

DETERMINING THE NUTRITIONAL KNOWLEDGE LEVELS OF STUDENTS STUDYING TOURISM

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ABSTRACT

Students of tourism have the potential to become employees of food and beverage establishments. It is important to examine and support their 'nutritional knowledge levels' before they enter the industry and related sectors. This study aims to determine the nutritional knowledge levels of active tourism students at Artvin Çoruh University. The study's main objective is to assess the nutritional knowledge of tourism students. This study is a quantitative research project. Accordingly, a survey was used to collect data. The data obtained were analysed using percentage and frequency distributions, the arithmetic mean, the standard deviation, the t-test and one-way analysis of variance (ANOVA). The findings show that participants' nutritional knowledge levels were generally accurate (\bar{x} : 1.70). However, it was determined that perceptions of nutritional knowledge did not differ according to gender, age, class or whether participants had received nutrition education or taken related courses. The only difference was found to be related to the department/programme in which participants were studying. The study results reveal that nutritional knowledge is an important component of daily life and potential industry experience for tourism students. In this respect, the research contributes to tourism education in the service sector and to nutritional knowledge literature in the health industry.

Keywords: Nutrition, tourism education, knowledge level.

INTRODUCTION

Today, nutrition is becoming increasingly important as one of the key determinants directly affecting individuals' physical, mental and social well-being. The global increase in non-communicable diseases such as obesity, cardiovascular disease and type 2 diabetes, for example, is closely linked to the spread of unhealthy eating habits (World Health Organization, 2020; Food and Agriculture Organization of the United Nations and World Health Organization, 2019; Willett et al., 2019). However, developments such as globalisation, rapid urbanisation and changes to food systems have significantly altered people's eating habits, resulting in a substantial increase in the consumption of processed and high-calorie foods (Monteiro et al., 2019; Popkin, 2017). In this context, the importance of nutritional knowledge in developing healthy eating habits has become more critical than ever.

Nutritional knowledge is defined as the level of information individuals possess about nutrients, balanced diets, food safety and the relationship between nutrition and health (Parmenter & Wardle, 1999). The literature suggests that there is generally a positive correlation between nutritional knowledge and healthy eating behaviours. As individuals' knowledge increases, they tend to make healthier food choices (Spronk et al., 2014; Dickson-Spillmann & Siegrist, 2011). However, it should be noted that this relationship is neither linear nor unidirectional. Indeed, numerous studies demonstrate that nutritional knowledge alone is insufficient for behavioural change. Individuals' socioeconomic conditions, cultural habits, environmental factors and psychological tendencies also play a decisive role in determining their eating behaviour (Contento, 2016; Worsley, 2002). This situation requires us to address nutritional knowledge within a broader behavioural and contextual framework.

University is a critical period during which dietary habits are reshaped and individuals become more independent in their lifestyles. The nutritional knowledge gained during this period can transform into lifelong habits that affect health. However, literature often reports that university students exhibit unhealthy eating behaviours, such as irregular meal consumption, low fruit and vegetable intake, and a high propensity for fast food (Sogari et al., 2018; Deshpande et al., 2009; Nelson et al., 2008). In this context, it is important to research and improve the nutritional knowledge of university students.

For tourism students, knowledge of nutrition is more critical and multifaceted than for other university students. After graduation, these students will work directly in the food and beverage industry, shaping consumers' nutritional experiences. Therefore, their nutritional knowledge plays a decisive role in not only their own health, but also the quality of their service, customer satisfaction and public health (Ellis et al., 2018; Kivela & Crofts, 2006). Students enrolled in departments and programmes such as Gastronomy and Culinary Arts (GCA), Culinary Arts and Tourism and Hotel Management are expected to have a good understanding of nutrition, healthy cooking techniques and balanced menu planning.

