Consumption of fruits and vegetables among college students living in dormitory in Shahid Beheshti University of Medical Sciences

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ABSTRACT

   Obesity is rising rapidly in Iran. Nutrition is an important issue of obesity; Fruits and vegetables are among the best food sources of antioxidant vitamins, soluble fibers, phytochemicals, and other nutrient constituents. Further, some of these foods have been shown to be protective related to reduction of chronic disease risk. In this study, consumption of fruits & vegetables and body mass index (BMI) among College Students Living in dormitory at Shahid Beheshti University of medical sciences were evaluated. In this descriptive analytic survey, 658 college students whose have being lived in dormitory at Shahid Beheshti University of medical sciences were selected by clustering sampling method. Data collected using a food frequency questionnaire and analyzed by $SPSS_{16}$ software. Mean age of participants was 21.82 for females and 22.76 years for males. Frequency of fruits consumption was 2.6 ± 0.9 per day in female and 2.3 ± 0.7 in male, while frequency of vegetables consumption was 3.2 ± 1.00 in female and 2.9 ± 0.9 per day in male students. In general, consumption of fruits (p=0.003) and vegetables (p<0.001) were significantly more in female than males students. BMI in students was normal. Results indicated that students hadn't optimal practice towards fruits and vegetables consumption. Thus, it is essential that authorities pay more attention to this specific problem in training the students, in order to maintain the optimal nutritional status.

Keywords: Fruits; Vegetables; Health; Students; Consumption.

INTRODUCTION

   High fruit and vegetable intake can promote health, and prevent chronic diseases such as heart diseases and certain types of cancer [1,2]. The health benefits of fruits and vegetables seen in epidemiological studies are the main reasons for the recommended intake of at least 400 g of fruit and vegetables per day [3]. Yet, research shows that less than half of adults and youth meet the recommendations for consuming at least five fruits/vegetables servings daily [4]. Fruits & vegetables-rich diets have demonstrated a strong and consistent pattern for decreasing the risk for many cancers and providing benefits against cardiovascular diseases, diabetes mellitus, obesity, and stroke [5]. Therefore, to prevent coronary heart disease, cancer, hypertension, and diabetes mellitus several associations have recommended a fruit and vegetable intake of at least five portions per day [5, 6].
 Recent estimates revealed that 79% of young American adults aged 18–24 nationwide consumed fruit and vegetables less than five times per day. Low-income adults were less likely to consume fruit and vegetables five times per day than their high-income counterparts (21.0% versus 24.9%) as were low-educated versus high-educated adults (18.7% versus 29.2%) [7]. Due to the fact that students would be the future health authorities of the country, and that might provide the ideal

model for people in terms of high health, the investigation of fruits and vegetables consumption among students is designed. The present study investigates consumption of fruits and vegetables among students of Shahid Beheshti university of Medical Science living in camps.

MATERIALS AND METHODS

Present study is a cross-sectional and descriptive-analytical study carried out on 658 male and female students living in Shahid Beheshti University of Medical Sciences dormitory during 2012. The sampling was performed by random cluster sampling method. The eligible participants were female and male students who were living in the dormitory for more than two months and who stated their consent to participation. After taking the necessary approvals from university authorities, our questioners distributed the questionnaires among students after briefing them about the purpose of the study. Assessment of fruits and vegetables consumption was done through the semi-quantitative validated food frequency questionnaire (FFQ). FFQ contains 168 items with an appropriate validity according to previous studies about vegetables, fruit, dairy and grains. It consists of four demographic questions (age, gender, educational degree, and residence time in dormitory). BMI was calculated by dividing weight (kg) on squared height (m^2). Because measurements done in a position while the samples wore light clothing, they were asked to put out the cloths may change body and waist shape. After entering questionnaire data in $SPSS_{16}$ According to food in food frequency questionnaire, the following items were examined.

