



Determinants of Health Promoting Lifestyle Behaviors in Hospital Staff of Guilan University of Medical Sciences

ARTICLE INFO

Article Type

Original Research

Authors

Estebarsari F.¹ PhD,
Bakhshi F.^{*2} PhD,
Nemati Sh.³ PhD,
Kazemnejad Leili E.² PhD,
Ramezani H.³ MSc,
Sadeghi R.⁴ PhD

How to cite this article

Estebarsari F, Bakhshi F, Nemati Sh, Kazemnejad Leili E, Ramezani H, Sadeghi R. Determinants of Health Promoting Lifestyle Behaviors in Hospital Staff of Guilan University of Medical Sciences. Health Education and Health Promotion. 2019; 7(2):71-76.

ABSTRACT

Aims Due to the complexity of various factors threatening the health of nurses and the influences of their activities on patients' well-being, their lifestyle promotion is of great importance. The aim of this study was to evaluate the determinants of health-promoting lifestyle behaviors among Rasht hospitals medical staff in Guilan, Iran.

Materials & Methods This descriptive cross sectional analysis was conducted to study health-related lifestyles of 244 hospitals staff of Guilan University of Medical Sciences in 2015. Health-Promoting Lifestyle Profile II (HPLP-II) Questionnaire was completed by the respondents. The samples were selected through classified random sampling method. The data were analyzed, using Chi-square test, Mann-Whitney, Kruskal-Wallis, Spearman correlation coefficient, and logistic regression method via SPSS 20 software.

Findings The mean HPLP-II score was 137.82 ± 5.20 . Among the aspects of health-promoting lifestyle behaviors, physical activity and stress management had the lowest score. There was a significant relationship between work experience and stress management ($r=0.171$; $p=0.012$). Gender and educational level showed a significant relationship with the level of physical activity ($p<0.05$).

Conclusion The present study showed a low level of physical activity and stress management as two important healthy lifestyle behaviors. It is recommended that training programs focus more on these two aspects.

Keywords Health Promotion; Lifestyle; Hospital Medical Staff

CITATION LINKS

[1] The effect of health promoting intervention on healthy lifestyle and social support in elders ... [2] Lifestyle of university students in Kashan, Iran and factors ... [3] A global view on the development of non communicable ... [4] The effect of education based on BASNEF model on ... [5] The impact of educational intervention to increase self efficacy and awareness ... [6] Iranian nursing staff's self-reported general and mental health related to working ... [7] The educational program based on the successful aging approach on elders ... [8] Health related lifestyle in ... [9] Study frequency of hypertension and obesity and their relationship with lifestyle ... [10] Comparative studies on promotion of health and life style ... [11] Factors and symptoms associated with work stress ... [12] Health promotion in nurses: Is there a healthy nurse ... [13] An educational program based on the successful aging approach on ... [14] Correlation of the health-promoting lifestyle, enrollment level, and academic performance of college of nursing students in ... [15] Analysing health promoting life styles of medical students in ... [16] Measuring health-promoting behaviors: Cross-cultural validation of the health-promoting ... [17] Dietary patterns associated with Body Mass Index (BMI) and ... [18] The effects of school-based lifestyle interventions on body mass index and blood pressure: A multivariate multilevel meta-analysis of randomized controlled ... [19] Assessment of health-promoting lifestyle profile in Japanese university ... [20] Health promoting lifestyle and its determinants among university ... [21] Change in the health promoting lifestyle behaviour of Turkish University nursing students from ... [22] Health promoting behaviors in a population-based sample of middle-aged women and its relevant factors in ... [23] Factors affecting health-promoting behaviors in nursing students at a university ... [24] Nurses' lifestyle behaviours, health priorities and barriers to living a healthy lifestyle: A qualitative descriptive ... [25] An eHealth education intervention to promote healthy lifestyles among ... [26] Understanding perceived determinants of nurses' eating and physical activity behaviour: A theory-informed qualitative interview ...

