



# Assessment of Health-promoting Lifestyle among Medical Students of Mashhad University of Medical Sciences in 2018-2019

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## Abstract

**Background and Objective:** Young adults, especially the students of medical fields, as the health ambassadors of every community, play a vital role in health maintenance and improvement of society. Promoting the lifestyle behaviors of this group leads to the better health status of other society members. This study was set to assess the Health-Promoting Lifestyle (HPL) of medical students in Mashhad, Iran.

**Material and Methods:** This descriptive cross-sectional study was performed on 120 medical students of Mashhad University of Medical Sciences in 2018-2019. The data were collected by the self-reported Persian version of HPL profile II which has been validated in former studies. SPSS package (version 20) was used to analyze data, and two independent samples t-test to compare data sampling was done in two stages, including random selection of the classroom and the clinical ward, and then random selection of students in each.

**Results:** 50.2% of all participants were male in gender and 77.5% were single. The overall score of HPL profile II among all the participants was moderate. According to the scores of Health-promoting Lifestyle Behaviors (HPLB), stress management scored the highest (29.62±4.45), spiritual growth, and physical activity was at the lowest levels (10.84±2.07 and 16.55±4.97, respectively). Two dimensions of HPLB showed a significant difference based on the gender of the participants (better physical activity in men (p-value= 0.04) and self-responsibility for health in women (p-value=0.05)). There was not a statistical difference between HPL subscales by the participants' marital status.

**Conclusion:** The HPL profile II total score is moderate, but not desirable; therefore, admitting appropriate programs for lifestyle improvement, especially in the field of mental development, physical activities, and nutrition, regarding student gender, is recommended. Our findings can attribute the health policymakers to developing health programs among the students and adding related courses to the educational curriculum.

**Keywords:** Health Education [[MESH](#)], Health Promotion [[MESH](#)], Health-promoting Lifestyle, Medical Students [[MESH](#)]

### Highlights

- The lifestyle of medical students, as health statesmen, is not healthy.
- The score of Health Promoting Lifestyle Behaviors (HPLB) is low among most of medical students.
- Medical students of Mashhad University of medical sciences scored moderate in HPLB profile II; and it should be upgraded.

## Introduction

Non-communicable Diseases (NCDs) had attracted worldwide attention and World Health Organization (WHO) asks every country to prevent them as an indispensable investment (1).

Lifestyle, which is defined as the style of living that depends on behavioral patterns, highly influences health (2). As WHO states, health plays a pivotal role in the context of countries' significant progress, and governments need to deliver health care to the community (1,3).

Poor lifestyle habits (e.g. using fatty-sweet foods, insufficient sleeping, low physical activity, and stress, and anxiety) are considered as the risk factors for many diseases such as acute myocardial infarction (4), hypertension (5), obesity (6), diabetes and cancer (7) and even road accidents (8). Mentioned disorders are the most common and fatal chronic diseases around the world (9, 10). Lifestyle promotion can reduce the risk of many disorders, as a healthy lifestyle declines death rates and enhances the life expectancy and also can seriously affect a country's advancement (11).

Health Promoting Lifestyle (HPL) focuses on life promotion through lifestyle which consists of six aspects of "physical activity", "nutrition", "health responsibility", "spiritual growth", "interpersonal relations" and "stress management". This lifestyle promotes health and welfare and induces satisfaction, self-persuasion, and self-improvement (2).

Creation effective guides with healthy lifestyles is an effective way of promoting the lifestyle behaviors of society (12).

Young adults have a key role as guides and withal procreate in societies. Therefore, promoting the lifestyle of this group can easily extend to their environment (13). Among the young adults, medical students are known as health statesmen and tasked with people's health (14). High levels of stress, depression, and fatigue are the main obstacles for medical students to follow a healthy lifestyle. They lead to bad behaviors like fast food consumption, inactivity, bad sleep, and smoking (15).

