Original Research Article

Assessment of Nutrition Knowledge Among University Students in Ankara

Aims: Nutrition knowledge is one of the factors that could influence an university student's nutritional behaviours. This research was aimed to determined nutrition knowledge of university students in Ankara

Study design: The study was conducted in Ankara, Turkey between May and July, 2014 in university students.

Place and Duration of Study: This was a cross sectional study.

Methodology: Out of 341 students, 66.3% were female (n=226), 33.7% were male (n=115). Our questionnaire included a demographic section, and 25 true-false nutrition knowledge questions. For the reliability of the questionnaire, the internal consistency coefficient was calculated, and the Kuder Richardson (KR-20) value was found to be 0.82. For the statistical analyses of the data, table showing mean, standard deviation ($\overline{X} \pm SD$) and percentage (%) values were prepared. When identifying the nutrition knowledge of students, the "independent t test" was used for the as taking gender and age.

Results: The mean nutrition knowledge score was 15.8±4.9. The mean score for gender was 16.6±4.3 in females, and 14.2±5.5 in males, and found statistically significant (p=.000).

Conclusion: In this study, was determined that nutrition information scores of the participants were moderate. This situation is the result of increasing the level of nutrition knowledge in young people. Nutrition knowledge may be effective in increasing the quality of life and decreasing the prevalence of some diseases.

Keywords: nutrition knowledge, gender, age, university

1. INTRODUCTION

Being able to keep human force at its highest level in terms of physical and mental functions is closely related to human nutrition. One can be unaware of nutrition values of various foods; what foods are suitable for health or what he knows about them might be wrong [1]. Lack of nutritional knowledge or wrong knowledge over nutrition could lead to serious health problems based on nutrition (obesity, diabetes, cardiovascular diseases etc.) in the future [2-4].

Providing knowledge of nutrition is realized through true nutrition education. Educational programs for nutrition have a direct impact on the knowledge of nutrition and nutritional behaviors [5] Knowledge of nutrition is a great factor having an effect on the nutritional behaviors of families and communities [1]. Basic aim in nutritional education is to give the information with regard to its relation to nutrition and which healthy food to eat [6].

With an increase in health service activities, improving dietary and there will be a decrease in health complications and untimely deaths [7].

University life is a period when some significant changes occur in the life of individuals [8-9]. Differentiating together with university, life style could have some changes in the nutritional behaviors of the students. Changing nutritional behaviors do not only deal with the mental and physical status of the university student, That's why, Increasing the nutrition information of university students has an impact on maintaining a healthier life [10-13]. In the current study, was aimed to determined nutrition knowledge of university students according to gender and age.

2. MATERIAL AND METHODS

The sampling of the research was made up of 341 volunteer students attending to various universities in Ankara. Ankara is the capital city of Turkey. The number of participants has been determined by the duration of the study. Participants were included in the study by voluntarily obtaining the informed consent form. The study is a descriptive research. The research data were collected through a questionnaire and face to face interviews. The questionnaire form was composed of two sections, the first of which was designed to obtain information about the demographic characteristics of the students and the second part contained statements related to nutrition knowledge. Statements were prepared for an examination of the relationship between nutrition and health. In order to evaluate their knowledge on nutrition, the students who participated in the study were given 25 statements which they can reply as "true" or "false". At the stage of developing items, some sources were used [1,14,15]. All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. This research was prepared in accordance with the Helsinki Declaration principles Ethics Committee Approval is obtained from Assessment Commission of Non-Interventional Research of Ankara University; (273 numbered decision in 12.12.2013 year).

Statistical Analysis

After administering the questionnaire to the individuals and assessing it, reliability test was applied. For the reliability of the questionnaire, "Kuder Richardson", the internal consistency coefficient, was calculated, and the KR-20 value was found to be 0.82. As the results of reliability were not low, all the item were not included. Accordingly, it was agreed that the "Nutrition knowledge" scale was a reliable instrument.

