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Does Knowledge Level Affect Students' Eating Habits?

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Abstract

Food is one of the main factors for having a healthy mind and body. Many people believe that the knowledge a person has about food influences healthy food choices. Thus, education on food and nutrition is seen as a strategy for promoting healthy habits.

To assess the level of knowledge and eating habits among students of the University of Vlora.

This is a descriptive analytical study, which was conducted with N =200 students from different faculties of the University of Vlora during the period January - June 2023. The sample size was determined based on the descriptive-analytical nature of the study and the recommendations of the literature for similar studies in order to ensure an acceptable level of statistical power and representativeness of the study population. The selection of participants was carried out through a convenient sample of students from different faculties of the University of Vlora.

The study included students regularly registered in the relevant academic year, who voluntarily agreed to participate, while students who did not complete the questionnaire regularly or did not provide informed consent were excluded.

The selection procedure was implemented in academic settings, respecting the inclusion and exclusion criteria, in order to minimize bias and increase the validity of the results.

A self-administered questionnaire was used to assess nutritional knowledge and habits among students. The questionnaire used in this study is a validated instrument, previously used in similar studies on nutritional knowledge and habits among university students. The instrument has been adapted to the local context, while maintaining the basic structure and content, which guarantees validity and reliability.

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200 students, whose average age was 19.6 years, participated in the study from three faculties of UV. No statistically significant difference was observed in eating habits related to the level of knowledge about nutrition ($p=0.432$). The majority of students, 45%, receive information on nutrition from their family. The majority of them, 83%, do not follow a special diet. It is seen that 65% of students have good eating habits and only 18% of them have good knowledge on nutrition, while 82% have moderate knowledge. Regarding knowledge on nutrition and sociodemographic factors, it was observed that younger students and those residing in Vlora have better knowledge compared to others. No statistically significant differences were observed by faculty, gender or year of study. Regarding eating habits, the findings show significant differences by gender, with male students reporting better eating habits compared to females. This result may be related to food preferences, energy needs or sociocultural factors that affect cultural behaviours differently according to gender.

Based on the results of this study, it is recommended to develop and implement structured institutional interventions to promote healthy eating among university students, which should be based on a multidisciplinary approach that includes collaboration between educational institutions, health professionals and the academic community.

Educational programs on healthy eating should be integrated into university curricula, especially for first-year students, including mandatory modules or open informative lectures led by nutritionists, public health doctors and psychologists. These programs should focus not only on increasing theoretical knowledge, but also on developing practical skills for food selection and building sustainable eating habits.

It is also recommended to strengthen the role of university health services through individual and group counselling on nutrition, body weight management and healthy lifestyle.

Active involvement of the family and community through awareness-raising campaigns is recommended, since the family is the main source of information for students.

Finally, periodic monitoring and evaluation of institutional interventions through further research studies using validated instruments and longitudinal designs is suggested, with the aim of measuring the effectiveness of programs and adapting them to the real needs of students.

Keywords: *habits, knowledge, nutrition, students, Vlora.*

Introduction

Over the past few decades, nutrition has been treated as one of the most important aspects of lifestyle, and even healthy diets have become trends in society. The main goals of nutrition plans are to achieve the necessary and appropriate nutrition to be healthy and physically fit. The latter, for many reasons, such as lack of information or financial or time constraints, have shown very bad habits in daily nutrition. Based on these data, many universities aim to improve students' attitudes, knowledge and practices in nutrition. Educating and training students towards healthy nutrition can create a conscious and healthy society. Also, many contemporary studies have proven that nutrition affects stress management, psychological issues, concentration and academic performance of students [1].

Malnutrition is highly prevalent in many developing countries. Nutrition education contributes to the acquisition of knowledge, attitudes and practices on nutrition, which can lead to improved nutritional status [2]. Despite this nutrition education, which has a potential to address malnutrition, has not been given much importance starting from school curricula in developing countries. The deficit in the curriculum covering nutrition education means that knowledge on nutrition and good hygienic and

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dietary practices may be lacking or need improvement in developing countries [3, 4]. The role of the school environment, family and community has not been fully exploited in addressing the gap in nutrition knowledge and practices. Furthermore, there are so many factors that influence food choices and eating habits, but most people believe that healthy food choices are influenced by the level of knowledge about food that a person possesses [5,6]. In this regard, food and nutrition education is seen as a key strategy for promoting healthy eating habits. In addition, people believe that school is an appropriate place to promote healthy food choices and eating habits [6]. Unfortunately, this has not been the case because so many studies show that despite having sufficient knowledge about nutrition; most students are making unhealthy choices. In view of this, the reasons why better nutrition knowledge means healthy choices about food products and eating habits will be determined.

