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## Nutrition Knowledge and Eating Behavior

<sup>1</sup>Jamal Karamravan, <sup>2</sup>Kamal Koohi, <sup>2</sup>Mohammad Abbaszadeh<sup>1</sup>Young Researchers And Elite Club, Tabriz Branch, Islamic Azad University, Tabriz, Iran<sup>2</sup>Associate Professor, Department of Social Sciences, Tabriz University

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## ABSTRACT

Background and purpose: Lack of nutrition knowledge is one of the social factors in consumption of low quality food. So, being aware of poor dietary habits and their impacts on health is a key step in the formation of correct food pattern. According to the role of nutrition awareness in food choices and accepting the assumption that nutrition knowledge affects the eating attitudes and behavior, an appropriate diet pattern can be obtained. The aim of this study was evaluation the nutrition knowledge and its impact on the food behavior. Method: This was a cross-sectional study conducted in 2013- 2014. The statistical population includes adults aged 18 years and over of Tabriz. Information about the nutrition awareness and other components has been collected based on the people 's self - report by using the questionnaire. Given the scale of variables, Pearson correlation, T and F tests were used. Findings: In this survey, significant relationship was observed between age, gender, marital status, education level, employment status, income and social class with nutrition knowledge. Also, an inverse correlation was obtained between the number of family members and level of nutrition knowledge. However, there was any relation between nutrition awareness and body mass index (BMI). Conclusions: Given the high level of nutrition knowledge among the subjects and inappropriate body mass index, it is concluded that people had not proper eating behavior. Since individuals are significantly influenced by outer factors, for growing nutrition awareness, the environmental conditions should be favorable and in the same direction.

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## INTRODUCTION

Health is a biological phenomenon that is related to the lifestyle, behavioral and environmental factors, and health care system. One of the bases of social health is providing physical and mental needs from the appropriate nutrition [27]. Food consumption is an answer to the biological necessity, but the way of meeting this demand, like responding to all the other natural needs, is influenced by the values, knowledges, cultural and social conditions [25].

Several studies have shown that there was a significant relationship between nutrition knowledge and food behaviors; lack of information about nutrition in the community is one of the social factors in using the low quality food [23]. Although nutrition awareness is not behavior, but it can be seen as a determinant of food habits [7]. Also, it is one of the factors that not only affects the individuals, but also influenced their family and relatives' eating attitudes [28]. People usually follow dietary patterns without thinking and do not pay attention to positive or negative effects of them on the body, while many of the usual eating habits may be inappropriate and sometimes have irreversible and adverse effects on health [40]. Therefore, knowing the improper eating habits and being aware of their impacts on human health is a key step in the formation of favorable diet and having a balanced nutrition [24]. Individuals' training for increasing their knowledge has an effective role on improving the nutritional status and reducing the malnutrition and nutritional problems [2].

According to the above mentioned points about the importance of nutritional healthy lifestyle; the role of nutrition awareness in food choices and accepting the assumption that nutrition knowledge affects the eating behavior through influencing the people's attitudes and beliefs, an appropriate diet pattern can be made, finally. The aim of this study was evaluation the nutrition knowledge and its impact on the food behavior [36].

**Corresponding Author:** Jamal Karamravan, Young Researchers And Elite Club, Tabriz Branch, Islamic Azad University, Tabriz, Iran.  
E-mail: [Jamal.karamravan@yahoo.com](mailto:Jamal.karamravan@yahoo.com)

**Methodology:**

In this cross-sectional survey, which was conducted in 2013-2014, the level of nutrition knowledge was examined among the citizens aged 18 years and over of Tabriz. According to the statistics, population of Tabriz was 1194453 (601549 males and 592904 females), and sample size of the study includes 384 people that obtained from the Cochran formula. Cluster sampling method was used, so that each municipality area considered as a cluster and samples were selected from these groups, randomly. Information about the nutrition knowledge and other components were collected from self-reported items by using the questionnaire.

To determine the level of nutrition awareness, 47 questions were used and for each expression based on the "Likert scale" five items considered; strongly agree, agree, not sure, disagree, and completely disagree. At last, total score of these 47 following questions determined the person's level of nutrition knowledge:

Drinking at least one glass of milk is useful for health- Sugar is healthy foodstuff that should be added to all meals- Consumption of fish and chicken is more healthier than red meat- All of boiling water are healthy regardless of their sources- Instead of water, cooling drinks such as soda water can be used- Soya consumption is more useful than meat- If individuals use healthy foods, there is no need to the physical activity- Daily consumption of fruits and vegetables is beneficial for health- For being healthy, body needs a little amount of salt- Beans, lentils and peas should be used routinely in the diet- Sugar and sugary foods should be eaten in small quantities- Boiled foods are healthier than fried and roasted- Salt should be added a lot to all foods except fruits- Too much meat can be used every day- Canned and fast foods with high sugar are beneficial for the body- At least 6 cups of water should be drunk in a day- For weight loss, following a simple diet is better than physical activity- Eating too much meat instead of other foods is a good way to lose weight- For weight loss, sugary and starchy foods should be eaten in small quantities- Eating too much bread cause weight gain- Drinking beer or wine can cause weight gain- Hookah consumption, unlike cigarettes is not harmful for the body- Dairy such as milk, cheese and yogurt has too much calcium- Bread, rice and maize contain too much starch- Carrots, spinach and potatoes contain a lot of vitamin A- Fiber can be found in most of the fruits and vegetables- Meat contains too much iron- Fast foods may be unhealthy because of being raw, not using the fresh meat and long time preservation- To defrost the frozen meat, it must be removed from freezers and put in the refrigerators- There is no need for washing the vegetables before cooking- Drinking too much of beer or wine is harmful for the health of a pregnant woman- Pregnant women should try to gain weight- Too much daytime sleepiness is beneficial to the health of a pregnant woman- Beans, lentils and peas are more healthier than red meat for the body- Physical activity, eating a variety of foods and drinking too much water are useful for the health of a pregnant woman- Having three main meal in a day is beneficial to the health.

(In our family): Eating breakfast considered as one of the main meals- Eating takes at least half an hour- Hydrogenated oil mainly use- Sugar and sweets use sometimes- Foods with preservatives commonly consume- It try to use wholemeal bread- Foods with low fat consume- Carbonated drinks mostly use- Saturated fat rarely use- Tobacco products like hookah and cigarette consume- Foods with high salt usually use.

Reliability of the nutrition awareness scale was examined by pre-test and Cronbach's alpha value obtained 0.84. In order to analyze the data, based on the variables measurement scale, T and F-tests and Pearson correlation were used.

**Results:**

In this survey sample size included 384 subjects; 193 males and 191 females. Sample characteristics and descriptive statistics of the variables have been listed below (Table 1 & 2).

**Table 1:** Sample characteristics.

Variables	Subgroups	No. (%) of respondents
Marital status	Single	202 (52.6)
	Married	182 (47.4)
Education level	Primary education	16 (4.2)
	High school diploma	95 (24.7)
	Associate degree	46 (12)
	Bachelor degree	172 (44.8)
	Master degree	51 (13.3)
	Doctorate	4 (1)
Employment status	Governmental	46 (12)
	Self-employment	115 (29.9)
	Unemployed	112 (29.2)
	Housekeeper	48 (12.5)
	Retired & etc	63 (16.4)
Income (monthly)	Under 200 \$	21 (5.5)
	200-350 \$	145 (37.8)
	350-500 \$	100 (26)
	500-650 \$	65 (16.9)
	More than 650 \$	53 (13.8)

Social class	Upper	21 (5.5)
	Medium	327 (85.2)
	Low social	36 (9.4)

**Table 2:** Descriptive statistics of variables.

Variable	Average	SD	CV	Min	Max
Nutrition knowledge	189.32	14.44	188	47	235
Age	28.38	8.54	37	18	52
kg(Weight)	69.1	1.33	78	42	120
cm(Height)	170	9	40	150	190
BMI	23.67	8.54	20.85	16.26	37.11
Family size (No)	4	-	9	2	11

To evaluate the relationship of nutrition knowledge in terms of sex, T and Leven tests were used. Based on the significant level of T-test (Sig= 0.005), there was a statistically significant difference between the level of nutrition awareness and gender; attention to eating in females was higher than males (T= -2/848).

In examination the relationship between age, family size, and body mass index with nutrition awareness, Pearson correlation test was used. Due to the significant level, it can be said that there was a relationship between age and nutrition knowledge; when the age increases, nutrition awareness boosts, too. Also, there was an inverse correlation between the number of family members and level of nutrition awareness; by growing the number of family members, the nutrition knowledge decreases. However, there wasn't seen a significant relationship between BMI and nutrition awareness (Table 3).

**Table 3:** Pearson correlation test for studying the relationship between age, family size, and BMI with nutrition awareness

Variable	Pearson Correlation	Sig
Age	0.26	0.000
Family size (No)	-0.17	0.001
BMI	0.06	0.231

To test the significant differences between mean level of nutrition knowledge and demographic variables, F-test (one-way ANOVA) has been used. According to the achieved level, there were significant relationships between marital status, education level, employment status, income and social class with level of nutrition awareness (Table 4); The maximum level of nutrition knowledge was observed among the married individuals and singles had the lowest. The level of attention to nutrition was great among the postgraduates and primary-educateds had the minimum.

