Assessment of Health-Promoting Lifestyle in Female Students

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A R T I C L E I N F O	A B S T R A C T
Article type: Original article	***Background & aim:*** Lifestyle is a way of living, which has effects on people's health. Health-promoting lifestyle (HPL) is a component of health promotion and includes six dimensions. This study aimed to assess the different dimensions of health-promoting lifestyle in female students.
	Methods: This cross-sectional study was carried out on 133 female students of Islamic Azad University, Iran. Who were selected using a multi-stage random sampling. Data was collected through a demographic as well as Walker's lifestyle questionnaire regarding the six dimensions of HPL. The collected data were analyzed in SPSS software (version 24) using descriptive statistics, independent t-test, and Friedman nonparametric test.
	Results: The mean lifestyle score of students was 50±3.7 (%), which was considered as a moderate level of lifestyle. Mean score of nutrition (54.9±8.8%) and exercise (53.6±8.6%) was at the highest level. The score of other dimensions included self-actualization (51.5±7.5%), health responsibility (46.6±6%), interpersonal support (46.9±5%), and stress management (43.4±6.9%) was on a moderate level. In this study, the total score of lifestyle correlated significantly with the housing status of students, smoking, and coffee consumption (P<0.05). ***Conclusion:*** The total score of lifestyle was on a moderate level. The score of stress management, interpersonal support, and health responsibility dimensions was on the lowest level. Accordingly, it is of utmost importance to provide the students with the education and social support programs, thereby improving their lifestyle with an emphasis on these dimensions.

Introduction

Lifestyle is the way of living, which has effects on people's health (1). Noncommunicable diseases (NCDs) are increasing throughout the world. Globally, NCDs are responsible for 63% of all deaths (36 million out of 57 million deaths), and it is accounted for 80% of the global burden of the diseases (2). Among these chronic conditions, the prevalence of osteoporosis as a serious epidemic health problem has been increased both in developing and developed countries, which is a result of unhealthy eating and physical inactivity in a sedentary lifestyle (1-3).

Some studies reported that out of 5 million postmenopausal women in Iran, 2.5 million ones affected by osteoporosis (4). A study performed by the United States Department of Health, Education, and Welfare (1979) reported a high mortality rate due to unhealthy lifestyles. Thereafter, many interventions for health promotion focused on lifestyle modification by introducing risk factors and offering information (5).

Lifestyle affects 20-40% of adult bone mass (6). Health-promoting lifestyle (HPL) is one of the important criteria which determines health and underlying preventive health-threatening factors. It includes the level of interpersonal relationships (collection of interpersonal communication skills, such as providing

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assistance, accompaniment, and emotional strength), health accountability (the individuals' responsibility for their health determined by self-care activities), self-actualization (individuals' attitude toward life and fulfillment of talents and potentialities, which refers to the development of affirmative behaviors), stress management (identifying sources of stress and introducing some strategies to overcome it), nutrition (habits and nutritional behaviors), and physical activity (access to regular exercise pattern that improves the quality of life) (7, 8).

Evidence indicated that lifestyle modification could prevent or delay the progression of NCDs and osteoporosis (9); moreover, the educational intervention had a beneficial effect on the dimensions of lifestyle adjustment (10, 11). Given the relative importance of the effects of these lifestyle factors on bone health and considering the necessity of females' health at personal and social levels, this study aimed to assess health-promoting lifestyle dimensions on female students of Islamic Azad University, Kazerun Branch, Kazerun, Iran.

Materials and Methods

This cross-sectional study was performed on female students of Islamic Azad University, Kazerun Branch, Kazerun, Iran, during September 2016.

The study protocol was approved by the Ethics Committee of Jahrom University of Medical Sciences, Jahrom, Iran (IR.JUMS.REC.1395.89) and registered in the Iranian Registry of Clinical Trial (IRCT2016103030588N1).

After consultation with statisticians, considering the number of participants, and the mean score of health-promoting behaviors in previous studies with a 95% confidence interval, 0.5% error, and maximum accuracy, the sample size was determined to be 128 students.

The inclusion criteria were: 1) female gender, 2) age range of 18-35 years, 3) willing to participate in the study without withdrawing during the study. On the other hand, those who were unwilling to continue the research process were excluded from the study. The sampling was performed using a multistage random sampling method. Initially, two faculties were randomly selected out of five faculties at Islamic Azad University, Kazerun Branch, Kazerun, Iran.

Subsequently, out of each faculty, four educational groups were randomly recruited (Literature, Law, Psychology, Islamic Education, Chemistry, Computer, Physics and Mechanics).

