



Students' Health Promoting Behaviors: A Case Study at Shiraz University of Medical Sciences

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Abstract

Background: One of the most important factors determining the health of individuals is their health promoting behaviors.

Objectives: This study was conducted to investigate the status of health promoting behaviors of students at Shiraz University of Medical Sciences.

Methods: This cross-sectional descriptive-analytical study was conducted on 370 students of Shiraz University of Medical Sciences, during year 2017. Data were collected through a standard health-promoting lifestyle questionnaire that was designed with 10 dimensions (physical health, exercise and wellbeing, weight and nutrition control, disease prevention, psychological health, spiritual health, social health, refrain from drug, accident prevention and environmental health with a total of 70 questions). Data were analyzed using descriptive statistics, T-test, analysis of variance (ANOVA), and Pearson's correlation coefficient by the SPSS software, version 23, at a significance level of $\alpha = 0.05$.

Results: The mean score of total health promoting behaviors was evaluated as 4.70 ± 1.20 , which was in a good range. Avoiding medicines and drugs (5.14 ± 1.08) had the highest and exercise and health (4.07 ± 1.50) had the lowest mean score. There was a positive and significant correlation between all components of health promoting behaviors ($P < 0.05$). There was a significant differences between demographic variables, such as gender ($P = 0.04$) and university entrance year ($P = 0.00$), and total health promoting behaviors.

Conclusions: The status of health promoting behaviors was estimated to be desirable. Also, holding health education programs focusing on exercise and health in academic settings is recommended.

Keywords: Health Promoting Behaviors, Student, University of Medical Sciences

1. Background

Health depends on social factors, awareness, and personality traits. One of the main causes of emphasis on these factors is the fact that people play a very important role in the health and well-being of the society (1). In other words, health is a basic human need and foundation of successful performance of individuals and the society (2). Nowadays, throughout the world, there is an attempt to expand health by planning and educating members of the society instead of focusing solely on therapeutic strategies (1, 3). In fact, the health profession that had previously focused on treatment of the disease is now focusing on prevention and health through lifestyle improvement and the removal of factors that have a negative impact on human health (4).

Research indicates that many problems are rooted in people's lifestyles and health behaviors. Putting health promoting behaviors into action is one of the best ways, by which people can maintain and control their health (1, 3). In fact, health promoting behaviors are one of the most important determinants of health and the underlying reason for not being affected by many diseases. In addition, health promotion and disease prevention are directly related to these behaviors (4, 5). Pender defines health promoting behaviors as any action that increases or maintains the level of health and self-reliance of an individual or group. He also points out that health promoting behavior expresses the person's desire for excellence and leads to favorable well-being, individual evolution, and creative life. It is also a multidimensional model of voluntary and perceptual actions that maintains and increases

the level of health, self-reliance, and success (6, 7). Following these behaviors is very important, and according to research, about 70% of illnesses are associated with individual's lifestyle. Some cardio-pulmonary and musculoskeletal disorders and other diseases are directly or indirectly associated with the individual's lifestyle (8). According to the world health organization (WHO), nearly 60% of quality of life and health of individuals depends on their personal behaviors (9) and 53% of mortality is attributed to health and lifestyle behaviors (10, 11).

Despite the fact that young people play an important role in shaping the future generation and promoting health within the society, they are not considered a priority in worldwide health promoting efforts as they are considered to be in a relatively healthy stage of life (12). However, they rarely think about life or social skills to manage their health or emotions, and they may become upset if they are not assigned self-care responsibilities, or may feel depressed when facing problems (13). One of the critical periods at this age is student life, which is a dynamic transitional period (4). In this period, young people gradually accept their health responsibilities with their physical, psychological, social, and sexual development. This transitional period is the best time to develop healthy behaviors (4). On the other hand, admission to the university is accompanied by excitement, which can influence mental, psychological, and physical health of young people (14).

During student life, individuals may develop mental health issues in certain circumstances, which affects their educational performance and may have subsequent outcomes (5). Therefore, students should be aware of proper health behaviors so that they can obtain a healthy lifestyle and apply it to improve their health and quality of life (15). Worldwide, studies have indicated that many students are involved in high-risk behaviors, such as alcohol consumption, tobacco, physical immobility, and inappropriate diet (16). In a study by Rozmus et al. at southern Alabama universities, investigating health and high-risk behaviors among male students, it was revealed that 32% of the subjects were overweight, 25% had driving experience after drinking alcohol, 12% were smokers, 27% used marijuana, and 34% were sexually active (17).

