Original Article

Lifestyle of students at Tehran University of Medical Sciences during corona epidemic: A cross-sectional study

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Abstract

Background and purpose: There is concern that students may have an unhealthy lifestyle as a result of changes that occurred during corona conditions, so this study aimed to determine the status of the lifestyle and its relationship with the demographic characteristics of postgraduate students during the corona span.

Material and Methods: This cross-sectional study was conducted at Tehran University of Medical Sciences in 2020. The link to the online Health-Promoting Lifestyle Questionnaire Profile2 was sent to conduct the research. To examine the relationships between the mean scores of health-promoting lifestyle and different variables, an independent samples t-test was applied in the case of dichotomous demographic variables (gender, education level, and income-generating activity), while a one-way analysis of variance test was used to evaluate the multilevel demographic variables (marital status, place of residence, and faculty). The Pearson correlation coefficient was also used for testing age.

Results: Of the sample 240, (75.4%) were female and 145 of them, (60.4%) were single. The mean age of them was 32.21±7.45.45 years old. The lifestyle total score was 138.28± 21.18 at the average level. The highest score was related to spiritual growth (26.93±5.01), whereas the lowest score was reported on physical activity (16.92±5.17). The difference between the mean of health-promoting lifestyle was not significant in terms of demographic variables.

According to the results, a statistically significant difference was observed between male and female students in the field of nutrition. Also, students were significantly different in nutrition domain regarding students' residence (p-value <0.05). Spiritual growth was significantly different among students in terms of marital status (p-value <0.05).

Conclusion: Although the mean score of health-promoting lifestyle was not different from other studies, further studies are proposed to plan health interventions in accordance with epidemic conditions for students.

Keywords: COVID-19; Demography; Health Promotion; Student; Life Style
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1. *Introduction*

A healthy lifestyle may lead to more wellbeing and happiness, in contrast, an unhealthy lifestyle may lead to illness and diseases (1). The reason for the importance of lifestyle in health is the change in the nature of diseases from communicable to non-communicable (2) commonly known as lifestyle-related diseases (3). In 2010, the World Health Organization (WHO) reported that non-communicable diseases (NCDs) are largely driven by four behavioral risk factors: smoking, unhealthy diet, inadequate physical activity, and alcohol overuse (4). According to the WHO of the 38 million annual deaths from NCDs, more than 40% are premature and preventable (5). By 2025, NCDs will account for more than 70% of all deaths worldwide, with 85% occurring in developing countries (5).

Health-promoting lifestyles are the practices and beliefs that people adopt to maintain health and prevent diseases (6). It is one of the substantial criteria that determines preventive health threats (7) and includes more than disease prevention. It is also characterized by behaviors that complement a healthy lifestyle (4). Some of the most important health-promoting behaviors include having a personal health responsibility (1), utilizing health services (8), having healthy food and regular exercise, avoiding unhealthy behaviors and drug abuse, having safety against accidents, early detection of physical symptoms of diseases, control of feelings, emotions, and thoughts, coping with stress and psychological problems, regulating interpersonal relationships from social aspects, weight control, being non-smoking and not drinking alcohol, immunity against diseases, as well as sufficient time for rest and sleep(1, 4, 8-13). Health-promoting lifestyle behaviors are defined as "a multi-dimensional pattern of self-initiated actions and perceptions performed to maintain or promote well-being and self-actualization" (14). Health-promoting behaviors were classified by Walker et al. into six areas: health responsibility, stress management, nutrition, spiritual growth, physical activity, and interpersonal relationships (14).

Risk factors for NCDs often begin early in life and continue into adulthood. One of the most critical periods in a person's life is the studentship period, which is a dynamic and transitional period. This period can be a good opportunity to create a health-promoting lifestyle or, in contrast, a threat to an unhealthy lifestyle.

Previous studies have reported health-promoting behavior among undergraduate students or differences between those in medical and non-medical schools. However, few studies have been conducted among postgraduate medical students. In Iran, several studies have demonstrated that the average lifestyle score reported by university students was moderate (1, 7-9, 12, 15-17).

