

## Health Promoting Lifestyle among Students at Guilan University of Medical Sciences

Sedigheh Pakseresht<sup>1</sup>, Komeil Rezaei<sup>2\*</sup>, Afsaneh Pasha<sup>3</sup>, EhsanKazemNejad Leili<sup>4</sup>, Fatemeh Hasandoost<sup>5</sup>

<sup>1</sup>Social Determinants of Health Research Center (SDHRC), Department of Midwifery, Associate Professor, Guilan University of Medical Sciences, Rasht, Iran

<sup>2</sup>Department of Nursing, School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran

<sup>3</sup>Department of Nursing, Instructor, School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran

<sup>4</sup>Social Determinants of Health Research Center (SDHRC), Bio-Statistics, Associate Professor, Guilan University of Medical Sciences, Rasht, Iran

<sup>5</sup>Department of Nursing, School of Nursing and Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran

\*Corresponding author: Department of Nursing, School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran,

E-mail: Rezaei.komeil@yahoo.com

Received: 2014August25; Accepted: 2015February02

### Abstract

**Introduction:** Health promoting lifestyle is one of the determinants of health. University years are important phase of life when one can develop health promoting lifestyle. Given the high cost of healthcare there is need of shift from a treatment based approach to a preventive approach in which appropriate methods should be developed to promote health and productivity among youth.

**Objective:** This study was aimed to measure health promoting lifestyle among the students of Guilan University of Medical Sciences in 2013-14.

**Materials and Methods:** This cross-sectional study which measured six domains of health promoting lifestyle by using the 52-item Health Promoting Lifestyle Profile (HPLP II). Convenient sample of 343 students from the University was selected in 2013-14. The tool's reliability was confirmed by a Cronbach's alpha coefficient of 95% and intra class correlation coefficients of 67%-87% for the subscales. Data was presented in (frequency, mean, and standard deviation and (ANOVA and t-test) were used for comparing two or more variables.

**Results:** The total score of health promoting lifestyle ( $129.46 \pm 17.69$ ) was undesirable in university students. There was significant differences in terms of spiritual development ( $P = 0.004$ ) and inter-personal relations ( $P < 0.005$ ). Gender had significant relations with eating habits ( $P = 0.014$ ), physical activity ( $P < 0.001$ ), and health accountability ( $P < 0.001$ ). While girls scored higher in eating habits and health accountability, boys did better in physical activity. However, the scores of all these three dimensions were undesirable in both genders.

**Conclusion:** Health Promoting lifestyle scores were undesirable in university students and significantly related to eating and physical activities. Therefore, there is an urgent need of developing program on healthy lifestyle for them.

**Keywords:** Healthy Lifestyle, Health Promotion, Medical Students

## Introduction

Lifestyle involves individuals' ordinary daily activities which affect their lives [1]. Individuals may maintain and improve their health and prevent diseases through a lifestyle which includes activities such as adopting a healthy diet, appropriate sleep and activity patterns, exercise, weight control, avoiding smoking and alcoholic drinks, and immunizing the body against diseases [2].

Health promotion is the science and art of lifestyle modification aimed at attaining perfection [6]. The habits and behaviors of the students change during university years [3]. Students go through a dynamic transition period of growth and perfection that bridges adolescence to youth [4]. This is thus the right time to form health promoting lifestyle behaviors [5] which lead to rapid changes in the students' body, soul, and social relations [6]. With a different way of studying and new living conditions, many students are exposed to a wide range of unhealthy habits including unhealthy diet, inadequate rest, and insufficient physical activity [7]. Six major components of health promoting lifestyle include health accountability, physical activity, diet, stress management, spiritual development, and interpersonal relations [8]. In their studies on health promoting lifestyle among students, Wei et al. and Peker et al. demonstrated that the lowest scores related to health accountability [7, 8]. Moreover, according to Rejali and Mostajeran, 48.6% of medical and health students were active in terms of moderate physical activity and 51.4% were inactive. In terms of high physical activity, 32.6% of the students were active and 76.4% were inactive [9]. MohammadiZeidi et al. reported the physical activity of medical university students as insufficient [10]. A study by Salem et al. indicated that 10.7% of medical students were overweight and 13% were underweight or malnourished [11].