Despite the importance of this issue, it is not the concern of many people worldwide because they believe young people have good health; so, less attention is paid to their behavioral lifestyles (16). Moreover, previous studies have been conducted among particular groups, for instance, elderly, menopausal, or postmenopausal women and patients (12, 17-20).

The literature of related articles shows that interventional programs can promote healthy behaviors among particular groups (21-25).

Iran is one of the developing countries which contends with some medical ills as cardiovascular disorders, obesity, hypertension, and cancer (2). Extensive research has shown that lifestyle is one of the main causes of many diseases (26-28). As young people especially medical students have significant impacts on the other groups' patterns of behavior; HPL is fundamental for this group, consequently, they would be health promoters in the population.

Despite the importance of this issue, few studies have been conducted to assess the Health-Promoting Lifestyle Behaviors (HPLB) among medical students, and literature from the Persian region for this group is even more limited. Therefore, this study was carried out as the first one among medical students of Mashhad University of Medical Sciences (MUMS) to assess HPLB, and the findings should make a crucial contribution to health policy determinants.

## Materials and Methods

This cross-sectional study was conducted on medical students at Mashhad University of Medical Sciences (MUMS), Mashhad, Iran for one year and one month from February 2018 to March 2019 years.

In this study, to explore HPL among students, 120 students participated. We used the Persian version of Health-promotion lifestyle profile II with 52 items to collect data from available samples.

By Mohammadi *et al.* This self-administered questionnaire version was validated with Cronbach's alpha 82% (29). To include all educational stages, the researcher attended medical college classrooms and other educational gatherings (journal clubs and morning reports) at Quaem & Imam Reza hospitals. The questionnaires were collected after describing the study for the students and distributing them by random.

The sample size was computed 106 people; with the average estimation formula and in terms of the type 1 error ( $\alpha$ ) and estimated error, 5%, and 3%, respectively, and standard deviation  $d= 8$ ; which increased to 120 people by considering the 10% drop.

The two-stage sampling design was applied to 120 attendees of the study; first, the selection was randomly done according to the classroom and clinical ward and the second stage consist of randomized selecting students in each.

Inclusion criteria: studying at the time of research;  
Exclusion criteria: incomplete fill out the questionnaires.

Data collection was done through a two-section questionnaire. The first part included four demographic questions (age, gender, educational stage, and civil status); the second part included the HPLP questionnaire.

The HPLP II questionnaire, designed by Walker *et al.* (1), consists of 52 items with six dimensions of health responsibility (9 questions), physical activity (8 questions), nutrition (9 questions), spiritual growth (9 questions), interpersonal

relationships (9 questions), and stress management (8 questions). The items are rated on a four-point Likert scale (“never”, “frequently”, “almost”, and “always”) and numerically ranked from 1 to 4 (1= “never” and 4= “always”). The lowest and highest possible scores for the total scale were 52 and 208, respectively.

To divide into three levels, unfavorable lifestyle (less than 50% of the total score), moderate (50 to 75% of the total score), and favorable (75 to 100% of the total score) were calculated and divided from the total score in every aspect and the whole score (Table 2).

## Ethics

After being informed about the aims and procedure of the study, each participant gave informed written consent to participate in the study, which was approved by the Mashhad University of Medical Science Ethics Committee (Registration code: MUMS/950679). Researchers assured the confidentiality and namelessness of data.

## Statistical analysis

Data were expressed as means  $\pm$  SD (for parameters with a normal distribution) or median and interquartile range (in the case of non-normally distributed data). Numerical data were compared using two independent-samples t-tests. Statistical analysis was performed using the SPSS package (version 20) and a p-value  $< 0.05$  was considered statistically significant. Kolmogorov-Smirnov test was used to check the normality of the data

## Results

As mentioned before, this study set to evaluate the six aspects of HPLB among medical students of MUMS. The samples were divided according to the number of employees in the educational levels regarding, which displays the main characteristics of all 120 participants, the mean age of the students was  $22.08 \pm 2.31$  and 50.8% of them were male in gender. The distribution of these data based on the Kolmogorov-Smirnov test was normal.

