

## Health-Promoting Behaviors and its Related Factors in Iranian Female Household Heads Based on Pender's Model

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### Abstract

**Aims:** Health-promoting behaviors have a major role in healthcare. The present study was conducted to assess health-promoting behaviors and its related factors in Iranian female household heads based on Pender's model.

**Materials & Methods:** The present cross-sectional study recruited 106 female household heads selected according to census sampling from Gonabad Health Centers, eastern Iran, from January to August in 2015. Data were collected using the Health-Promoting Lifestyle Profile-II (HPLP-II) and a researcher-made cognitive and emotional factors questionnaire based on Pender's model. Data were analyzed by SPSS 16, using descriptive and analytical tests, including ANOVA and independent student t-test.

**Findings:** Participants' statistical mean age was  $40.16 \pm 7.21$  years, and most of them (61 women, 57.5%) were widowed and the rest were divorced. The statistical mean score of health-promoting behaviors was  $123.16 \pm 20.42$ , in moderate level, and showed significant relationships with cognitive and emotional factors of self-efficacy, barriers, and interpersonal relationships ( $p < 0.05$ ). Among health-promoting behaviors, spiritual growth had the highest Statistical mean score ( $24.91 \pm 5.3$ ), and physical activity ( $12.83 \pm 3.5$ ) and stress management ( $17.83 \pm 3.9$ ) the lowest mean score.

**Conclusion:** Health-promoting behaviors in Iranian female household heads need improvement. The results can be used by these women and the healthcare system to identify related factors and develop interventions for modifying health-promoting lifestyles.

### Keywords

Behavior [<https://www.ncbi.nlm.nih.gov/mesh/68001519>];

Health [<https://www.ncbi.nlm.nih.gov/mesh/68006262>];

Household head [<https://www.ncbi.nlm.nih.gov/mesh/68005191>];

Health Promotion [<https://www.ncbi.nlm.nih.gov/mesh/68006293>]

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## Introduction

The World Health Organization (WHO) has defined health promotion as a process to empower people to control their health, and includes a wide range of social and environmental interventions, in order to benefit and maintain people's health and their quality of life, by taking into account and preventing root causes of health problems, and not merely focusing on their treatment [1]. Health-promoting behaviors have a major role in healthcare [2]. The six most important health-promoting behaviors are interpersonal relationships, health responsibility, spiritual growth, stress management, nutrition, and physical activity [3, 4]. The differences observed in the status of health-promoting behaviors can be due to the effect of components of health or a range of personal, social, economic, and environmental factors (With a mutual relationship between them) that determine people's health status [5]. Women's health is sensitive and vulnerable to physiological factors in different periods of life [6]. Meanwhile, female household heads are regarded as a high-risk group compared to other women [5, 7] because of the responsibility they assume [8]. The multitude of roles [9] and a poor source of socioeconomic support as well as cultural discriminations [10], such that profusion of this group of women is considered a social problem [11]. Female household heads is a global phenomenon with a rising trend [12]. According to the latest statistics, there are as many as 2,500,000 female household heads in Iran, including women with children, of whom, 13% had to assume this responsibility due to divorce and 79% due to spouse's death [10]. Accordingly, researchers and policymakers have focused on the economic and social problems of this group of women and their empowerment in these dimensions [11]. However, the same as in other countries, studies conducted in Iran [13] indicate health status and its promotion in this group is not favorable [14, 15], that they have been inadequately addressed by health policymakers and researchers, especially in Iran, and thus require proper interventions in order to prevent health disorders in older ages [14, 15]. Since diseases, especially chronic diseases have their roots in people's improper behaviors, health-promotion activities and healthy lifestyle should therefore be considered as the main strategy for facilitating and maintaining health [12, 16-18]. Accordingly, health promotion efforts are essential for helping these women achieve healthy lifestyles. Thus, it is imperative to identify health-promoting behaviors and related factors as the basis for planning and implementation of comprehensive interventions.