Other studies reported depression, anxiety, and stress in respectively 51.6%, 39.5%, and 71.7% of the students. Furthermore, 52% of the students had abnormal stress [12-14]. Meanwhile, the highest score in health promoting lifestyle was related to spiritual development [2, 8, 15]. Wei et al. found that students were more capable and skilled in interpersonal relations [7].

Special attention is currently paid to the youth and students due to their major role in any country's future. In fact, students not only constitute the bulk of specialists in various scientific, technical and artistic fields, they will also play a key role in helping any nation to achieve perfection and its lofty goals [16]. Age and social status of the students, as the well-educated part of the society, can set an example for others. Apparently, universities are the right place to assess the efficacy of educational health programs. Practical management of health conditions among the adolescents and youth requires timely prevention of health problems among this group. After acquiring the necessary information, knowledge, and skills during their studies, medical students will serve as medical and health staff members. They are hence expected to adopt all they have learned in their behavior and performance. Nevertheless, according to available research, the students lack adequate efficiency despite having acquired scientific and theoretical knowledge [17]. Therefore, given the high costs of health care and the need for the health workers to adopt preventive approaches rather than treatment approaches, this study tried to determine the health promoting lifestyle of medical students. The results could be helpful in the development of appropriate methods of improving health and productivity and preventing unhealthy habits among the youth.

## Materials and Methods

This cross-sectional descriptive, analytical study evaluated the health promoting lifestyle among students of Guilan University of Medical Sciences in 2013-14. The study was conducted at six faculties, i.e. ShahidBeheshti Nursing and Midwifery Faculty of Rasht (nursing and midwifery fields), Langeroud Faculty of Nursing and Midwifery (nursing and midwifery fields), Langeroud Paramedical Sciences (lab sciences, radiology technology, operation room and anesthesia fields), and Faculty of Health (engineering fields of environmental health, occupational health engineering, general and public health), medical sciences, and dentistry, of Guilan University of Medical Sciences. Third year students who aged below 35 years and did not have chronic or incurable diseases and disability were recruited. MSc or PhD students were not included. The students were only included if they consented to participated. Information was collected using relevant questionnaires.

A self-report questionnaire called the Health promoting Lifestyle Profile 2 (HPLPH) was completed by the participants. The questionnaire has two sections. The first part measures demographic characteristics (age, gender, field of study, academic year, marital status, parents' educational background, parents' job, place of residence, weight, height, and family's average monthly income). The second part covers 52 phrases that measure health promoting behaviors in six domains including health accountability (nine items), physical activity (eight items), eating habits (nine items), stress management (eight items), inter personal relations (nine items) and spiritual growth (nine items). These items are answered on a four-point Likert scale between 1 (never) and 4 (always). Hence, the total scores range between 52 and 208. In this study, scores higher than the mean score (i.e. 130) indicate a desirable lifestyle and lower scores show an

undesirable lifestyle. In four domains, i.e. eating habits, health accountability, interpersonal relations and spiritual growth, scores higher than 22.5 were indicative of desirable behavior. In the remaining two domains, i.e. physical activity and stress management, scores higher than 20 were considered to reflect desirable behavior. Psychometric analysis of this tool has been previously performed in Iran [18].

After obtaining the required documents and permissions from the heads of all faculties, the researcher selected 343 eligible students from the student lists in each field (provided by the Department of Education of the university). Convenience sampling was applied to randomly select the participants proportionate to the predetermined sample size at each faculty. The participants were provided with explanations about the study objectives, the confidentiality of the collected data and method of completing the questionnaire. They were then asked to fill out the questionnaires while the researcher regularly visited them to resolve any possible issues. Data were analyzed using descriptive statistics (frequency distribution, mean and standard deviation) and inferential statistics (t-tests after the confirmation of normal distribution of health promoting lifestyle scores). All analyses were performed using SPSS 19. The participants were asked to provide informed consent and to complete the questionnaires anonymously.

## Results

The mean age of the participants was  $22.07 \pm 1.41$  years. Most students were female (68%;  $n = 227$ ), single (91.3%;  $n = 305$ ) and living with their family (51.8%;  $n = 173$ ). Moreover, fathers were self-employed and mothers were housewives in 41.9% and 17.4% of the cases, respectively. The monthly family income of 45.5% of the students exceeded 300 \$.