While the nutrition knowledge was being evaluated, 1 point was given to each correct answer, whereas wrong answers were not given any points. The students' knowledge status was evaluated with 25 points by giving a score in the right answer for each item with the data collection tool. The data of the study were evaluated using SPSS statistical package program. Nutritional knowledge of the students were examined in terms of age and gender variables. For the statistical analyses of the data, table showing mean, standard deviation ($\overline{X} \pm SD$) and percentage (%) values were prepared. When identifying the nutrition knowledge of students, the "independent t test" was used for the as taking age and gender. A criterion alpha level of < 0.05 was used to determine statistical significance.

3. RESULTS AND DISCUSSION

Descriptive data

Of the participants of the research, 66.3% (n:226) were girls and 33.7% (n:115) were boys. The mean age of the students was 21.06±1.56 (girl:21.0±.6 years, boy: 21.2±1.5 years)

Nutritional knowledge has a direct effect on the health of individuals. It is likely to prevent a great many health problems with an awareness of healthy nutritional principles and their application [1]. The percentages of true answers of the items asked to students with regard to nutrition were given in Table 1.

Table 1. Nutritional knowledge of students

Statements	%
Consuming fish 2-3 times a week decreases the risk of cardiovascular diseases (T).	80.9
Lack of vitamin C leads to tooth gum bleeding (T).	65.7
When not taking enough vitamin D, children could have the disease of rachitism (T).	80.6
Overconsumption of salt could lead to hypertension (T).	86.8
Overconsumption of fried food increases the risk of cancer (T).	90.9
An increase in the energy from fat in diet increases the risk of cardiovascular diseases (T).	57.8
Overconsumption of fiber food increases the risk of intestinal cancer (F).	35.5
The risk of having anemia is more in those not consuming red meat (T).	55.1

Consuming iodine salt is not effective in preventing the development of goitre (F).	52.8
The risk of having diabetes in obese people is higher than the thin ones (T).	72.7
Consuming an egg a day by healthy people does not affect cholesterol level (T).	47.2
Consuming less fiber food causes constipation (T).	51.3
Inadequate florin intake causes tooth decay (T).	77.1
Inadequate florin intake leads to mental retardation (T).	41.6
Consuming milk and dairy products less leads to osteoporosis only in women (F).	32.0
Inadequate vitamin D taking leads to softening in bones and teeth (T).	72.7
Consuming tea in meals leads to diminishing iron absorption of food and causes anemia (T).	80.6
Green leaved vegetables consumed at breakfast help to prevent anemia (T).	64.2
Consuming less food than needed by diabetics leads to decrease in blood sugar (T).	56.9
Overconsumption of food with saturated fat and having high cholesterol content leads to cardiovascular diseases (T).	87.4
Consuming leguminous food increases bad cholesterol (LDL) (F).	31.7
A, C, E vitamins help to prevent cancer by protecting cells (T).	59.2
East fast and chewing less could lead to (T).	78.9
Fast food menus could lead to hypertension because of their sodium content besides salt (T).	60.1
Skipping main meal leads to obesity (T).	59.8

Note: (T) = true, (F) =false.

According to Table 1, the first three expressions answered correctly in high rate: (Overconsumption of fried food increases the risk of cancer 90.9%, Overconsumption of food with saturated fat and having high cholesterol content leads to cardiovascular diseases 87.4%, Overconsumption of salt could lead to hypertension 86.8%). High rates of wrong answers given phrases (Consuming leguminous food increases bad cholesterol (LDL) 31.7%, Consuming milk and dairy products less leads to osteoporosis only in women 32.0%, Overconsumption of fiber food increases the risk of intestinal cancer 35.5%).

Basic element in protecting oneself from coronary diseases is the change in life and nutrition style. The item of “Consuming fish 2-3 times a week decreases the risk of cardiovascular diseases” replied by 80.9% of the participants as true. Important fat acids in fish have a positive impact on cardiovascular health [16]. As for the item of “An increase in the energy from fat in diet increases the risk of cardiovascular diseases”, the rate of answering it was 57.8%. Besides decreasing the energy coming from fat in diet, providing a variety of diet fat types should not be neglected [7]. An increase in taking mono and multi fat acids and a decrease in saturated fat acids could decrease the risk of cardiovascular disease risk to a great extent [16]. Due to the fact that egg is a sample of protein, there is no problem with consuming an egg a day by the ones having no health problems [17].