In the present study, "Pender's Health-Promotion Model" was used as the theoretical framework. According to Pender, health-promoting behaviors indicate a human tendency toward transcendence,

which leads to optimal well-being, personal development, and creative life through personal development or personal or group self-actualization [4]. With a holistic perspective, this theoretical framework considers a multitude of factors known to be associated with healthy behaviors, for the promotion of health. The three components of this model are personal experiences and characteristics, cognitive and emotional features of behavior, and outcomes of behavior, all of which affect health behaviors. In this model, the category of cognitive and emotional features of behavior including perceived benefits and barriers, perceived self-efficacy, and interpersonal factors (Such as norms, and support of others) uses to predict and explain health behavior and also forms the core of interventions, because they cover issues that are modified through interventions [19].

Therefore, the present study was conducted to assess health-promoting behaviors and its related factors in Iranian female household heads based on Pender's model.

## Materials and Methods

The present study is analytical cross-sectional research conducted from January to August in 2015. Participants included in this study were 106 widowed and divorced female household heads who referred to rural and urban health centers in Gonabad, east of Iran; this is a small city with a roughly similar urban and rural culture. Accordingly, to the similar study [20] and by considering the standard deviation as 20.28, the maximum estimated the error of 4, and with a confidence level of 0.95 in the under the formula, the required sample size was calculated to be 101.

$$n = \frac{\left( Z_{1-\frac{\alpha}{2}} \times d \right)^2}{d}$$

Since the sample size calculated was almost the same as the total number of women who had the entry criteria (n=106), therefore in this study, we used census sampling method. Inclusion criteria for them had at least one dependent child less than 18 years of age, ability to understand and complete questionnaires, had not remarried and orally consented to take part in the present study. Exclusion criteria were incomplete fulfilling of questionnaires. Data were collected using Health-Promoting Lifestyle Profile (HPLP II; Adult Version) designed by Walker *et al.* [16], and a researcher-made questionnaire which completed by participants in the health care centers. HPLP-II is a self-report of health-promoting lifestyle habits with a total of 52 items. Subscales include Self-Actualization or Spiritual Growth (with 9 items), Health Responsibility (9 items), Exercise (8 items), Nutrition (9 items), Interpersonal Support or

relations (9 items), and Stress Management (8 items). Alpha reliability coefficient for the total of the questionnaire is 0.94, and Alpha coefficients for subscales are from 0.79 to 0.94 [21]. The items of the questionnaire were scored based on a four-point Likert-type scale with options ranging Never (N)=1, Sometimes (S)=2, Often (O)=3, Routinely (R)=4. To calculate the score for overall health-promoting lifestyle items, calculate the mean of the responses to all 52 questions; it was from 52 to 208 and in metric scale, it was from 1 to 4. To calculate the score for each of the six subscales, calculate the mean of the responses to subscale items. The score of health-promoting lifestyle under 100 was considered poor, between 100 to 150 was considered moderate, and above 150 to 208 was considered a good level [17]. Content validity and reliability of the Persian version of this questionnaire was approved in Iran [18]; the alpha reliability coefficient was 0.82 for the total scale and for Subscales Nutrition, Exercise, Health Responsibility, Stress Management, Interpersonal Support or relations, and Self-Actualization were 0.81, 0.79, 0.86, 0.91, 0.75, and 0.64 respectively [17]. A researcher-made questionnaire that was designed through extensive literature review and contained items based on the constructs of Pender's health-promoting model, including perceived benefits (8 items), perceived barriers (18 items), interpersonal influences (10 items), and perceived self-efficacy (14 items) that were completed in self-reporting style. The items on perceived benefits perceived barriers, and interpersonal influences were scored based on a four-point Likert-type scale with options ranging from totally disagree=1 to totally agree=4. For the perceived self-efficacy questionnaire, zero scoring was used as the lowest score of up to 100 as the highest scores for each option. Each item on perceived self-efficacy was scored from 0 to 100. Therefore, the scores range from 0 to 1400 for the entire questionnaire. The content validity of the questionnaire was confirmed by the aforementioned experts. The reliability of this questionnaire was also assessed using the test-retest method and the correlation coefficients were 0.78 for the entire questionnaire, 0.76 for perceived benefits, 0.92 for perceived barriers, 0.96 for perceived self-efficacy, and 0.86 for interpersonal influences.