**Table 1. The relations between health promoting lifestyle and demographic characteristics of the participants**

| Demographic characteristics   | Health promoting lifestyle |                    | Sig.       |
|-------------------------------|----------------------------|--------------------|------------|
|                               | Mean                       | Standard deviation |            |
| <b>Medical University</b>     | 131.85                     | 16.93              | *P<0.129   |
| Dentistry                     | 131.43                     | 22.94              |            |
| Health                        | 123.43                     | 18.46              |            |
| Rasht Nursing                 | 128.50                     | 17.82              |            |
| Langeroud Nursing             | 125.13                     | 16.99              |            |
| Langeroud Paramedical Science | 130.23                     | 16.06              |            |
| <b>Gender</b>                 | 129.37                     | 17.02              | **P<0.897  |
| Male                          | 129.64                     | 19.10              |            |
| Female                        |                            |                    |            |
| <b>Academic year</b>          | 128.85                     | 17.51              | **P<0.45   |
| Third                         | 130.34                     | 17.96              |            |
| Fourth                        |                            |                    |            |
| <b>Marital status</b>         | 129.74                     | 17.75              | **P<0.334  |
| Single                        | 126.48                     | 16.96              |            |
| Married                       |                            |                    |            |
| <b>Father's education</b>     | 132.50                     | 28.61              | *P<0.161   |
| Illiterate                    | 125.28                     | 16.94              |            |
| High school dropout           | 130.83                     | 18.47              |            |
| High school diploma           | 130.07                     | 15.89              |            |
| <b>Mother's education</b>     | 123.30                     | 20.02              | *P<0.142   |
| Illiterate                    | 127.88                     | 17.36              |            |
| High school dropout           | 131.35                     | 17.62              |            |
| High school diploma           | 128.89                     | 17.01              |            |
| <b>Residence</b>              | 131.13                     | 17.89              | *P<0.201   |
| Family                        | 127.63                     | 17.62              |            |
| Dormitory                     | 128.22                     | 12.18              |            |
| <b>Family income level</b>    | 129.46                     | 17.12              | ***P<0.014 |
| <\$150                        | 128.59                     | 18.16              |            |
| \$150-\$300                   | 130.44                     | 19.02              |            |
| > \$300                       |                            |                    |            |
| <b>Mother's job</b>           | 128.89                     | 17.01              | **P<0.790  |
| Housewife                     | 129.57                     | 17.85              |            |
| Other                         |                            |                    |            |
| <b>Father's job</b>           | 128.88                     | 17.34              | *P<0.846   |
| Employee                      | 127.84                     | 19                 |            |
| Worker                        | 129.67                     | 17.73              |            |
| Self-employed                 | 129.46                     | 17.69              |            |
| Other                         |                            |                    |            |

\*ANOVA \*\* T Test \*\*\* Kruscal Wallis Test

Of the 6 faculties of Guilan University of Medical Sciences, the Faculty of Medicine had the highest frequency (36.5%) and the Dentistry and Nursing Faculties of Langeroud had the lowest frequency (6.9). According to the calculated body mass index (BMI) values, 7.5% of the participants were thin, 71.3% were normal, 19.2% were overweight, and 1.2% was obese. Evaluating the components of health promoting lifestyle showed interpersonal relations and spiritual development to be at the desirable level. Meanwhile, the total score of health promoting lifestyle was undesirable. Statistical tests did not reveal any significant relationships between the students' total scores of health promoting lifestyle and their demographic characteristics, except for the family's monthly income (Table 1).

Among the dimensions of health promoting lifestyle, the scores of spiritual development and interpersonal relations (table 3) were significantly different in the studied faculties (Tables 2). Moreover, one-way analysis of variance (ANOVA) suggested significant relations between gender and eating habits ( $P = 0.014$ ), physical activity ( $P < 0.001$ ), and health accountability ( $P < 0.001$ ). In fact, girls scored significantly higher in eating habits ( $21.70 \pm 3.87$  which was undesirable) and health accountability ( $22.72 \pm 3.89$  which was desirable). While boys had significantly higher scores in physical activity, their mean score ( $18.72 \pm 4.80$ ) was still undesirable. T-test indicated a significant relation between BMI and gender ( $P < 0.001$ ), i.e. girls had significantly more desirable BMI ( $22.12 \pm 3.0$ ).