**Table 1.** Main characteristics of the 120 participants

Demographic factors	Number (%)	Mean
Age		22.08±2.31
Gender		
Male	61 (50.8%)	
Female	59 (49.2%)	
Marital status		
Married	27 (22.5%)	
Single	93 (77.5%)	
Year of education		
First	20 (16.7%)	
Second	22 (18.3)	
Third	19 (15.8%)	
Fourth	25 (20.8%)	
Fifth	17 (14.2%)	
Sixth	8 (6.7%)	
Seventh	9 (7.5%)	

As shown in [Table 2](#), among the HPLB subscales, stress management scored the highest, and self-responsibility for health, interpersonal relations, nutrition, physical activity, and spiritual growth were in lower levels, respectively.

Comparing the results with the total mean and mean of each component, the overall health-promoting lifestyle status among students is in a moderate status. The components of responsibility and stress control are in moderate and favorable condition; the components of physical activity, nutrition, and interpersonal communication are in the moderate status and the components of spiritual growth are in the unfavorable condition.

The results, represented in [Table 3](#), indicate that there was no significant difference between means of four components of HPLB (nutrition, stress management, interpersonal relations, and spiritual growth) and students' gender (p-value= 0.1, 0.8, 0.7, 0.5, respectively), But the males had significantly higher physical activity than females (p-value=0.04) and the difference between self-responsibility for health and the gender was also significant (p-value=0.05, higher in females). The marital status of students did not have significant relations with HPLB subscales.

**Table 2.** Student score status of six aspects/total of HPLB among 120 medical students at MUMS, in 2018-2019

subscales of HPL	Minimum	Maximum	Mean±SD	Student score status**	Maximum score achievable
Physical activity and fitness (8Q) *	8	32	16.55±4/97	moderate	32
Nutrition (9Q)	12	32	18.61±3.52	moderate	36
Self-responsibility for health (9Q)	16	38	26.98±4.45	moderate	36
Spiritual growth (9Q)	6	16	10.84±2.07	unfavorable	36
Interpersonal relations (9Q)	14	31	22.43±3.54	moderate	36
Stress management (8Q)	17	36	29.62±4.55	favorable	32
Total score (Q52)	90	178	125±.058	moderate	208

HPL: health-promoting lifestyle

SD: standard deviation

\*Number of questions in each aspect

\*\*Based on the division in the text of the article

**Table 3.** Mean and standard deviation of HPLB subscales by gender and marital status of the participants

Subscales of HPL	Gender (mean±SD)					Marital status (mean±SD)				
	MALE (n=61)	FEMALE (n=59)	df	t	p-value	MARRIED (n=27)	SINGLE (n=93)	df	t	p-value
Physical activity and fitness	17.47±5.21	15.61±4.57	118	-2.08	0.04	16.33±5.59	16.62±4.81	118	-0.266	0.70
Nutrition	18.19±3.56	19.05±3.46	118	1.33	0.1	17.96±3.37	18.80±3.56	118	-1.09	0.20
Self-responsibility for health	26.21±4.16	27.77±4.63	118	1.97	0.05	27.14±4.52	26.93±4.45	118	0.217	0.80
Spiritual growth	10.73±2.02	10.49±2.12	118	-0.194	0.5	10.88±2.24	10.82±2.03	118	-0.233	0.80
Interpersonal relations	22.34±3.36	22.52±3.75	118	0.279	0.7	23.00±4.06	22.26±3.38	118	0.943	0.30
Stress management	29.70±4.19	29.54±4.94	118	0.558	0.8	29.44±4.68	29.67±4.54	118	0.133	0.80

HPL: health-promoting lifestyle

SD: standard deviation

p-value significant at p 0.05

## Discussion

The key finding of the current study states that the mean of HPL in the participants is moderate, like what Pouresmaeil *et al.* (30) and some other studies discussed (31-35). This finding is contrary to earlier studies that have shown the poor lifestyle choices of medical students (36, 37). Nevertheless, more accurate plans should be made to enhance the current students' situation.