¹Health Education & Promotion Department, Nursing & Midwifery Faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Social Determinants of Health Research Center, Guilan University of Medical Sciences, Rasht, Iran

³Rhino-sinus, Ear and Skull Base Diseases Research Center, Guilan University of Medical Sciences, Rasht, Iran

⁴Health Education & Health Promotion Department, Public Health Faculty, Tehran University of Medical Science, Tehran, Iran

*Correspondence

Address: Social Determinants of Health Research Center, Guilan University of Medical Sciences, Rasht, Iran

Phone: +98 (13) 33824664

Fax: +98 (13) 33849413

f.bakhshi@gums.ac.ir

Article History

Received: December 15, 2018

Accepted: February 20, 2019

ePublished: April 09, 2019

Introduction

In the last few decades, health has been recognized as a human right and a social goal. One of the main aspects of health evaluation in different societies is the assessment of health-promoting lifestyle (HPL) behaviors [1, 2]. Many of the health problems and illnesses and the resulting deaths, which are common in most developing countries today, are associated with changes in the lifestyles of those people, and are the result of people's behavior and lifestyle [3]. World Health Organization (WHO), in a general survey on health and quality of life (QOL), declared that 60% of QOL is lifestyle-dependent. In Iran, lifestyle-related illness is one of the most important causes of mortality and disability [4].

Lifestyle is a term used to introduce the way and conditions of human life. Lifestyle is a combination of behavioral patterns and individual habits throughout life resulting from socialization [5]. Non-communicable diseases are now prevalent in most countries, and developing countries are also increasingly involved in the problems resulting from these diseases [6]. As a key issue in the area of health promotion, health-promoting behavior has attracted widespread attention in research and planning [7, 8].

In general, the habits and personal interests of the hospital staff and their living conditions have been effective in their approaches to the hospital and the health status of the community, and it is clear that if a hospital employee has the right lifestyle, more success will be achieved in future programs in the country [9].

Many studies showed that medical staff often neglect to promote their lifestyle. Perhaps, this is due to their misconceptions, according to which they think they are adequately protected by their medical knowledge. Previous study reported that provision of welfare facilities for hospital staff has a significant effect on their lifestyle improvement. Financial well-being of hospital staff is also an important component of health policy-making, which provides satisfaction for patients. In addition, the establishment of proper bases for health promotion behaviors in hospital staff encompasses a lot of time and energy that needs to be considered [10].

In a research by Tsai *et al.*, it was founded that all lifestyle components had an inverse relationship with occupational stress symptoms, indicating a link between the symptoms of the research units and the low quality of life-promoting lifestyle behaviors. Also, a better implementation or continuous repetition of healthy lifestyle uplifting behaviors can reduce the chance of having symptoms of occupational stress in health staff [11].

In a study on nurses working in hospitals of Zanjan University of Medical Sciences, Heidari *et al.* showed that the average score of nurses in health promotion behaviors were moderate. Therefore, nurses recommended the promotion of nursing behaviors

by forming the Nurses' Health Promotion Committee, with emphasis on lifestyle-promoting behaviors in hospitals [8]. Also, the other studies showed a direct link between nursing productivity and poor health, as well as increased direct health costs, higher rates of disability, absenteeism, harm, employee rewards, and lower returns [10, 12].

Regarding the role of determining the variable of lifestyle in maintaining and promoting health and increasing the quality of life, due to the critical role of hospital staff as effective human forces in the development and evolution of society and the communities and lack of information about their lifestyle, the aim of this study was to evaluate the determinants of health-promoting lifestyle behaviors among Rasht hospitals medical staff of Guilan University of Medical Sciences.

Instruments and Methods

This descriptive cross sectional analysis was conducted to study the determinants health-related lifestyles in training hospitals staff working at Guilan University of Medical Sciences in 2015. The research population consisted of all employees of administrative departments and clinical units of Rasht training hospitals. A total of 244 administrative and clinical hospital staff were selected, using cluster random sampling method. At first, the list of all training hospitals in Rasht was taken from the health department of this university. Selection of the participants within the wards was done randomly, using a random number table. That staff with at least diploma education and employment in one of the training hospitals of Guilan University of Medical Sciences and willingness to cooperate and participate in the research project were included in the study. The incomplete filling of questionnaires was considered as exclusion criterion.

