

## Original Article

# Health-Promoting Lifestyle among Medical Students in Alexandria

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## Abstract

**Background:** The key method to let people follow a healthier lifestyle and to prevent chronic non-communicable diseases is health promotion. Students in the medical field have to play a crucial role as in restoring and promoting health.

**Objective(s):** The present study was carried out to assess health promoting lifestyle and self-efficacy among fourth grade medical students at Alexandria Faculty of Medicine, as well as to identify factors affecting their lifestyle in health promotion.

**Methods:** A cross-sectional survey on 609 undergraduate fourth year medical students at Alexandria Faculty of Medicine during the academic year 2018-2019 was carried out. Participants were interviewed at the time they attended Community Medicine Department according to the faculty schedule. General Self-Efficacy Scale (GSE) and Health-Promotion Lifestyle Profile (HPLP II) questionnaires were the research tools used to identify student's health promoting lifestyle and their self-efficacy status.

**Results:** More than half of the studied medical students (57%) showed good self-efficacy. The mean score for health promoting lifestyle profile was  $2.4 \pm 0.36$  out of 4. The highest mean scores were for interpersonal relationships and spiritual growth domains. However, the lowest mean scores were for physical activity and health responsibility domains. Having a good self-efficacy perception, being free from psychiatric diseases, as well as practicing regular physical exercise were significant predictors of a promoting lifestyle among the studied medical students.

**Conclusion:** More than half of the studied students had good general self-efficacy status. The highest mean scores of health promoting lifestyle domains were for interpersonal relationships and spiritual growth domains. Therefore, creating supportive educational environment that values healthy lifestyle and its vital link to student performance is needed.

**Keywords:** health promoting lifestyle, self-efficacy, medical students

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## INTRODUCTION

Health promotion was defined by World Health Organization (WHO) as "the mechanism for enabling people to increase control over as well as to improve their health."<sup>(1)</sup>

This is a positive concept that emphasizes personal, social, political and institutional resources, with physical capacities. It includes a variable range of social and ecological interventions aiming to take care of people's health and quality of life by investigating the real causes of non-health, not only focusing on management and cure.<sup>(2)</sup>

A health-promoting lifestyle has been identified as "a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfillment of the individual".<sup>(3)</sup>

Pender's health promotion model (HPM) is recognized as one of the widely used social cognitive

models to plan for and change unhealthy behaviors and promote health.<sup>(4)</sup> It is based on social cognitive theory. The model works on these areas: individual factors and experiences, specific behavior cognitions, as well as behavioral outcomes.<sup>(5)</sup> Moreover, serves as a guide to identify the biopsychosocial mechanism that motivates people to interact towards enhancing health. The group of variables for behavior specific knowledge has significant importance in motivation.<sup>(5)</sup> Behavior health promoting is that the specified behavioral outcome, which makes it the highest within the Health Promotion Model (HPM). The ultimate behavioral demand is moreover influenced immediately by the competing demand and preferences which can hinder actions intended for health promotion. These behaviors must end in improvement in health, increased functional ability and high quality of life within the least development stages.<sup>(3)</sup>

University years bridge the adolescence to youth

and determine behaviors and lifestyle of university students throughout their whole life, as current behaviors of university students determine their future lifestyle and wellbeing.<sup>(6)</sup> So, it is important to restore and correct lifestyle of university students to maintain and promote their health.<sup>(6)</sup>

Many university students may experience a wide range of health risk taking behaviors such as smoking<sup>(7)</sup>, physical inactivity, unhealthy dietary habits as well as insufficient sleep and rest, which will modify their current and future health status.<sup>(7)</sup> These behaviors have many serious impacts on mental health as psychosomatic symptoms, depression and anxiety. Moreover, these behavioral are well known risk factors for development of chronic non-communicable diseases for example coronary heart diseases, hypertension and obesity.<sup>(8)</sup>