The present study was approved by the Ethics Committee of Gonabad University of Medical Sciences under the following code: GMU.REC.1393.139.

At first, participants were orally consented to take part in the present study. They ensured the voluntary nature of participation and withdrawal from the study as well as the confidentiality of their data, then asking them to sign informed consent forms.

The data were analyzed by SPSS 16, using

descriptive and analytical tests, including ANOVA and independent student t-test.

### Findings

From 106 female household heads who participated in the present study Sixty-six women (62.3%) lived in the city; also eighty-eight of them (83.0%) were housewives and others were the worker of factories and public centers (17.0%). Other demographic characteristics are shown in table 1.

**Table 1)** Demographic characteristics of female household heads (n=106)

Variables	Mean± SD
Age (Years)	40.16±7.21
Years of education	7.23±4.2
Duration of being head of household (Years)	2.58±0.63
Age of children (Years)	12.1±4.48

The mean±sd total score of health-promoting behaviors questionnaire was 123.16±20.42 based on total scores, and 2.36±0.39, based on a metric scale [1-4]. The health-promoting lifestyle in female household heads was good in 5 women (4.7%), moderate in 87 women (82.1%), and poor in 14 women (13.2%).

Tables 2 and 3, the present frequency distribution of options chosen by the study sample regarding the benefits of and barriers to health-promoting behaviors, respectively.

In the dimension of interpersonal effects, family members were found to be the biggest supporter of these women for carrying out health-promoting behaviors, and the most frequent options chosen with respect to interpersonal effects were encouragement by family members and children for health promotion behavior (93.4%), and resolving conflicts through negotiation (92.5%), and the least chosen options were expecting care from family members and children (77.4%), and sharing concerns and problems with others (77.4%).

The encouragement by family, relatives, children, and neighbors regarding of health-promoting behaviors and relationship with others was rational and satisfactory. The mean and standard deviation of total self-efficacy scores were 85.66±29.66. The highest mean score of 71.23±23.57 for the option "to keep calm and visit the doctor if a suspect organ is found in my body in the examination" and the lowest mean score is 51.87±26.09 "With many tasks, I can have an exercise program to maintain my health." I also have the option of "I insist on health-promoting behaviors even if I'm tired and bored, "with a mean and standard deviation of 59.76±27.27, the option "I can perform health-promoting behaviors despite preoccupations of life "with a mean and standard deviation of 60.14±27.77, the option "I can do my

best to take care of myself because of my expertise and experience"  $59.72 \pm 27.21$ , option "I can ask my doctor about my proper care of the doctor"  $60.46 \pm 28.26$  and the option "I can do my care in good time" has a mean and standard deviation of  $57.48 \pm 30.28$ .

Mean and standard deviation of scores of subscales of health-promoting behaviors and a total score of these behaviors in female household heads, and also mean and standard deviation of the four cognitive-emotional factors of behavior based on Pender's

health promotion model are presented in Table 4. This table shows that total score of health-promoting behaviors is not significantly relations with mean score of perceived benefits ( $p=0.01$ ), but significantly relation with mean scores of perceived barriers ( $p=0.002$ ), perceived self-efficacy ( $p=0.002$ ) and interpersonal effects ( $p=0.001$ ). Other information regarding the relationship between scores of dimensions of health-promoting behaviors and cognitive-emotional components of behavior based on Pender's model are shown in table 4.