However, a review of the existing literature reveals that studies on nutritional knowledge levels tend to focus on university students in general. The limited number of studies conducted specifically on tourism students indicates a significant research gap in this area. Furthermore, given that nutritional behaviours are influenced by cultural and regional characteristics, the dearth of empirical studies conducted in the Turkish context is also a notable deficiency in the literature. This situation necessitates an examination of the determinants of nutritional knowledge in different cultural contexts. Accordingly, this research aims to determine the nutritional knowledge levels of university tourism students and examine whether these levels differ according to various demographic and educational variables. The relationship between nutritional knowledge levels and variables such as gender, age, department/programme, class and whether or not the student has received nutrition education will be analysed.

The aim of this study is to make a multifaceted and original contribution to the relevant literature by analysing the findings and outputs obtained from the planned steps. The results of this study are expected to help determine the nutritional knowledge of undergraduate and associate degree tourism students and contribute to the existing literature on the subject. While similar studies exist in the literature (Ceylan & Ceyhun Sezgin, 2021; Şanlıer et al., 2009; Gözener et al., 2009), the absence of any studies focusing on tourism students at Artvin Çoruh University (AÇU) underscores the importance and originality of this study.

CONCEPTUAL FRAMEWORK

Nutrition

Nutrition refers to the process by which individuals obtain the necessary nutrients for survival, growth, development and health maintenance in sufficient and balanced amounts. However, modern literature does not consider the concept of nutrition solely as a physiological need; it also evaluates it as a multifaceted phenomenon with social, cultural, economic and behavioural dimensions (Willett vd., 2019; Contento, 2016).

While classical approaches define nutrition as a biological process focusing on energy and nutrient intake, more recent approaches consider it to be a dynamic structure shaped by an individual's lifestyle, environment and sociocultural context. Nutritional behaviours are therefore determined by a variety of factors, including individual preferences, economic resources, food accessibility, cultural habits and societal norms (Popkin, 2017; Sobal & Bisogni, 2009).

In recent years, the concept of nutrition has been considered from broader perspectives within the frameworks of 'healthy nutrition' and 'sustainable nutrition'. The former refers to an individual receiving all the necessary nutrients in sufficient and balanced amounts, whereas the latter takes into account the environmental, economic and social impacts of this process (Food and Agriculture Organization of the United Nations and World Health Organization, 2019). In this context, nutrition is not just about individual health; it is also directly linked to food systems, environmental sustainability and the wellbeing of society as a whole.

On the other hand, although knowledge plays an important role in shaping eating behaviours, these behaviours are not solely influenced by knowledge. Individual eating preferences are also influenced by factors such as habits, taste, time constraints and the social environment (Worsley, 2002). This situation requires us to consider nutrition as both a biological and a psychosocial process.

When evaluated specifically among university students, it is evident that nutritional behaviours differ significantly due to factors such as individual independence, lifestyle changes and environmental influences. The nutritional habits acquired during this period can be crucial in determining an individual's future health (Nelson et al., 2008). Therefore, it is important to address the concept of nutrition within a theoretical framework, as well as in behavioural and practical terms.

In the context of tourism education, the concept of nutrition assumes an even broader significance. Those educated in this field influence not only their own eating habits, but also the nutritional experiences of those they serve. Consequently, nutrition is regarded as a strategic component that is directly linked to individual health, service quality, and customer satisfaction within the tourism industry.

Nutrition Knowledge

Nutritional knowledge is defined as the amount of information that individuals have about nutrients, the principles of healthy eating, food safety and the link between nutrition and health (Parmenter & Wardle, 1999). This level of knowledge is considered a key cognitive factor that shapes individuals' food choices and nutritional behaviours.

There is a strong consensus in the literature that nutritional knowledge is crucial for developing healthy eating behaviours. It is suggested that people with adequate nutritional knowledge are more likely to have a balanced diet and reduce their risk of chronic diseases related to nutrition (Spronk et al., 2014). However, it should be noted that knowledge of nutrition does not automatically translate into behaviour. Behavioural transformation should be considered alongside environmental, psychological, cultural and socio-economic variables.

In this context, nutritional knowledge is considered a multidimensional construct shaped by lifestyle, learning processes and social context, not merely a variable limited to individual health outcomes. Young adulthood is particularly regarded as a critical stage at which nutritional habits are formed permanently. During this period, university students acquire independent living skills and begin to make their own nutritional decisions (Deshpande et al., 2009).