By considering the changes that happened during the corona conditions, there is a concern that many students might experience a wide range of unhealthy habits. A meta-analysis showed that anxiety and depression are quite prevalent. This study also found a high pooled prevalence of stress, posttraumatic stress disorder, and impaired sleep quality among college students during COVID-19. According to the articles, nutrient and caloric intake and physical activity levels decreased, while alcohol intake and sedentary activity significantly increased (18). A systematic review reported that moderate vigorous

walking and total physical activity levels have been reduced during the COVID-19 pandemic in university students of different countries (19).

As such, investigating the students' health-promoting behaviors and their contributing factors can be regarded as a priority for preventive efforts and control of future NCDs.

The purpose of educating postgraduate students in medical schools is to raise their awareness and knowledge as those students can add value to attaining a healthy society through being role models for adopting a healthy lifestyle. Medical students need to be trained in a way that enables them to empower people to make informed decisions about their health. It is assumed that raising the awareness of people about healthy behavior is necessary to enhance their health status. Therefore, this study aimed to determine the health-promoting lifestyle of postgraduate students at Tehran University of Medical Sciences (TUMS) during the corona epidemic.

2. *Material and Methods*

This article is part of a larger study entitled "Study of the relationship between the use of virtual social networks and health-promoting lifestyle among postgraduate students at TUMS. This cross-sectional study was conducted from August to November 2020 among postgraduate students (Master and Ph.D.) at TUMS. Postgraduate students at TUMS were invited to take part in the study through virtual social networks like Telegram and WhatsApp. The students' participation was voluntary and they were assured that their anonymity would be maintained. Written consent was provided on the first page of the questionnaire. The ethical approval was granted by the ethics committee of TUMS (School of Medicine, approval ID: IR.TUMS.MEDICINE.REC. 1399.208, approval date:2020-07-04)

The sample size was estimated according to a similar study(20) considering the error of the first type ($\alpha = 0.05$) and the error of the second type ($\beta = 0.2$ of 80% power). Accordingly, the sample size was 200. According to the number of students in each faculty and the total number of students, the ratio of student for each degree and faculty was calculated. Since the questionnaire was sent online, the number of students who welcomed the study could not be controlled. 282 students completed the questionnaire. A total of 240 questionnaires were then included for analysis after the removal of the incomplete and repetitive questionnaires. Therefore, the number of questionnaires collected was more than the estimated sample size, but none of them were removed.

In normal circumstances, Iranian universities are closed from August to September (summer holiday), as the academic year begins in October. Exceptionally, in Corona pandemic, universities were closed in October and November, hence, students went to the university only in urgent conditions. Postgraduate students at TUMS were invited to take part in the study through virtual social networks, such as Telegram and WhatsApp.

The Health-Promoting Lifestyle Profile II (HPLP-II) online questionnaire (Persian version) was used to assess health-promoting lifestyle habits. Reliability and validity have been studied by Mohammadi Zeidi et al. 2012(21). The questionnaire consists of six domains, including 52 items, namely: health responsibility (9 items), physical activity (8 items), nutrition (9 items), spiritual growth (9 items),

interpersonal relations (9 items), and stress management (8 items).

The questionnaire was developed on a four-point Likert scale (Never=1, Sometimes=2, Often=3, Always=4). The reference values for evaluating the lifestyle were as follows: (≤(102)49% = weak, (103-156)50-74% =medium, >(156) 75% =good. The minimum score in this questionnaire was 52 (the lowest level) and the maximum was 208 (the highest level).

Also, students who scored ≤18 in the areas of responsibility for health, nutrition, spiritual growth, and interpersonal relationships were in the weak range, those who scored in the range of 19-27 were in the moderate range, and those who scored more than 27 were in the good range. The students who scored 16≤ in the areas of physical activity and stress management were in the weak range, those who scored in the range of 17-24 were in the moderate range, and those who scored more than 24 were in the good range.

Various sociodemographic characteristics, such as education level (Master or PhD), age, gender, marital status, name of the faculty, place of residence, and income-generating activity were assessed, as well.

After completing the questionnaires, the data was entered into SPSS Software, version 26. To examine the relationship between the mean scores of health-promoting lifestyle demographic variables, an independent samples t-test was applied to the dichotomous variables (gender, level of education, and income-generating activity), the Pearson correlation coefficient was used to examine age, and a One-way analysis of variance test (ANOVA) was used to evaluate the multilevel demographic variables (marital status, place of residence, and school of study). All values were considered statistically significant when $p < 0.05$.

