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# Determining The Food And Nutrition Literacy Status Of University Students

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## Abstract

**Background and Objectives:** Food literacy is a multidimensional concept that encompasses the knowledge, skills and motivation to effectively access and use nutrition information. Improving food literacy can promote healthier eating habits, reduce the risk of diet-related diseases, and improve the overall well-being of university students. This study aims to assess the level of food and nutrition literacy among university students.

**Material and Methods:** The population of the study consisted of students of xxx University, while the sample consisted of 560 students. The data of the study were collected using socio-demographic information form and Food and Nutrition Literacy Scale (FNL). Descriptive statistics, Mann-Whitney U test or Kruskal-Wall test were used to analyse the data.

**Results:** It was found that women scored higher on the attitude dimension, that the mean score on the knowledge and behaviour dimension increased with increasing age, that the score of the students of the Vocational School of Health Services was lower than that of the other departments on the knowledge and behaviour dimension, and that the scores on the knowledge and behaviour dimension increased with increasing class. It was found that the behavioural dimension of those who received nutrition support was higher than those who did not, and the mean score of those who received nutrition education was higher in the knowledge and behaviour dimension ($p<0.05$).

**Conclusion:** It was found that students did not have an adequate level of food and nutrition literacy and that gender, age, class and education influenced this level. In line with these findings, it is recommended that training programmes aimed at raising awareness of healthy eating should be expanded in universities and that sustainable food policies should be developed to enable students to make informed food choices. Keywords: Financial Toxicity, Validity, Reliability, Childhood Cancers, Caregiver.

**Keywords:** Literacy, Nutrition, University Students

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## INTRODUCTION

Nutrition forms the basis of healthy human life (1). In recent years, the importance of food and nutrition literacy has attracted great attention due to its profound impact on public health (2). The ability to acquire, understand and apply nutritional information is essential for making informed dietary choices that contribute to long-term health and well-being (1). The role of nutrition literacy is becoming increasingly important, especially among university students who are transitioning to independent living and autonomous food choices (3). This period is often associated with significant lifestyle changes, including eating habits, food preparation practices, and general health behaviours (4). As the knowledge and behaviours acquired during the student years are likely to become a lifestyle in adulthood, it is important to adopt a healthy, sustainable lifestyle and develop appropriate eating habits during this period (5). However, when we look at the nutritional status of university students, we see that they tend to develop poor eating habits (3,6).

Food literacy is a multidimensional concept that encompasses the knowledge, skills and motivation to effectively access and use nutrition information. It includes the ability to evaluate food sources, interpret food labels, understand dietary guidelines, and make informed dietary decisions (6). Studies show that inadequate food literacy is associated with poor eating habits, increased consumption of processed and fast foods, and a higher prevalence of diet-related diseases, including obesity, diabetes, and cardiovascular disease (1,7,8)

University students are a vulnerable group in terms of nutrition literacy due to the many challenges they face, including financial constraints, time constraints and the influence of social and environmental factors (9). Research shows that many students lack adequate nutritional knowledge and have unhealthy eating habits that can persist into adulthood, making them vulnerable to chronic health problems (10,11). In addition, the increasing accessibility of digital health information creates both opportunities and challenges for improving food literacy, as students encounter conflicting or misleading nutritional information online (12).

Despite the growing interest in food literacy, there is a gap in the comprehensive assessment of the level of food literacy among university students, especially in different socio-cultural contexts (12). While some studies have examined general dietary habits and food choices, limited research has focused on measuring food literacy as an independent construct and its relationship to students' dietary behaviours, academic performance and long-term health outcomes (13).

This study aims to assess the level of food and nutrition literacy among university students. By providing empirical evidence, this research aims to contribute to the development of targeted interventions and educational programmes to improve nutritional literacy among young adults. As a result, improving food literacy can promote healthier eating habits, reduce the risk of diet-related diseases, and improve the overall well-being of university students (7,8).