For tourism students, knowledge of nutrition is considered not only important for individual health, but also a crucial part of professional competence. Those enrolled in subjects such as GCA, Culinary Arts, Tourism and Hotel Management are expected to have a good understanding of nutrition, menu planning, portion control, food safety and healthy food production. In this context, nutritional knowledge is recognised as an area of professional competence that directly affects service quality and guest satisfaction.

Therefore, assessing the nutritional knowledge of tourism students is not only an academic exercise, but also a strategic necessity for developing sectoral competencies. Studies conducted within this scope contribute to evaluating the adequacy of educational programme content and strengthening students' professional skills.

Research on the Subject

Studies aimed at determining individuals' levels of nutritional knowledge occupy a significant place in international and national literature alike. These studies reveal that nutritional knowledge is an important determinant of not only individual health, but also nutritional behaviours and quality of life. University students, in particular, are a frequently preferred sample group in research as they are at a stage in life where nutritional habits are being formed.

International and national studies show that university students generally have moderate nutritional knowledge, with significant relationships existing between knowledge levels and nutritional behaviours. For instance, a study of university students in China revealed a direct correlation between nutritional knowledge and eating habits (Nuerkaosaier, 2013). Similarly, a systematic review covering different countries revealed mostly positive correlations between nutritional knowledge and the quality of a healthy diet, with vegetable and fruit consumption increasing as knowledge levels rose (Carbonneau et al., 2021).

Recent studies emphasise that nutritional knowledge is not merely theoretical, but directly related to individuals' daily practices. For instance, a study conducted in higher education institutions revealed a significant correlation between nutritional knowledge and awareness of healthy eating. This suggests that knowledge plays a pivotal role in shaping behaviour (Engin & Sevim, 2022).

Although studies on students of tourism and hospitality are more limited, they do offer important findings. For example, a study conducted in the USA found that, although hospitality and tourism students had limited knowledge of nutrition, they generally had positive attitudes towards it (McArthur & Chandler, 2003). Furthermore, a study comparing tourism and dietetics students found that dietetics students had a better grasp of nutritional knowledge, whereas tourism students were more interested in practical applications (Türköz Bakırcı et al., 2025). This situation shows that the content of the education programme affects the level of nutritional knowledge.

Similarly, studies conducted in Turkey indicate that students' levels of nutritional knowledge are generally moderate and can vary according to various demographic factors (Güngör & Atasoy, 2022; Ülker, 2021; Çalıştır et al., 2005). However, the small number of studies that focus specifically on tourism education students indicates the need for new research in this field.

In this context, the present study aims to address a gap in national and international literature by examining the nutritional knowledge levels of tourism students in a multidimensional way.

METHODOLOGY

This study evaluates the nutritional knowledge of tourism students at university. Specifically, it investigates the attitudes towards nutritional knowledge of undergraduate and associate degree students in the GCA Department at the Faculty of Tourism of AÇU, as well as students on the Culinary Arts Programme at the Hotel, Restaurant and Catering Services Department of Artvin Vocational School and the Tourism and Hotel Management Programme at the Hotel, Restaurant and Catering Services Department of Arhavi Vocational School.

The current research therefore aims to determine the nutritional knowledge levels of undergraduate and associate degree students studying tourism at AÇU. The study seeks to address a gap in the literature by examining the nutritional knowledge of students in relation to variables such as gender, age, department/programme, class, and whether they have received nutrition education.

Based on the results of similar research, the following hypotheses have been established:

H₁: Students' nutritional knowledge differs according to gender.

H₂: Students' nutritional knowledge levels differ according to age.

H₃: Students' nutritional knowledge levels differ according to class.

H₄: Students' nutritional knowledge levels differ according to department/programme.

H₅: Students' nutritional knowledge levels differ according to whether or not they have taken a nutrition education or related course.

In line with the purpose of the research, the following questions should be answered:

- 1) What is the nutritional knowledge level of undergraduate and associate degree tourism students?
- 2) Do the nutritional knowledge levels of these students differ according to their demographic characteristics?