Good knowledge of health and nutrition are key factors on the global agenda. A healthy body and mind come from good nutrition received since childhood. Thus, good dietary choices are very essential for the growth and development of every human being from conception. Students in educational institutions need proper knowledge of nutrition and nutrition to have a healthy mind. However, none of these three factors will be enough alone to achieve social and economic development; only a combination will enable progress towards a world free from poverty and hunger [7]. Nutrition education is an important factor in improving knowledge, attitudes and practices on nutrition (KAP) in schools, families and the community at large [8]. Furthermore, nutrition education is not the only source of nutrition knowledge as there are other points such as the school environment, school meals, health and nutrition clubs and school gardens among others. Furthermore, the family and community play an important role in the acquisition of nutrition knowledge and nutrition-related practices [9].

Thus, educational institutions are the main social context in which lifestyles are developed. However, it is still difficult to link students' knowledge of nutrition and their dietary intake, because even university students, who we assume to have sufficient knowledge about nutrition, do not know how their daily food choices are related to their nutrition knowledge [10]. For example, it has been found that young university students in different countries take responsibility for choosing and preparing their own meals, but unfortunately their diet is unhealthy, with few fruits and vegetables, irregular daily meal consumption patterns, and a high frequency of fast-food choices [10]. This is a particular concern for everyone, especially parents, policymakers, social workers, and nutritionists, as dietary habits established at this stage of life can have a significant effect on individuals' health in the long term. According to Neslişah and Emine, (2011), taste preferences, self-discipline, social networks, friends, and peers are among the main factors that determine students' food choices. Another factor that influences students' food intake includes the physical environment such as availability and accessibility, attractiveness and prices of food products, media and advertising, and university characteristics such as residence, student societies, university lifestyle and examinations (Neslişah et al, 2011). Neslişah and Emine, (2011) found that once they start school, students' diets change in a less healthy direction. In view of this, the researcher wanted to establish the relationship between nutrition knowledge and students' dietary choices. The study aimed to uncover the truth about this contradiction. The information from this study will help nutrition stakeholders to plan and design targeted health programs or interventions that can effectively influence students to make healthy dietary choices [11].

Based on the importance of nutrition at a young age, it was decided to conduct this study among students of the "Ismail Qemali" University in Vlora.

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Purpose of the study

The purpose of this paper is to assess the knowledge and nutritional habits among students from different faculties of the University of Vlora, as a key indicator for designing health interventions to improve nutritional status.

Objectives

1. Assessment of knowledge about nutrition among students of the University of Vlora.
2. The association between knowledge on nutrition and sociodemographic factors.
3. Assessment of eating habits among students of the University of Vlora.
4. The association between eating habits and sociodemographic factors.

Research Methodology

Study design

This is a descriptive analytical study, which was conducted among students from different faculties of the University of Vlora during the period January - June 2023. A self-administered questionnaire was used to assess the knowledge and eating habits of students.

Study sample

A total of 200 students were contacted, all of whom completed the questionnaire in full. The sample size is considered sufficient to obtain valid data. The sample size was determined based on the descriptive-analytical nature of the study and the recommendations of the literature for similar studies in order to ensure an acceptable level of statistical power and representativeness of the study population. The selection of participants was carried out through a convenient sample of students from different faculties of the University of Vlora. The study included students regularly registered in the relevant academic year, who voluntarily agreed to participate, while students who did not complete the questionnaire regularly or did not provide informed consent

were excluded. The selection procedure was implemented in academic settings, respecting the inclusion and exclusion criteria, in order to minimize bias and increase the validity of the results.

Instrument Used

The primary data collection for this study was carried out through self-administered questionnaires. A self-administered questionnaire was used to assess nutritional knowledge and habits among students. The questionnaire used in this study is a validated instrument, previously used in similar studies on nutritional knowledge and habits among university students. The instrument has been adapted to the local context, while maintaining the basic structure and content, which guarantees validity and reliability.

For the purpose of compiling the questionnaires, the questionnaire is divided into 3 main sections. Section 1. This section of the questionnaire collects information on the demographic data of the respondents, including age, place of residence, faculty and year of study.