Following that, based on the inclusion criteria, 133 students were randomly selected through a random number table. The data were collected using questionnaires, and the scores were converted to percentages. The questionnaire included demographic characteristics and Walker lifestyle questions related to six dimensions of HPL (12).

This questionnaire consists of 52 questions and aims to measure health-promoting behaviors in six subscales, including self-actualization (9 items), health responsibility (9 items), interpersonal support (9 items), stress management (8 items), physical activity (8 items), and nutritional status (9 items). A 4-point Likert scale (never=1, sometimes=2, often=3, and always=4) was used to score the items. The lowest and highest total scores were 52 and 208, respectively. It is worth mentioning that the Persian version of this questionnaire was developed and validated by Zaidi et al (13).

The data were analyzed in SPSS software (version 24) through descriptive statistics (i.e., mean, standard deviation, frequency, and percentage), as well as independent t-test, and Friedman nonparametric test. A p-value less than 0.05 was considered statistically significant.

Results

According to the obtained results, the mean age of the participants was determined at 20.41±1.36 years. Out of 133 students, 102 (76.7%), 42 (31.6%), and 34 (25.6%) cases were single, employed, and physically active, respectively.

Moreover, the mean lifestyle score of the students was 50±3.7 (%) indicating a moderate lifestyle according to a classification in a study conducted by Salahshori (14). Regarding the Importance and ranking of the behavioral factors affecting the lifestyle in this study, nutrition was the most important dimension, and the others are presented in Table 1 in descending order. Given the two by two comparisons of the dimensions, all differences were significant except for "exercise-self-actualization", "exercise Nutrition",

"Interpersonal support-Health Responsibility", and "Nutrition-self-actualization" (Table 1).

Table 1: Mean rank of health-promoting lifestyle dimensions among female students

Dimensions	Mean±SD	Mean rank (Friedman test)
Nutrition	54.9±8.8	4.47
Exercise	53.6±8.6	4.2
Self-actualization	51.5±7.5	4.07
Health responsibility	46.6±6	2.97
Interpersonal support	46.9±5	2.86
Stress management	43.4±6.9	2.17
Friedman test results	P<0.001	χ2=186/087

Furthermore, this study evaluated the relationship between the demographic characteristics of the participants and their lifestyle. According to the result, lifestyle correlated significantly with age, housing status of students, smoking, and coffee consumption (P<0.05). However, no significant relationship was observed between lifestyle and other dimensions (Table 2).

Table 2: Relationship between demographic characteristics of the participants and their lifestyle

Demographic Characteristics	N (%)	Lifestyle Mean ± SD	Results
Age			
=<19 (teenager)	27(20.3)	111.8±9.9	t=2.94
>19 (adolescent)	106(79.7)	105.9±7.6	P=0.006*
Occupational status			
Employed	42(31.6)	106.4±5.2	t=0.82
Unemployed	91(68.4)	107.4±9	P=0.4
Marital status			
Married	31(23.3)	105.6±5.7	P=0.15
Single	102(76.7)	107.5±8.6	t=1.45
Income			
Under 10 million Rials	13(9.8)	108±13.3	P=0.8
Up to 10 million Rials	120(90.2)	107±7.3	t=0.25
Housing status of students			
Personal	44(33.1)	104.6±4.9	P=0.003*
Non-personal	89(66.9)	108.3±8.9	t=3.06
Smoking			
Yes	27(20.3)	103.2±4.3	P<0.001*
No	106(79.7)	108.1±8.4	t=4.1
Coffee consumption			
Yes	26(19.5)	112.6±7.7	P<0.001 *
No	107(80.5)	105±7.5	t=4.1
Exercise			
Yes	34(25.6)	108±8.9	P=0.8
No	99(74.4)	106.8±7.7	t=.79

*P<0.05 (significant)

Discussion

Lifestyle should be considered as a complex combination of actions, habits, and behaviors (15). The results obtained from the assessment of health-promoting lifestyle dimensions on female students of Islamic Azad University, Kazerun Branch, Kazerun, Iran, showed a moderate lifestyle, which was consistent with the findings of studies conducted by Choi Hui, Kamrani, Motlagh, Norouzinia, and Lotfi (5, 8, 15-17).

Furthermore, the nutrition dimension obtained the highest score which was consistent with the results of a study conducted by Zeynep Ebem. This consistency may be related to the fact that the students were native to the city and were living with their families (7, 18). In the current study, exercise and self-actualization obtained the second and third ranks, and the lowest scores were assigned to health responsibility, interpersonal support, and stress management. In a study conducted by Ahmadnian, a majority of the students obtained low scores in terms of nutrition (19). Moreover, Rahnavard reported that 51.8% of the female teenagers had unfavorable lifestyles regarding the nutrition dimension (20). Similarly, spiritual growth and self-actualization dimensions obtained the maximum scores in a study carried out by Kamrani (8).