The SPSS 20 statistical data program was used to perform the following analyses on the data obtained from the surveys: percentages, frequency distributions, arithmetic mean, standard deviation, t-test and ANOVA tests. These analyses revealed findings regarding the participants' opinions on nutritional knowledge. Additionally, any differences in the participating students' attitudes towards nutritional knowledge were determined according to various variables, such as gender, age, department/programme, class and whether or not they had received nutrition education or training.

Population and Sample

The research population consists of undergraduate and associate degree students studying tourism. The sample comprises undergraduate and associate degree students from the GCA Department of the Tourism Faculty at AÇU, the Culinary Arts Programme at Artvin Vocational School, and the Tourism and Hotel Management Programme at Arhavi Vocational School.

As it was believed that the entire sample could be reached within the scope of the research, a full enumeration was conducted instead of a sampling method being used. A total of 208 students (GCA: 108; Culinary Arts: 59; Tourism and Hotel Management: 41), who were continuing their education in the relevant departments and programmes in the 2025-26 academic year, participated in the research on a voluntary basis and completed the survey form.

Data Collection Tool and Data Collection

This study used survey forms as a data collection tool. The survey form consists of two sections. The first section included statements about participants' nutritional knowledge levels (1-20), while the second section included demographic questions about participants' gender, age range, department/programme, class and whether they had received nutrition education.

The nutritional knowledge level scale was created based on the work of Ceylan and Ceyhun Sezgin (2021) and developed for the purposes of this study.

The scale comprises 20 statements for which there is one correct answer. Participants were asked to respond to each statement with "True", "False" or "I don't know". The nutritional knowledge statements cover topics such as food groups and components. To obtain information from the participants, officials from the unit and department where the students received their education were first contacted. After informing the officials about the study, permission was obtained for the students to complete the survey forms. The survey studies were conducted by the researchers between 23 February and 31 March 2026.

Data Analysis Method

Within the scope of the knowledge level assessment criteria, responses to absolute truth statements on the scales were evaluated using a three-point Likert scale. Participants received specific scores based on their answers to these statements. These answers were coded in the statistical programme as follows: "1: True", "2: False" and "3: I don't know". Therefore, a mean score close to 1 indicates that a higher percentage of participants answered the statement correctly.

To analyse the survey data statistically, frequency and percentage calculations were used, as well as mean and standard deviation values, to determine the nutritional knowledge levels of the students participating in the research. The data were prepared, evaluated and interpreted using tables. The tests and analyses were evaluated using the SPSS 20 statistical data programme.

Validity and Reliability

The Cronbach Alpha coefficient, a widely preferred reliability measure in many scientific fields, was utilised to evaluate the reliability of the scale used in the study (Firmansyah et al., 2024). According to the literature, an acceptable alpha value should be at least 0.7 (Büyüköztürk 2015). Accordingly, the Cronbach's alpha coefficient of 0.810 obtained in Table 1 reveals that the scale is 'highly reliable' (Demir et al., 2018).

Table 1. Reliability Analysis

| Cronbach's Alpha (a) | Number of Expressions |
|----------------------|-----------------------|
| 0.810 | 20 |

FINDINGS

This section presents the demographic characteristics of the university students who participated in the study, as well as the distribution of their responses to statements regarding their perceptions of nutritional knowledge. Furthermore, it evaluates in detail whether perceptions of nutritional knowledge differ significantly according to various variables, such as gender, age, department/programme, class, and whether or not they have received nutrition education or related courses.

Demographic Findings

Table 2 presents the demographic characteristics of the students participating in the study, including gender, age, department/programme, class, and whether they took nutrition or related education courses. Examination of the table shows that the majority of participants (70.2%) are female, while male students constitute 29.8% of the total sample. In terms of age distribution, 52.4% of students are aged 18-20, 38.9% are aged 21-23, and 8.7% are aged 24 and over. Examining the findings related to the department/programme variable reveals that 51.9% of participants are studying in the GCA Department, 28.4% in the Culinary Arts Programme and 19.7% in the Tourism and Hotel Management Programme.

