Original Article

The status of nutrition and physical activity in the students of medical sciences

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Abstract

Context: Diet and nutrition status has an important role in life and humans' health. Regular physical activity create health promotion and prevent diseases.

Aim: Considering the importance of the health of students as young members of the society, the present study was designed to determine the status of nutrition and physical activity and its related factors among students at Mazandaran University of Medical Sciences, Sari, Iran.

Setting and Design: this Cross- sectional study conducted on 435 students of Mazandaran University of Medical Sciences.

Materials and Methods: This cross-sectional study was conducted on the students were selected via multistage random sampling at Mazandaran University of Medical Sciences. Data collection tools included a demographic and physical activity questionnaire and a food frequency questionnaire (FFQ).

Statistical Analysis Used: For data analysis, descriptive statistic and t-test were performed using SPSS version 21.

Results: The mean age of the participants was 21.11 ± 3.06 years. Consumption of dairy ($P = 0.008$) and fruits ($P = 0.02$) was significantly more in female students compared to male students. A total of 188 persons (43.2%) had physical activity every day. A total of 178 persons (40.9%) had physical activity always on a day, 11 persons (2.5%) had no physical activity, and others (56.6%) had physical activity sometimes. A total of 100 persons (23%) had weight increasing, 113 persons (26%) had weight decreasing, and others (51%) had neither increase nor decrease weight.

Conclusion: Based on the findings, the students had optimal nutrition condition. Thus, more attention is important to be paid by authorities to this specific topic, and some measures are essential in training students to maintain and continue optimal nutritional status. Students physical activity wasn't optimal level so it is needs to more educational measures.

Keywords: Medical sciences, Nutrition status, Physical activity, School, Stude

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INTRODUCTION

Diet and nutrition play a very important role in human life and health. Nutrition status is one of the most important factors in the incidence of chronic diseases.[1,2] A nutritional status survey indicates the degree to which the physiological needs of an individual are met.[3] Changing life conditions, including changing food habits, plays a big role in the mental health

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of students.[4] Important factors related to the nutritional changes include gender, body weight, student length, use of student dining, lack of consumption of valuable foods, and nutritional patterns formed before entering the university.[5] Inappropriate diet and physical activity for fitness led to changes in dietary patterns and inadequate nutrient intake and the incidence of nutrition disorder, especially in students.[6,7]

In a study in Kermani students, overweight, obesity, and underweight were reported to be 13.6%, 2.2%, and 38.4%, respectively.[8] Another study in students of Tehran University reported underweight to be 10% and overweight and obesity to be 12.4%.[9] Furthermore, according to the results of a study in female students of Ahvaz Azad University, obesity and overweight were reported as 2.6% and 14.4%, respectively.[10] Studies indicate that although the average of energy and most of the nutrients received by the students is sufficient, the mean calcium, folate, and iron intake, especially among female students, are lower than the recommended values.[5,11] Various studies indicate that about half of the premature deaths are due to nutritional diseases that can be prevented.[12]

Regular physical activity plays a role in promoting health, preventing diseases, and maintaining health.[13] Appropriate physical activity from the early stages of life increases the level of health in the community[4] The World Health Organization says 2 million people die every year because of physical inability and lack of physical activity.[14] The results of studies indicated that mobility and physical activity improve cardiovascular and respiratory health and blood pressure in inactive people.[15] Research indicated that levels of physical activity reduce in adults than in teenagers. Therefore, attention to mobility in young people, especially students, is important.[16]

Nutritional status and physical activity are useful measures in assessing the individual and the community health. According to the available databases, few studies have been carried out about nutritional status and physical activity of students that each of them was considered nutritional variables and physical activity alone. Furthermore, the most of the studies were old and their life style was different with new students. Therefore, the present study was designed to determine the nutritional status and physical activity of students at Mazandaran University of Medical Sciences in 2017.

MATERIALS AND METHODS

This research is a cross-sectional study aimed at determining the nutritional status and physical activity in students of Mazandaran University of Medical Sciences in 2017. After obtaining a license from Mazandaran University of Medical Sciences and explanation for the students and obtaining written consent, the sampling was started. Sampling was a multi-stage random type. Students were selected according to their major disciplines (medical, pharmaceutical, paramedical, health and nursing, and midwifery students). Sample size was estimated 435 persons, based on the total number of education major and proportion of each education major. The criteria for enrolling into the study were medical, pharmaceutical, paramedical, health and nursing, and midwifery students who work and have personal satisfaction to enter the study, and they are not having any chronic diseases such as diabetes and hypertension that would be effective on physical activity and nutrition. In this study, the sample size was calculated as follows. According to previous studies, the average of obesity was 13%,[8-10] $P = 0.13$, $d^2 = 0.001$, so the sample size was calculated as 435 people.