The rate of the ones knowing that overconsumption of the food having a high content of saturated fat and cholesterol could lead to cardiovascular diseases was 87.4%. However, the important point here is to decrease total daily fat consumption. The rate of answering the item “Consuming leguminous food increases bad cholesterol (LDL)” as true saying that it is false was 31.7%. It would be possible to prevent cholesterol accumulation in veins with a decrease of LDL-cholesterol in diet and an increase in HDL-cholesterol [18]. Due to the fiber content, legume is helpful in showing this effect.

Since vitamin C sources are not well benefitted in winter months in rural areas, low and medium level vitamin C deficiency symptoms could be seen [1]. It was found that the participants answered the item “Lack of vitamin C leads to tooth gum bleeding” as true at the rate of 65.7%. And 55.1% of the participants knew that those not consuming red meat have a higher possibility of anemia. Iron absorption in animal based food is higher. In the prevention of a great variety of anemia, consumption of animal based foods are effective. There is a need to inform people over increasing the consumption of such kind of foods. It is also of a great importance to increase this rate in the university years which are considered to the last period of the development. The tannins in tea decreases the bioavailability of iron [1]. The item of “Consuming tea in meals leads to diminishing iron absorption of food and causes anemia” was answered correctly at a high rate (80.6%). The rate of answering the item of “Green leaved vegetables consumed at breakfast help to prevent anemia” correctly was 64.2%. In particular, due to the fact that green leaved vegetables consumed at breakfast are rich in vitamin C, they are significant nutrients increasing iron absorption [17].

Goitre is an important health problem of Turkey. The item of “Consuming iodine salt is not effective in preventing the development of goitre” was answered correctly by half of the participants (52.8%). Increasing iodine salt consumption will be effective in preventing such kind of diseases. Only 41.6% of the students knew the item of inadequate iodine intake could lead to mental retardation. As a result of iodine deficiency, the hormones passing into blood through thyroid gland cannot be produced much enough and there might occur some problems in the development of organs and in their functions. Mental functions retard [19]. The rate of saying true for the item “Inadequate florin intake causes tooth decay” asked to students were 77.1%. Mentioning more about florin in toothpaste commercials show that there is an awareness in this issue. Vitamins have important functions in preventing various cancer types. A, C and E vitamins could prevent the development of cancer cells by preventing the formation of free radicals [20]. The rate of answering the item “A, C, E vitamins help to prevent cancer by protecting cells” true depending on this information was 59.2%.

In societies having a higher average salt consumption, blood pressure increases with age [21]. Cutting down on salt consumption leads to a decrease in blood pressure and this case means a decrease in a significant risk factor for cardiovascular diseases. The fact that the rate of those saying that overconsumption of salt leads to hypertension was high (86.8%) is good news. In the fast food style of nutrition, vitamin C, A, calcium and fiber intake is inadequate and fat and sodium consumption is higher [22]. As for the item of “Fast food menus could lead to hypertension because of their sodium content besides salt”, the rate of true answer was 60.1%. Relatively low rate in this item could result from unawareness of the fact that the rate of salt in fast food products is not known clearly. Some healthy foods (qualitative protein, low fat and whole-wheat products, salads enriched with lemon and vinegar) have been included in the menus of fast food restaurants recently. Therefore, it is necessary that the young should be informed to prefer healthy menus in fast food restaurants.

Faulty processes of the food products could increase the risk of developing cancer. Since the method of frying changers the structure of oil, it increases the formation of carcinogenic materials. The item “Frequent consumption of fried foods increases the risk of cancer” asked in this respect was replied true at a high rate (90.9%). Fiber arranges intestinal activity and prevents constipation. Two items were asked with regard to diet fiber. The rate of the students being aware of the fact that consuming fiber food more reduces the risk of large bowel was 35.5%, while that of the ones knowing that consuming fiber food less could lead to constipation was 51.3%.

Obesity could lead to a great many health problems due to the negative effect on body systems and psychosocial cases [1]. Skipping meals, having frequent snacks and eating fast are among most import faulty behaviors causing obesity. The rate of those knowing that skipping main meals could lead to obesity was 59.8% and the ones knowing that eating fast and chewing less could also lead to obesity was 78.9%.