Considering the importance of this issue, the need to identify factors affecting the acceptance of healthy behaviors in the student population, the difficulty of changing unhealthy habits accepted during adolescence in adulthood (18, 19), and also considering the fact that limited studies have been carried out on students, this study was conducted to determine health promoting behaviors among students of Shiraz University of Medical Sciences. It is hoped that appropriate interventions can be presented for expanding health promoting behaviors among this

group by using the results of this study.

2. Methods

This was a cross-sectional descriptive-analytic study, aimed at investigating the status of health promoting behaviors of students at Shiraz University of Medical Sciences, during year 2017. The research sample included all faculties of Shiraz University of Medical Sciences (faculty of Medicine, dentistry, pharmacy, paramedical, nursing and Midwifery of Fatemeh, health, nutrition and food Sciences, rehabilitation Sciences, management and information technology and new Science and technology). The research population consisted of all students studying at the above-mentioned faculties. Of these, 384 were selected as the research sample by stratified sampling.

Of these, 128 graduate students and 256 non-graduate students were selected. This sample size was distributed in a class proportional to the sample size of the 10 faculties, and in each faculty, students were randomly selected based on the student ID numbers and the table of randomized numbers. A questionnaire consisting of 2 parts was used to collect the data and describe the students' viewpoints. The first part included a number of questions about the demographic information of the sample (age, gender, place of residence, university entrance year, field of study, and educational level) and in the second part, a standard health-promoting lifestyle questionnaire was used. The questionnaire consisted of 70 items that included physical health (8 items), exercise and wellbeing (7 items), weight and nutrition control (7 items), disease prevention (7 items), psychological health (7 questions), spiritual health (6 items), social health (7 items), refrain from drug (6 items), accident prevention (8 items), and environmental health (7 items). The answers were classified based on the 6-parameter spectrum, including fully agree (score 6), agree (rating 5), slightly agree (score 4), slightly opposite (score 3), opposite (score 2), and totally opposite (rating 1). The status of general health promoting behaviors was classified as poor (score 1 to 2.25), moderate (score 2.26 to 3.51), good (score 3.52 to 4.77), and excellent (score 4.77 to 6). Validity of the questionnaire was confirmed by experts and its reliability was accepted in the study of Lali et al. with Cronbach's alpha of 0.87 (20). People participated in the study and completed the questionnaire form completely voluntarily. Therefore, obtaining necessary permissions from the university and justifying the participants with regards to the objectives of the plan were emphasized considering the confidentiality of the responses and their written permission. The questionnaires were then distributed among students. The questionnaire

was completed in a self-fulfilling manner. After completing and returning the questionnaires, the data were entered with the SPSS-23 software using the t-test, analysis of variance (ANOVA), and Pearson correlation coefficient at a significance level of $\alpha = 5\%$.

3. Results

Out of 384 distributed questionnaires, 370 were completed (96% response rate). The mean age of the students participating in the study was 24.13 ± 4.27 years and most of them (63.51%) were in the age group of 18 to 24 years old. Overall 57.03% of the students were female and the rest were males. Most of the respondents were undergraduates (37.03%), with non-dormitory residence (59.46%), and entrance year of 2015 (26.76%). The frequency distribution of students participating in the study is shown in Table 1.

According to the results, the mean score of total health promoting behaviors was 4.70 ± 1.20 , which indicates good status of health-promoting behaviors among the students. The highest mean was observed in avoiding medicines and drugs (5.14 ± 1.08), social health (5.02 ± 1.07) and disease prevention (4.89 ± 1.13), and the lowest score were related to exercise and wellbeing component (4.07 ± 1.50), weight and nutrition control (4.21 ± 1.39), and physical health (4.57 ± 1.24) (Table 2).

The results of the correlation test showed that there was a direct and significant difference between all the components of health promoting behaviors among students (Table 3).

The findings of the Table above show that among the components of health promoting behaviors, the highest correlation was found between the components of spiritual health and physical health ($r = 0.68$), environmental health, and exercise and wellbeing ($r = 0.68$), as well as environmental health and weight control and nutrition ($r = 0.67$). According to the results of the study (Table 4), there was a significant difference between the students' health promoting behaviors and gender variables ($P = 0.41$) and the university entrance year ($P = 0.00$), yet no statistically significant difference was observed between age, place of residence, and educational level ($P > 0.05$).

4. Discussion

Inappropriate lifestyle and behavior of humans plays an essential role in the rooting of many diseases, and one of the best ways that people can maintain and control their health is to promote health behaviors (7). This study was conducted to investigate the status of health promoting behaviors of students at Shiraz University of Medical Sciences.