3. *Results*

In the present study, 240 master and PhD students participated in equal numbers (50% each). The results showed that the mean age of students was 32.21±7.45 years old. Of the sample, 181 (75.4%) were female students, 141 (60.4%) were single and 92 (38.3%) were married, whereas, only 3 (1.3%) were divorced. Of the 240, 59.24% were from the School of Public Health, while 3.3% were from the School of Dentistry. 138 (57.5%) of the participating students were living with their families. Also, 131(54.6%) of them had income-generating activity (Table1).

Table 1. Distribution of participants according to their demographic variables

Variables		Frequency (n)	Percentage (%)
Age	<28	90	37.5
	29-38	102	42.5
	39-48	39	16.3
	49-59	9	3.8
Gender	Male	59	24.6
	Female	181	75.4
Marital status	Single	145	60.4
	Married	92	38.3
	Divorced & widowed	3	1.3
	Dormitory	76	31.7
Faculty	Nutritional sciences and dietetics	16	6.7
	Virtual School	12	5
	School of Medicine	39	16.3
	Public Health	59	24.6
	Nursing and Midwifery	28	11.7
	Allied Medical Sciences	19	7.9
	Advanced Technologies in Medicine	15	6.3
	Dentistry	8	3.3
	Pharmacy	15	6.3
	Persian Medicine	7	2.9
	Rehabilitation	14	5.8
	Other	8	3.2
Residence	Family	138	57.5
	Private houses	17	7.1
	With friends	3	1.3
	Others (unknown)	6	2.5
Income-generating activity	Yes	131	54.6
	No	109	45.4

As shown in Table 2, the total score of students' lifestyle was medium (138.28±21.18). The highest score was related to the dimension of spiritual growth (26.93±5.01), whilst the lowest score was related to the physical activity dimension (16.92±51.17). Out of the 240 students, 10 (4.2%) had weak and 182 (75.8%) had moderate lifestyle, while it was good among 48 (20%) students.

Table 2. Evaluation of the mean scores of health-promoting lifestyle and dimensions among the students

Variable	Mean ± SD	Weak		Moderate		Good	
		Frequency (n)	**Percentage (%)**	**Frequency (n)**	**Percentage (%)**	**Frequency (n)**	**Percentage (%)**
Total score	138.28±21.18	10	4.2	182	75.8	48	20
Responsibility for health	23.07±4.70	37	15.4	163	67.9	40	16.7
Nutrition	25.08±4.15	13	5.4	156	65	71	29.6
Spiritual growth	26.93±5.01	15	6.3	115	47.9	110	45.8
Interpersonal relationships	26.30±4.14	7	2.9	132	55	101	42.1
Physical activity	16.92±5.17	120	50	97	40.4	23	9.6
Stress management	19.95±4.09	44	18.3	166	69.2	12.5	30

In examining the relationship between the mean scores of health-promoting lifestyle and demographic variables, the differences in lifestyle scores were not statistically significant regarding education level (p=0.78), age (r=0.52, p=0.42), gender (p= 0.53), marital status (p = 0.280), faculty (p=0.225), residence (p=0.105), and income-generating activity (p = 0.27).

Furthermore, the correlations between lifestyle domains were examined. The results showed that the differences in domains were not statistically significant regarding educational level, age, faculty, and income-generating activity.

According to the results, a statistically significant difference was observed between male and female students in the field of nutrition. Females had greater scores than males in nutrition scale (p-value <0.05)(See Table 3).