Obesity one of the preventable risk factors in diabetes development. Increased weight gaining and the duration of obesity could also increase the risk of developing diabetes [22]. In the research, two items were included with regard to measuring diabetes awareness. The rate of participants saying that “The risk of having diabetes in obese people is higher than the thin ones” was 72.7% while that of the ones saying “Consuming less food than needed by diabetics leads to decrease in blood sugar” was 56.9%.

Among vitamin D and calcium functions are the maintenance of bone and tooth health. In the case of deficiency, bone mineralization is broken and rachitism could be seen at children while osteoporosis could be encountered at the elderly [23]. Of the students, 80.8% knew that the disease of rachitism could be encountered at children in the case of not taking enough vitamin D and 72.7% of them knew that when vitamin D is taken inadequately, there might occur some softening in bones and teeth. In the maintenance of bone health, it is of great importance to consume milk and dairy products as they are a good source of calcium [17]. The rate of those answering the item of “Consuming milk and dairy products less leads to osteoporosis only in women” wrongly saying “Yes” was 68.8%. It is thought that the answer given this item correctly at the rate of 1/3 could result from the fact that osteoporosis is known to be a woman disease.

Nutrition knowledge score

The mean nutritional scores, standard deviation and t test results of the students in terms of gender and age group variable were given in Table 2.

Table 2. Mean nutritional scores of students in terms of variables

Age(year)	n	$\overline{X}$	SD	df	t	*P*
18-21	218	16.14	4.77	339	1.73	.084
22-24	123	15.18	5.07			
Gender						
Female	226	16.61	4.34	339	4.41	.000
Male	115	14.20	5.50			
Total	**341**	**15.80**	**4.90**			

Nutrition information; is one of the factors affecting the nutritional status and habits of individuals, families and societies [1]. It is known that education that will be given to the individual is a dynamic process and must be continuous in order to comply with the differences as conditions are constantly changing [24]. In our study, the highest points that can be taken 25. In general sampling, mean nutritional knowledge score was 15.80±4.90. Depending on the age group, it was 16.14±4.77 at 18-21 age range and 15.18±5.07 at 22-24 age range. In terms of gender, mean nutritional knowledge scores of girls (16.61±4.34) was higher than those of boys (14.20±5.50). Mean nutritional knowledge scores taken depending on gender are of significance statistically (*P*= .000). In a study, İlhan et al. [9] and Şanlıer et al. [25] found that nutritional knowledge scores of girls were higher than those of boys. İlhan et al. [9] found in a study with regard to the healthy life style behaviours of university students that mean nutritional knowledge score of girls was 15.55±3.32 and it was 14.81±3.14 at boys. Şanlıer et al. [25] found that mean nutritional knowledge score of boys attending to a university was 5.65±5.55 and it was 6.05±2.38 at girls, and that the score difference between genders was statistically significant (*P*= .05). They found that although the female students had more knowledge, the nutrition information of the young people was inadequate and inadequate information could not turn into habits and behavior[25]. In an other study conducted, 63.1% of the students were found to have moderate nutritional knowledge, 9.0% poor, 27.0% good and 0.9% very good [26].

4. CONCLUSION

It was determined that nutrition information scores of the participants were moderate. Nutritional knowledge has a direct impact on the nutritional status of individuals and also on their habits. Therefore, it is necessary that the importance of nutritional education should be taken into consideration in the maintenance and development of health. As nutrition is an indispensable part of human being, it is also required that students should be made to review their nutritional knowledge. It is thought that nutrition education programs for young is needed not only to get correct nutrition knowledge but also to promote affirmative dietary behavior and the volition to practice nutritionally balanced meals and to induce changes in nutritional behavior. It is known that Universities provide to various opportunities to increase consciousness awareness of nutritional among university students. Including nutrition courses in the programs of higher education, placing it in the state politics and providing its maintenance is believed to have a considerable contribution to the awareness of the issue.

STRENGTHS AND LIMITATION

It is advantageous to work with young groups. Findings cannot generally be generalized to the study population or community, because this research could not be done at various universities. The limited time for research has led to the limitation of the number of samples. Failure to obtain a daily nutrient intake lead to a restriction of study.

CONSENT

All authors declare that 'written informed consent' was obtained from the participants for publication of this study.

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