According to a study conducted by Fang-Hsin's Lee in Southeast Asia, Taiwan, the spiritual growth dimension obtained the maximum score (21). Similarly, Maheri conducted a study on the students of Tehran University of Medical Sciences, Tehran, Iran, who lived in dormitories. The results revealed that spiritual growth obtained the maximum score, whereas the minimum scores were assigned to the dimensions of nutrition, stress management, and physical activity (22). It should be noted that the results of the aforementioned study were not consistent with the findings in the present study.

Regardless of gender differences in a study by Zeynep Ebem, health responsibility behaviors and exercise were placed in the lowest ranks in terms of the health behaviors of students at university (18); in addition, in a study conducted by Rafii, 66.4% of the females did no exercise (23). Motlagh et al. reported that physical activity and self-actualization dimensions obtained the minimum and maximum scores, respectively (17). However, in a study performed by Lotfi, the students had a moderate lifestyle with physical activity, which was in line with the findings of the present study (15). In a study carried out by Tavassoli in Isfahan University of Medical Sciences, Isfahan, Iran, the responsibility for health and spiritual growth obtained the maximum scores, and the minimum score was assigned to physical

activity, which was not consistent with the findings of the current study (24).

In the studies performed by Norouzinia and Ramezankhani on the students of medical sciences, self-actualization and health responsibility were the maximum and physical activity was the minimum scores. (7, 16). Contrary to these studies, in the present study, nutrition and exercise obtained the highest scores. This discrepancy can be attributed to the differences in the study population and the fact that most of the students in this study were native to Kazerun, Iran. The World Health Organization defines lifestyle based on specific and defined patterns of behavior as well as the interactions among personal characteristics, social interaction, as well as environmental and socioeconomic situations (19).

In a current study, a significant difference was observed between the total score of lifestyle and age among teenagers and adolescent students. It should be mentioned that teenagers obtained higher lifestyle scores. Therefore, the results highlight the necessity of training and continuing the students' education. In the studies by Ramezankhani, Kamrani, and Dashti, there was no correlation between age and health-promoting behaviors (7, 8, 25). However, Dashti revealed that the score of the physical domain of health-promoting behaviors decreased significantly with increasing age (25), which was in line with the findings of the present study.

In this study, the total score of lifestyle correlated significantly with the housing status of students, smoking, and coffee consumption. In a study conducted on elderly males, it was revealed that osteoporosis associated with age, current smoking, and physical activity (26). Although Keskin found no relationship between osteoporosis and smoking, previous studies indicated the negative effect of smoking on fractures (27). Smoking is a major cause of hip fracture, and it is regarded as an important lifetime risk factor with an estimate of 12-19% in females up to 85 years of age (28).

In a sociodemographic and biochemical analysis conducted by Alghadir, the level of physical activity was considered the main determinant of bone density. People with moderate to high physical activity experienced a

vast increase in bone density, compared to those with limited physical activity.

Moreover, the aforementioned study demonstrated a significantly higher bone density in males and females who had no smoking habits and consumed a lesser amount of coffee, tea, or carbonated beverage per day (29). In a study conducted by Holmes, a positive relationship was observed among family income, daily calcium intake, and weekly physical activity (30). In the same line, Kim reported that health promotion behavior correlated significantly with age, weight, sufficient income, educational level, milk consumption, and exercise (31).

In the present study, it was found that the total score of lifestyle had no correlation with occupational status, marital status, family income, and exercise. Moreover, in a study by Norouzinia, the differences were not also significant (16). However, in the studies performed by Dashti and Volkers, employed and married participants obtained higher scores in terms of total lifestyle behavior (25, 28). According to the results, health-promoting lifestyle modification is a multifactorial problem requiring improvements using the positive effects of the related dimensions.

Conclusion

The results showed the necessity of educational intervention for lifestyle modification among female students. Since the minimum scores associated with stress management, interpersonal support, and health responsibility dimensions, more education and social support programs are required to improve their lifestyle with an emphasis on these issues. It is suggested that education aimed at lifestyle improvement in young females can greatly help reduce the incidence of NCDs which threatens the community health during later stages of life. One of the limitations of this study was the method of data collection, which was performed through self-report. Moreover, since the study was conducted in a small region, more caution should be taken to generalize the results. Furthermore, it was attempted to restrict the study time since there was a probability of influencing other didactic resources, such as social networks, radio, and television on the students' level of awareness regarding the quality of life during the study.

Conflicts of interest

Authors declared no conflicts of interest.

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