Table 3. Comparison of mean score of lifestyle domains based on gender

Variable	Marital status		t-test (p-value)
Domains	**Means ± SD**		
	Male	**Female**	
Responsibility for health	22.33±5.01	23.32±4.58	p=0.164
Nutrition	24.10±4.47	25.40±4.01	p=0.036
Spiritual growth	27.01±4.82	26.91±5.09	p=0.889
Interpersonal relationships	25.54±4.28	26.54±4.08	p=0.106
Physical activity	17.71±5.42	16.67±5.08	p=0.182
Stress management	20.06±4.50	19.91±3.96	p=0.807

As shown in Table 4, a statistically significant difference was observed between students in the nutrition domain and students' residence (p-value <0.05). Then, the Lsd post hoc test was used to examine the differences between the groups. In the field of nutrition, there was found a statistically significant difference between the students who lived at home with their families and those students who lived alone in a personal home (p-value =0.009; Mean Difference: 2.77)

Table 4. Comparison of mean score of lifestyle domains based on place of residence

Variable	Place of residence					ANOVA (p-value)
Domains	Means ± SD					
	Dormitory	**House with the family**	**Personal house**	**House with friends**	**Others**	
Responsibility for health	22.90±5.01	23.36±4.72	21.70±3.77	23.33±2.51	22.50±3.08	p=0.711
Nutrition	24.85 ±4.15	25.65±4.16	22.87±3.37	21.33±2.51	23.00±3.74	p=0.020
Spiritual growth	27.14±5.24	27.13±5.03	25.52±4.10	25.33±0.57	24.66±5.04	p=0.527
Interpersonal relationships	26.34±4.34	26.66±4.07	24.82±3.74	23.33±2.30	23.00±2.82	p=0.071
Physical activity	17.67±5.68	16.89±5.02	14.29±3.78	15.33±5.50	16.5±3.83	p=0.178
Stress management	20.64±4.00	19.90±4.19	18.29±3.40	18.66±5.13	17.66±2.58	p=0.128

As you can see in Table 5, among the domains of lifestyle, the domain of spiritual growth was significantly different among students in terms of marital status (p-value <0.05). The results showed that the mean score of spiritual growth among married students was more than the other two groups. According to the post hoc LSD test, there was a statistically significant difference in the domain of spiritual growth between students who were married and those students who were divorced or widowed (p-value=0.023; Mean Difference: 6.65)

Table 5. Comparison of mean score of lifestyle domains based on marital status

Variable	Marital status			ANOVA (p-value)
Domains	Means ± SD			
	Single	**Married**	**divorced /widowed**	
Responsibility for health	22.79±4.71	23.64±4.55	19.66±7.57	p=0.180
Nutrition	24.79±4.17	25.57±4.12	24.33±4.04	p=0.352
Spiritual growth	26.60±4.88	27.65±5.01	21±7.93	p=0.035
Interpersonal relationships	26.09±4.25	26.77±3.89	21.66±4.16	p=0.071
Physical activity	16.93±5.12	17.79±5.28	14.66±5.85	p=0.746
Stress management	20.26±3.89	19.42±4.30	21±7	p=0.274

4. *Discussion*

The level of total lifestyle score was medium (150.64±16.46) based on the average scores of health-promoting lifestyle among students. According to the report, this suggests the necessity for a specific plan to enhance the lifestyle of postgraduate students. Despite the fact that this study was conducted during the Corona pandemic, the results were similar to the results stated in other Iranian studies (1, 7, 9, 15-17, 22-24) and a few other studies in other countries (4, 13, 25-30) before Corona condition. Borle et al., 2017 reported that student health-promoting activities were moderate in their study; however, none of the nursing students reported poor score, and a good level was appraised by more than 70% of them (31). Ashgar 2021 evaluated the effect of the COVID-19 on health-promoting behaviour among adults in Jazan, Saudi Arabia, where

participants were reported to be "sometimes" engaged in health promoting behavior (32). The spiritual growth category received the highest score in the current study's health-promoting lifestyle categories. On the other hand, physical activity had the lowest grade, highlighting universities as an environment that may promote health, and support relevant activities. Tol and et al., rated the highest-performing categories as "spiritual growth" and "responsibility" in 2013 (33). In most other surveys, students regarded spiritual growth as the most important component (9, 22, 24, 34, 35), whereas Ziapour et al. 2017 found that physical activity was the highest at its level (17), and Sharifi et al., 2020 discovered that nutrition and physical activity were the highest-reported domains (7).