Table 2. Findings Regarding Demographic Characteristics

| | | n | % |
|--|------------------------------|-----|------|
| Gender | Female | 146 | 70.2 |
| | Male | 62 | 29.8 |
| | Total | 208 | 100 |
| Age | 17 - 20 years old | 109 | 52.4 |
| | 21 - 23 years old | 81 | 38.9 |
| | 24 years old and over | 18 | 8.7 |
| | Total | 208 | 100 |
| Department / Programme | GCA | 108 | 51.9 |
| | Culinary Arts | 59 | 28.4 |
| | Tourism and Hotel Management | 41 | 19.7 |
| | Total | 208 | 100 |
| Class | 1st grade | 88 | 42.3 |
| | 2ndt grade | 73 | 35.1 |
| | 3rd grade | 19 | 9.1 |
| | 4th grade | 28 | 13.5 |
| | Total | 208 | 100 |
| Nutrition, Education or Related Course | Received | 136 | 65.4 |
| | Not Received | 72 | 34.6 |
| | Total | 208 | 100 |

Examining the distribution of participants by class level reveals that 42.3% are in the first year, 35.1% in the second year, 9.1% in the third year and 13.5% in the fourth year. It should be noted in this context that the Culinary Arts Programme and the Tourism and Hotel Management Programme consist of two classes each, while the GCA Department consists of four. It can be seen that 65.4% of participants have received nutrition education or taken related courses.

Information regarding the knowledge level assessment criteria is presented in Table 3. This table shows the percentage and frequency distributions of participants' nutritional knowledge levels, as well as the mean and standard deviation values for the relevant statements.

Table 3. Levels of Nutritional Knowledge Among Participants

| Expressions | True | | False | | I Don't Know | | \bar{x} | SS |
|--|------|------|-------|------|--------------|------|-----------|-------|
| | n | % | n | % | n | % | | |
| * Naturally, freshly squeezed fruit juices do not contain added sugar. | 83 | 39.9 | 108 | 51.9 | 17 | 8.2 | 1.69 | 0.653 |
| Carrots are an important source of vitamin A. | 155 | 74.5 | 17 | 8.2 | 36 | 17.3 | 1.43 | 0.797 |
| All vitamins play a role in the body's energy production. | 121 | 58.2 | 63 | 30.3 | 24 | 11.6 | 1.54 | 0.728 |
| The body's primary source of energy is carbohydrates. | 160 | 76.9 | 27 | 13 | 21 | 10.1 | 1.34 | 0.691 |
| * The nutritional value of frozen foods is lower than that of fresh produce. | 35 | 16.8 | 150 | 72.1 | 22 | 11.1 | 1.40 | 0.715 |
| * Fruit has a high protein content. | 89 | 42.8 | 95 | 45.7 | 24 | 11.6 | 1.67 | 0.709 |
| The protein content of eggs and red meat is similar. | 133 | 63.9 | 44 | 21.2 | 31 | 14.9 | 1.52 | 0.774 |
| Consuming olive oil increases cholesterol levels. | 75 | 36.1 | 65 | 31.3 | 68 | 32.7 | 2.02 | 0.825 |
| Sunlight is the most efficient source of vitamin D. | 162 | 77.9 | 28 | 13.5 | 18 | 8.7 | 1.32 | 0.663 |
| * High temperatures can have a negative effect on vitamin C. | 97 | 46.6 | 31 | 14.9 | 80 | 38.5 | 1.93 | 0.943 |
| Compared to red meat, fish has a higher saturated fat content. | 42 | 20.2 | 69 | 33.2 | 97 | 46.7 | 2.14 | 0.905 |
| * Brown sugar is healthier than white sugar. | 30 | 14.4 | 131 | 63 | 47 | 22.6 | 1.61 | 0.862 |
| * Whole milk contains more calcium than skimmed milk. | 42 | 20.2 | 99 | 47.6 | 67 | 32.2 | 1.86 | 0.905 |
| A balanced diet requires consuming all food groups in appropriate proportions. | 158 | 76 | 20 | 9.6 | 30 | 14.4 | 1.39 | 0.760 |
| * The body's main source of energy is fat. | 73 | 35.1 | 103 | 49.5 | 32 | 15.4 | 1.67 | 0.762 |
| Red meat is an important source of vitamin C. | 111 | 53.4 | 44 | 21.2 | 53 | 25.5 | 2.05 | 0.710 |
| * Fat is the nutrient that contains the most energy. | 109 | 52.4 | 47 | 22.6 | 52 | 25 | 1.74 | 0.864 |
| * One gram of carbohydrate provides around 10 calories. | 37 | 17.8 | 73 | 35.1 | 98 | 47.1 | 2.13 | 0.921 |
| * The vitamins A, D, E and K are water-soluble. | 48 | 23.1 | 92 | 44.2 | 68 | 32.7 | 1.89 | 0.895 |
| Amino acids are the fundamental building blocks of proteins. | 121 | 58.2 | 33 | 15.9 | 54 | 26 | 1.69 | 0.887 |
| Total | | | | | | | 1.70 | 0.374 |