The data were collected, using a two-part questionnaire; the first part contained 12 questions about demographic information, including age, gender, marital status, level of education, occupation, department or ward, in which they work, work shift, work experience, employment status, type of work shift, height, and weight of the respondent. The second part was related to health-promoting lifestyle behaviors, which was completed by Health-Promoting Lifestyle Profile II (HPLP II) questionnaire.

This tool has been translated into different languages, including Persian and its validity and reliability have been confirmed (Cronbach's alpha=0.84) [1, 7, 13]. The questionnaire measures 6 dimensions of healthy lifestyle behaviors, including nutrition, health responsibility, interpersonal relations, spiritual growth, physical activity, and stress management with a total of 52 questions, which are scored with 4-point Likert scale as "Never

(1), sometimes (2), often (3), and always (4)". 4 dimensions of nutrition, health responsibility, interpersonal relations, and spiritual growth (each dimension consists of 9 questions with a total score of 36) and 2 dimensions of physical activity and stress management (each with 8 questions with a total score of 32). The range of the total score of health-promoting lifestyle behaviors is between 52 and 208. The score for each dimension was calculated separately. Higher scores identified healthier lifestyle behaviors [1]. In various studies that examine the dimensions of health-promoting lifestyle behaviors, in order to better evaluate the factors affecting lifestyle, the mean score of lifestyle gained by the groups was divided into two categories: desirable and undesirable. Accordingly, gaining a score higher than 2.5 in each dimension and in the total score was taken as a desirable lifestyle and less than that was considered an undesirable or a less healthy lifestyle [14-16].

To measure body mass index (BMI), weight was measured in light clothes without shoes, using a digital scale of 100 g accuracy. Height was measured, using a tape meter in standing position against the wall without shoe, while the scapula was in normal condition with a precision of 1.0 cm. The BMI was calculated by dividing the weight (in kilograms) on height (in square meter). In order to eliminate personal error, all measurements of weight and height were done by one nurse. Based on the score of the above calculation, BMI was, then, classified as follows: Low BMI<18.5, normal weight=18.5-24.9, overweight=25-29.9, obese=30-39.9, and BMI>40, very obese [17, 18].

The data were described as mean, frequency, and percentage and analyzed, using Chi-square, Mann-Whitney, Kruskal-Wallis, Spearman correlation coefficient, and logistic regression tests by SPSS 20 software. To do this model of regression, the response variable is divided into two modes: the score below the mean is 0 and the upper level is 1. Then, the Backward LR method with the probability of including and excluding the variables from the model as 0.1 and 0.05, was applied.

Findings

The results of the descriptive analysis of data showed that more than half of the samples were women with the highest age range of 30-39 years (38%). Also, 77.9% of the respondents were married, 54.1% had 1-2 children, 67.9% had undergraduate education, and 74.9% worked in treatment units. The highest employment status was related to the official recruitment (40.6%), the highest work experience was in the range of less than 10 years (59.9%) and 60.7% of them were working as shifting circle. More than half (54.6) received less than 1 million Iranian Rials overtime payment per month, and only 13.6% had a second

job. Based on the statistical results shown in Table 1, the average BMI was within the overweight range. The highest number of the respondents was in normal weight group (44.7%).

Among 6 dimensions of health-promoting lifestyle behaviors, the highest scores were related to spiritual growth and interpersonal relations and the lowest scores, respectively, for dimensions of physical activity and stress management (Table 2). In the present study, the dimensions of health responsibility, nutritional habits, spiritual growth, interpersonal relations, and the total score of HPL with mean scores above 2.5 were considered desirable.