Demographic and physical activity questionnaire and food frequency questionnaire (FFQ) were used to collect the information. The demographic questionnaire included age, gender, marital status, education, occupation, monthly income, history of illness, drug, alcohol and supplements use, activity rate (self-report), and recent weight loss or weight gain. The second part of the questionnaire on physical activity included questions such as the amount of activity, type of activity, and duration of activity, and this questionnaire was made by the researcher. FFQ included 168 items as semi-quantitative and based on food intake in the last year. In the present study, the food products were subdivided into the following food groups:[16]

- A group of cereals including bread, rice, and pasta
- The meat group includes red meat, white meat, meat products, eggs, beans, and brains
- The dairy group includes milk, yogurt, and cheese
- Vegetable group includes eating vegetables, sour vegetables, lettuce, cabbage, cucumber, tomatoes, onions, and potatoes
- The fruit group includes a variety of fresh fruits, dried fruits, and natural juices
- A group of fats including solid and liquid oils, butter, cream, and mayonnaise
- The sugar group includes sugar, honey, jams, candy, and quotes
- Other foods including puffs, chips, cakes, muffins, biscuits, cookies, and carbonated drinks.

The method of scoring is to give each person a single point for the amount of consumption of food in each pattern of food. This point includes options less than once a month (1 point), 1–3 times/month (2 points), once a week (3 points), 2–4 times/week (4 points), 5–6 times a week (5 points), once a day (6 points), 2–3 times a day (7 points), 3–5 times

a day (8 points), 6 times or more per day (9 points) that measures the average consumption in the past year.[16]

To assess the reliability of the questionnaire and the ability to repeatability, Cronbach's alpha coefficient was calculated for each of the 40 food groups and three main food patterns. The content validity of five questions related to physical activity was confirmed by five expert persons.

In a study in Tehran, the sample size was132 people (61 males and 71 females). Dietary data were collected monthly by means of twelve 24-h dietary recalls (24 hDR). Participants completed two, 168-item semi-quantitative FFQ. Blood and urine samples were taken every season for measurement of plasma biomarkers and urinary N and K. The FFQ2 and 24 hDR produced exact agreement rates ranging between 39 ·6% and 68 ·3% in men and between 39 ·6% and 54 ·1% in women. The ranges of questionnaire validity coefficients, with the sample correlation between the questionnaires and biochemical marker as the lower limit and the estimate obtained by the method of triads as the upper limit, were 0 ·21–0 ·56 (protein) and 0 ·37–0 ·61 (K). Hence, the FFQ developed for the Tehran Lipid and Glucose Study has reasonable relative validity and reliability for nutrient intakes in Tehranian adults.[17]

For data analysis, descriptive statistic and *t*-test were performed using SPSS version 21 (IBM).

RESULTS

The average age of 435 students was 21.11 ± 3.6 years, of which 302 persons (69.4%) were girls, 364 persons (83.7%) were single, and 272 persons (62.5%) were BS (undergraduate) and 163 (37.4%) were MSc (masters). Furthermore, 373 persons (85.7%) lived in the city. A total of 188 persons (43.2%) every day, 91 persons (20.9%) 1 day in the middle, 49 persons (11.3%) twice a week, and others once a week had physical activity. One hundred and seventy-eight persons (40.9%) had physical activity always on a day, 11 persons (2.5%) had no physical activity, and others (56.6%) had physical activity sometimes. One hundred persons (23%) had weight increasing, 113 persons (26%) had weight decreasing, and others (51%) had neither increase nor decrease weight. Three hundred and forty-one persons (78.4%) activities were walking. Physical activity information is presented in Table 1.

The highest average consumption of the food group included other foods such as chips and biscuits, dairy, fruits, cereals, sugars, vegetables, and meat and its substitutes; more information is presented in Table 2. Consumption of dairy ($P = 0.008$) and fruits ($P = 0.02$) was significantly more in female students compared to males. Consumption of meat and its substitutes ($P = 0.02$) and other foods ($P = 0.01$) was significantly more in male students compared to females. Frequency of consumption of cereals, vegetables, and fats was more in the female students compared to males, but there was no significant relationship. The mean consumption of cereals was 2.75 ± 0.87, meat and its substitutes 2.40 ± 0.94, dairy 2.92 ± 1.09, vegetables 2.54 ± 0.93, fruits 2.77 ± 1.2, fats 2.47 ± 0.98, sugars 2.57 ± 1.11, and other foods 3.02 ± 0.98. Consumption of food group information based on gender is presented in Table 2. Consumption of fruits ($P = 0.001$) was significantly more in MSc students compared to BS students. Consumption of fruits ($P = 0.1$) was more in married students compared to singles.