Medicine has always been the toughest discipline and the hardest courses to complete. Being a highly demanding college increases the causes of stress with its impact on the health of the students both physically and mentally. Since students must learn a lot of new information in a short time, together with tough exams with the sense of insecurity about their future career. It is difficult to be patience throughout this long period and sometimes students lose themselves. In their commitment to finalize all their assigned tasks, students often find themselves harming their own health.<sup>(9)</sup>

Struggling with studying and time management, imbalance between their academic and social life, poor academic guidance and support and fear of the future are examples of major stressors that face medical students throughout their academic years all over the world.<sup>(9)</sup>

Many studies have shown that higher education and income increased the likelihood of engagement in health-promotion behaviors.<sup>(13)</sup> Self-efficacy is among the most important determinants for health-promoting behaviors in health-promoting behaviors.<sup>(10)</sup>

Despite that many studies were conducted worldwide to assess health promotion lifestyle behaviors among university and students in the medical field in Iran<sup>(11)</sup>, Turkey<sup>(12)</sup> and in some Arab countries as Jordan<sup>(13)</sup> and Saudi Arabia.<sup>(14)</sup> However, limited studies on promoting health behaviors of medical students in Egypt is present, and specifically in Alexandria.

The current research was carried out to assess health promoting lifestyle and self-efficacy among fourth year medical students at Alexandria Faculty of Medicine, as well as to identify the factors affecting their health promoting lifestyle.

## METHODS

A cross-sectional survey was carried out on fourth

year undergraduate medical students at Alexandria Faculty of Medicine. Half of the 1284 fourth year medical students affiliated to the national academic program were included in the study (n=642 students). They were approached at the time they attended Community Medicine Department according to the faculty schedule. Two rounds out of four were randomly selected during the period from January 2019 to April 2019. Students that agreed to participate in the study and to submit the questionnaire completed were included in the study. The questionnaires were distributed and collected during break times. The response rate was 94.9% rendering an actual sample size of 609 students.

Data was collected using a self-administrated anonymous questionnaire involving data about personal and sociodemographic characteristics, educational background, medical history and current and previous lifestyle practices, as well as tools for assessment of their self-efficacy and health promotion lifestyle. Assessment of self-efficacy was done using scale for **General Self-Efficacy (GSE)**.<sup>(15)</sup> It is used to assess the strength of an individual belief of his or her own ability to respond to new or difficult situations and to deal with any challenges. It consists of ten items that has been translated to English language by Mary Wegner from the original German version by Schwarzer and Jerusalem.<sup>(16)</sup> It is a four-point Likert scale ranging from Not at all true = 1, Hardly true = 2, Moderately true = 3 and Exactly true = 4. Scoring is done by adding all responses to a sum score. The median self-efficacy score was calculated and used as a cutoff value of 27 to classify students into two groups, those with good self-efficacy (with a score equal to or higher than the median value ( $\geq 27$ )) and those with poor self-efficacy with a score lower than the median ( $< 27$ ). Assessment of health promoting lifestyle was done using **Health-Promoting Lifestyle Profile questionnaire (HPLP II)**.<sup>(17)</sup> It is a fifty-two (52) item questionnaire composed of six domains: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The questionnaire includes how often they adopt specific behaviors for health-promotion or well-being habits on a four-point Likert scale ranging from Never = 1, Sometimes = 2, Often = 3, and Routinely = 4. The total score for each domain and for the total health promotion lifestyle profile questionnaire were calculated and divided by the number of items to obtain the mean score for the six domains and for the total score.<sup>(17)</sup>

A pilot study to test the data collection tool was conducted on 14 randomly selected fourth year students from the national program and not included in analysis.

**Ethical considerations:**

The proposal was approved from the Research Ethics Committee at Alexandria University Faculty of Medicine. Informed consents were obtained from the students enrolled and privacy and confidentiality of data were ensured.

**Statistical analysis:**

Data were analyzed using Statistical Package for Social Sciences (SPSS/ PCT) program (version 22.0). T-test and regression analysis were done. All tests were interpreted at 5% level of significance and 80% power.