Our findings were comparable with those of other research in Iranian context in terms of the lowest score related to physical activity (1, 8, 9, 22, 24, 33-36). This indicated a lack of proper physical activity, common among Iranian students, which may be due to time constraints associated with their busy schedules, lack of desire to work out, and the interest in exercise habits and mobility, and limited access to sports facilities, in addition to specific corona conditions, such as staying at home with restricted travel activities, and an increase in online and virtual education and shopping, all of which contribute to the sedentary lives of students. As a result, because physical activity is one of the most important variables impacting health and the prevention of chronic illnesses, greater attention should be devoted to this dimension, and appropriate solutions to meet this gap should be suggested.

Our results were consistent with a number of other research in that spiritual growth was ranked as the highest-performing domain (4, 13, 25-27, 29, 30, 37-39), whereas physical activity was rated as the lowest domain in its score (4, 11, 13, 26, 27, 29, 30, 37-40). The mean ratings of physical activity and responsibility were both the lowest in the investigations of Naçar et al., 2015 and Joys, 2019.(10, 25).

In the research of Ashgar 2021, spiritual growth was the most frequently performed dimension, which was reported as 'often', while physical exercise was the least practiced, which was reported as 'never'(32). Since physical activity among students is poor in many nations, health officials must plan carefully, as well as improve collaboration across institutions to execute health initiatives with student involvement.

The findings of the current study were inconsistent with those of Al-Qahtani 2017 in which female students scored lower on nutritional behaviors than male students(27). Accordingly, these results require further investigation by researchers. The results also revealed a statistically significant difference in the nutrition domain according to the students' place of residence. Nutrition ratings were the greatest among students who lived with their families and lowest among students who lived with friends, and there was a statistically significant difference between students who lived at home with their families and students who lived alone in a personal home. Bakouei et al., 2018 showed that students who lived with their families had significantly better eating habits than those who were in dorms (15).

In the study of Mehri et al., 2016, there was found a statistically significant difference in diet based on accommodation conditions. The mean nutritional score was the highest among students living with their parents. (1). The current research has some limitations. One of these constraints was the difficulty in obtaining reliable information regarding income-generating activity because PhD students are typically not permitted to work throughout their studies. As a result, characteristics including income level and family income should be studied further in future studies.

Another issue to consider was the limited access to students during the Corona outbreak; as a result, it was simpler to include postgraduate students, who were few, by coordinating and cooperating with various university departments in submitting online questionnaires via official sites. Given the recent replacement of paper-based questionnaires by online questionnaires, creating a comprehensive and secure system for researchers to use to design their questionnaires and use various methods such as sending links and sharing questionnaires in the virtual network can reduce the costs and time required for conducting research.

In summary, having the best level of health standards is one of the basic rights of every human. Community aging, which is characterized by an increase in the incidence of chronic illnesses and debilitating disorders, necessitates a focus on people's lifestyles that promote health and its determinants. Enhancing a healthy lifestyle resulting from person-centered design is the key to building healthy communities. In this sense, creating supportive environments is an opportunity to maintain and strengthen healthy individual behavior and social functioning in this regard. Therefore, it is worthwhile to review health promotion experiences at medical universities, use the proposed frameworks and guidelines for healthy universities, and engage students, staff and faculty members with the aim of planning, implementing and evaluating health promotion programs. Unlike other studies performed in corona conditions, our study did not show that students' lifestyles were deteriorated, so the authors recommend conducting more detailed research. It seems that planning for students' lifestyles should be more important in accordance with the new conditions.

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Conflicts of Interest

The authors have no conflicts of interest associated with the material presented in this paper.

References

1. Mehri A, Solhi M, Garmaroudi G, Nadrian H, Sighaldeh SS. Health Promoting Lifestyle and its Determinants Among University Students in Sabzevar, Iran. International journal of preventive medicine. 2016;7,:65.
2. Solhi M, Fard Azar FE, Abolghasemi J, Maheri M, Irandoost SF, Khalili S. The effect of educational intervention on health-promoting lifestyle: Intervention mapping approach. Journal of education and health promotion. 2020;9,:196.
3. World Health Organization. Noncommunicable diseases,Diseases: Regional Office for the Eastern Mediterranean; [Available from: http://www.emro.who.int/noncommunicable-diseases/diseases/diseases.html.
4. Polat Ü, Özen Ş, Kahraman BB, Bostanoğlu H. Factors Affecting Health-Promoting Behaviors in Nursing Students at a University in Turkey.