Fruits Group: Includes a variety of fresh fruits (Apricots, Cherry, apple, Watermelon, Peaches, Strawberries, banana, sour lemon, sweet lemon,

Cherry, Orange and…), *dried fruits* (Raisins, Dried berries, Dried Figs and …) and *natural juices* (Orange juice, Apple Juice, Grapefruit Juice and …).

In the present study, we evaluated the normality by Kolmogorov-Smirnov test and because the data were not normally, nonparametric tests were used for analysis (Mann-Whitney U, Kruskal- Wallis). Fruit and vegetable group once entered into analysis separately and the other time entered together. Obesity and overweight were separately evaluated and then for development of data, overweight and obesity were considered as a unit group with those with BMI over 25 km/m^2. P-values under 0.05 considered significantly.

RESULTS

A total of 658 students participated the study. 300 persons were male and 365 were female. Of all participants, 350 people were students of BSc, 43 MSc, 246 general medicines and 19 PhD. Mean age for females 21.8, and for males was 22.8 years old. BMI among students has been showed in Table 1. Frequency of fruits consumption was 2.6 times per day in female and 2.3 in male, while frequency of vegetables consumption was 3.2 in female and 2.9 times per day in male students (Table2). In general, consumption of fruits (p=0.003) and vegetables (p<0.001) was significantly more in female students than males. Mann-Whitney U test indicated that there was a significant relationship between educational degree and frequency of fruits and vegetables consumption; frequency of vegetables consumption was more than in medicine students than BSc students (p=0.007). Kruskal- Wallis test indicated there was not significant relationship between age and frequency of fruits and vegetables consumption.

Table1. BMI among young students in Shahid beheshti University of Medical Sciences

Gender	Age	N	BMI
male	>20	42	20.4± 3.4
	20-25	212	24.4± 4.4
	<25	46	25.6± 3.3
female	>20	83	21.6± 3.8
	20-25	242	24.8± 4.3
	<25	33	25.3± 3.2

Table2. Frequency of fruits and vegetables consumption in College Students Living in Dormitory

Food groups	Male students n=300	Female students n= 358	General N=658
Vegetables consumption (times per day)	2.9± 0.9	3.2±1.00	3.00± 1.00
Fruits consumption (times per day)	2.3±0.7	2.6± 0.9	2.4± 0.9

DISCUSSION

Fruits and vegetables are an important part of a balanced diet, and they are an important source of vitamins, minerals, dietary fiber, and phytochemicals. They are high in moisture and low in energy. Studies have shown that a diet rich in fruits and vegetables is very important for maintaining normal intestinal function, improving immunity, and reducing the risk of obesity [8, 9] diabetes [10], hypertension [11], CHD [12] and lung cancer [13]. Therefore, fruits and vegetables consumption is an important, indispensable component of a balanced diet; inadequate consumption of fruits and vegetables is a cause of great concern.

The results of present study showed that fruit or vegetable consumption in male students was less than female. But, BMI in all students was normal.

In a study on women from Tehran, it was found that prevalence of obesity was 67% and mean BMI were 25.9 [14]. In another study in the U.S. on children, increased vegetable and fruit intake compared with decreased fat and sugar intake had a significant reduction in percentage of overweight of children. Furthermore, in a cross-sectional study on Mediterranean population, increased vegetable, fruit and fiber intake had an inverse significant correlation with weight gain. Moreover, in a prospective study on 89,432 men and women from five countries participated in The European Prospective Investigation into Cancer and Nutrition (EPIC), there was an inverse significant correlation between fruit and vegetable intake with body weight. This study showed that weight would be reduced 14 g per day with 100 g of fruit and vegetable [15].

CONCLUSION

With regard to the important role of students in foundation of a family and community, this study has provided valuable insight into the consumption of fruits and vegetables. It identifies areas where further research would provide a more comprehensive picture. Such information will be critical to the future development of effective health promotion programs for the healthy life style and prevention of chronic diseases. Results indicated that students hadn't optimal practice towards fruits and vegetables consumption. Thus, it is essential that authorities pay more attention to this specific problem in training the students, in order to maintain the optimal nutritional status.

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