

Assessment of Nutrition Knowledge Among University Students in Ankara

Aims: 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: 66.3% of 341 students 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 ($\bar{X} \pm SD$) 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 is 15.8 ± 4.9 . The mean score for gender is 16.6 ± 4.3 in females, and 14.2 ± 5.5 in males, and found statistically significant ($p = .000$).

Conclusion: Adequate and balanced nutrition might 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 applications 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, but it also has an effect on their school performance indirectly. Therefore, it is of great importance that the level of trueness of the nutritional knowledge of university students should be increased [10-13]. In the current study, nutritional knowledge of university students was examined in terms of their age groups and gender variables.

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 study is a descriptive research. The research data

35 were collected through a questionnaire and face to face interviews. The questionnaire form was
 36 composed of two sections, the first of which was designed to obtain information about the
 37 demographic characteristics of the students and the second part contained statements related to
 38 nutrition knowledge. In order to evaluate their knowledge on nutrition, the students who participated in
 39 the study were given 25 statements which they can reply as "true" or "false". At the stage of
 40 developing items, some sources were used [1,14,15].

41 Statistical Analysis

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

47 While the nutrition knowledge was being evaluated, 1 point was given to each correct answer,
 48 whereas wrong answers were not given any points. The data of the study were evaluated using SPSS
 49 22.0 package program. Nutritional knowledge of the students were examined in terms of age and
 50 gender variables. For the statistical analyses of the data, table showing mean, standard deviation
 51 ($\bar{x} \pm SD$) and percentage (%) values were prepared. When identifying the nutrition knowledge of
 52 students, the "independent t test" was used for the as taking age and gender. A criterion alpha level of
 53 < 0.05 was used to determine statistical significance.

54

55 3. RESULTS AND DISCUSSION

56

57 Descriptive data

58 Of the participants of the research, 66.3% (n:226) were girls and 33.7% (n:115) were boys. The mean
 59 age of the students was 21.06 ± 1.56 (girl: 21.0 ± 1.6 years, boy: 21.2 ± 1.5 years)

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

Table 1. Nutritional knowledge of students

Statements

Consuming fish 2-3 times a week decreases the risk of cardiovascular diseases (T).
Lack of vitamin C leads to tooth gum bleeding (T).
When not taking enough vitamin D, children could have the disease of rachitism (T).
Overconsumption of salt could lead to hypertension (T).
Overconsumption of fried food increases the risk of cancer (T).
An increase in the energy from fat in diet increases the risk of cardiovascular diseases (T).
Overconsumption of fibre food increases the risk of intestinal cancer (F).
The risk of having anaemia is more in those not consuming red meat (T).
Consuming iodine salt is not effective in preventing the development of goitre (F).
The risk of having diabetes in obese people is higher than the thin ones (T).
Consuming an egg a day by healthy people does not affect cholesterol level (T).
Consuming less fibre food causes constipation (T).
Inadequate flour intake causes tooth decay (T).
Inadequate flour intake leads to mental retardation (T).
Consuming milk and dairy products less leads to osteoporosis only in women (F).
Inadequate vitamin D taking leads to softening in bones and teeth (T).
Consuming tea in meals leads to diminishing iron absorption of food and causes anaemia (T).
Green leaved vegetables consumed at breakfast help to prevent anaemia (T).
Consuming less food than needed by diabetics leads to decrease in blood sugar (T).
Overconsumption of food with saturated fat and having high cholesterol content leads to cardiovascular diseases (T).
Consuming leguminous food increases bad cholesterol (LDL) (F).
A, C, E vitamins help to prevent cancer by protecting cells (T).

East fast and chewing less could lead to (T).

Fast food menus could lead to hypertension because of their sodium content besides salt (T).

Skipping main meal leads to obesity (T).

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

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67 Basic element in protecting oneself from coronary diseases is the change in life and nutrition style.

68 The item of "Consuming fish 2-3 times a week decreases the risk of cardiovascular diseases" replied

69 by 80.9% of the participants as true. Important fat acids in fish have a positive impact on

70 cardiovascular health [16]. As for the item of "An increase in the energy from fat in diet increases the

71 risk of cardiovascular diseases", the rate of answering it was 57.8%. Besides decreasing the energy

72 coming from fat in diet, providing a variety of diet fat types should not be neglected [7]. An increase in

73 taking mono and multi fat acids and a decrease in saturated fat acids could decrease the risk of

74 cardiovascular disease risk to a great extent [16]. Due to the fact that egg is a sample of protein, there

75 is no problem with consuming an egg a day by the ones having no health problems [17]. The rate of

76 the ones knowing that overconsumption of the food having a high content of saturated fat and

77 cholesterol could lead to cardiovascular diseases was 87.4%. However, the important point here is to

78 decrease total daily fat consumption. The rate of answering the item "Consuming leguminous food

79 increases bad cholesterol (LDL)" as true saying that it is false was 31.7%. It would be possible to

80 prevent cholesterol accumulation in veins with a decrease of LDL-cholesterol in diet and an increase

81 in HDL-cholesterol [18]. Due to the fiber content, legume is helpful in showing this effect.