**Table 2. The status of spiritual development among students at Guilan University of Medical Sciences**

| Faculty                        | Spiritual Development |                    | Sig.*            |
|--------------------------------|-----------------------|--------------------|------------------|
|                                | Mean                  | Standard Deviation |                  |
| Medicine                       | 25.47                 | 3.76               | <b>&lt;0.004</b> |
| Dentistry                      | 25.04                 | 4.79               |                  |
| Health                         | 23.67                 | 4.08               |                  |
| Rasht Nursing                  | 23.98                 | 3.57               |                  |
| Langeroud Nursing              | 24.30                 | 4.75               |                  |
| Langeroud Paramedical Sciences | 26.17                 | 3.60               |                  |

\* ANOVA

**Table 3. The status of interpersonal relations of students at faculties of Guilan University of Medical Sciences**

| Faculty                        | Interpersonal Relations |                    | Sig.*            |
|--------------------------------|-------------------------|--------------------|------------------|
|                                | Mean                    | Standard Deviation |                  |
| Medicine                       | 26.28                   | 4.40               | <b>&lt;0.005</b> |
| Dentistry                      | 26.30                   | 4.92               |                  |
| Health                         | 24.05                   | 4.66               |                  |
| Rasht Nursing                  | 24.78                   | 4.18               |                  |
| Langeroud Nursing              | 23.91                   | 3.88               |                  |
| Langeroud Paramedical Sciences | 26.74                   | 4.43               |                  |

\*ANOVA

## Discussion

Overall, health promoting lifestyle stood at an undesirable level in this study. Meanwhile, students at Langeroud faculties of medicine, dentistry, and paramedical sciences had a desirable level of health promoting lifestyle. Students of Rasht faculties of health and nursing and midwifery, as well as those of Langeroud faculties of nursing and midwifery had an undesirable status. In line with our findings, Babanezhad et al. reported a moderate level of lifestyle in more than half of the students at Ilam University of Medical Sciences. Less than 10% of these students had a low level [19]. Babanezhad et al. demonstrated that the lifestyle adopted by the majority of health students at ShahidBeheshti University (Tehran, Iran) was at a moderate level [20]. Shaban et al. reported the health promoting behaviors of senior students at Tehran University of Medical Sciences as desirable [21]. Wang et al. found a low level of health promoting lifestyle among medical students [22]. Hosseini et al. and RezaieAdriani concluded that students had undesirable levels of health promoting lifestyle [12, 23].

Medical students will undoubtedly work as medical and health workers with the knowledge and skills they gain during their studies. Their performance and behaviors are thus expected to reflect their acquired knowledge and skills. This is while non-medical students do not attend health courses during their studies and usually learn health-related issues through other sources such as personal studies and media. They may hence lack adequate information about the proper and healthy lifestyle.

In the present study, two dimensions of health promoting lifestyle, i.e. interpersonal relations and spiritual growth, had high scores. Moreover, there were significant differences between the studied faculties in terms of spiritual development and interpersonal relations. Spiritual development and interpersonal

relations had the highest scores in the Faculty of Dentistry and Langeroud Faculty of Paramedical Sciences, respectively. Previous studies have reported similar findings [2, 8, 15]. The low scores of other domains and their effects on total scores of health promoting lifestyle indicate the necessity of attention to health promoting behaviors among students by health executives and policy makers.

The results of this study showed that girls' eating habits were better than those of boys. Meanwhile, the scores of both genders were undesirable. Ahmadnia et al. showed that 56.8% of nursing and midwifery students had an undesirable lifestyle when it came to nutrition [24]. Salem et al. reported that 10.7% of medical students were overweight, 1.4% were obese and 13% of were malnourished and underweight [11]. Chourdakis et al. indicated that 40.5% of medical students were overweight and 7.4% were obese [25]. Abedi et al. reported that more than 25% of female students at Mazandaran University of Medical Sciences were overweight [26]. Feizi et al. found 14% of the female students in Ardebil University of Medical Sciences to be obese [27]. Sira and Pawlak demonstrated that 15.2% of the students were thin, 21.3% were overweight, and 10.8% were obese [28].

In this study, boys had higher levels of physical activity than girls (probably due to less restriction for men in terms of sports facilities or social activities). Nevertheless, the scores of both genders were undesirable. Since regular physical activities the most significant aspect of a healthy lifestyle, all medical staff should be adequately active to maintain good health. Results of a previous study indicated that 26% of medical students were not physically active [29]. Our findings showed better health accountability in girls than in boys. People's responsibility for their health can play a key role in the promotion of public health. In an acceptable health promotion

approach, members of the society will contribute to the selection of a healthy lifestyle [30].