* Reverse-coded expressions

As shown in Table 3, participants answered the statement “Sunlight is the most efficient source of vitamin D” correctly the most often, with an average score of 1.32. The second most frequently answered correctly, with the second highest average value, was “The body's primary source of energy is carbohydrates” (\bar{x} : 1.34). Another statement with a high average was “A balanced diet requires consuming all food groups in appropriate proportions” (\bar{x} : 1.39).

Comparison of Perceptions Regarding Nutritional Knowledge According to Gender

The results of the independent samples t-test conducted according to gender are presented in Table 4. The analysis revealed that female students had a higher perception of their nutritional knowledge (\bar{x} : 1.69) than male students (\bar{x} : 1.74).

Table 4. Gender-Based Differences in Perception of Nutritional Knowledge

| Scale | Gender | Individuals | Mean | Std. Dev. | t | Sig. (p) |
|----------------------------------|--------|-------------|------|-----------|-------|----------|
| Nutritional Knowledge Perception | Male | 62 | 1.74 | 0.535 | 3.633 | 0.060 |
| | Female | 146 | 1.69 | 0.280 | | |

However, the significance level was found to be $p=0.060 > 0.05$, indicating that there is no statistically significant difference between the groups. Accordingly, the perceptions of nutritional knowledge among tourism students at AÇU do not differ according to gender. In this context, hypothesis H_1 is rejected.

Comparison of Perceptions Regarding Nutritional Knowledge According to Age

According to Table 5, which presents the results of the one-way analysis of variance (ANOVA) conducted according to the age variable, students aged 17-20 have a higher perception of nutritional knowledge (\bar{x} : 1.68) than students in other age groups.

Table 5. Age-Related Differences in the Perception of Nutritional Knowledge

| Scale | Age Range | Individuals | Mean | Std. Dev. | F | Sig. (p) |
|----------------------------------|-------------|-------------|------|-----------|-------|----------|
| Nutritional Knowledge Perception | 17 - 20 | 109 | 1.68 | 0.287 | 1.485 | 0.229 |
| | 21 - 23 | 81 | 1.71 | 0.306 | | |
| | 24 and over | 18 | 1.84 | 0.845 | | |
| | Total | 208 | 1.70 | 0.374 | | |

However, the significance level was found to be $p=0.229 > 0.05$, indicating that the difference between the groups is not statistically significant. Accordingly, the perceptions of nutritional knowledge among tourism students at AÇU do not differ according to age. In this context, hypothesis H_2 is rejected.

Comparison of Perceptions Regarding Nutritional Knowledge According to Department / Programme

According to the results of the One-Way ANOVA test presented in Table 6, when the variable of department/programme of study is examined, it is determined that students studying in the GCA Department have higher nutritional knowledge perceptions (\bar{x} : 1.64) than students studying in the Culinary Arts and Tourism and Hotel Management Programmes. A statistically significant difference ($p = 0.007 < 0.05$) was found in the nutritional knowledge perceptions of participants according to their department/programme of study. In this context, hypothesis H_3 was accepted.