Journal of transcultural nursing : official journal of the Transcultural Nursing Society. 2016;27(4):413-9.
5. Kassa M, Grace J. The Global Burden and Perspectives on Non-Communicable Diseases (NCDs) and the Prevention, Data Availability and Systems Approach of NCDs in Low resource Countries. In Public Health in Developing Countries—Challenges and Opportunities; IntechOpen: London, UK, 2020.
6. 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 Pacific journal of cancer prevention. 2014;15(20):8969-74.
7. Sharifi N, Sharifi F, Amel Barez M, Esmaily H. Assessment of Health-Promoting Lifestyle in Female Students. Journal of Midwifery and Reproductive Health. 2020;8(3):2303-9.
8. Esmaeilli A, Salem Z, Shikh Fatholahi M, Rezaeian M, Ebrahiminejad S. Assessment of health-promoting lifestyle in medical students of Rafsanjan University of Medical Sciences, Iran, in 2014. Journal of Occupational Health and Epidemiology. 2015;4(1):19-25.
9. Montazeri N, Kianipour N, Nazari B, Ziapour A, Bakhshi S. Health promoting behaviors among university students: A case-sectional study of Kermanshah University of Medical Sciences. International Journal of Pediatrics. 2017;5(6):5091-9.
10. Joys B, Yanzom D. Health Promoting Lifestyle Practices: A Comparative Study on Health and Non-Health Professional Students. Indian Journal of Public Health Research & Development. 2019;10(7):1337-42.
11. Ravi Sankar D, Srinivasa Sujith Kumar D, Anju Damu A, Bhavani Y, Naga Vishnu K, Suleman Mahammad S. Assessment of health promoting life styles among the under graduate students of Sri Venkateswara Institute of Medical Sciences University, Tirupati, Andhra Pradesh. Public Health Review: International Journal of Public Health Research. 2017;4(5):112-6.
12. Pasha A, Pakseresht S, Rezaie K, Rezaie S, KazemNejad E. Comparison of Health Promoting Lifestyle in Guilan Medical and Non-Medical Sciences Students. Journal of Research Development in Nursing and Midwifery. 2018;15(1):45-52.
13. Bhuiyan M, Sheng JWK, Ghazali FHB, al Mughasbi FGA, Arnous MK, Maziz MNH, et al. Health-promoting lifestyle habits among preclinical medical students. Pak J Med Health Sci 2017;11(2):490-5.
14. Walker SN, Sechrist KR, Pender NJ. The Health-Promoting Lifestyle Profile: development and psychometric characteristics. Nurs Res. 1987;36(2):76-81.
15. Bakouei F, Jalil Seyedi-Andi S, Bakhtiari A, Khafri S. Health Promotion Behaviors and Its Predictors Among the College Students in Iran. International Quarterly of Community Health Education. 2018;38(4):251-8.
16. Mehdizadeh S, Abbasi S, Kamali K. Comparison of Health-promoting Life Styles among Medical and Non-medical Students in Zanjan during 2016-2017. Preventive Care In Nursing and Midwifery Journal. 2018;8(2):50-7.
17. Ziapour A, Khatony A, Jafari F, Kianipour N. A Study of Students' Health-Promoting Lifestyles at Kermanshah University of Medical Sciences, Iran. Global journal of health science. 2016;9(4):50-6.
18. Batra K, Sharma M, Batra R, Singh TP, Schvaneveldt N. Assessing the Psychological Impact of COVID-19 among College Students: An Evidence of 15 Countries. Healthcare (Basel, Switzerland). 2021;9(2): 222.
19. López-Valenciano A, Suárez-Iglesias D, Sanchez-Lastra MA, Ayán C. Impact of COVID-19 Pandemic on University Students' Physical Activity Levels: An Early Systematic Review. Frontiers in psychology. 2020;11(3787):1-10.
20. Eydi Zade R, Ahmadi Blotaki HM. The relationship between the usage of what's app and telegram social networks and life style social sciences' students in science and research branch. Sociological studies. 2018;11(38):43-60.
21. Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi B. Reliability and validity of Persian version of the health-promoting lifestyle profile. Journal of Mazandaran University of Medical Sciences. 2012;21(1):102-13.
22. Rezaei Z, Ghaderi N, Noori E, Noori B, Safari O, Pashaei T. Study of the Health-Promoting Lifestyle status of Students that Living in dormitories of Kurdistan University of Medical Sciences in 2016. Rahavard Salamat Journal. 2017;3(1):1-12.
23. Maheri AB, Bahrami MN, Sadighi R. The situation of health-promoting lifestyle among the students living in dormitories of Tehran University of Medical Sciences, Iran. Journal of Health and Development. 2013;1(4):275-86.
24. Pouresmaeil M, Shahrokhi A, Hosseinzadeh K, Ziapour A, Rahimi F. Presence in virtual social networks and health promoting behaviors of medical students. Journal of Public Health. 2020.
25. Naçar M, Çetinkaya F, Baykan Z, Zararsiz G, Yilmazel G, Sağiroğlu M. Health related lifestyle behaviors among students at a vocational education center in Turkey. Health. 2015;7(11):1536-44.
26. Geok SK, Yusof A, Lam SK, Japar S, Leong OS, Fauzee MSO. Physical Activity and Health-Promoting Lifestyle of Student Nurses in