It can be concluded that the society expects the medical students, as future health and medical staff members, to use the knowledge acquired during their studies in their behaviors and performance. According to available research, while university graduates gain scientific and theoretical knowledge, they fail to efficiently practice their knowledge. Age and social status of the students as the well-educated stratum of the society can set an example for others. Adoption of any kind of lifestyle will influence not only their own lives, but also those of others. Educational centers that have accommodated the bulk of the target group (adolescents and youth) are the most important places for the conduct of intervention aimed at promoting health. Universities are the proper place for assessing the efficacy of health-related curricula. Finally, in order to prevent more severe health issues among adolescents and youth, relevant preventive tools should be developed to practically manage the health of this group [17]. One of the limitations of this research was the use of a questionnaire which could lead to biased responses.

### Acknowledgment

The research proposal was approved by the Research and Technology Department of Guilan University of Medical Sciences (ID: 902131). The authors appreciate all the support offered by the mentioned department and the cooperation of the Social Determinants of Health Research Center (SDHRC) and all the professors and students who cooperated in this study.

### References:

1. Nilsaz M, Tavassoli E, Mazaheri M, Sohrabi F, Khezli M, Ghazanfari Z, et al. Study Of Health promoting Behaviors And Lifestyle Among Students Of Dezful Universities. Scientific

- Journal of Ilam University of Medical Sciences. 2013;20(4):168-75.[persian].
2. Tol A, Tavassoli E, Shariferad G, 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(1):11.[persian].
3. Safavi M, Yahyavi SH, Pourrahimi M. Impact of dietary behaviors and exercise activities education on the self-efficacy of middle school students. Medical Science Journal of Tehran Islamic Azad Univesity. 2012;22(2):143-51. [persian].
4. Aubi E, Shadnoush M, Nazarzadeh M, Bidel Z, Ranaei A, Delpisheh A. Translation and assessment of validity and reliability of the health promoting lifestyle questionnaire, using factor analysis. Pajoohandeh I. 2012;17(3):114-20.[persian].
5. Can G, Ozdilli K, Erol O, Unsar S, Tulek Z, Savaser S, et al. Comparison of the health promoting lifestyles of nursing and nonnursing students in Istanbul, Turkey. Nursing & Health Sciences. 2008;10(4):273-80.
6. Lee RLT, Loke AJTY. Health promoting Behaviors and Psychosocial Well-Being of University Students in Hong Kong. Public Health Nursing. 2005;22(3):209-20.
7. Wei C-N, Harada K, Ueda K, Fukumoto K, Minamoto K, Ueda A. Assessment of health promoting lifestyle profile in Japanese university students. Environ Health Prev Med. 2012 May;17(3):222-7. doi: 10.1007/s12199-011-0244-8. Epub 2011 Oct 11.
8. Peker K, Bermek G. Predictors of Health promoting Behaviors Among Freshman Dental Students at Istanbul University. Journal of Dental Education. 2011;75(3):413-20.
9. Rejali M, Mostajeran M. Assessment Of Physical Activity In Medical And Public Health Students Of Isfahan University Of Medical Sciences-2008. Health System Research. 2010;3(2):173-8.[persian].
10. Mohammadi Zeidi I, Ziaeiha M, Khalaj M, Mohammadi Zeidi B, Morshedi H. Predicting the stages of change in physical activity behavior of QUMS students with Pender's model. Journal of Qazvin University of Medical Sciences. 2010;14(3):58-66.[persian].
11. Salem Z, Rezaeian M, Raeisabadi K, Salajegheh L. Assessing Nutritional Status Of Students In Rafsanjan University Of Medical Sciences Using Anthropometric Indices, 2007. Journal Of Rafsanjan University Of Medical Sciences And Health Services. 2009;8(3):215-26.[persian].
12. Rezaei Adaryani M, Azadi A, Ahmadi F, Vahedian AA. Comparison Of Depression, Anxiety, Stress And Quality Of Life In