Table 6. Differences in Perception of Nutritional Knowledge According to Department / Programme

| Scale | Department / Programme | Individuals | Mean | Std. Dev. | F | Sig. (p) | Post Hoc Tukey | Sig. (p) |
|----------------------------------|------------------------------|-------------|------|-----------|-------|----------|------------------------------------|----------|
| Nutritional Knowledge Perception | GCA | 109 | 1.64 | 0.258 | 5.120 | 0.007 | GCA - Tourism and Hotel Management | 0.005 |
| | Culinary Arts | 59 | 1.71 | 0.268 | | | Tourism and Hotel Management - GCA | 0.005 |
| | Tourism and Hotel Management | 41 | 1.86 | 0.638 | | | | |

A post-hoc test was conducted to determine the dimensions between which differences occurred (see Table 6). Examining the variables causing the differences across all sub-dimensions revealed that the differences were between students of the GCA Department and those of the Tourism and Hotel Management Programme. This can be interpreted as being due to the fact that GCA Department students receive more practical and applied culinary training throughout their studies than Tourism and Hotel Management Programme students.

Comparison of Perceptions Regarding Nutritional Knowledge According to Class

The results of the one-way ANOVA test conducted according to class are presented in Table 7. The analysis revealed that the perceptions of nutritional knowledge held by fourth-grade students (\bar{x} : 1.58) were at a higher level than those of students in other classes.

Table 7. Differences in Perception of Nutritional Knowledge According to Class Level

| Scale | Class | Individuals | Mean | Std. Dev. | F | Sig. (p) |
|----------------------------------|-----------|-------------|------|-----------|-------|----------|
| Nutritional Knowledge Perception | 1st grade | 88 | 1.73 | 0.455 | 1.543 | 0.205 |
| | 2nd grade | 73 | 1.69 | 0.325 | | |
| | 3rd grade | 19 | 1.79 | 0.192 | | |
| | 4th grade | 28 | 1.58 | 0.271 | | |
| | Total | 208 | 3.27 | 0.374 | | |

However, the significance level was found to be $p=0.205 > 0.05$, indicating that the difference between the groups is not statistically significant. Accordingly, the perceptions of nutritional knowledge among tourism students at AÇU do not differ according to class. In this context, hypothesis H₄ is rejected.

Comparison of Perceptions Regarding Nutritional Knowledge based on Whether or not Individuals Received Nutrition Education or Related Courses

The results of the independent samples t-test conducted according to whether students had received nutrition education or related courses are presented in Table 8. The analysis revealed that students who had received nutrition education or related courses had a higher perception of their nutritional knowledge (\bar{x} : 1.66) than those who had not (\bar{x} : 1.77).

Table 8. Differences in Perception of Nutritional Knowledge based on Whether or not one has Received Nutrition Education or Related Courses

| Scale | Nutrition Education / Related Courses | Individuals | Mean | Std. Dev. | t | Sig. (p) |
|----------------------------------|---------------------------------------|-------------|------|-----------|-------|----------|
| Nutritional Knowledge Perception | Received | 136 | 1.66 | 0.268 | 4.695 | 0.031 |
| | Not Received | 72 | 1.77 | 0.513 | | |

However, the significance level was found to be $p=0.031 > 0.05$, indicating that the difference between the groups is not statistically significant. Accordingly, the perceptions of nutritional knowledge among tourism students at AÇU are not affected by whether or not they have received nutrition education or related courses. In this context, hypothesis H_5 is rejected.

CONCLUSION AND DISCUSSION

This research examined the nutritional knowledge levels of tourism students at university, revealing how these levels differ according to various demographic and educational factors. The findings show that students' nutritional knowledge is generally moderate, consistent with similar studies in the literature. However, the lack of significant differences in nutritional knowledge according to demographic factors such as gender, age and year of study suggests that educational and contextual factors have a greater influence on this knowledge.