Section 2. This section collects information on the level of knowledge that students have about nutrition.

Section 3. This section collects information on the students' eating habits.

Data Collection

Questionnaires designed for this study were administered in the classrooms where the students were learning, through which the primary data for the study were collected, which were then statistically processed to obtain measurable values from this work.

Processing of Data

After completing all the questionnaires, the data were coded and entered into the SPSS 21 program. Continuous data were described through the mean and standard deviation. Quantitative data were described with absolute frequencies and percentages. Bar graphs and pie charts were used to better reflect each phenomenon. The coding of the variable "Nutrition Knowledge" and the variable "Nutrition Habits" was used, classifying

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Knowledge Above 5 points = “Good” and Below 5 points = “Moderate”, as well as Nutrition Practices Above 65 points = “Good” and Below 65 points = “Moderate”. The differences between the different groups were analysed through cross-tabulations and the Chi-square probability indicator was calculated, the value of which, less than 5% ($p < 0.05$) indicates statistically significant differences between the groups we study.

Results

The results of this study show that, although most students present relatively good eating habits, the level of knowledge on nutrition remains mainly moderate. This discrepancy suggests that eating behaviours do not necessarily depend on scientific knowledge, but can be influenced by other social and cultural factors such as the family, which is the main source of information on nutrition. The lack of a statistically significant relationship between the level of knowledge and eating habits indicates that theoretical knowledge does not always translate into healthy eating practices, a finding that is consistent with previous international studies. The statistically significant differences observed by age and residence regarding nutrition knowledge suggest that exposure to information and social context may play an important role in the formation of nutritional knowledge. Students residing in the city of Vlora present better levels of knowledge, which may be related to greater access to information, media, or awareness programs.

Analysis of the Data

After statistical analysis of the data, the information is presented below according to the study objectives.

Sociodemographic data of the sample

The study included a sample of 200 students who studied at different faculties of the University of

Vlore “Ismail Qemali”. The students were surveyed regarding their knowledge and habits that they follow regarding nutrition.

From Table 1 we note that, the majority of the surveyed students are female, 75%, and 25% are male. The interviewees are classified into 2 groups, according to their age: “Up to 20 years old”, and “≥ 20 years old”. The majority of students are “≥ 20 years old”, around 55% and “Up to 20 years old” around 45%. The average age is 19.6 years, Minimum age = 18 years, Maximum = 26 years and Standard Deviation = 1.0462 years. 48% of the interviewed students belong to the Faculty of Health, 34% to the Faculty of Technical and Natural Sciences and 18% to the Faculty of Economics. 55% of students are in Year II of studies and 45% in Year I. 60% of students are from Vlora, 31% from Fier and 9% from other cities.

Table 1. Distribution of students according to sociodemographic indicators.

Sociodemographic indicators	Distribution	Nr (n=200)	% (n=200)
Gender	Female	151	75.5
	Male	49	24.5
Age	Up to 20 years old	91	45.5
	≥ 20 years	109	54.5
Faculty	F.Economics	36	18
	F.Health	97	48.5
	F.Technical and Natural Sciences	67	33.5
Year	Year I	90	45
	Year II	110	55
Residence	Vlorë	120	60
	Fier	62	31
	Other	18	9

Assessment of knowledge about nutrition among students of the University of Vlora

This section concerns questions on students' knowledge about food and nutrition. In this section, 11 questions were asked to determine

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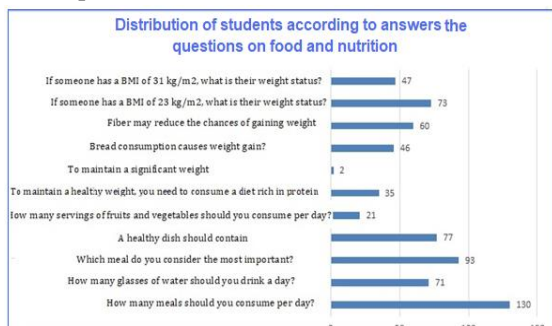
knowledge and 1 question related to the source of information.

Graph 1. Distribution of students according to answers the questions on food and nutrition.