**RESULTS**

More than half of the 609 studied fourth year medical students (56%) were females. Egyptian students represented most of the studied medical students (97.7%). About two-thirds of the studied medical students (63.6%) were living in urban cities, while the rest were rural dwellers. More than one quarter of the students (29.7%) were living in Alexandria University Dormitory. Most of the studied students (87.9%) had national high school degree. Most of fathers and mothers of the studied students had a high level of education (93.9% & 89.3% respectively). More than half of fathers of the students (59.9%) were professional/ semiprofessional. About half of mothers of the studied medical students (48.9%) were housewives.

More than one tenth of the studied medical students had history of chronic diseases (11.5%). About one fifth of the studied medical students had history of psychiatric diseases (21%). More than one quarter of the studied medical students (29.9%) had history of psychiatric problems during the last year. More than half of the studied medical students (59.4%) were practicing physical activity regularly. About two fifths of the studied medical students (39.2%) achieved excellent grades during third year, while 29.7% achieved very good grades, 21.8% achieved good grades and 9.2% achieved fair grades.

Table (1) shows that general self-efficacy score among the studied medical students ranged from 10 to 40 with a mean of  $27.15 \pm 5.07$ .

More than half of the studied medical students (56.98%) had good general self-efficacy while the remaining (43.02%) had poor general self-efficacy.

Table (2) depicts the mean score of health promotion lifestyle profile among the studied medical students. The total mean score of health promotion lifestyle profile ranged from 1.31 to 3.73 with a mean of  $2.40 \pm 0.36$ .

Regarding the domains of health promoting lifestyle profile, the highest mean score was interpersonal relationships domain, followed by that of spiritual growth domain ( $2.81 \pm 0.56$  and  $2.70 \pm 0.63$  respectively). It was lower for stress management and

nutrition domains. The lowest mean scores were for physical activity and health responsibility domains ( $1.98 \pm 0.60$  and  $2.06 \pm 0.46$  respectively).

**Table (1): Distribution of general self-efficacy among fourth year medical students in Alexandria**

General self-efficacy score		
Min-Max	10 - 40	
Median	27	
Mean $\pm$ SD	$27.15 \pm 5.07$	
General self-efficacy status	No.	%
Poor	262	43.0
Good	347	57.0

**Table (2): The mean score of health promoting lifestyle domains among fourth year medical students in Alexandria**

Domains of HPLP	Min-Max	Mean $\pm$ SD
Health responsibility	1 - 4	$2.06 \pm 0.46$
Physical activity	1 - 4	$1.98 \pm 0.60$
Nutrition	1 - 4	$2.43 \pm 0.50$
Spiritual growth	1 - 4	$2.70 \pm 0.63$
Interpersonal relationships	1 - 4	$2.81 \pm 0.56$
Stress management	1 - 4	$2.37 \pm 0.53$
Total HPLP II	1.31-3.73	$2.40 \pm 0.36$

Table (3) reveals that the mean scores of total profile for health promotion lifestyle and all of its domains were significantly higher among medical students who had good general self-efficacy compared to those who had poor general self-efficacy, where p values were below 0.001 for total health promotion lifestyle and all of its domains.

Table (4) reveals the linear regression result analysis for factors predicting health promotion lifestyle profile among the studied medical students. Factors that were significantly associated with health promotion lifestyle profile in the univariate analysis were entered the model. The whole model was statistically significant, where  $p < 0.001$ . The table shows that significant predictors are currently practicing regular physical exercise, general self-efficacy status and having psychiatric diseases.

Having psychiatric diseases decrease health promoting lifestyle profile by 0.12. On the other hand, perceived good self-efficacy was associated with significant increase in health promotion lifestyle profile by 0.32 compared to having poor self-efficacy perception. Current practicing regular exercise increase health promoting lifestyle profile by 0.08 compared to non-practicing. The three variables together predicted 15% of the variation in health promotion lifestyle profile.