## MATERIALS AND METHODS

### Type of research

The research was conducted as a descriptive and cross-sectional study.

Sample Size and Sampling

While the universe of the study consisted of the students of xxx University, the minimum sample size of the study was found to be n=560 when the power was 0.95 and the error level was taken as $p<0.05$. Students who did not agree to take part in the study, postgraduate students and people whose student status was not active were not included in the study.

### Data collection instruments

Data for the study were collected using the socio-demographic information form and the Food and Nutrition Literacy Scale (FNL).

### The survey form

The survey form consists of 25 questions. The questions cover the socio-demographic characteristics and the nutritional status of the students.

### Food and nutrition literacy scale (FNL)

Consists of the knowledge, attitude and behaviour dimensions. The FNL scale consists of a total of 36 questions/items, 13 questions in the knowledge dimension and 13 and 10 questions in the attitude and behaviour dimensions, respectively. The eighth question in the knowledge section consists of 6 sub-questions. Participants receive 1 point for each correct answer and 0 points for marking incorrect answers or indicating that

they do not know. The total original score that can be obtained from the knowledge domain dimension of the FNL scale is 0-13. There are a total of 13 items in the attitude section, 3 positive and 10 negative. The attitude items are scored as strongly agree, agree, neutral, disagree and strongly disagree. The total score that can be obtained from the attitude dimension of the FNL scale ranges from 13 to 65. The behaviour dimension contains a total of 10 items, 9 positive and 1 negative. Behaviour items are rated as always, often, sometimes, seldom and never. The total score that can be obtained from the behavioural dimension of the FNL scale ranges from 10 to 50. The increase in scores that participants receive from these sub-domains can be interpreted as an increase in their FNL knowledge level, better attitude and more positive behaviour (14).

### Data collection

Data collection was planned and conducted in accordance with ethical guidelines. Study data were collected between 01-30 November 2024. Participation was voluntary and the data collection process was conducted online. During the data collection phase, students were given detailed information about the purpose, scope and confidentiality of the research. At the beginning of the survey, participants were informed that participation in the research was completely voluntary, that they could withdraw from the study at any time, and that the data collected would be analysed anonymously. Participants were given electronic consent before completing the online survey form. Data for the study was collected online using Google Forms. This method was chosen to facilitate participation in the study and to reach a wide range of students. The link to the online survey form was shared with students via university notice boards, email lists and social media platforms.

**Independent variables of the study:** Sociodemographic and nutritional characteristics of the students (age, sex, duration..)

**Dependent variables of the study:** Students' mean scores on the FNL scale.

### Ethical dimension of the study

Approval for the study was obtained from the xxx University Clinical Research Ethics Committee (21.10.2024, meeting no. 16 and decision no. 23), the University Dean's Office and the Directors. Verbal consent was obtained from the individuals who would participate in the study..

### Data analysis

SPSS 22.0 was used for data analysis. In the statistical analysis, mean±standard deviation, minimum and maximum values were used for continuous variables; number and percentage were used for nominal variables. The suitability of continuous variables for normal distribution was determined by examining the Shapiro-Wilk test, normal distribution graphs, skewness and kurtosis coefficient values together. The significance of differences in continuous variables was tested using the Mann-Whitney U test or the Kruskal-Wall test. For all analyses, a p-value below 0.05 was considered significant.

## RESULTS

Table 1 shows that 59.5% of the students were 20 years old or younger and 79.8% were female. More than half of the students were nursing students (51.1%). It was found that 44.5% of students were in their first year and 44.3% lived in halls of residence. 59.0% of students reported that their income was less than their expenditure. Although not shown in the table, it was noted that almost all students were single (96.7%) and did not consume alcohol (97.9%). It was noted that 90.1% of the students did not have any medical condition diagnosed by a doctor (Table 1).