From Graph 1 it is observed that:

- 65% of students answered correctly about the number of meals that should be consumed per day.
- 35.5% of students answered correctly about the amount of water that should be consumed per day.
- 46.5% answered correctly about the most important meal of the day.
- 38.5% of students know the composition of a healthy dish.
- 30% of students answered correctly about the question whether fiber reduces the possibility of weight gain.
- 36.5% and 23.5% answered correctly about the two questions about what BMI values indicate for body weight.
- 23% of students answered correctly about the question whether bread consumption causes weight gain.
- 17.5% answered correctly about the question whether for a healthy weight we should completely eliminate fat.
- 10.5% of students answered correctly the question of how many servings of fruits and vegetables should be consumed per day.
- 1% answered correctly the question of whether for a healthy weight we should use a diet rich in proteins.

Graph 1



Most students do not have good knowledge about nutrition because the majority of correct answers are below 50%. By assigning

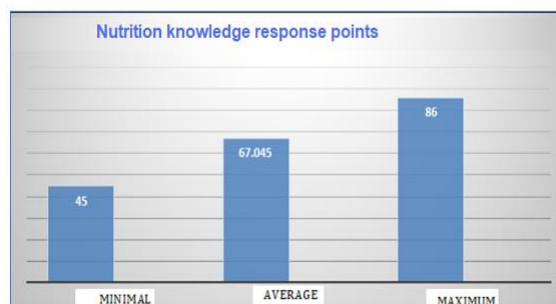
1 point to each correct answer, each student's total points regarding nutrition knowledge were calculated.

Table 2. Average Nutrition Knowledge Scores

Knowledge grade point average data.	N	Min	Max	Average	St.Deviation
	200	0	7	3.275	1.4069

From Table 2 we note that the average score is Mean =3.3 points, Min=0 points and Max=7 points and a SD= 1.4.

Graph 2.



From Graph 2 it is observed that:

- The average score is Mean =3.3 points, Min =0 points and Max =7 points and the SD=1.4.
- So, the students' knowledge scores on nutrition are mostly below the average of the total scores of correct answers.

By classifying scores "≥ 5 points as "Good knowledge" and "<5 points "as "Moderate knowledge"

Table.3. Distribution of students according to knowledge on nutrition

Knowledge	Number (n=200)	%(n=200)
Moderate	164	82.0
Good	36	18.0

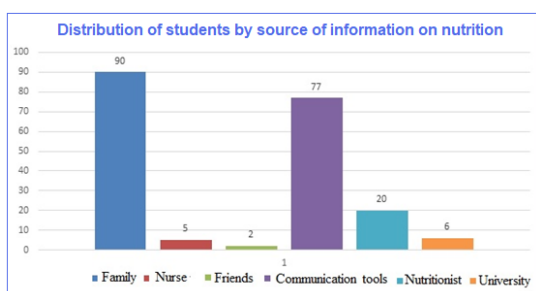
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Total 200 100.0

From Table 3 it is observed that:

- 18% of students have good knowledge about food and eating habits.
- 82% of students have moderate knowledge about food and eating habits

Graph 3.



From Graph 3 it can be seen that:

- 45% of students received information on nutrition from their family.
- 39% of students received information from the media (TV, radio, internet, magazines, etc.).
- 10% of students received information from nutritionists.
- 3% of students received information from their university studies.
- 2.5% of students received information from their nurse.
- 1% of students received information from friends.
- Most students received information on nutrition from their family.

The association between knowledge on nutrition and sociodemographic factors

The relationship between Knowledge about food and nutrition and sociodemographic factors of students was analysed. The following table presents these relationships along with the Chi=quare probability indicator, whose p value <0.05 indicates significant differences between the classes being compared.

From Table 4 we note that:

There are statistically significant differences in the level of knowledge on nutrition among students according to age.

- Thus, 24% of students “Up to 20 years old” have “Good” knowledge on nutrition compared to students “Over 20 years old” of whom only 12% have good knowledge.
- The Chi-square probability indicator is 0.043 (p<0.05) which indicates that the differences are statistically significant.

There are statistically significant differences in the level of knowledge on nutrition among students by residence.