Table 1. The Frequency Distribution of Students Participating in the Study

Variable	Frequency	Percent
Age, y		
18 - 24	235	63.51
25 - 30	108	29.18
31 - 36	21	5.68
37 - 42	6	1.63
Total	370	100
Gender		
Male	159	42.97
Female	211	57.03
Total	370	100
Residency state		
Dormitory	150	40.54
Non-dormitory	220	59.46
Total	370	100
University entrance year		
2010	7	1.89
2011	13	3.51
2012	11	2.97
2013	56	15.14
2014	87	23.51
2015	99	26.76
2016	97	26.22
Total	370	100
Degrees		
BSc	137	37.03
MSc	37	10
GPG	114	30.81
Ph.D.	82	22.17
Total	370	100

Abbreviations: BSc, Bachelor of Science; GPG, General Practitioner, Pharm doctor, General dentist; MSc, Master of Science; PhD, Philosophiae Doctor.

According to the results, the mean score of total health promoting behaviors among students was estimated to be at a "good" level. Nevertheless, there was a need for more detailed planning in some areas to improve the situation and achieve the desired conditions. In studies by Emami et al. (21) and Motlagh et al. (3), the mean score of health-promoting behaviors was calculated to be moderate. In a study by Hong et al. investigating health promoting behaviors in nursing students of Mahidol faculty, it was shown that 53.58% of the students had a moderate health promot-

Table 3. The Correlation Between Various Components of Health Promoting Behaviors of the Students^a

Components	1	2	3	4	5	6	7	8	9	10
Physical health	1									
Exercise and wellbeing	r = 0.62	1								
P value	P < 0.001									
Weight control and nutrition	r = 0.50	r = 0.54	1							
P value	P < 0.001	P < 0.001								
Disease Prevention	r = 0.39	r = 0.32	r = 0.44	1						
P value	P < 0.001	P < 0.001	P < 0.001							
Psychological health	r = 0.45	r = 0.40	r = 0.50	r = 0.51	1					
P value	P < 0.001	P < 0.001	P < 0.001	P < 0.001						
Spiritual Health	r = 0.40	r = 0.40	r = 0.40	r = 0.36	r = 0.68	1				
P value	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001					
Social health	r = 0.44	r = 0.28	r = 0.18	r = 0.35	r = 0.40	r = 0.57	1			
P value	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001				
Avoiding medicines and drugs	r = 0.22	r = 0.09	r = 0.04	r = 0.26	r = 0.27	r = 0.51	r = 0.45	1		
P value	P < 0.001	P = 0.067	P = 0.37	P < 0.001	P < 0.001	P < 0.001	P < 0.001			
Preventing incidents	r = 0.21	r = 0.16	r = 0.31	r = 0.29	r = 0.28	r = 0.29	r = 0.28	r = 0.34	1	
P value	P < 0.001	P = 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001		
Environmental health	r = 0.35	r = 0.68	r = 0.67	r = 0.27	r = 0.33	r = 0.31	r = 0.31	r = 0.35	r = 0.65	1
P value	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	
Total	r = 0.71	r = 0.68	r = 0.67	r = 0.62	r = 0.73	r = 0.74	r = 0.63	r = 0.51	r = 0.57	r = 0.46
P value	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001	P < 0.001

^a1, Physical Health; 2, Exercise and Wellbeing; 3, Weight Control and Nutrition; 4, Disease Prevention; 5, Psychological Health; 6, Spiritual Health; 7, Social Health; 8, Avoiding Medicines and Drugs; 9, Preventing Incidents; 10, Environmental Health.

ing lifestyle (22). One of the reasons for the relative inconsistency of these studies with the present study was the subjects studied. In the current study, all students participated from different levels and fields, which could indicate the difference in the scores.

The findings of the study showed that among the components related to health-promoting behaviors, the highest mean was observed in avoiding medicines and drugs, social health and disease prevention, and the lowest score was related to components of exercise and wellbeing, weight control, and nutrition and physical health. In the study of Emami et al., the highest score was observed in mental-spiritual health and nutrition and the lowest score in physical activity (21). In the study by Motlaq et al., spiritual growth had the highest score and physical activity the lowest score (3). The results of studies conducted abroad also confirmed that the physical activity status among the students was undesirable and exercise was not integrated

in the daily life of students (12, 13, 23, 24).

