91$ ), respectively (Table 2).

There was a significant relationship between

Table 1. Distribution of the participants' demographic features

	Variable	Frequency(percent)
Age	60-64	145 (38)
	65-70	117(30.6)
	71-75	45(11.8)
	76-80	52 (13.6)
	> 80	23 (6)
Job	Employee	211(55.2)
	Self-employed	64(16.8)
	House wife	107(28)
Education	Primary school	68(17.8)
	Middle school	76(19.9)
	High school	148(38.7)
	Academic	90(23.6)
Sex	Male	191(50)
	Female	191(50)
Marital status	Single	6(1.57)
	Married	361(94.50)
	Widow	15(3.92)
Income (USD)	No income	97(25.4)
	less 200	142(3.7)
	250-300	72(18.8)
	more 400	199(52.1)
Chronic diseases	Cardiovascular diseases	102(26.7)
	High blood fat	91(23.8)
	Anxiety	35(9.2)
	Depression	27(7.1)
	Arthritis	43(11.3)
	Osteoporosis	83(21.7)

the score of HPLP-II and demographic variables, such as sex, education level, job, marital status, and income level, except for age ( $P > 0.001$ ).

Linear regression test showed the cardiovascular diseases, depression, arthritis and osteoporosis were predictors of a HPLP-II (Table 3). Also depression was a strong predictor of Self-Rated Abilities for Health Practice ( $R = 0.199$ , adjusted  $R = 0.024$ , adjusted  $R$  square =  $0.040$ ,  $P < 0.001$ ,  $\beta = 0.348$ )

The results of Pearson's correlation indicated a significant relationship between the mean scores of HPLP-II and SRAHPS ( $r = 0.246$ ,  $p < 0.001$ ). Furthermore, the linear regression showed that SRAHPS could predict 49.6% of the variance of HPLP (adjusted  $R$ -squared =  $0.496$ ,  $R = 0.710$ ,  $R$ -squared =  $0.504$ , standard error of estimate (SEE) =  $14.01$ ).



Table 2. The score distribution of (HPLP-II) its dimensions &amp; SRAHPS

Variable	Mean $\pm$ SD	Male	Female
Total HPLP-II	134.28 $\pm$ 31.33	136.21 $\pm$ 28.69	132.36 $\pm$ 24.73
Spiritual growth	24.96 $\pm$ 6.04	26.97 $\pm$ 7.53	22.84 $\pm$ 7.40
Responsibility for health	24 $\pm$ 7.2	22.89 $\pm$ 7.57	22.15 $\pm$ 9.85
Interpersonal relationships	22.87 $\pm$ 6.1	23.94 $\pm$ 8.01	22.42 $\pm$ 7.96
Stress management	21.83 $\pm$ 7.33	22.77 $\pm$ 7.08	20.74 $\pm$ 9.33
Nutrition	26.19 $\pm$ 7.65	23.90 $\pm$ 8.71	27.79 $\pm$ 7.59
Physical activity	14.40 $\pm$ 5.15	15.72 $\pm$ 7.01	13.41 $\pm$ 4.07
SRAHPS	65.03 $\pm$ 17.73	60.18 $\pm$ 17	69.88 $\pm$ 17.15

## Discussion

The present study investigated the association between HPLP and self-efficacy to perform healthy behaviors in the elderly. The results revealed a significant relationship between a healthy lifestyle and demographic variables, except for age [3]. Generally, the elderly with higher education and income levels have more health-oriented lifestyle patterns. Education can affect people's dignity and economic status [2]. Having a good job and retirement also can cause the elderly to select healthier choices [10]. Additionally, it seems that married people have a healthier lifestyle and make their spouses follow this style, as well [11]. In the present study the participants obtained a moderate mean score of HPLP which is in agreement with the results of other studies [12]. Among the six HPLP dimensions the lowest score was related to PA. It seems that the reason for the low level of PA in older adults is related to fear of falling [13]. Moreover, females obtained low scores for PA, which indicated their involvement in household activities, which is consistent with the results of other studies regardless of ethnicity, nationality, and gender [14,15]. In the present study cardiovascular disease, arthritis, osteoporosis and depression

Table 3. The regression between diseases and (HPLP-II)

Variable	HPLP-II SRAHPS	DF	F	P-value
Age		4	3.74	p=0.005
Sex		4	5.38	p < 0.001
		96		p = 0.11
		69		p= 0.003
Education		4	3.74	p= 0.005
		3	4.78	p= 0.003
Job		2	11.77	p < 0.001
		2	31.57	p < 0.001
Income		3	11.89	p < 0.001
		3	6.77	p < 0.001
Marital status		2	13.16	p < 0.001
		2	0.568	p= 0.567

were predicted overall HPLP. Chronic diseases are the leading cause of death in the modern era. Therefore, having a healthy lifestyle can prevent these diseases. The participants with high blood cholesterol levels reported no physical activities. Involvement in sports activities can reduce morbidity and the risk of a poor health condition [16,17]. Additionally postmenopausal women who are at risk of osteoporosis should follow an appropriate diet and do physical activities to reduce the risk of osteoporosis and achieve early recovery from disease [18]. Considering the relationship between diseases and HPLP the participants who did not have arthritis were more concerned about their health status. Combined training programs are useful for the elderly who have arthritis, but they should be designed based on the patients' abilities in order to guarantee their adherence [19]. The mean score of nutrition dimension was higher than other dimensions of healthy lifestyle. In other words, the elderly in the present study had a favorable nutritional status. This is in line with the results of other studies, in which the elderly had a rather desirable nutritional status [20]. Increased blood cholesterol levels are a result



of inappropriate nutrition and lack of PA and are associated with the risk of chronic diseases. In the present study, patients with cardiovascular diseases had low levels of PA and spiritual growth. Lifestyle changes, including doing PA can prevent and suppress cardiovascular diseases and metabolic syndrome [21,22]. It seems that by increasing interpersonal relationships, people get a good sense out of these relationships; thus, the risk of anxiety and depression can be reduced and mental health is promoted [20]. In the present study, depression was the strongest predictor of self-efficacy related to health behaviors in the elderly. Self-efficacy is the result of initial interactions between people and their environment. Maybe an important way to prevent the depression is enhance the level of self-efficacy. Depression have a negative role in self-efficacy and achievement. Significant evidence indicated that depression increases with age, self-efficacy decreases and there is a negative association between depression and self-efficacy in the elderly. It seems that achieving positive mental health largely depends on one's self-efficacy [23-25] . Our findings indicated no significant correlation between the total mean HPLP-II score and hypertension. In contrast, other studies have indicated that individuals with hypertension had unhealthy lifestyles [1, 26].

In the present study, depression was the strongest predictor of self-efficacy related to health behaviors in the elderly. Self-efficacy in this research can predict 49/6 percent of variance for promoting healthy lifestyle. The role of self-efficacy in health-promoting behaviors is very important especially in the field of transformation knowledge into action. Because in many cases people are aware of the benefits and harms of

certain behaviors but they believe that they do not have the ability to initiate or avoid the behavior so they do not take action in this regard[27, 28] . One of the limitations of this study was the poor cooperation of some participants. In addition the number of males was less than females in the studied centers which caused difficulty in data collection.

## Conclusion

Lifestyle is complex and influenced by other factors. It seems that Self-efficacy has a direct mutual relationship with healthy behaviors. Thus promoting individuals' understanding and correcting beliefs about physiological and psychological changes in the early years of elderly and ability to perform healthy behaviors can improve their lifestyles.

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## Conflict of interest

Authors declare no conflict of interest.

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