**Table (3): Association between the profile for health promoting lifestyle domains and general self-efficacy of the studied medical students**

GSE	HPLP Domains	Self-Efficacy		t-test (p)
		Poor	Good	
<b>Health responsibility</b>				
Mean ± SD		1.98±0.42	2.12±0.48	3.65 (<0.001) *
<b>Physical activity</b>				
Mean ± SD		1.84±0.51	2.09±0.63	5.38 (<0.001) *
<b>Nutrition</b>				
Mean ± SD		2.30±0.47	2.54±0.49	6.04 (<0.001) *
<b>Spiritual growth</b>				
Mean ± SD		2.49±0.58	2.87±0.61	7.87 (<0.001) *
<b>Interpersonal relationships</b>				
Mean ± SD		2.69±0.56	2.89±0.55	4.39 (<0.001) *
<b>Stress management</b>				
Mean ± SD		2.20±0.47	2.50±0.54	7.36 (<0.001) *
<b>Total HPLP II</b>				
Mean ± SD		2.09± 0.63	2.51± 0.34	9.15 (<0.001) *

**Table (4): Multivariate linear regression analysis of predictors of health promoting lifestyle profile among the studied medical students**

Independent predictors	Regression coefficients (β)	t-test	p value
<b>Nationality</b> (Non-Egyptian=0, Egyptian =1)	0.05	1.12	0.27
<b>High school degree</b> (National =0 , International=1)	0.04	1.05	0.29
<b>Current practice of physical activity</b> (No=0 , Yes =1)	0.08	2.14	0.03*
<b>General self-efficacy status</b> (Poor= 0, Good= 1)	0.32	8.40	<0.001*
<b>History of psychiatric diseases</b> (No=0, Yes=1)	-0.12	-3.13	0.002*

F= 21.01, p≤0.001 , R<sup>2</sup>=0.15

## DISCUSSION

Promoting health is one of the essential pillars to assess community development. Adopting health-promoting lifestyle in young age leads to positive health outcomes both physically and mentally all through life.<sup>(3,4)</sup> Promoting health lifestyle is a multidimensional mode of actions self-initiated and perception which act to restore or strengthen the wellness level , self-actualization and individual fulfillment .<sup>(3)</sup>

The total mean score of lifestyle health promotion profile was 2.40±0.36 (range 1.31-3.73). This was considered moderate level of health promoting lifestyle profile according to Al-Zahrani et al (2019)<sup>(18)</sup> in their cross sectional study on undergraduate medical students in Saudi Arabia. On the other hand,

this level is considered poor as reported by Peker and Bermek (2011)<sup>(10)</sup> in their study on dental students in Istanbul University in Turkey.

Generally, the total mean score of health promotion lifestyle profile of the present study was comparable with several previous studies conducted on medical students in different countries. For example, Bakouei et al(2018)<sup>(19)</sup> in their cross sectional study conducted on 350 students in medical and paramedical colleges in Iran reported a mean score of health promotion lifestyle profile equals 2.44 ± 0.37. Chouhan (2017)<sup>(19)</sup> in his cross sectional study conducted on 284 first year medical students of three medical colleges in India reported a mean score of health promoting lifestyle profile of 2.44±0.31. Similarly, Peker and Bermek (2011)<sup>(10)</sup> in Turkey, in their cross sectional study on 129 fresh dental students

in 2009, revealed that the mean score of health promotion lifestyle profile was  $2.49 \pm 0.32$ .

Assessment of individual domains of health promotion lifestyle in the present study revealed that the interpersonal relationships and spiritual growth domains showed the highest mean scores as compared to other domains. Several studies showed similar results such as Bakouei *et al.* (2018)<sup>(20)</sup> in Iran and Wei *et al.* (2012)<sup>(21)</sup> in Japan.

The highest mean score for the domain of interpersonal relationships could be explained by the fact that the need of intimacy is fundamental for everyone's life. Better interpersonal relationships are important for development of the humans.<sup>(23)</sup> Medical students in particular are in a real need for establishing and maintaining relationships that pave the ways for new friendships and build their social relationships particularly if extracurricular activities are encouraged.