These results partly confirm the research results. Exercise and physical activities are the most important factors in maintaining health. According to studies, exercise can be effective in maintaining and enhancing good feelings, functional ability, and reducing medical problems and economic costs (25). In contrast, immobility and lack of regular physical activity leads to many diseases, including cardiovascular disease, diabetes, cancers, and other risk factors, such as high blood pressure, high blood sugar, overweightness, and obesity. According to the results of this study and the mean score of 28.51 out of 42 and desirable physical immobility, which can be attributed to the lack of sufficient motivation, lack of specific programs, and heavy academic courses, greater attention should be paid to developing more precise and coherent plans.

Weight control, nutrition, and physical health were other dimensions of health promoting behaviors that

Table 4. The Association Between Health Promoting Behaviors and Demographic Characteristics of the Students^{a,b}

Components of Health Promoting Behaviors	Age		Gender		Place of Residence		University Entrance Year		Educational Level	
	r	P	t	P	t	P	F	P	F	P
Physical health	0.10*	0.04*	4.27	0.03	1.35*	0.29	3.30*	0.00	1.74	0.15
Exercise and wellbeing	0.09	0.09	2.40	0.27	1.30	0.31	4.41	0.00	1.80	0.14
Weight control and nutrition	0.12	0.01	0.93	0.32	0.75	0.04	1.98	0.06	2.94	0.00
Disease prevention	0.06	0.23	1.12	0.24	1.12	0.14	2.53	0.02	0.70	0.25
Psychological health	0.08	0.11	1.02	0.16	1.08	0.35	3.09	0.00	1.76	0.15
Spiritual health	0.06	0.20	2.10	0.00	1.11	0.03	5.57	0.00	0.93	0.32
Social health	0.02	0.67	2.39	0.00	1.98	0.01	2.87	0.01	0.83	0.44
Avoiding medicines and drugs	0.06	0.18	3.48	0.03	1.65	0.31	3.02	0.00	1.62	0.18
Preventing incidents	0.02	0.41	0.32	0.07	0.98	0.51	2.14	0.04	0.88	0.39
Environmental health	0.02	0.32	1.57	0.43	1.75	0.46	2.94	0.00	0.91	0.49
health promoting behaviors	0.13	0.07	1.60	0.04	1.75	0.21	3.28	0.00	1.83	0.37

Abbreviations: P, P Value; t, T-Test.

^aF, Test ANOVA.^br, Pearson correlation coefficient.

achieved lower scores in this study. In confirmation of the current study results, students' behavior regarding diet was evaluated as poor in studies conducted at Tehran and Gilan Medical Sciences Universities and most students' behavior regarding food habits was risky (26, 27).

The findings of the present study also showed that there was a positive and significant correlation between the components of health promoting behaviors. It could be pointed out that many aspects of behaviors that help maintain and promote health are interrelated and a behavior may have a synergistic effect on other behaviors. Therefore, in order to have a healthy lifestyle and appropriate behaviors in this field, all related aspects and components should be given special attention. In some similar studies, there was a significant difference between components of health promoting behaviors (3, 21).

Finally, the results indicated that there was a significant difference between some variables, such as gender, university entrance year, and health promoting behaviors. The results of a research conducted in Kuwait for assessing the health promoting style of nursing students showed that males achieved higher scores compared to females (3). Emami et al. and Plutzer et al. reported a significant difference between gender and health promoting behaviors (21, 28), which was consistent with the present study. They aimed at examining health behaviors.

Lifestyle test scores and health promoting behaviors

of students were within a good range; however, interventional and standardized educational programs are needed to change the lifestyle of students and promote health behaviors in areas, such as exercise and wellbeing, spiritual health, weight control, and nutrition in dormitory and university settings.

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Footnotes

Authors' Contribution: Peivand Bastani and Ali Reza Yusefi developed the study concept and design. Samin Nobakht collected the data. Ahmad Sadeghi and Maryam Radin Manesh analyzed and interpreted the data. Peivand Bastani and Ali Reza Yusefi wrote the manuscript. Samin Nobakht revised and edited the manuscript. All authors read and approved the final manuscript.