**Table 2)** Frequency distribution of chosen options by study sample regarding the perceived benefits of performing health-promoting behaviors

Items of perceived benefits of performing health-promoting behaviors	Frequency of chosen options regarding agreement status with benefits items in the study sample	
	Totally agree to agree N (%)	Totally disagree to disagree N (%)
Find out about of own health condition	105 (99.1)	1 (0.9)
Increased longevity through early diagnosis and treatment	104 (98.1)	2 (1.9)
Non-time consuming health promoting behaviors	101 (95.3)	5 (4.7)
Greater energy and strength to take care of children	101(95.3)	5 (4.7)
The feeling of satisfaction and vitality	101 (95.3)	5 (4.7)
Continuing normal life	99 (93.4)	7 (6.6)
Simplicity and ease of health promoting behaviors	98 (92.4)	8 (7.5)
Low-cost of health-promoting behavior's	91 (85.9)	15 (14.1)

**Table 3)** Frequency distribution of chosen options by study sample regarding their agreement status with items of perceived barriers to performing health-promoting behaviors (n=106)

Items of perceived barriers to performing health-promoting behaviors	Frequency of chosen options regarding agreement status with the barriers items in the study sample	
	Totally agree to agree N (%)	Totally disagree to disagree N (%)
Huge costs of diagnostic examinations and Tests	88 (83.1)	18 (16.9)
The priority of providing for children's needs	82 (77.30)	24 (22.6)
Life and death is God's will; whatever he wants will happen	80 (75.5)	26 (24.5)
Responsibility of looking after children	79 (74.6)	27 (25.5)
Tiredness due to daily chores	78 (73.6)	28 (26.4)
Insufficient time	75 (70.8)	31 (29.3)
Preoccupations with work	71 (67.0)	35 (33.0)
Inadequate knowledge	71 (66.0)	35 (33.0)
Fear of diagnostic examinations and tests	63 (59.4)	43 (40.6)
Embarrassment from diagnostic examinations and tests	62 (58.5)	44 (41.5)
Lack of health-promoting behaviors viewed by society as an acceptable and selfless behavior	62 (58.5)	44 (41.5)
Health centers being far away	5 (50.0)	53 (50.0)
Lack of suitable space for health-promoting behaviors	52 (49.1)	54 (55.7)
Inadequate health system notification about risks of lack of health promoting behaviors	56 (52.8)	50 (47.2)
Life not worth living as a single woman	50 (47.2)	56 (52.8)
Health promoting behaviors viewed by society as a selfish Behavior	48 (45.2)	58 (54.7)
Lack of motivation for maintaining healthy	47 (44.4)	59 (52.8)
Feeling ashamed of self-attention	41 (38.7)	60 (61.3)

**Table 4)** Relation of HPLP II and its dimensions with four cognitive-emotional factors of Pender's health promotion model

The subscales and the total score of HPLP II and its dimensions	Mean±SD	The cognitive-emotional factors			
		Perceived Self-Efficacy	Perceived Barriers	Perceived benefits	Family Interpersonal Influences
		857.58±296.54	47.73±8.90	26.94± 2.93	30.37±4.22
Spiritual growth	24.91±5.25	p=0.001	p=0.001	p=0.059	p=0.02
Health responsibility	21.26±5.18	p=0.001	p=0.005	p=0.111	p=0.201
Stress management	17.83±3.89	p=0.047	p=0.001	p=0.012	p=0.201
Physical activity	12.83±3.48	p=0.003	p=0.109	p=0.405	p=0.922
Nutrition	21.86±4.22	p=0.003	p=0.106	p=0.045	p=0.922
Interpersonal relations	24.45±5.23	p=0.005	p=0.001	p=0.357	p=0.002
Total score of health promoting behaviors model	123.16±20.42	p=0.002	p=0.002	p=0.10	p=0.001

p=independent student t-test

### Discussion

The present study was conducted with the aim to determine the status of healthy lifestyle promoting behaviors in female household heads and related factors based on Pender's health promotion model.

In a study, divorced female household heads had the highest frequency [22]. In the present study, the number of widowed women was greater than divorced women, which matched the higher statistics of widowed female household heads compared to other groups in Iran [1]. While most of them agreed with the benefits of performing health-promoting behaviors, especially prolonged longevity and ability to take care of children, but they faced several barriers such as work, insufficient time, huge expenses, tiredness due to daily work, and also priority of taking care of children and meeting their needs over their own needs, which agree with the results from other studies [12, 23].

Family members and relatives were the most important members of a social network of these women in relation to health-promoting lifestyle, and while family members and children encouraged them to perform health-promoting behaviors, these women did not expect support from their own family. While supports provided by members of this network can obviate emotional and psychological tensions [24].