DISCUSSION

The results of the present study indicated that consumption of other foods such as chips and biscuits (3.02 ± 0.98) was more than other food groups in total students and consumption of meat and its substitutes (2.40 ± 0.94) was lower than other food groups in total students. In a study conducted by Sahebzamani *et al.*,[18] 55.2% of the

Table 1: Frequency of the amount of student's physical activity

The amount of physical activity	Frequency (%)
Every day	188 (43.2)
1 day in the middle	91 (20.9)
Twice a week	49 (11.3)
Once a week	107 (24.6)
Total	435 (100)

Table 2: Comparison of mean and standard deviation of consumption of various food groups in students of Mazandaran University of Medical Sciences based on gender

Food groups	Female students (*n*=302)	Male students (*n*=133)	Total students	Test
Cereals	2.79±0.9	2.66±0.82	2.75±0.87	*P*=0.1 *t*=1.3
Meat and its substitutes	2.34±0.9	2.55±1.01	2.40±0.94	*P*=0.02 *t*=2.2
Dairy	3.02±1.09	2.71±1.07	2.92±1.09	*P*=0.008 *t*=2.6
Vegetables	2.56±0.93	2.51±0.94	2.54±0.93	*P*=0.6 *t*=0.5
Fruits	2.86±1.1	2.58±1.2	2.77±1.2	*P*=0.02 *t*=0.2
Fats	2.50±1.03	2.40±0.85	2.47±0.98	*P*=0.3 *t*=1.04
Sugars	2.53±1.07	2.74±1.17	2.57±1.11	*P*=0.07 *t*=1.8
Other foods	2.95±0.94	3.19±1.03	3.02±0.98	*P*=0.01 *t*=2.5

subjects had an unhealthy consumption of the meat group. Ninety-two percent had a good consumption of dairy and 95.5% had a good consumption of fruit and vegetable group. Furthermore, 96.3% had a good consumption of cereal group and 63.4% had a good consumption of fats group.

The results of the present study indicated that consumption of dairy ($P = 0.008$) and fruits ($P = 0.02$) was more in female students compared to males. The results of the study conducted by Sodeify[19] indicated that the mean consumption of cereal group had no significantly difference between male and female students, which is consistent with the present study. Consumption of meat group and its substitutes was more in female students compared to male and consumption of dairy group in female students was lower than male students, which is not consistent with the present study. In Sodeify's study, the nutritional habits of high school students were evaluated, but in this study, the nutritional status of students in the medical sciences university was evaluated. In addition, it seems that the reason for the difference is the use of different tools in the study.

In this study, the consumption of meat and its substitutes in females was lower than males that was different from the findings of Zamanian Azodi *et al*.[20] In Tavasoli's study, the population studied was students living in dormitories of Shahid Beheshti University of Medical Sciences, but in the present study, the population studied was all dormitory and nondormitory students of Mazandaran University of Medical Sciences. It seems that one of the reasons for the difference could be related to this issue.

According to the present research, the highest consumption of food groups in students was the consumption of other foods and snacks such as chips and biscuits with an average of 3.02 ± 0.98, which can be said to results indicating that deviations from appropriate diet, which can be a factor in the incidence of chronic diseases such as cardiovascular disease, stroke, diabetes, obesity, cancer, and even premature death.[21] The mean meat group and its substitutes was 2.40 ± 0.94 that consumption of this group are less than other food groups, especially in girls, while this issue is important to prevent the iron deficiency anemia in girls due to physiological changes such as menstruation, pregnancy, and breastfeeding.[20] Therefore, more nutritional education in the area of meat consumption and its substitutes is necessary.

Given that fat and sugar groups in the food pyramid had the lowest share, the lowest consumption of this food group was expected and their limited and insignificant consumption is recommended. Furthermore, given the nutritional value of the dairy group and its calcium, it is recommended to consumptive dairy every day to prevent diseases such as osteoporosis.

CONCLUSION

Understanding the patterns and habits of people in a community is helpful in correcting nutrition and preventing nutritional disturbances, and since a large population of community members is students, it is important to pay attention to the nutrition of students and encourage them to have a healthier life style and provide appropriate and high quality of food for them. In addition, students physical activity wasn't optimal level so it is needs to more educational measures.

Conflicts of interest

There are no conflicts of interest.

Authors' contributions

All authors contributed equally to the writing of the scientific proposal, data collection, and manuscript drafting. The final manuscript was reviewed and approved by all the authors.

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