**Table 4:** F-test for studying the relationship between level of nutrition knowledge based on demographic variables .

Variable	F	Sig
Marital status	8.044	0.000
Education level	3.867	0.002
Employment status	3.991	0.003
Income	2.618	0.035
Social class	4.53	0.011

Results also show that the highest level of nutrition awareness was in respondents with government jobs and unemployed had the worst. The most nutrition knowledge was found among the individuals with 500-700 \$ and people with below 350 \$ incomes had the lowest awareness. The notable level of nutrition attention was obtained among high-class people and low-class hadn't enough information.

#### Discussion and Conclusion:

The Health Belief Model (HBM) is a theory that mainly used in describing health behaviors and effective factors for following the recommendations about the prevention and treatment (Rosenstock 1974). According to that, behavior changes root in people perception of their vulnerability in exposure with an illness; for example, serious side effects of malnutrition or believe that consuming of the nutritious foods or following a healthy behavior leads to disease prevention or health promotion.

Today, the role of eating behavior in health and disease progression is well known [12]. In addition to growth and development of the body, food attitudes can decrease or exacerbate some health problems associated with childhood, such as rickets, tooth decay, obesity, iron-deficiency anemia and malnutrition [37,30,13,26]. Researchs have shown that components of a healthy lifestyle, including proper diet, balanced weight, regular exercise and avoiding tobacco consumption can reduce the risk of cardiovascular disease, stroke, diabete, cancer and so on [19,11,31,18,8]. Also, nutrition during pregnancy plays an important role in fetal and maternal health [9,42]. However, a few studies have been done about the nutrition awareness, accordingly, people have inadequate food information and individuals diets do not cover all needs of their age [1].

In this survey, following results were obtained:

Our findings indicated that aging grows nutrition knowledge. According to the investigations, young people's experiences about the relationship between proper nutrition and illnesses is lower than middle-aged [29]. In this study, nutrition awareness of women were more than men; it seems that housewifely tasks lead to increasing the level of information [22,4]. It was also found that marital status affects the awareness about nutrition; parents in the way of answering the family food needs because of their responsibility, obtain more data about the proper nutrition [33].

The significant association between education level and proper consumption of the foods suggests that high level of training leads to nutrition knowledge. Low-literacy is the root of general ignorance and impacts on various aspects of the social life. It can cause lack of attention to the hygienic issues; by providing unappropriate imagination that arises irresponsibility for the health and mainly nutrition complications generate from the incorrect diet patterns. Individuals with high levels of education have the capability for subjects analysis, access to scientific resources and precise using of them. Therefore, it is evident that better and more understanding also affects the nutrition awareness [10,16].

Employment status, income and social class are variables that determine socioeconomic status of the family. In this research, there was a relationship between these three items and level of nutrition knowledge; That is, high socioeconomic status can cause conditions for improving the nutrition awareness, while low situation possibly due to the greater sensitivity to social and economic changes, will have adverse effects on nutrition knowledge. Low-income families allocate more parts of their earnings for foods and that is why they look for cheaper products [3]. Employment, in addition to income, has a main role in determining the type and amount of essential nutrients. On the other hand, social and cultural communications affect the diet viewpoint of people and food selection depend on social class. These factors can interfere with nutrient budget and also the ways of using it [17]. In socialization process, cultural factors offer the specific patterns in terms of type, time and the ways of food consumption during the day.

In the present survey, an inverse relation was observed between family size and the level of nutrition awareness; when the size of the family was smaller, awareness of nutrition improved. Increasing number of the children lead to many issues; deprives individuals from the opportunities for training, and economic problems will be more visible. It is evident that in this case, the main causes include low-income and family large size [21].

Body mass index (BMI) is considered as one of the best nutritional indicators in healthy subjects and eating behavior is directly related to the BMI [26,15]. Findings of this study showed that nutrition awareness has no role in determining the body mass index; despite most citizens were well aware of proper nutrition and its direct relationship with food attitudes, there was a significant gap between their knowledge and behavior and individuals function was inappropriate. Although foods with high level of salt, sugar, oil and preservatives cause various diseases, soil degradation, industrial and harmful waste to the environment, the endless advertising of these producing companies, have captured the consumers and neutralized the attempts of people training toward the high quality foods [6]. In this regard, however, a wide range of the community deprive from essential nutrients, the per capita consumption has increased over the time. Also, the contents of the food basket, especially in urban, meet some changes such as using too much bread, sugar, fat and low rate of dairy, meat, fruits and vegetables [39].

In this survey, given the high level of nutrition knowledge among the subjects and inappropriate body mass index, it is concluded that people hadn't proper eating behavior. One of the reasons could be fatty and unhealthy food advertising that tempts people towards these tastes. Another factor is the low socioeconomic status that excludes people from accessing the adequate and healthy food items. Based on the HBM theory, since individuals are significantly influenced by outer factors and conditions, in order to growing nutrition knowledge and improving food attitudes, the environmental conditions should be favorable and in the same direction.

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