The nutritional status of the students is shown in Table 2. While 69.4% of students reported that they received no additional nutritional support outside of meals, 61.7% reported that they received no nutritional education. It was found that 81.8% of the students who reported receiving nutrition education received it at school. 56.7% of the students reported eating 2 main meals and 59.8% reported eating 1 snack. It was found that 66.5% of the students skipped breakfast, while 43.9% of the students stated that they skipped meals due to lack of time (Table 2).

The results of the Food and Nutrition Literacy Scale (FNL) in Table 3 show that students scored differently in the knowledge, attitude and behaviour domains. The knowledge domain assesses the students' level of knowledge about nutrition and the mean score was calculated as 5.40±1.40 (min: 0, max: 8). This shows that the students' knowledge is at a medium level, some students scored quite low, but even the highest score did not reach the maximum value of the scale. The attitude domain measures students' attitudes towards healthy eating and the mean score was 42.27±6.19 (min: 13, max: 65). The fact that the scale showed a wide range of variability indicates that some students have positive

attitudes, but others have a lower tendency towards healthy eating. The behavioural dimension assesses the extent to which students apply healthy eating habits in their daily lives, and the mean score for this dimension was 27.87±5.92 (min: 9, max: 45) (Table 3).

The results of the study showed that students' scores in the knowledge, attitude and behaviour domains of the Food and Nutrition Literacy Scale differed according to various demographic variables. When analysing the attitude domain dimension, it was found that the mean scores differed according to gender and that this difference was statistically significant, with female students scoring significantly higher than male students ($p<0.05$). This finding shows that women have more positive attitudes towards healthy eating. With regard to the knowledge and behaviour domain dimensions, it was found that the students' scores increased significantly with increasing age. ($p<0.05$). In the comparisons between faculties, it was found that the knowledge and behaviour scores of students from the Vocational School of Health Services were lower than those of other faculties. ($p<0.05$). When examining the relationship between educational level and the sub-dimensions of the FNL, it was found that the scores in the knowledge and behaviour domain increased with increasing grade level, and the difference was due to the difference between the 1st and the 4th grade. ($p<0.05$). It was also found that the scores on the Behaviour Domain dimension were higher for students who received nutritional support than for those who did not. ($p<0,05$). It was also found that students who received nutrition education scored higher on both the knowledge and behaviour dimensions. ($p<0,05$). In general, the findings reveal that university students do not have adequate food and nutrition literacy and that gender, age, grade level and education level are important factors determining the level of food and nutrition literacy (Table 4).

## DISCUSSION

This study was conducted to determine the food and nutrition literacy status of university students. The data obtained shows that university students do not have a sufficient level of food and nutrition literacy, in addition, gender, age, class level and education level are important factors in determining the level of food and nutrition literacy.

This study found that the attitudinal domain scores of university students differed by gender, with female students scoring significantly higher than male students. Similarly, Akyol and İmamoğlu's study reported that female students had a higher risk of nutritional habits than males, but male students also had a moderate risk (4). This situation suggests that women are more aware and interested in nutrition and therefore have more positive attitudes. On the other hand, some studies report different results in nutrition attitudes according to gender. For example, the study by İncedal et al. found that the healthy lifestyle scores of male participants were statistically significantly higher than those of female participants (15). In this study, the more positive attitudes of female students towards healthy eating may be related to their greater emphasis on health awareness and body image compared to males (16). In addition, women's tendency to learn more about health and nutrition issues and to maintain a healthy lifestyle may have contributed to this difference (13).

This study found that students' scores on the knowledge and behaviour dimensions increased with age. This finding shows that students' knowledge of nutrition and healthy eating habits increases with age. Similarly, some studies have shown that nutritional knowledge and healthy eating behaviours increase with age (1,2). This suggests that experience gained with age and increased awareness have a positive effect on dietary habits. On the other hand, some studies report that the effect of age on dietary knowledge and behaviour is limited or does not make a significant difference (15,17). These differences may be due to the demographic characteristics of the sample groups in the studies, cultural differences and the variety of measurement tools used. The results of this study show that university students' dietary knowledge and behaviours improve positively with increasing age, which is consistent with the literature.