Results of the present study showed that female household heads had a moderate mean score in health-promoting behaviors. Although we did not compare these women with other women in different marital status, in other study based on HPLP scale conducted on women with a mean age of 37 years, mean total score was nearly 2.7, and behavior of married women was better than widowed and divorced women and those never married [25]. Also in previous studies conducted on the health of female household heads proposed that their illness was a consequence of their unhealthy lifestyles [4, 9].

The subscale of spiritual growth had the highest mean score and physical activity the lowest, which agrees with the results of a study conducted on

homeless Christian women [26]. It seems to be in a difficult situation and not having a supporter, as mentioned in other articles [11, 26], has led to the growth of spirituality in these women. By connecting people to a superior power, religious beliefs can affect spiritual growth and promotion of their physical and psychological health [27]; and accordingly, spiritual health has been included in patient care programs, as a difficult situation in many countries and care programs are designed and developed accordingly within the context of spiritual concepts [28].

Although in many studies, physical activity has the lowest mean score compared to other dimensions [29], given that participating women were all without husbands, performing physical activities such as walking is restricted by social barriers and lack of suitable spaces. Hence, in addition to considering barriers such as motivation, better time management, and improved knowledge about the importance of physical activity, these people need specific spaces for exercise [12]. Other studies have shown that this problem is explained by mothers' heads of households through motivation for looking after children, lack of time, and desire for social isolation [12, 23].

Participating women in the present study had unfavorable mean stress control scores. These women experience several problems as widows and heads of household, and therefore, similarly to another study [30], improving their ability through participation in stress control programs and telephone counseling and guidance system is recommended. While, perceived benefits of health-promoting behaviors were positive in participating female household heads, like in other studies [31], they had poor health-promoting lifestyles, which is related to many barriers reported in other studies [12, 23].

Mean total scores of HPLP II and its dimensions showed a significant relationship with perceived self-efficacy. Perceived self-efficacy is considered a determinant of health-promoting behaviors [4, 10], and can have a determining role in the success of

people in adopting or rejecting high-risk behaviors, and encourage efforts and persistence of people in preventive behaviors [32, 33]. In another study, perceived self-efficacy was the strongest predictor of healthy behaviors in people [10, 26, 34].

Perceived barriers and benefits showed relationships with most dimensions of health-promoting behaviors, and in other studies, this variable was a predictor for such behaviors [35]. However, in the present study, the score of perceived benefits showed no significant relationship with total score and scores of accountability, exercise, or interpersonal relationships. In another study, this factor had a less role compared to perceived self-efficacy in performing healthy exercise behavior [17, 36]. Perceived benefits that are often associated with knowledge do not ensure healthy behavior alone. As in the present study, despite a favorable score in this dimension, the score of health-promoting behavior was unfavorable.

Although interpersonal relationships were less related to dimensions of health compared to the other three variables, like in another study, the family relationship was the most important variable associated with health-promoting behaviors [34, 36]. The poor score of accountability in female household heads regarding their own health and lack of desire to receive family support increases the responsibility of health system toward these people, leading to measures for creating health counseling centers and comprehensive planning for control and change of health-related behaviors in these women. Moreover, high costs of living for these women, who were mostly housewives with no income-generating jobs, and priority of children's needs over their own, were among barriers to screening tests. Cheaper health services for these patients, especially reinforcing perceived threat and motivation for health-promoting behaviors in educational programs are recommended [37].

Although this study was self-reporting based by a small sample, and also all of Pender's constructs health promotion model was not assess, but it was a nursing model-based study regarding this vulnerable group.

The limitations of this research include the following: It was a cross-sectional study and the results were self-reporting based; also, we included only widowed and divorced female household heads who had at least a child and referred to rural and urban health centers in this study. Therefore, it seems that more studies are required on other types of female household heads, such as women who have never been married and women with no children under different economic conditions.