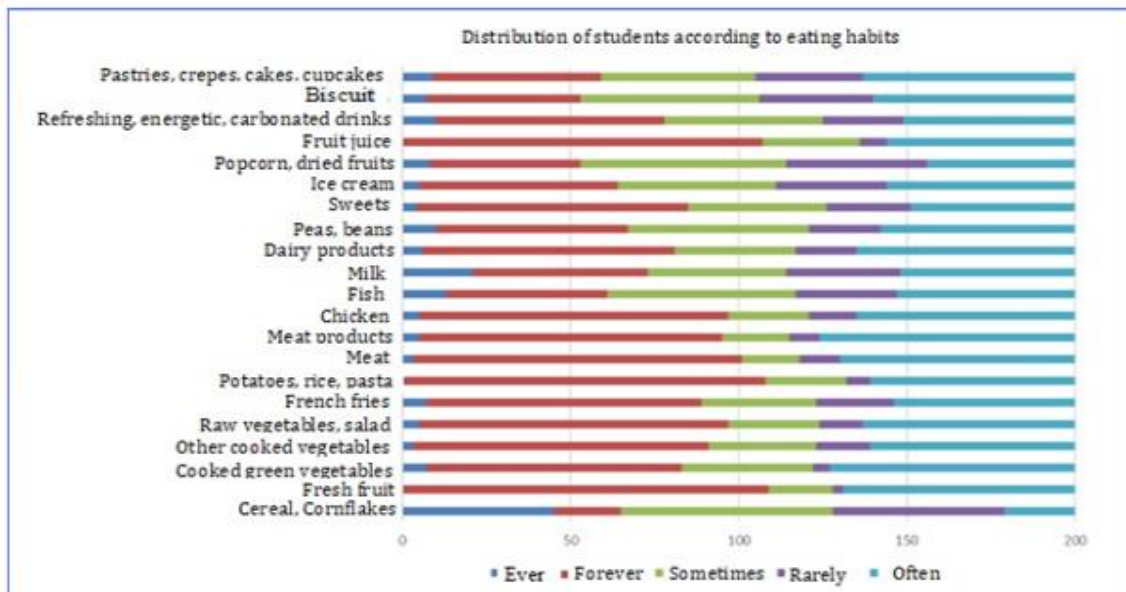
Table 4. Distribution of students according to knowledge on nutrition and sociodemographic factors.

Sociodemographic factors	Knowledge			P (Chi-Square)	
	Moderated	Good	Total		
Gender	Female	121	30	151	0.287
	Male	43	6	49	
Age	Over 20	95	14	109	0.043
	Up to 20	69	22	91	
Residence	Fier	58	4	62	0.017
	Other	14	4	18	
	Vlorë	92	28	120	
Faculty	F.Economics	32	4	36	0.12
	F.Health	74	23	97	
	F.Technical and Natural Sciences	58	9	67	
Year	1	68	22	90	0.095
	2	95	15	110	

- Thus, 24% of students from Vlora have “Good” knowledge on nutrition compared to 22% of students from Fier and 7% of students from other districts.
- The Chi-square probability indicator is 0.017 (p<0.05) indicating that the differences are statistically significant.

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Assessment of eating habits among students of the University of Vlora.



Graph 4

From Graph 4 we note that:

- 55% of students use fresh fruits “Always” and 35% “Often”.
- 46% use raw vegetables or salad “Always” and 32% “Often”.
- 38% use cooked green vegetables and 44% other cooked vegetables “Always”.
 - 54% consume potatoes, rice and pasta “Always” and 31% “Often”.
 - 49% consume meat “Always” and 35% “Often”.
 - 46% consume chicken “Always” and 33% “Often”.
 - 24% consume fish “Always” and 27% “Often”.
 - 26% consume milk “Always” or “Often”
 - 38% consume dairy products “Always” and 32% “Often”.
 - 29% consume peas or beans “Always” and 29% “Often”.
 - 23% consume popcorn or dried fruit “Always” and 22% “Often”.
 - 10% use cereal/cornflakes “Always” and 11% “Often”.
 - 54% consume fruit juices “Always” and 28% “Often”.

Also:

- 41% of students use French fries “Always” and 27% “Often”.
- 45% use meat products “Always” and 38% “Often”.
- 41% use sweets “Always” and 25% “Often”.
- 30% consume ice cream “Always” and 28% “Often”.
- 34% consume energy drinks, carbonated drinks and 26% “Often”.
- 23% consume cookies “Always” and 35% “Often”.
- 25% consume pastries, pancakes, cakes etc. and 32% “Often”