Malaysia. Journal of Biosciences and Medicines. 2015;03:78-87.
27. Al-Qahtani M. Assessing healthy lifestyles in female university students: Eastern province, Saudi Arabia. Saudi Journal for Health Sciences. 2017;6(3):169-75.
28. 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 Medicine. 2019;7:1-7.
29. Chanada N, Nandasena H, Amarasinghe T. Health Promoting Lifestyle and its associated factors among Undergraduate Students in Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka. 13th International Research Conference; Rathmalana, Colombo2020.
30. Sahu M, Gandhi S, Kumar Sharma M, Marimuthu P. Social media use and health promoting lifestyle: an exploration among Indian nursing students. Investigacion y educacion en enfermeria. 2020;38(2):e12.
31. Borle P, Parande M, Tapare V, Kamble V, Bulakh P. Health-promoting lifestyle behaviours of nursing students of a tertiary care institute. International Journal Of Community Medicine And Public Health. 2017;4(5):1768-73.
32. Ashgar RI. Health-promoting behaviour during the COVID-19 pandemic among Saudi Adults: A cross-sectional study. Journal of advanced nursing. 2021.
33. 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. Journal of education and health promotion. 2013;2:29-32.
34. Hosseinnejad M, Klantarzadeh M. Study of lifestyle based on the Pender's Health Promotion model among students of Islamic Azad University. Iranian Journal of Health Education and Health Promotion. 2014;1(4):15-28.
35. Motlagh Z, Mazloomy-Mahmoodabad S.S, Momayyezi M. Study of Healthpromotion behaviors among university of medical science students. Zahedan Journal of Research in Medical Sciences. 2011; 13(4): 29-34.
36. Khazaie T, Khazaie T, Kianfar S, Jamshydizadeh L. Health-promoting Behavior Factors Among Students of Birjand University of Medical Sciences. Iranian Journal of Health Education and Health Promotion. 2015;3(2):125-32.
37. Al-Qahtani MF. Comparison of health-promoting lifestyle behaviours between female students majoring in healthcare and non-healthcare fields in KSA. Journal of Taibah University Medical Sciences. 2019;14(6):508-14.
38. Shaheen A, Nassar O, Amre H, Hamdan-Mansour A. Factors Affecting Health-Promoting Behaviors of University Students in Jordan. Health. 2015;7,:1-8.
39. Almutairi KM, Alonazi WB, Vinluan JM, Almigbal TH, Batais MA, Alodhayani AA, et al. Health promoting lifestyle of university students in Saudi Arabia: a cross-sectional assessment. BMC Public Health. 2018;18(1):1093.
40. Wan Mohd Nazri WNFSG, Hasanain Faisal Elnajeh, Maged. Health Promoting Lifestyle and its Associated Factors among Private University Students in Shah Alam, Selangor. Indian Journal of Public Health Research & Development. 2019;10(2):636-41.