Table 1) Frequency status, mean, and standard deviation of BMI in the staff of Guilan University of Medical Sciences

BMI	BMI status				Very obese
	Lightweight	normal	Overweight	Obese	
25.81±1.42	8 (3.3)	109 (44.7)	64 (26.2)	20 (8.2)	1 (0.4)

Table 2) Mean and standard deviation of the scaled score of health-promoting lifestyle dimensions in the case group

Health-promoting lifestyle dimensions	Mean ±Standard deviation
Health responsibility	24.91±4.4
Physical activity	17.3±5.1
Nutrition	23.92±3.9
Spiritual growth	26.75±4.7
Interpersonal relations	25.66±2.3
Stress management	18.96±3.7
Total score (HPLP II)	137.82±20.5

* By scaled score we mean the total score obtained for each individual in each dimension divided by the number of questions for the same dimension.

The relationship between demographic variables and health-promoting lifestyle dimensions is presented in Table 3. Statistical results show that there is a significant direct correlation among demographic variables of work experience with stress management, the number of children with dimensions of health responsibility and spiritual growth, BMI with dimensions of health responsibility and nutritional habits, and the total score of lifestyle ($p<0.05$). In examining other demographic variables, there is a correlation between educational level with physical activity, nutritional habits, and spiritual growth ($p<0.05$). Also, the score of physical activity in both men and women was statistically significant ($p<0.05$).

Logistic regression model was used to assess the predictors of health promotion lifestyle dimensions. The results indicated that a work experience of more than 10 years was associated with increase in health-promoting lifestyle score and there was a significant and positive correlation between the absence of chronic disease and healthy lifestyle ($p<0.05$; Table 4).

Table 3) Relationship between demographic variables and health-promoting lifestyle dimensions in the staff of Guilan University of Medical Sciences

Demographic variables	Health-promoting lifestyle dimensions						Total score (HPLP II)
	Health responsibility	Physical activity	Nutrition	Spiritual growth	Interpersonal relations	Stress management	
Spearman correlation test (r) p							
Age	(0.293) 0.072	(0.711) 0.025	(0.137) 0.101	(0.601) 0.035	(0.512) 0.044	(0.066) 0.125	(0.274) 0.081
Work experience	(0.196) 0.089	(0.177) 0.092	(0.160) 0.096	(0.149) 0.098	(0.755) 0.021	(0.012) 0.171	(0.054) 0.143
Number of children	(0.008) 0.190	(0.809) 0.017	(0.980) 0.002	(0.024) 0.161	(0.270) 0.080	(0.073) 0.129	(0.054) 0.143
BMI	(0.004) 208.0	(0.406) 0.061	(0.022) 0.162	(0.057) 0.136	(0.611) 0.037	(0.237) 0.086	(0.009) 0.201
Mann Whitney Test (p)							
Gender	0.488	0.003	0.232	0.123	0.682	0.123	0.173
Marital Status	0.549	0.376	0.444	0.251	0.463	0.924	0.175
Job Type	0.790	0.266	0.914	0.426	0.796	0.825	0.449
Shifts	0.608	0.184	0.405	0.232	0.332	0.474	0.301
Kruskal Wallis Test (p)							
Education	0.252	0.019	0.045	0.041	0.282	0.312	0.066
Employment	0.196	0.241	0.900	0.111	0.191	0.944	0.209

Table 4) Regression coefficient and relative odds of health-promoting lifestyle predictors in the staff of Guilan University of Medical Sciences

Variable	Coefficient Regression (B)	Standard deviation	p	Probability ratio Odds Ratio	Confidence interval 95% Minimum	Maximum
More than 10 years of experience	954.0	404.0	018.0	596.2	176.1	728.5
Lack of chronic disease	164.2	842.0	010.0	709.8	673.1	337.45

Discussion

Given the decisive role of lifestyle variable in preserving and promoting health and increasing the quality of life, and because of the critical role of health staff as manpower that influences the development and evolution of society and their role modeling of society, and the need for fundamental information in this field, this study was conducted to identify various factors affecting the dimensions of health-promoting lifestyle in employees of Rasht training hospitals of Guilan University of Medical Sciences.