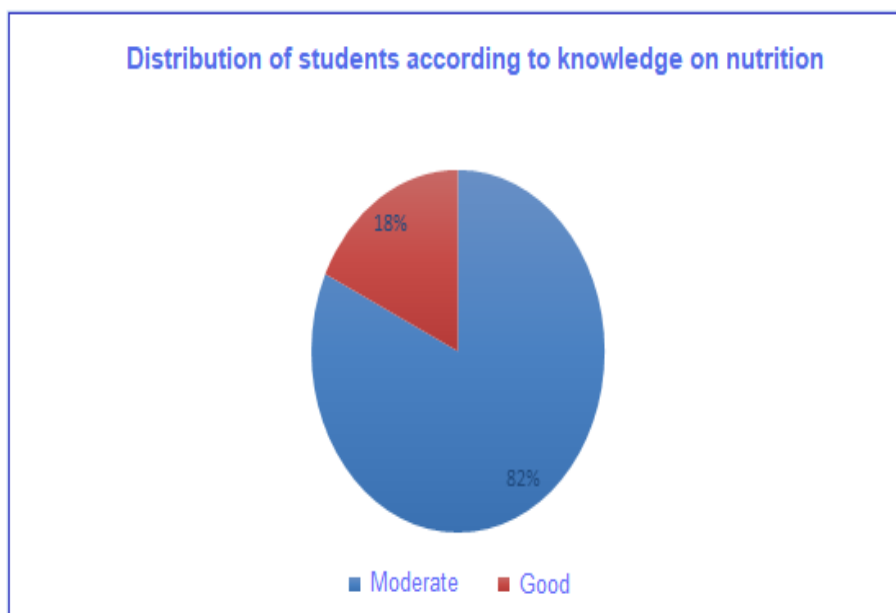
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Table 5. Distribution of students according to eating habits by type of food.

Eating habits	Number (n=200)	%(n=200)
Moderate	65	32.5
Good	135	67.5
Total	200	100.0

From Table 5 we note that:

- 65% of students have good eating habits
- 35% of students have moderate eating habits.



Graph 5

From Graph 5 it is observed that:

- 18% of students have good knowledge about nutrition
- 82% of students have moderate knowledge about nutrition

Therefore, it is observed that the majority of students have moderate knowledge about nutrition.

The association between eating habits and sociodemographic factors

The relationship between eating habits and socio-demographic factors of students was analysed. The following table presents these relationships along with the Chi-square probability indicator, whose value <0.05 indicates significant differences between the classes being compared.

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Table 6. Distribution of students according to knowledge on nutrition and socio-demographic factors.

Socio demographic factor	Category	Knowledge			p (Chi-Square)
		Moderated	Good	Total	
Gender	Female	121	30	151	0.287
	Male	43	6	49	
Age	Over 20	95	14	109	0.043
	Up to 20	69	22	91	
Residence	Fier	58	4	62	0.017
	Other	14	4	18	
	Vlorë	92	28	120	
Faculty	F. Economics	32	4	36	0.12
	F. Health	74	23	97	
	F. Technical and Natural Sciences	58	9	67	
Year	1	68	22	90	0.095
	2	95	15	110	

There are statistically significant differences in eating habits related to the types of foods they consume, among students by gender. Thus, 80% of male students have “Good” eating habits related to the types of foods they consume, compared to females of whom 63% have “Good” knowledge.

The Chi-square probability indicator is 0.026 ($p < 0.05$) which shows that the differences are statistically significant.

There are statistically significant differences in eating habits among students by age. Thus, out of 49 male students, 39 or (80%) of them have “Good” eating habits. While out of 151 female students about 96 of them or (60%) have “Good” eating habits. Male students have more good eating habits than females.

Discussion

The assessment of the level of knowledge of students on nutrition is determined by 11 questions, where each correct answer is

evaluated with 1 point, with an average score of between = 3.3 points, where the max points are 7 points and the min are 0. Therefore, it can be said that the level of knowledge of students on nutrition is below the average level, a level that has no significant differences according to faculty, gender or year of study. The level of knowledge was significantly related by age where young people had better knowledge on nutrition and by residence where students from the city of Vlora had better knowledge compared to students from other districts. In line with our study, other studies have also shown that a moderate level of knowledge on nutrition was found among university students in Ankara, with 63.1% of students having moderate knowledge on healthy eating. Özdoğan (2018) (103). Regarding the source of information, 45% of students received information on nutrition from their family, 39% from the media, 10% from nutritionists, 3% from their studies at universities, 2.5% from their nurses and 1% from their friends. They had important knowledge about the number of meals they should eat per day, with 65% of students answering correctly, as well as the level of knowledge about the amount of water they should drink in

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24 hours, with only 35% of students answering correctly.