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Table 2. Distribution of Health Promoting Behaviors and its Components among the Students

Components of Health Promoting Behaviors	Mean of 6	SD
Physical health		
I try to keep my body healthy.	5.25	0.91
I care about my health.	4.91	0.92
I visit a doctor regularly for medical examinations.	4.15	1.44
I am able to relax and calm down.	4.72	1.15
I do not have chronic illness or physical disability.	5.27	0.72
I sleep at least 7 to 8 hours each night and wake up at cheered up.	4.19	1.59
Most of the time I don't work due to illness.	3.40	1.89
In terms of physical health, I am almost equal to those of my age.	4.74	1.30
Total	4.57	1.24
Exercise and wellbeing		
I have a good physical strength.	4.71	1.20
I practice at least several times a week and improve my muscle strength.	4.09	1.64
At least 30 minutes a day and 3 times a week, I do sports like walking, bodybuilding, or aerobics.	3.97	1.64
I have the energy to spend a day without feeling tired.	4.02	1.47
I spend at least 30 minutes a day on physical activities such as fast walking.	3.67	1.64
Most of my leisure time is spent on sports or doing physical activities such as cycling, walking, swimming, and other sports.	3.55	1.64
I feel well.	4.48	1.29
Total	4.07	1.50
Weight control and nutrition		
I refrain from using salt and sugar in excess.	4.41	1.24
I use fruits and vegetables 5 times or more on a daily basis.	3.98	1.61
I have a balanced diet.	4.03	1.29
I use fiber-containing foods several times a day.	4.16	1.34
I control my weight.	4.12	1.45
I avoid using saturated fats and fatty foods.	4.16	1.51
I avoid excessive consumption of foods such as liver, eggs, and red meat that increase blood cholesterol levels.	4.64	1.31
Total	4.21	1.39
Disease prevention		
I avoid illegitimate and risky sex.	5.05	1.06
I do my vaccinations on time.	5.01	1.11
After toilet I wash my hands with water and soap.	5	1.06
I avoid being exposed too much to the sun.	4.76	1.29
I control my blood pressure and lipids regularly.	4.64	1.31
I have an active life.	4.91	1.12
In terms of physical health, I am almost equal to those of my age.	4.92	0.98
Total	4.89	1.13
Psychological health		
I am hopeful for the future.	4.67	1.11

I have positive feelings and thoughts.	4.61	1.09
I am able to express my feelings.	4.70	1.17
Overall, I love myself.	4.69	1.17
I enjoy challenges and changes in life.	4.72	1.12
I am able to adjust and control the stresses of my life.	4.76	1.24
I enjoy art (painting, sculpture, music, calligraphy, etc.).	4.86	1.11
Total	4.71	1.14
Spiritual health		
I believe that the creation has a purpose.	4.88	1.09
My life has meaning.	4.84	1.20
I feel more dependent on something bigger than myself.	4.73	1.29
I believe life has a purpose.	4.81	1.24
I try to do things in life that have a lasting value.	5.01	1.12
The purpose and direction of my life is clear.	4.75	1.26
Total	4.83	1.2
Social health		
I have close and intimate friends.	4.94	1.10
I have the ability to express my love and friendship to others.	4.88	1.17
The feelings of others are respectable to me.	4.96	1.13
I am able to develop optimistic relationships with others.	5.03	1.10
I have positive feelings and thoughts.	5.19	0.89
I am one of the people who are beside the people in need.	5.15	1
When I encounter problems in my life, I talk to others and consult.	5	1.11
Total	5.02	1.07
Avoiding medicines and drugs		
I avoid excessive use of medicine.	5.17	1.01
I do not smoke.	5.09	1.11
I avoid using drugs.	5.10	1.17
I avoid using risky drugs.	5.14	1.09
I avoid socializing with addicts and alcoholics.	5.18	0.98
I avoid drinking alcohol.	5.19	1.15
Total	5.14	1.08
Preventing incidents		
I follow the rules of driving.	5.18	1.06
I keep the detergent and acidic material in a safe place.	4.99	1.24
I use a seatbelt while driving.	4.87	1.24
When driving, I put the children in the back seat equipped with a seat belt.	4.61	1.34
While using detergents, cleaners and disinfectants, I read the instructions carefully.	4.89	1.06
I do not use cell phones while driving.	4.90	1.23
When using a bike and a motorcycle, I use a helmet.	4.73	1.22
I refrain from riding a high-risk vehicle (such as a motorcycle).	4.59	1.40
Total	4.84	1.22
Environmental health		

I am aware of the quality and health of the water I drink.	4.84	1.32
I wash fruits and vegetables before eating them.	4.86	1.24
I try to make my living environment full of flowers and plants.	4.80	1.19
I save energy (electricity, gas) and drinking water.	4.84	1.15
I do not use insecticides in the home and workplace or, if necessary, I follow their directions.	4.93	1.15
I recycle aluminum cans, glass and paper.	4.88	1.15
I am interested in environmental issues (such as the destruction of the ozone layer, forests, etc.).	4.06	0.36
Total	4.74	1.08
The status of all health promoting behaviors	4.70	1.20