The results of the desirable dimensions of health-promoting lifestyle behavior in the present study are consistent with the findings of numerous studies on the dimensions of lifestyles of nurses and health staff [6, 8, 10, 11, 12]. However, in a study conducted by Wei *et al.* [19] and a study carried out of Mehri *et al.* [20], which was conducted on nursing students from universities in Japan and Iran, stress management was desirable. This difference can be due to the less responsibility of students compared to the staff of health centers.

Findings of a study conducted by Alpar *et al.* about the lifestyle of nursing students in two periods of time at university entrance and the time spent studying in Turkey, which showed that the amount of stress management significantly decreases over time, can be a proof for this argument [21].

In this study, "spiritual growth" and "interpersonal relations" had the highest, and "physical activity"

and "stress management" had the lowest average score. The results of this study are consistent with the findings of the Mehri *et al.* aimed at determining the lifestyle associated with the health of nurses [20]. In addition, in several studies, the highest mean score was found for spiritual growth and interpersonal relations, which is consistent with the results of this study [6, 8, 12, 20, 21]; these can be due to the kind of work with the high level of relations in hospital staffs.

Lower mean score of physical activity and stress management is consistent with the other studies [16, 21]. Of course, in a study by Enjezab *et al.*, which was conducted on middle-aged women in Yazd, stress management had a high average score [22]. This inconsistency is justifiable because of the occupational and social differences of the target groups. The results of this study indicated the significance of health responsibility, spiritual growth, interpersonal relations, stress management, and the overall score of health-promoting lifestyle behaviors, which are consistent with the other results [2, 9, 21]. Undoubtedly, a greater sense of responsibility for health, increased physical activity and the taking time for daily workout, and stress and anxiety control, especially in anxious occupations, can lead to a healthier lifestyle.

There was a significant correlation between age and work experience with stress management, which was similar to the results of the studies carried out by Enjezab *et al.* and Mehri *et al.* [20, 22]. Stress

management is the adaptability and adjustment in coping with problems and stressors that can increase the ability of individuals to encounter physical, psychological, social, and mental contexts [1, 8, 13]. It can be said that with age and work experience, people's ability to manage stressful events increases and individuals gain more experience in dealing with and managing these situations.

According to the present study, there was a significant correlation between gender and educational level with physical activity. These results are consistent with the results of other studies that have found a meaningful statistical relationship between higher education with physical activity [6], and higher levels of physical activity and regular exercise in men [13, 14]; to justify this finding, it is possible to mention more involvement of women in house works and not have enough time to do physical activity.

The results of logistic regression show that there is a positive and direct correlation between increasing work experience and the desired lifestyle: those with a job experience of more than 10 years were 2.6 times more likely than others to have a better lifestyle. In this regard, Sousa *et al.*, in their study to explain a model for life satisfaction of nurses, have found that because of fewer encounters with patients, increased work experience could be a reason for less stress for nurses, which can lead to more life satisfaction and healthier lifestyle [16]. Accordingly, there was a positive and direct correlation between the absence of chronic illness and the desired lifestyle, so that people without chronic disease were 7.8 times more likely to have a desirable lifestyle than those with chronic disease. These are consistent with some other studies [20, 23]. A comprehensive study in Australia has shown that healthy lifestyles and non-communicable chronic diseases have two-way links, and people with a healthier lifestyle are less prone to mortality and disability [10].

One of the recommendations for lifestyle modification is to follow proper nutrition patterns and a healthy diet, performing physical activity and having the ability to control stress, especially in work environments. A study by Phiri *et al.* in Metropole Cape Hospitals in South Africa showed that nurses' lifestyle-promoting behaviors, especially in the areas of physical activity, nutrition, and stress management, were undesirable, and to change lifestyle and to achieve health in this large group, more training is required [24]. On the other hand, numerous studies have shown the need for effective interventions to change lifestyle to control weight and stress [25, 26]. This study also emphasized the training of this particular group to promote their lifestyle, especially in the areas of stress and physical activity that can contribute to greater health of these individuals and, thus, provide better

work and professional activity. Providing stress management training courses, reducing stress in working environments, and providing suitable conditions for increasing physical activity can be highlighted as the priorities of medical universities.