One of the most significant findings of the study is that the department or programme studied has a significant effect on the level of nutritional knowledge. The higher level of knowledge among GCA Department students demonstrates the positive impact of practice-oriented educational approaches on knowledge acquisition. However, the lack of a significant contribution to knowledge levels from receiving nutritional education necessitates a questioning perspective on the effectiveness of current educational content.

When these findings are considered in their entirety, it becomes clear that nutritional knowledge is shaped by a combination of individual characteristics, educational structure, learning experience and sociocultural context. Therefore, approaches to improving nutritional knowledge must be considered from a multidimensional perspective.

The research findings are partly consistent with those of similar studies in the literature. For instance, studies by Çalıştır et al. (2005) and Güngör & Atasoy (2022) have shown that students' nutritional knowledge can vary according to certain demographic factors. However, the lack of significant differences observed in this study may be due to the homogeneous structure of the sample group.

The finding that receiving nutrition education has no significant impact on knowledge levels is a controversial issue in the literature. While Spronk et al. (2014) suggest that nutrition education may have a limited effect on behavioural change, Deshpande et al. (2009) emphasise that educational programmes should be application-oriented. In this context, the theoretical nature of nutrition courses included in tourism education curricula may mean they have failed to contribute to knowledge levels as expected.

Conversely, the higher level of knowledge among GCA Department students suggests that practical training has a positive impact on learning. This suggests that experience-based learning approaches could be more effective in nutrition education.

Theoretical Contributions

This study makes two key contributions to the literature on nutritional knowledge. Firstly, by focusing on tourism education students, the study addresses a sample group that has not been studied enough in existing literature, thus providing a new perspective on the existing body of knowledge. Since existing studies largely focus on university students in general, this research fills a gap in the field of tourism education.

Secondly, rather than treating nutritional knowledge level as a single-dimensional output variable, the study examines it within a multidimensional framework that incorporates demographic and educational factors. This approach provides a more thorough understanding of how nutritional knowledge is formed and moves beyond the fragmented methods described in existing literature.

Applied and Sectoral Contributions

The research findings have important practical implications for tourism education and the food and beverage industry. Firstly, it is evident that the current nutrition education programmes in tourism are ineffective. This requires the educational content to be restructured and made more application-oriented.

As nutrition and food safety issues tend to be covered less extensively in tourism programmes, particularly outside the field of gastronomy, it is crucial to integrate these areas into the curriculum in a more systematic way. Furthermore, experiential learning environments must be created where students can acquire and apply theoretical knowledge.

From the perspective of the tourism industry, improving employees' nutritional knowledge will have a direct impact on the quality of service provided and customer satisfaction. In this context, it is of great importance to increase cooperation between the sector and universities, and to shape training processes in line with the sector's needs.

Policy Recommendations

The policy recommendations developed based on the research findings are presented below:

- Tourism education programmes at university level should be restructured to include nutrition and food safety courses.
- Nutrition education should not be limited to theory; it should be supported by practical courses, workshops and case studies.
- Interdisciplinary training programmes should be developed in higher education institutions to raise awareness of nutrition.
- In-service nutrition training should be expanded for individuals working in the tourism industry and related sectors.
- University-industry collaborations should be strengthened to enable students to gain real-life experience.
- At the national level, policies aimed at developing healthy eating habits among young people should be integrated into the education system.

Ethical Aspects of the Research

For discussions regarding the study to take place and for the voluntary participation form to be used, an ethics committee decision is required. This decision must be dated 13/02/2026 and numbered E-18457941-050.99-212790. It must also be issued by the Rectorate of the ACU Scientific Research and Publication Ethics Committee.

Limitations and Future Research

This study is limited in terms of generalisability as it is confined to AÇU. Future research should include larger, more heterogeneous samples from different universities. Furthermore, qualitative research methods would be important for examining the relationship between nutritional knowledge and eating behaviours in more depth.

However, future research conducted at AÇU or other universities offering tourism education could provide opportunities for comparison with the current study, using samples of different sizes and types. Furthermore, the application of advanced analytical techniques, such as structural equation modelling, in future studies would facilitate a more comprehensive understanding of the determinants and consequences of nutritional knowledge. This would also make a significant contribution to the relevant literature.

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