Spiritual growth could be achieved by faith in God, starting every day with prayer, meditation and development of a sense of gratitude. All divine religions call for concern for physical and mental health, and the responsibility of all human beings in this regard. Faith in god is deeply rooted in Egyptian culture. Where Muslims and Christians follow their religious orders to keep their physical and mental health.<sup>(25)</sup> These religious related beliefs and behaviors could be an explanation for the high score for domain of spiritual growth among the studied medical students.

On the other hand, the current study showed that the lowest mean scores were for physical activity and health responsibility domains. This finding is comparable to findings of other studies.<sup>(25)</sup> Low score of physical activity domain might be attributed to several factors. The nature of medical curriculum and the teaching style where students were overwhelmed by many lectures and were more competitive to have better grades. They preferred to have extra hours to study at home rather than practicing other extracurricular activities in general and physical activity in particular. Moreover, tight timetable and lack of assigned time for physical activity in college schedule might play a role in such finding. Faculties of Medicine need to establish a more flexible learning approaches with an adaptive curriculum to be able to recognize and identify the various learning needs of individual students.

The domain of health responsibility involves taking care of health, gaining knowledge from professionals and health education. Nacar *et al.* (2014)<sup>(18)</sup> in Turkey suggested that theoretical learning of medical students might not always be reflected on their health behavior. So, a graduate competent doctor who is advised to start medical practice is highly appreciated in this respect. Recently, Alexandria

Faculty of Medicine make tangible efforts to follow the current trends in medical education by introducing education as an outcome-based, new learning technologies and new courses, choice of educational strategies, staff development and professionalism in medical education.

The mean of general self-efficacy score among the studied medical students was  $27.15 \pm 5.07$ . More than half of the studied students (56.98 %) had good general self-efficacy status. Binay and Yiğit (2016)<sup>(26)</sup> in their study on adolescents in Turkey reported slightly higher general higher self-efficacy score ( $31.53 \pm 5.02$ ) compared to that in the current study. Capri *et al.* (2012)<sup>(25)</sup> in Turkey reported also a higher general self-efficacy score ( $29.05 \pm 5.11$ ) compared to the current study.

Having good self-efficacy status was the strongest significant predictor of health promotion lifestyle profile among the studied medical students in the current study by regression analysis. Perceived Self-efficacy is one of the important determinants that affect the chances of adopting the specific behavior required to perform activities satisfactorily. It acts like a frame that shapes adopting healthier behaviors.<sup>(25)</sup> Self-efficacy perception improves the ability to cope with any difficulties and stressor. Higher level of self-efficacy results in attainment desired life goals.<sup>(26)</sup>

In the present study having psychiatric diseases decrease health promoting lifestyle profile by 0.12. About one fifth of the studied medical students in the current study (21.20%) had positive history of psychiatric diseases. Moreover, more than one quarter (29.89%) of them suffered from a psychiatric disease or having symptoms of a psychiatric problem during the last year.

One of the important aims of medical colleges is to ensure satisfaction of the healthcare needs of the current and future nationals. This is almost achieved through a robust training curriculum and effective clinical practice, with high levels of motivation and intelligence.<sup>(26)</sup>

Psychiatric disorders among medical students can cause catastrophic consequences like impaired performance in academia, impaired competency, medical errors and drop out from college of medicine. Moreover, if they were not early screened and corrected they will continue to suffer for the rest of their life both mentally and physically.

More than half of the studied medical students (59.44%) were practicing physical activity regularly. This was one of the significant predictors of health promotion lifestyle profile among the studied medical students by regression analysis. Students who practice sports have better knowledge about the impact of physical activity in decreasing non communicable diseases.<sup>(26)</sup>

Having international high school degree was one of the predictors of health promoting lifestyle profile as the total mean scores of health promoting lifestyle profile among the studied medical students who had national high school degree were lower compared to those who had international high school degree. The international educational curriculum might have a positive impact on acquisition of more accurate health beliefs, knowledge, behaviors and thus to better lifestyle choices of students.