Conclusion

The current study contributes to the expansion of knowledge about HPLs among medical staffs. It seems that lifestyle modification in stress management and increasing physical activity and health responsibility should be considered as a necessary condition for changing the habits of medical staff of universities and appropriate educational interventions are administered in this field. It is suggested that similar studies be conducted in other provinces of the country in order to determine the lifestyle status of the hospital staff of other medical universities.

Acknowledgments: The authors would like to thank individuals, who participated in the study.

Ethical Permission: This research was approved by Ethics Committee of Guilan University of Medical Sciences (code: IR.GUMS. 29302528). Consent was obtained from the individuals to participate in this study. The study participants noted that they were willing to reject or accept participation in this research project. To ensure the confidentiality of information about them, the names of nurses and employees were not mentioned on the forms of information sheets.

Conflict of interests: There is no conflict of interest to be declared.

Authors' Contribution: Fatemeh Estebsari (First author), Introduction author/ Discussion author (20%); Fataneh Bakhshi (Second author), Methodologist/ Original researcher (25%); Shadman Nemati (Third author), Assistant (15%); Ehsan Kazemnejad Leili (Fourth author), Statistical analyst (15%); Hedieh Ramezani (Fifth author), Introduction author (15%); Roya Sadeghi (Sixth author), Discussion author (10%).

Funding: None declared by authors.

References

- 1- Rahimi Foroushani A, Estebsari F, Mostafaei D, Eftekhar Ardebili H, Shojaeizadeh D, Dastoorpour M, et al. The effect of health promoting intervention on healthy lifestyle and social support in elders: A clinical trial study. *Iran Red Crescent Med J.* 2014;16(8):e18399.
- 2- Mohammadian H, Mousavi SGA, Eftekhar Ardebili H, Kord Zanganeh J. Lifestyle of university students in Kashan, Iran and factors affecting it. *Sci J Sch Public Health Inst Public Health Res.* 2015;12(4):53-63. [Persian]
- 3- Wagner KH, Brath H. A global view on the development of non communicable diseases. *Prev Med.* 2012;54 Suppl:S38-41.
- 4- Deldadeh Arani M, Taghadosi M, Gilasi HR. The effect of education based on BASNEF model on lifestyle in patients