## Conclusions

The results according to Pender's Health Promotion model and its cognitive-emotional factors showed

unfavorable health-promoting lifestyles in female household heads and need improvement. The results can be used to identify related factors and develop interventions for modifying health-promoting lifestyles. Healthcare providers should facilitate health-promoting behaviors through health programs. Clearly, these issues in macro policymaking can have major effects on people's lifestyle for sustainable development because promoting a healthy lifestyle is an extension to a continuous movement toward individual and social empowerment in providing, maintaining, and promoting health.

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## References

- 1- Nazoktabar H, Veicy R. Socio-economic and cultural condition of women-headed households in Mazandaran province. *Soc Welf.* 2008;7(27):95-114. [Persian]
- 2- Tucker CM, Butler AM, Loyuk IS, Desmond FF, Surrency SL. Predictors of a health-promoting lifestyle and behaviors among low-income African American mothers and white mothers of chronically ill children. *J Natl Med Assoc.* 2009;101(2):103-10.
- 3- Eftekhari N, Payandeh A, Torabi F, Chegini T, Khosravi A, Rajabi Rostami M, et al. Health and Socioeconomic Status of Female-Headed Households. Marashi H, Translator. Statistical Research and Training Center: Tehran; 2014.
- 4- Pender NJ, Murdaugh CL, Parsons MA. Health promotion in nursing practice. 6<sup>th</sup> Edition. London: Pearson; 2010.
- 5- Solhi M, Hamedan MS, Salehi M. Relationship between quality of life of women- headed households and some related factors in Iran. *Glob J Health Sci.* 2016;8(10):56241.
- 6- Vlassoff C. Gender differences in determinants and consequences of health and illness. *J Health Popul Nutr.* 2007;25(1):47-61.