## CONCLUSION AND RECOMMENDATIONS

More than half of the studied students had good general self-efficacy status. The highest mean scores of health promoting lifestyle domains were for interpersonal relationships and spiritual growth domains. However, the lowest mean scores were for physical activity and health responsibility domains. Having a good general self-efficacy perception, being free from any psychiatric diseases as well as practicing regular physical exercise were significant predictors of a high health promotion lifestyle profile among the studied medical students.

Create supportive educational environment that value healthy lifestyle and its vital link to student performance. This could be achieved by planning and implementation of a faculty-based health promotion programs for example, availability of healthy food choices in faculty campus, ensure physical activity-friendly faculty environment, more flexible schedule, apply a faculty tobacco-free policy.

Moreover, launching of regular physical exercises campaigns in the university might encourage students to be engaged in physical exercises. Regular health awareness campaigns to promote healthy behaviors in different topics. Establishment of youth care committee to help and advice students who experienced any form of stress throughout their study period.

Additionally, Create opportunities for medical students to improve their lives and develop personal and social skills that help them making healthy choices.

Increase awareness of parents about health risk-taking behaviors during the university period and the importance of health promoting behaviors through mass media.

### CONFLICT OF INTEREST

The authors declare that they have no conflict of interest

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## REFERENCES

- Potvin L, Jones CM. Twenty-five years after the Ottawa Charter: the critical role of health promotion for public health. *Can J Public Health*. 2011 Jul-Aug;102(4):244-8. doi: 10.1007/BF03404041. PMID: 21913576; PMCID: PMC6973872.
- Oleribe OO, Ukwedeh O, Burstow NJ, Gomaa AI, Sonderup MW, Cook N, et al. Health: redefined. *Pan Afr Med J*. 2018 Aug;30(1):292-4. PMID:30637076
- Mehri A, Solhi M, Garmaroudi G, Nadrian H, Sighaldehy SS. Health promoting lifestyle and its determinants among university students in Sabzevar. *Iran. Int J Prev Med*. 2016 Apr;7(1):65. <https://doi.org/10.4103/2008-7802.180411> PMID:27141284
- Ersin F, Bahar Z. Effect of health belief model and health promotion model on breast cancer early diagnosis behavior: a systematic review. *Asian Pac J Cancer Prev*. 2011;12(10):2555-62. PMID:22320955
- Naserpoor F, Shahry P, Zamani AF, Saki MA. Application of Pender's health promotion model to predict physical activity among female school students in Omidyeh, Iran. *Health Serv Res*. 2017;13(1):111-8.
- Alkhalwaldeh O. Health promoting lifestyles of Jordanian university students. *Int J Adv Nurs*. 2014;3(1):27-31.
- Parada M, Corral M, Mota N, Crego A, Rodríguez Holguín S, Cadaveira F. Executive functioning and alcohol binge drinking in university students. *Addict Behav*. 2012 Feb;37(2):16772. <https://doi.org/10.1016/j.addbeh.2011.09.015> PMID:21996093
- Sohrabivafa M, Tosang MA, Molaei Zadeh SZ, Goodarzi E, Asadi ZS, Alikhani A, et al. Prevalence of risky behaviors and related factors among students of Dezful. *Iran. Iran J Psychiatry*. 2017 Jul;12(3):188-93. PMID:29062370
- Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, et al. Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. *Acad Med*. 2014 Mar;89(3):443-51. <https://doi.org/10.1097/ACM.0000000000000134> PMID:24448053
- Kara B, İşcan B. Predictors of Health Behaviors in Turkish Female Nursing Students. *Asian Nurs Res*. 2016 Mar;10(1):75-81. <https://doi.org/10.1016/j.anr.2015.12.001> PMID:27021839
- Kamali AS, Sadeghi R, Tol A, Yaseri M. Reliability and Validity of Kurdish Language Version of Health Promoting Lifestyle Profile II among Kurdish Healthcare Providers Kurdish Version of HPLP-II. *Arch Iran Med*. 2016 Dec;19(12):824-31. PMID:27998156
- Nacar M, Baykan Z, Cetinkaya F, Arslantas D, Ozer A, Coskun O, et al. Health promoting lifestyle behaviour in medical students: a multicentre study from Turkey. *Asian Pac J Cancer Prev*. 2014;15(20):8969-74. <https://doi.org/10.7314/APJCP.2014.15.20.8969> PMID:25374238
- Shaheen AM, Nassar OS, Amre HM, Hamdan-Mansour AM. Factors affecting health-promoting behaviors of university students in Jordan. *Health (Irvine Calif)*. 2015;7(1):1-8. <https://doi.org/10.4236/health.2015.71001>.
- Al-Shehri HM, Al-Qahtani AM, Shaikh IA, Hassan MA, Al-Qahtani NS, Al-Qahtani AM, et al. Assessment of lifestyle and eating habits among undergraduate students in Najran University, Najran, Saudi Arabia. *Int J Med Sci*. 2017;6(3):638-47.
- Schwarzer R, Jerusalem M. Generalized Self-Efficacy scale. In: Weinman J, Wright S, Johnston M, editors. *Measures in health psychology: A user's portfolio. Causal and control beliefs*. 1995. pp. 35-7.
- Jerusalem M, Schwarzer R. Self-efficacy as a resource factor in stress appraisal processes. *Self-efficacy: Thought control of action*. 1992:195-213.
- Walker SN, Sechrist KR, Pender NJ. The Health-Promoting Lifestyle Profile: development and psychometric characteristics. *Nurs Res*. 1987 Mar-Apr;36(2):76-81. <https://doi.org/10.1097/00006199-198703000-00002> PMID:3644262
- Bakouei F, Jalil Seyedi-Andi S, Bakhtiari A, Khafri S. Health Promotion Behaviors and its predictors among the college students in Iran. *Int Q Community Health Educ*. 2018