- with hypertension. *Iran Red Crescent Med J*. 2016 Oct:e40731.
- 5- Taghdisi MH, Latifi M, Afkari ME, Dastoorpour M, Estebarsari F, Jamalzadeh F. The impact of educational intervention to increase self efficacy and awareness for the prevention of domestic violence against women. *Iran J Health Educ Health Promot*. 2015;3(1):32-8. [Persian]
 - 6- Arsalani N, Fallahi Khoshknab M, Josephson M, Lagerstrom M. Iranian nursing staff's self-reported general and mental health related to working conditions and family situation. *Int Nurs Rev*. 2012;59(3):416-23.
 - 7- Taghdisi MH, Estebarsari F, Rahimi Foroushani A, Eftekhari Ardebili H, Shojaeizadeh D, Dastoorpour M, et al. The educational program based on the successful aging approach on elders health-promoting behaviors: A clinical trial study. *Razi J Med Sci*. 2014;21(125):25-36. [Persian]
 - 8- Heidari F, Mohammadkhan Kermanshahi S. Health related lifestyle in nurses. *J Health Care*. 2012;14(3):23-33. [Persian]
 - 9- Fathi A, Sadeghieh Ahari S, Amani F, Nikneghad MR. Study frequency of hypertension and obesity and their relationship with lifestyle factors (nutritional habits, physical activity, cigarette consumption) in Ardabil city physicians, 2012-13. *Indian J Community Med*. 2016;41(4):268-72.
 - 10- Marcinkowski JT, Edbom-Kolarz A, Bajek A, Wojtyła A, Leppert J, Zagożdżon P, et al. Comparative studies on promotion of health and life style of hospital staff in Sweden and Poland. *Ann Agric Environ Med*. 2012;19(4):732-7.
 - 11- Tsai YC, Liu CH. Factors and symptoms associated with work stress and health-promoting lifestyles among hospital staff: A pilot study in Taiwan. *BMC Health Serv Res*. 2012;12:199.
 - 12- Mc Elligott D, Siemers S, Thomas L, Kohn N. Health promotion in nurses: Is there a healthy nurse in the house?. *Appl Nurs Res*. 2009;22(3):211-5.
 - 13- Estebarsari F, Taghdisi MH, Rahimi Foroushani A, Eftekhari Ardebili H, Shojaeizadeh D. An educational program based on the successful aging approach on health-promoting behaviors in the elderly: A clinical trial study. *Iran Red Crescent Med J*. 2014;16(4):e16314.
 - 14- Al-Kandari F, Vidal VL. Correlation of the health-promoting lifestyle, enrollment level, and academic performance of college of nursing students in Kuwait. *Nurs Health Sci*. 2007;9(2):112-9.
 - 15- Chouhan S. Analysing health promoting life styles of medical students in Bhopal, Madhya Pradesh, India by HPLP-II. *Int J Community Med Public Health*. 2017;4(1):195-9.
 - 16- Sousa P, Gaspar P, Vaz DC, Gonzaga S, Dixe MA. Measuring health-promoting behaviors: Cross-cultural validation of the health-promoting lifestyle Profile-II. *Int J Nurs Knowl*. 2015;26(2):54-61.
 - 17- Gutiérrez-Pliego LE, Camarillo-Romero EDS, Montenegro-Morales LP, Garduño-García JD. Dietary patterns associated with Body Mass Index (BMI) and lifestyle in Mexican adolescents. *BMC Public Health*. 2016;16:850.
 - 18- Oosterhoff M, Joore M, Ferreira I. The effects of school-based lifestyle interventions on body mass index and blood pressure: A multivariate multilevel meta-analysis of randomized controlled trials. *Obes Rev*. 2016;17(11):1131-53.
 - 19- Wei CN, Harada K, Ueda K, Fukumoto K, Minamoto K, Ueda A. Assessment of health-promoting lifestyle profile in Japanese university students. *Environ Health Prev Med*. 2012;17(3):222-7.
 - 20- Mehri A, Solhi M, Garmaroudi GR, Nadrian H, Shahbazi Sigaladeh Sh. Health promoting lifestyle and its determinants among university students in Sabzevar, Iran. *Int J Prev Med*. 2016;7:65.
 - 21- Alpar SE, Senturan L, Karabacak U, Sabuncu N. Change in the health promoting lifestyle behaviour of Turkish University nursing students from beginning to end of nurse training. *Nurse Educ Pract*. 2008;8(6):382-8.
 - 22- Enjezab B, Farajzadegan Z, Taleghani F, Aflatoonian A, Morowati Sharifabad MA. Health promoting behaviors in a population-based sample of middle-aged women and its relevant factors in Yazd, Iran. *Int J Prev Med*. 2012;3(Suppl 1):S191-8.
 - 23- Polat Ü, Özen Ş, Kahraman BB, Bostanoğlu H. Factors affecting health-promoting behaviors in nursing students at a university in Turkey. *J Transcult Nurs*. 2016;27(4):413-9.
 - 24- Phiri LP, Draper CE, Lambert EV, Kolbe-Alexander TL. Nurses' lifestyle behaviours, health priorities and barriers to living a healthy lifestyle: A qualitative descriptive study. *BMC Nurs*. 2014;13(1):38.
 - 25- Tsai YC, Liu CH. An eHealth education intervention to promote healthy lifestyles among nurses. *Nurs Outlook*. 2015;63(3):245-54.
 - 26- Power BT, Kiezebrink K, Allan JL, Campbell MK. Understanding perceived determinants of nurses' eating and physical activity behaviour: A theory-informed qualitative interview study. *BMC Obes*. 2017;4:18.