The results relevant to scores of HPL dimensions show that stress management has the highest score. It is likely Related to difficult admission to medical school so that better stress management leads to success in entrance exams for Iran's best universities including MUMS, however, it may be an untrue conclusion due to the small number of participants in our study. Different work statuses of participants also should be considered, because it is believed that the last 3 years of educating medicine, is more stressful for the students (38), still merely a quarter of our participants are in these stages. However, this finding is not supported by previous research, stress management scored medium in other studies (30, 31, 39, 40).

The students scored lowest in spiritual growth. It may partly be supported by the idea of the "age gap in religion" signifies that young adults tend to be less pious than their elders (41). Although this result does not match those been attained in Nacar *et al.* (33) and other studies (40, 42, 43) suggesting the medium to high score of spiritual growth. This contrary may be due to geographic and cultural differences.

The second-lowest subscale of this study was associated with physical activity, feasibly due to lack of leisure time, excessive workload, and poor sports complex, which is present in some other studies (2, 31, 34, 44). Therefore, there is a definite need for taking measures to improve the physical activity situation of the students, by informing and motivating them and allocating facilities.

This experiment detected significant differences in average scores between physical activity and self-responsibility based on gender; higher in males and females respectively. Higher physical activity scores in men may be related to androgenic hormones and are in line with earlier projects conducted by Wei *et al.* (39) and others (38, 45). Considering the fitness low score despite



its crucial role in preventing NCD; policymakers should pay more attention to improving medical students' fitness. The better status of health responsibility in women is consistent with the result of Leung *et al.* study in 2020 (46). These differences should be considered for making appropriate decisions.

A surprising result, rarely described before, was a meaningless difference in HPL subscales between single and married participants. Generally being a woman as a wife or mother and a man as a husband or father, increases responsibility. Also having less free time could lead to more fast food consumption and less physical activity (44). This observation could be attributed to the limited number of married students in our research or to an Iranian culture in which before the wedding ceremony the couples must live with their parents although, they are married!

These findings might be somewhat limited by the study design, cross-sectional, therefore the causations cannot be determined. Also, the HPLB of the participants could just investigate short-term. Besides, the sample included only medical students of MUMS and students studying medicine at other universities were not comprised. Thus, the results of this article cannot be extrapolated to other centers or countries. As a further matter, the data collection only relies on self-reporting by the students then has bias. Using a standard questionnaire can be considered as one of the strengths of this study

Further studies on the present topic with more focus on comparison HPLB between native and non-native students for making better policies are recommended.

## Conclusion

The results of this study showed that health-promoting behaviors among students were generally moderate. Stress management was at its best, mental development at its worst. The other aspects of health-promoting behavior were moderate. Differences in the status of various aspects of health-promoting behaviors between

the two sexes require different planning in the two groups.

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## Declarations

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## Ethical Approval

This project was approved by the Ethics Committee of Mashhad University of Medical Sciences.

## Conflict of Interest

The authors declare that there is no conflict of interest respecting all aspects of this research.

Authors' contributions: Study concept and design: Mojtaba Mousavi Bazzaz, Vida Vakili, Gholamreza Haghighi, Data collection: Nafiseh Mousavi Bazzaz, Masoumeh Haghighi, Roya Boujarian, Data analysis, and Expounding: Mojtaba Mousavi Bazzaz, Nafiseh Mousavi Bazzaz, Drafting of the manuscript: Nafiseh Mousavi Bazzaz, Masoumeh Haghighi, Roya Boujarian, Critical revision of the manuscript: Vida Vakili, Gholamreza Haghighi, Supervision: Mojtaba Mousavi Bazzaz, Gholamreza Haghighi.