82 Since vitamin C sources are not well benefitted in winter months in rural areas, low and medium level

83 vitamin C deficiency symptoms could be seen [1]. It was found that the participants answered the item

84 "Lack of vitamin C leads to tooth gum bleeding" as true at the rate of 65.7%. And 55.1% of the

85 participants knew that those not consuming red meat have a higher possibility of anemia. Iron

86 absorption in animal based food is higher. In the prevention of a great variety of anemia, consumption

87 of animal based foods are effective. There is a need to inform people over increasing the

88 consumption of such kind of foods. It is also of a great importance to increase this rate in the

89 university years which are considered to the last period of the development. The tannins in tea

90 decreases the bioavailability of iron [1]. The item of "Consuming tea in meals leads to diminishing iron

91 absorption of food and causes anemia" was answered correctly at a high rate (80.6%). The rate of

92 answering the item of "Green leaved vegetables consumed at breakfast help to prevent anemia"

93 correctly was 64.2%. In particular, due to the fact that green leaved vegetables consumed at

94 breakfast are rich in vitamin C, they are significant nutrients increasing iron absorption [17]. Goitre is

95 an important health problem of Turkey. The item of "Consuming iodine salt is not effective in

96 preventing the development of goitre" was answered correctly by half of the participants (52.8%).

97 Increasing iodine salt consumption will be effective in preventing such kind of diseases. Only 41.6% of

98 the students knew the item of inadequate iodine intake could lead to mental retardation. As a result of

99 iodine deficiency, the hormones passing into blood through thyroid gland cannot be produced much

100 enough and there might occur some problems in the development of organs and in their functions.

101 Mental functions retard [19]. The rate of saying true for the item "Inadequate florin intake causes tooth

102 decay" asked to students were 77.1%. Mentioning more about florin in toothpaste commercials show

103 that there is an awareness in this issue. Vitamins have important functions in preventing various

104 cancer types. A, C and E vitamins could prevent the development of cancer cells by preventing the

105 formation of free radicals [20]. The rate of answering the item "A, C, E vitamins help to prevent cancer

106 by protecting cells" true depending on this information was 59.2%.

107 In societies having a higher average salt consumption, blood pressure increases with age [21].

108 Cutting down on salt consumption leads to a decrease in blood pressure and this case means a

109 decrease in a significant risk factor for cardiovascular diseases. The fact that the rate of those saying

110 that overconsumption of salt leads to hypertension was high (86.8%) is good news. In the fast food

111 style of nutrition, vitamin C, A, calcium and fiber intake is inadequate and fat and sodium consumption

112 is higher [22]. As for the item of "Fast food menus could lead to hypertension because of their sodium

113 content besides salt", the rate of true answer was 60.1%. Relatively low rate in this item could result

114 from unawareness of the fact that the rate of salt in fast food products is not known clearly. Some

115 healthy foods (qualitative protein, low fat and whole-wheat products, salads enriched with lemon and

116 vinegar) have been included in the menus of fast food restaurants recently. Therefore, it is necessary

117 that the young should be informed to prefer healthy menus in fast food restaurants.

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

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

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

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

145 Nutrition knowledge score

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

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

Age(year)	n	\bar{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			

148 In general sampling, mean nutritional knowledge score was 15.80±4.90. Depending on the age group,
 149 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
 150 nutritional knowledge scores of girls (16.61±4.34) was higher than those of boys (14.20±5.50). Mean
 151 nutritional knowledge scores taken depending on gender are of significance statistically ($P= .000$). In
 152 a study, İlhan et al. [9] and Şanlıer et al. [24] found that nutritional knowledge scores of girls were
 153 higher than those of boys. İlhan et al. [9] found in a study with regard to the healthy life style
 154 behaviours of university students that mean nutritional knowledge score of girls was 15.55±3.32 and it
 155 was 14.81±3.14 at boys. Şanlıer et al. [24] found that mean nutritional knowledge score of boys
 156 attending to a university was 5.65±5.55 and it was 6.05±2.38 at girls, and that the score difference
 157 between genders was statistically significant ($P= .05$).
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159

160 4. CONCLUSION

161

162 Nutritional knowledge has a direct impact on the nutritional status of individuals and also on their
163 habits. Therefore, it is necessary that the importance of nutritional education should be taken into
164 consideration in the maintenance and development of health. As nutrition is an indispensable part of
165 human being, it is also required that students should be made to review their nutritional knowledge.
166 Universities provide various opportunities to organize incentives and programs to raise consciousness
167 and awareness of nutritional literacy among university students [25]. Including nutrition courses in the
168 programs of higher education, placing it in the state politics and providing its maintenance is believed
169 to have a considerable contribution to the awareness of the issue.

170

171

172 CONSENT

173

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

176

177 ETHICAL APPROVAL

178

179 All authors hereby declare that all experiments have been examined and approved by the appropriate
180 ethics committee and have therefore been performed in accordance with the ethical standards laid
181 down in the 1964 Declaration of Helsinki.

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