This study found that the level of knowledge about nutrition and healthy eating behaviour among SHMYO students was lower than expected. Similarly, another study reported that students in health programmes were not fully aware of healthy behaviours or could not put this awareness into practice (18). This situation may have arisen as a result of SHMYO students' inability to pay sufficient attention to their own health and dietary habits due to their intensive course programmes and clinical practice (7).

This study found that food and nutrition knowledge and behaviour scores increased with grade level, and there was a significant difference between 1st and 4th grade students. Similarly, some studies have reported that

the basic nutrition and food preference scores of senior students are higher than those of first-year students (12). On the other hand, some studies found no significant difference between grade level and nutrition knowledge scores (19). These differences may be due to factors such as the content of the scales used in the studies, the demographic characteristics of the participants, and the content of the training programmes. The results of this study show that the nutritional knowledge and behaviours of university students improve positively as their level of education increases, which is consistent with the literature supporting this situation (12).

In this study, it was found that the Behaviour Domain Dimension scores of students who used dietary supplements were significantly higher than those who did not use dietary supplements. Some studies show that the use of dietary supplements is not directly related to healthy eating behaviours (20,21). For example, one study reported that 40.8% of university students used nutritional supplements, but this use was not consistent with healthy eating habits (20). This may suggest that people who use supplements are trying to compensate for nutritional deficiencies. On the other hand, some studies reported that the use of dietary supplements was associated with healthy eating habits (22,23). The different results may be due to factors such as reasons for using supplements, level of knowledge, general dietary habits and health perceptions of individuals.

This study found that students who received nutrition education scored higher on both the knowledge and behaviour dimensions than those who did not. Similarly, Habib-Mourad et al. reported that one year of nutrition education significantly improved students' knowledge and behaviour (24). In addition, a 5-week nutrition education programme for university students was found to lead to positive changes in their eating habits and behaviour (9). On the other hand, some studies report that nutrition education increases knowledge but has a limited effect on behaviour change (25,26). These differences may be due to different factors such as content, duration, delivery methods and student motivation. The results of this study emphasise that nutrition education is an important tool for improving both knowledge and behaviour.

In this study, it was found that the level of food and nutrition literacy among university students was not sufficient and that gender, age, class level and education level were important factors influencing this level of literacy. Similarly, İbiş and Öztürk's study reported that 73.5% of students had adequate nutrition literacy, but only 9.7% had adequate literacy in the sub-section 'portion sizes' (27). Many factors, such as age, gender, class level, educational content, housing conditions, place of origin, place of residence, nutrition education, academic success and economic status underlie the inadequate food and nutrition literacy of university students (3,6). This may be influenced by the fact that students in the young age group do not have sufficient experience in nutrition, lack of knowledge depending on the grade, and different courses related to nutrition in the educational process (6). In addition, the fact that students living in halls of residence have less access to healthy food options, and that low-income students turn to unhealthy foods for economic reasons, can have a negative impact on nutritional literacy (6,28). Therefore, interventions such as educational programmes, economic support and practical nutrition training to increase students' awareness of nutrition in universities may help to improve healthy eating habits.

## CONCLUSİON AND RECOMMENDATİON

The results of this study show that the level of food and nutrition literacy among university students is inadequate and that this situation is influenced by variables such as gender, age, year and level of education. It was found that female students in particular had more positive attitudes towards nutrition, that knowledge and behaviour scores increased with age and grade, and that students who received nutrition education scored higher. In line with these findings, it is recommended that training programmes aimed at raising awareness of healthy eating should be widely disseminated in universities. In addition, the relationship between the use of dietary supplements and dietary behaviour should be explored in more comprehensive studies, and sustainable nutrition policies should be developed to enable students to make informed food choices. The low level of nutritional literacy, even among health students, highlights the need for more applied nutrition education in the curriculum. Finally, an important step in improving the dietary habits of university students would be to increase the availability of healthy food on campus and to carry out awareness-raising activities.

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