## References

1. World Health Organization. Global action plan for the prevention and control of noncommunicable diseases 2013-2020. WHO; 2013. [[Google Scholar](#)] [[view at publisher](#)]
2. Tol A, Tavassoli E, Shariferad GR, Shojaeezadeh D. Health-promoting lifestyle and quality of life among undergraduate students at school of health, Isfahan university of medical

- sciences. *J Educ Health Promot.* 2013; 28;2:11. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
3. Bazzaz MM, Taghvaei MR, Salehi M, Bakhtiari M, Shaye ZA. Health System's Responsiveness of Inpatients: Hospitals of Iran. *Glob J Health Sci.* 2015; 26;7(7):106-13. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
4. Condon C, McCarthy G. Lifestyle changes following acute myocardial infarction: patient's perspectives. *Eur J Cardiovasc Nurs.* 2006 ;5(1):37-44. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[Google Scholar](#)]
5. Rakhshani T, Asadi ZS, Akbarzadeh M. Health Promoting Behaviors (HPBs) and the Metabolic Indicators of Red Crescent Society Employees in Iran. *Iran Red Crescent Med J.* 2020; 19;22(2). [[view at publisher](#)] [[DOI](#)] [[Google Scholar](#)]
6. Peaceman AM, Clifton RG, Phelan S, Gallagher D, Evans M, Redman LM, et al. Lifestyle interventions limit gestational weight gain in women with overweight or obesity: LIFE-Moms Prospective Meta-Analysis. *Obesity (Silver Spring).* 2018 ;26(9):1396-1404. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
7. Li Y, Schoufour J, Wang DD, Dhana K, Pan A, Liu X, et al. Healthy lifestyle and life expectancy free of cancer, cardiovascular disease, and type 2 diabetes: prospective cohort study. *BMJ.* 2020; 368:16669. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
8. Mousavi Bazzaz M, Zarifian A, Emadzadeh M, Vakili V. Driving behaviors in Iran: A descriptive study among drivers of Mashhad City in 2014. *Glob J Health Sci.* 2015; 7(7):39-45. [[DOI](#)] [[PMCID](#)] [[Google Scholar](#)]
9. Sassi F, Hurst J. The prevention of lifestyle-related chronic diseases: an economic framework. OECD Publishing. 2008;(32):1 [[Google Scholar](#)]
10. Mohsenipoua H, Majlessi F, Shojaeizadeh D, Rahimiforooshani A, Ghafari R, Habibi V. Predictors of health-promoting behaviors in coronary artery bypass surgery patients: An application of Pender's health promotion model. *Iran Red Crescent Med J.* 2016; 18;18(9):e38871. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
11. Ford ES, Zhao G, Tsai J, Li CJAjoph. Low-risk lifestyle behaviors and all-cause mortality: findings from the National Health and Nutrition Examination Survey III Mortality Study. *Am J Public Health.* 2011; 101(10):1922-9. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
12. Nazari M, Farmani S, Kaveh MH, Ghaem HJGJoHS. The Effectiveness of Lifestyle Educational Program in Health Promoting Behaviors and Menopausal Symptoms in 45-60-Year-Old Women in Marvdasht, Iran. *Glob J Health Sci.* 2016; 8(10):55414. [[DOI](#)] [[PMID](#)] [[Google Scholar](#)]
13. Finn JL, Checkoway BJSw. Young people as competent community builders: A challenge to social work. *Social Work.* 1998; 43(4):335-45. [[DOI](#)] [[Google Scholar](#)]
14. Malik B, Ojha U, Khan H, Begum F, Khan H, Malik Q. Medical student involvement in health policy roles. *Adv Med Educ Pract.* 2017; 8:735-743. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
15. Cecil J, McHale C, Hart J, Laidlaw A. Behaviour and burnout in medical students. *Med Educ Online.* 2014; 19(1):25209. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
16. World Health Organization. Sixty-fourth World Health Assembly: Geneva, 16-24 May 2011: resolutions and decisions, annexes. WHO; 2011. [[view at publisher](#)]
17. Stockert PA. The determinants of a health-promoting lifestyle in older adults. ProQuest Dissertation Publishing. 2000. Saint Louis University, United States. [[Google Scholar](#)] [[view at publisher](#)]
18. Maheri A, Sadeghi R, Shojaeizadeh D, Tol A, Yaseri M, Ebrahimi M. Associations between a health-promoting lifestyle and quality of life among adults with beta-thalassemia major. *Epidemiol Health.* 2016; 38:e2016050. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]