Regarding the students' eating habits, 21 questions were asked, where each answer was rated with a score from 1=Never and 5=Always, with an average score of $M=67$ points, $min=45$ points and $max=86$ points. So, the students have relatively good eating habits. There was no statistically significant relationship of the students with regard to the faculty, place of residence or year of study, but there were statistically significant differences in eating habits regarding the type of food they consume between genders, where 80% of the male gender has better habits compared to females where only 63% of them have good knowledge regarding the types of food. On the eating practices, 6 questions were asked regarding the students' diet, where the majority, 83%, do not follow a special diet. Regarding beverages, students consume more water and coffee, with men consuming more water and coffee compared to women, while women consume twice as much tea as men.

From this study, no significant relationship was observed regarding the knowledge on nutrition and the eating habits of students, students have little knowledge on nutrition but on the other hand they exhibit good eating habits and this may be due to the impact that the family has on daily practices of eating habits, being one of the main sources of information on nutrition and not because students have scientific knowledge about healthy foods. These results have also been found in similar studies where it has been noted how the family, especially in recent years (2016-2020), affects healthy eating. This may be a result of awareness on healthy eating by WHO. (N. Liu, 2021).

Limitations and Future Research

This study has several limitations that should be considered when interpreting the findings. The study does not allow casual inference between nutrition knowledge and eating behaviours, capturing associations only at a single time point. In addition, the use of convenience sampling and recruitment from a single university may limit the

generalizability of the results, while the overrepresentation of female participants could have influenced gender-related comparisons.

Furthermore, the instrument primarily assessed declarative nutrition knowledge and reported dietary practices, without accounting the key psychosocial and environmental determinants known to influence eating behaviours.

Future research should employ longitudinal and intervention-based designs across multiple university settings to better elucidate causal pathways and enhance external validity. The integration of qualitative methods and objective measures, such as anthropometric indicators or assessments of the university food environment, would further strengthen the evidence base and support the development of effective, context-sensitive nutrition interventions for university students.

Conclusions

The findings of this study indicate that the relationship between knowledge and eating habits among university students is multifactorial and not necessarily linear. The absence of a statistically significant association between nutrition knowledge and dietary practices suggests that theoretical knowledge alone is insufficient to drive healthy eating behaviours. This finding aligns with contemporary public health frameworks, which emphasize that health-related behaviours are shaped by a complex interaction of individual, social, cultural, and environmental determinants rather than by knowledge acquisition alone.

Despite predominantly moderate levels of nutrition knowledge, most students reported relatively good eating habits. This discrepancy highlights the influential role of familial and cultural norms in shaping dietary behaviours, particularly in young adults. The family emerged as the primary source of nutrition related information, suggesting that early socialization and household dietary patterns may exert a stronger influence on eating behaviours than formal education and scientific knowledge during university years.

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Observed differences in nutrition knowledge by age and place of residence further underscore the importance of contextual factors. Better knowledge among younger students and those residing in urban areas may reflect greater exposure to health promotion initiatives, media content, and educational interventions targeting younger population. These findings support the notion that accessibility to information and supportive environments contributes significantly to the development of health-related knowledge. Gender based differences in eating habits suggests the influence of social-cultural and psychosocial factors on dietary behaviours. Male students reported healthier eating practices compared to female students, a finding that may be related to differing dietary motivations, body image perceptions and dietary behaviours. Female students may be more vulnerable to restrictive or inconsistent eating patterns driven by weight-control concerns, whereas males may follow more regular and energy-oriented dietary routines. Effective strategies should prioritize behaviour change approaches, skill-building, and supportive food environments while considering the broader social and cultural context of students lives. Integrating multidisciplinary, context-sensitive interventions may enhance the translation of nutrition knowledge into sustainable healthy eating behaviours and contribute to long-term health promotion among university populations.

Statements and Declarations

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Author Contributions: Conceptualization, design, and analysis were performed by the first author. Data collection was performed by the second author. The first and second authors prepared the manuscript. All authors contributed to revisions, approved the final version, and agree to be responsible for all aspects of the work.

Ethics Approval and Consent to Participate:

Ethical approval was obtained from the relevant faculties of the University. Informed consent was obtained from all individual participants included in the study.

Data Availability: The datasets generated and analysed during the current study are not publicly available due to privacy and ethical restrictions but are available from the corresponding author on reasonable request.

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Use of AI: Artificial intelligence tools were used for language editing. All content was reviewed and verified by the authors, who take full responsibility for the manuscript.

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