- Jul;38(4):251–8. <https://doi.org/10.1177/0272684X18781780> PMID:29914336
19. Chouhan S. Analysing health promoting life styles of medical students in Bhopal, Madhya Pradesh, India by HPLP-II. *Int J Community Med Public Health*. 2016;4(1):195–9. <https://doi.org/10.18203/2394-6040.ijcmph20164737>.
  20. 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 Jun;9(2):112–9. <https://doi.org/10.1111/j.1442-2018.2007.00311.x> PMID:17470185
  21. 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 May;17(3):222–7. <https://doi.org/10.1007/s12199-011-0244-8> PMID:21987366
  22. Cappella E, Kim HY, Neal JW, Jackson DR. Classroom peer relationships and behavioral engagement in elementary school: The role of social network equity. *Am J Community Psychol*. 2013;52(3-4):367-79.
  23. Sarwari AQ, Wahab MN, Said MHM, Aziz NAA. Assessment of the Characteristics of Interpersonal Communication Competence among Postgraduate Students from Different Cultures. *J Intercult Commun*.2018(47):1-15.
  24. Abdolkarimy M, Zareipour M, Mahmoodi H, Dashti S, Faryabi R, Movahed E. Health promoting behaviors and their relationship with self-efficacy of health workers. *Iran J Nurs Res*. 2017;30(105):68–79. <https://doi.org/10.29252/ijn.30.105.68>.
  25. Capri B, Ozkendir OM, Ozkurt B, Karakus F. General self-efficacy beliefs, life satisfaction and burnout of university students. *Procedia Soc Behav Sci*. 2012;47:968–73. <https://doi.org/10.1016/j.sbspro.2012.06.765>.
  26. Kiajamali M, Hosseini M, Estebsari F, Nasiri M, Ashktorab T, Abdi A, et al. Correlation between social support, self-efficacy and health-promoting behavior in hemodialysis patients hospitalized in Karaj in 2015. *Electron Physician*. 2017 Jul;9(7):4820–7. <https://doi.org/10.19082/4820> PMID:28894541