19. Kelly DL, Yang GS, Starkweather AR, Siangphoe U, Alexander-Delpech P, Lyon DE. Relationships among fatigue, anxiety, depression, and pain and health-promoting lifestyle behaviors in women with early-stage breast cancer. *Cancer Nurs.* 2020; 43(2):134-46. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[Google Scholar](#)]
20. Alaeenejad A, Farahaninia M, Janmohammadi S, Haghani H. Relationship between health-promoting behaviors and quality of life in postmenopausal women. *Client-Centered Nurs Care.* 2017; 3(4):269-76. [[view at publisher](#)] [[DOI](#)] [[Google Scholar](#)]
21. Jones E, Kreuter M, Pritchett S, Matulionis RM, Hann N. State health policy makers: what's the message and who's listening? *Health Promot Pract.* 2006; 7(3):280-6. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[Google Scholar](#)]
22. Parsapure R, Rahimiforushani A, Majlessi F, Montazeri A, Sadeghi R, Garmarudi G. Impact of health-promoting educational intervention on lifestyle (nutrition behaviors, physical activity and mental health) related to vaginal health among reproductive-aged women with vaginitis. *Iran Red Crescent Med J.* 2016; 18(10):e37698. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
23. Arani MD, Taghadosi M, Gilasi HR. The effect of education based on BASNEF Model on lifestyle in patients with hypertension. *Iran Red Crescent Med J.* 2017; 19(11):e40731. [[DOI](#)] [[Google Scholar](#)]
24. Abdollahi L, Mirghafourvand M, Kheyradin JB, Mohammadi M. The Effect of Cognitive Behavioral Therapy on Depression and Obesity in Women with Polycystic Ovarian Syndrome: A Randomized Controlled Clinical Trial. *Iran Red Crescent Med J.* 2018; 20(3). [[DOI](#)] [[Google Scholar](#)]
25. Torabi Chafjiri R, Sum S, Shirinkam F. The Effect of Health Promoting Lifestyle Training on Elderly Happiness. *JOGE.* 2020; 5(1):10-12. [[view at publisher](#)] [[Google Scholar](#)]
26. Balwan WK, Kour S. Lifestyle Diseases: The Link between Modern Lifestyle and threat to public health. *Saudi J Med Pharm Sci.* 2021; 7(4):179-84. [[DOI](#)] [[Google Scholar](#)]
27. Sharifi-Rad M, Anil Kumar NV, Zucca P, Varoni EM, Dini L, Panzarini E, et al. Lifestyle, oxidative stress, and antioxidants: Back and forth in the pathophysiology of chronic diseases. *Front Physiol.* 2020; 11:694. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[Google Scholar](#)]
28. Sharifi-Rad J, Rodrigues CF, Sharopov F, Docea AO, Can Karaca A, Sharifi-Rad M, et al. Diet, lifestyle and cardiovascular diseases: linking pathophysiology to cardioprotective effects of natural bioactive compounds. *Int J Environ Res Public Health.* 2020; 17(7):2326. [[view at publisher](#)] [[DOI](#)] [[PMID](#)] [[PMCID](#)]
29. Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi BJJOMUoMS. Reliability and validity of Persian version of the health-promoting lifestyle profile. *J Mazandaran Univ Med Sci.* 2012; 21(1):102-113. [[view at publisher](#)] [[Google Scholar](#)]
30. Pouresmaeil M, Shahrokhi A, Hosseinzadeh K, Ziapour A, Rahimi F. Presence in virtual social networks and health promoting behaviors of medical students. *J Public Health (Berl.).* 2020;14:1-7. [[view at publisher](#)] [[DOI](#)] [[Google Scholar](#)]
31. Alzahrani SH, Malik AA, Bashawri J, Shaheen SA, Shaheen MM, Alsaib AA, et al. Health-promoting lifestyle profile and associated factors among medical students in a Saudi university. *SAGE Open Med.* 2019 Mar 25; 7:2050312119838426. [[DOI](#)] [[PMID](#)] [[PMCID](#)] [[ISIGoogle Scholar](#)]
32. Mašina T, Kraljić V, Musil V. Physical activity and health-promoting lifestyle of first and second year medical students. *Paediatrics Today.* 2016; 12(1):160-8. [[DOI](#)] [[Google Scholar](#)]
33. 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. [[DOI](#)] [[PMID](#)] [[Google Scholar](#)]