- Dormitories Students Of Tarbiat Modares University. Iranian Journal of Nursing Research. 2007;2(4):31-8.[persian].
13. Akbari M, Nejat A, Dastorani S, Rouhani A. Evaluation of Stress Level and Related Factors among Students of Mashhad Dental School (Iran) in Academic Year of 2008-2009. Journal of Mashhad Dental School. 2011;35:3.[persian].
  14. Baradaran-Rezaei M, Shirvani M. State of stress management Evidence Evaluation of lifestyle Among Students Medical and Non-medical Universities of Tabriz. Journal of Tabriz Nursing and Midwifery. 2006(5):54-63.[persian].
  15. Motlagh Z, Mazloomi-Mahmoodabad S, Momayyezi M. Study of Health-promotion behaviors among university of medical science students. Zahedan Journal of Research in Medical Sciences. 2011;13(4):29-34.[persian].
  16. Rezaei Adaryani M, Rezaei Adaryani M. Health-promoting lifestyle of a group of Iranian medical, nursing and allied health students. Journal of clinical nursing. 2012;21(23-24):3587-9.[persian].
  17. Banaderakhshan H, Mehrabi Y, yazdani sh, Mortazavi F, Saedi N. Comparing knowledge, attitude and practice of senior nursing students and graduates of Shahid Beheshti University of Medical Sciences. Pejouhesh. 2005;29(1):37-43.[persian].
  18. Hosseini M, Yaghmaei F, Hosseinzade S, Alavi MH, Sarbakhsh P, Tavousi M. Psychometric Evaluation Of The" Health Promoting Lifestyle Profile 2. Payesh. 2012;11(6):849-56.[persian].
  19. Babanejad M, Zarin HK, Sayehmiri K, Delpisheh A. Lifestyle investigation and its associated factors in students of Ilam University of Medical Sciences. Pajoohandeh. 2012;17(5):252-7.[persian].
  20. Babanejad M, Rajabi a, Mohammadi s, Partovi f, Delpisheh A. Investigation Lifestyle and Prediction of Changes in Its Associated Factors amongst Health Students. Health journal. 2013;4(2):147-55.[persian].
  21. Shaban M, Mehran A, Taghlili F. Relationship between perception of health concept and health promoting behaviors: A comparative study among Tehran university medical and non-medical Students. Hayat. 2007;13(3):27-36.[persian].
  22. Wang D, Ou C-Q, Chen M-Y, Duan N. Health promoting lifestyles of university students in Mainland China. BMC Public Health. 2009;9(1):379.
  23. Hosseini M, Ashktorab T, Taghdisi M. Health Promotion Lifestyle in Nursing Students: a systematic review. Journal of Health Promotion Management. 2013;2(1):66-79.[persian].
  24. Ahmadnia E, Shakibazadeh E, Emamgholi Khooshehchin T. Osteoporosis Related Lifestyle Among Nursing And Midwifery Students. Journal of Nursing and Midwifery of Tehran University of Medical Sciences. 2009;15(4):50-9.[persian].
  25. Chourdakis M, Tzellos T, Papazisis G, Toulis K, Kouvelas D. Eating habits, health attitudes and obesity indices among medical students in northern Greece. Appetite. 2010;55(3):722-5.
  26. Abedi G, Mohamadpour RA, Rostami F, Âhmadinia F, Rajabi M. Study of Consumption Pattern of Food and Obesity of Female Students of Mazandaran University of Medical Sciences. Journal of Mazandaran University of Medical Sciences. 2011;20(80):77-80.[persian].
  27. Feizi E, Naghizadeh Baghi A, Rahimi A, Nemati S. The relationship between Body Mass Index and Depression in Female Students of Ardabil University of Medical Sciences. Journal of Ardabil University of Medical Sciences. 2012;12(2):213-20.[persian].
  28. Sira N, Pawlak R. Prevalence of overweight and obesity, and dieting attitudes among Caucasian and African American college students in Eastern North Carolina: a cross-sectional survey. Nutrition research and practice. 2010;4(1):36-42.
  29. D browska-Galas M, Plinta R, D browska J, Skrzypulec-Plinta V. Physical activity in students of the Medical University of Silesia in Poland. Physical therapy. 2013;93(3):384-92.
  30. Maftoon F, Aeenparast A, Azin A, Omidvari S, Jahangiri K, Sadighi J, et al. Who Is Responsible For Health: Iranian Health Perception Survey (Ihps). Payesh. 2011;10(3):347-53.[persian].