- 7- Rimaz Sh, Dastoorpoor M, Vesali Azar Shorbeyani S, Saiepour N, Beigi Z, Nejat S. The Survey of quality of life and its related factors in female-headed households supported by Tehran Municipality, Ddistrict 9. Iran J Epidemiol. 2014;10(2):48-55. [Persian]
- 8- MacKian SC. What the papers say: Reading therapeutic landscapes of women's health and empowerment in Uganda. Health Place. 2008;14(1):106-15.
- 9- Norozi E, Mostafavi F, Hasanzadeh A, Moodi M, Sharifirad G. Factors affecting quality of life in postmenopausal women, Isfahan, 2011. J Educ Health Promot. 2013;2:58.
- 10- Schatz E, Madhavan S, Williams J. Female-headed households contending with AIDS-related hardship in rural South Africa. Health Place. 2011;17(2):598-605.
- 11- Motlagh Z, Mazloomi-Mahmoodabad SS, Momayyezi M. Study of Health-promotion behaviors among university of medical science students. Zahedan J Res Med Sci. 2011;13(4):29-34. [Persian]
- 12- Khosravan Sh, Salehi Sh, Ahmadi F, Sharif F. A qualitative study of the impact of spousal death on changed parenting practices of Iranian single-parent widows. Iran Red Crescent Med J. 2010;12(4):388-95.
- 13- Rezaei MA, Mohammadinia N, Samaiezadeh Toosi T. Problems of Female-headed households in Sistan and Baluchistan province, Iran. J Res Health. 2013;3(3):452-7.
- 14- Arzu D, Tuzun EH, Eker L. Perceived barriers to physical activity in university students. J Sports Sci Med. 2006;5(4):615-20.
- 15- Berkman LF, Zheng Y, Glymour MM, Avendano M, Börsch-Supan A, Sabbath EL. Mothering alone: Cross-national comparisons of later-life disability and health among women who were single mothers. J Epidemiol Community Health. 2015;69(9):865-72.
- 16- Walker SN, Sechrist KR, Pender NJ. The health-promotion lifestyle profile: Development and psychometric characteristics. Nurs Res. 1987;36(2):76-81.
- 17- Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi B. Reliability and validity of Persian version of the health-promoting lifestyle profile. J Mazandaran Univ Med Sci. 2012;21(1):102-13.
- 18- Kara B, İşcan B. Predictors of health behaviors in Turkish female nursing students. Asian Nurs Res. 2016;10(1):75-81.
- 19- McCullagh MC, Ronis DL, Lusk SL. Predictors of use of hearing protection among a representative sample of farmers. Res Nurs Health. 2010;33(6):528-38.
- 20- Kalroozi F, Pishgooie AH, Taheriyani A. Health-promoting behaviors in employed nurses in selected military hospitals. J Health Promot Manag. 2015;4(2):7-15.
- 21- Pender NJ, Murdaugh CL, Parsons MA. Health promotion in nursing practice. 7<sup>th</sup> Edition. New Jersey: Pearson; 2015.
- 22- Rezaei Ghadi Kh. Empowerment Indexes in Female-headed households. Second Conference on the Empowerment and Empowerment of Female Headed Households, 2009 Jun 29-30, Iran, Tehran. Tehran: Municipality of Tehran, Department of Women's Affairs; 2009. [Persian]
- 23- Rafii F, Seyedfatemi N, Rezaei M. Factors involved in Iranian women heads of household's health promotion activities: A grounded theory study. Open Nurs J. 2013;7:133-41.
- 24- Garousi S, Shabestari S. Investigate the relationship between social capital and mental health among female-headed households in Kerman. J Iran Soc Stud. 2012;5(1):99-123. [Persian]
- 25- Johnson RL. Gender differences in health-promoting lifestyles of African Americans. Public Health Nurs. 2005;22(2):130-7.
- 26- Carreño J, Vyhmeister G, Grau L, Ivanovic D. A health promotion programme in Adventist and non-adventist women based on Penders Model: A pilot study. Public Health. 2006;120(4):346-55.
- 27- Abbasian L, Abbasi M, Shamsy Goshki E, Memariani Z. Survey of the Spiritual knowledge and its role in disease prevention: A pilot study. Medical Ethic. 2010;4(14):83-104.
- 28- Akbari Lakeh M, Shamsi Gooshki E, Abbasi M. Spiritual health in the program of medical science education. Medical Ethic. 2012;4(14):113-30.
- 29- Wittayapun Y, Tanasirirug V, Butsrupoom B, Ekpanyaskul C. Factors Affecting Health-promoting Behaviors in Nursing Students of the Faculty of Nursing, Srinakharinwirot University, Thailand. J Public Health. 2010;40(2):215-25.
- 30- Samiei Siboni F, Alimoradi Z, Sadegi T. Impact of corrective life style educational program on controlling stress, anxiety, and depression in hypertensive. J Birjand Univ Med Sci. 2013;19(6):1-9. [Persian]
- 31- Pirincci E, Rahman S, Durmus AB, Erdem R. Factors affecting health-promoting behaviors in academic staff. J Public Health. 2008;122(11):1261-3.
- 32- Coleman CL. Health belief and high-risk sexual behaviors among HIV- infected African American men. Appl Nurs Res. 2007;20(3):110-5.
- 33- Buglar ME, White KM, Robinson NG. The role of self-efficacy in dental patients' brushing and flossing: Testing an extended Health Belief Model. Patient Educ Couns. 2010;78(2):269-72.
- 34- Vakili M, Rahaei Z, Nadrian H, Yarmohammadi P. Determinants of oral health behaviors among high school students in Shahrekord, Iran based on Health Promotion Model. J Dental Hyg. 2011;85(1):39-48.
- 35- Thanavaro JL, Moore SM, Anthony M, Narsavage G, Delicath T. Predictors of health promotion behavior in women without prior history of coronary heart disease. Appl Nurs Res. 2006;19(3):149-55.
- 36- Vahedian-Shahroodi M, Amin-Shokravi F, Hidarnia A, Jabbari Nooghabid H. A Survey on the effects of the pender's Health Promotion Model on prediction of the employees' physical activity. Health Educ Health Promot. 2013;1(1):51-66.
- 37- Rajabi-Gilan N, Ghasemi SR, Reshadat S, Zangeneh A. Happiness in health sector personnel, Some demographic and occupational related factors. J Isfahan Med Sch. 2015;32(309):1897-906. [Persian]