34. Amiri M, Khosravi A, Aboozarzadeh N, Khojasteh L, Sadeghi Z, Raei M. Investigation of Health-Promoting Lifestyle and its Determinants Among Students of Medical Sciences in Iran. *Open Public Health J.* 2020; 13(1):627-33. [DOI] [Google Scholar]
35. Agh Babak Maheri, Mohammad-Nabi Bahrami, Roya Sadeghi. The Situation of Health-Promoting Lifestyle among the Students Living in Dormitories of Tehran University of Medical Sciences, Iran. *Health and Devel J.* 2012; 1(4):275-286. [view at publisher] [Google Scholar]
36. Fenech C. A survey of medical students attending an international student conference. *IJCRIMPH.* 2012; 4(6):1215-22. [view at publisher] [Google Scholar]
37. Nisar N, Qadri MH, Fatima K, Perveen S. Dietary habits and life style among the students of a private medical university Karachi. *J Pak Med Assoc.* 2008; 58(12):687-90. [Google Scholar]
38. Mašina T, Madžar T, Musil V, Milošević M. Differences in Health-Promoting Lifestyle Profile among Croatian Medical Students According to Gender and Year of Study. *Acta Clin Croat.* 2017 ; 56(1):84-91. [DOI] [PMID] [Google Scholar]
39. 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. [DOI] [PMID] [PMCID] [Google Scholar]
40. Hussein AA, Younis NM, Ahmed MM. Health Promoting Lifestyle Profile among Nursing Students in Mosul University. *Int J Psychosocial Rehabilitation.* 2020; 24(09):1916-20. [Google Scholar]
41. Pew R. The age gap in religion around the world. Epub ahead of print. 2018; 13. [Google Scholar] [view at publisher]
42. Poursmaeil M, Abbas J, Solhi M, Ziapour A, Fattahi E. Prioritizing health promotion lifestyle domains in students of Qazvin University of Medical Sciences from the students and professors' perspective. *J Educ Health Promot.* 2019; 8:228. [Google Scholar]
43. Sattar A, Ehsan S, Mahmood T, Khalil R, Arshad S. Physical activity and health-promoting practices among female medical students. *Isra Med J,* 2019; 11(4 Pt B):334-7. [Google Scholar]
44. 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; 7:65. [DOI] [PMID] [PMCID] [Google Scholar]
45. Pakseresht S, Rezaei K, Pasha A, KazemNejad Leili E, Hasandoost F. Health promoting lifestyle among students at Guilan University of Medical Sciences. *J Holist Nurs Midwifery.* 2017; 27(1):19-26. [DOI] [Google Scholar]
46. Leung YS, Lee JJW, Lai MMP, Kwok CKM, Chong KC. Association between obesity, common chronic diseases and health promoting lifestyle profiles in Hong Kong adults: a cross-sectional study. *BMC Public Health.* 2020; 20(1):1624. [view at publisher] [DOI] [PMID] [PMCID] [Google Scholar]

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