

Dietary behaviour of first-year students of an education department in Greece

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ABSTRACT

Aim: The dietary behaviour of most students tends to change as it affected by various factors. The aim of the present study was to assess the eating behaviour of first-year students after their admission to university. **Methods:** We chose a survey as our research method to evaluate the dietary behaviour of 104 first-year students attending an early childhood education department in Greece. For the collection of research data, the students completed a self-administered questionnaire which was used in three similar surveys conducted in Italy, Greece, and Scotland respectively. **Results:** Based on the results of our research, students who live with their family did not change their dietary behaviours after their enrolment at the university. They prefer eating at home and tend to consume healthier foods than those who live far from their family. It should be highlighted that in contrast to the results of previous studies students from urban areas seem to consume more healthy foods than those coming from non-urban areas. **Conclusions:** Special health education programmes could be proposed by universities in order to address the extreme changes in the eating behaviour of students. **Hellenic J Nutr Diet 2020, 12(1-2):41-52**

Key words: Dietary behaviour, healthy diet, Mediterranean diet, undergraduate students, education department

ΠΕΡΙΛΗΨΗ

Dietary behaviour of first-year students of an education department in Greece

Ευσταθία Θεοδόση, Μαρία Κυριακού, Λορένα Μπεντάι, Βασιλική Ρήγα, Κωνσταντίνος Λαβίδας

Τμήμα Επιστημών της Εκπαίδευσης και της Αγωγής στην Προσχολική Ηλικία, Πανεπιστήμιο Πατρών

Σκοπός: Οι διατροφικές συνήθειες των περισσότερων φοιτητών τείνουν να αλλάζουν επειδή επηρεάζονται από πολλούς παράγοντες. Στόχος της παρούσας έρευνας ήταν να μελετήσουμε τις διατροφικές συνήθειες των πρωτοετών φοιτητών μετά την εισαγωγή τους στο πανεπιστήμιο. **Υλικό-Μέθοδος:** Επιλέξαμε την επισκόπηση ως μέθοδο έρευνας για να αξιολογήσουμε τη διατροφική συμπεριφορά 104 πρωτοετών φοιτητών ενός παιδαγωγικού τμήματος στην Ελλάδα. Για τη συλλογή των ερευνητικών δεδομένων, οι φοιτητές συμπλήρωσαν ένα ερωτηματολόγιο το οποίο έχει ήδη χρησιμοποιηθεί σε τρεις αντίστοιχες έρευνες στην Ιταλία, την Ελλάδα και τη Σκωτία. **Αποτελέσματα:** Από τα αποτελέσματα της έρευνας προκύπτει ότι οι φοιτητές που ζουν μαζί με την οικογένειά τους δεν έχουν αλλάξει διατροφική συμπεριφορά μετά την εισαγωγή τους στο πανεπιστήμιο. Προτιμούν να τρώνε στο σπίτι και τείνουν να καταναλώνουν πιο υγιεινές τροφές από τους φοιτητές που ζουν μακριά από το σπίτι τους. Θα πρέπει να τονιστεί ότι, σε αντίθεση με αποτελέσματα προηγούμενων ερευνών, οι φοιτητές από αστικές περιοχές φαίνεται να καταναλώνουν πιο υγιεινές τροφές από αυτούς που προέρχονται από μη αστικές περιοχές. **Συμπεράσματα:** Ειδικά προγράμματα εκπαίδευσης για την υγεία θα μπορούσαν να οργανωθούν από τα πανεπιστήμια προκειμένου να αντιμετωπιστούν οι αρνητικές αλλαγές στη διατροφική συμπεριφορά των φοιτητών. **Hellenic J Nutr Diet 2020, 12(1-2):41-52**

Λέξεις κλειδιά: Διατροφική συμπεριφορά, υγιεινή διατροφή, μεσογειακή διατροφή, φοιτητές, παιδαγωγικό τμήμα

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Introduction

Nowadays, a healthy and balanced diet has become a necessity because, according to the World Health Organization¹, it helps preventing diseases such as obesity, diabetes, heart diseases, stroke, and cancer. There are, however, several factors which affect the composition of a balanced diet and the changes in our eating behaviour². For example, the increase in the production of processed foods, rapid urbanisation and changing lifestyles are some of the reasons that lead to shifts in dietary practices¹. It is easier for people living in non-urban areas to have access to fresh and seasonal products and, therefore, they follow a more traditional eating behaviour compared to those living in urban areas^{3,4}. Other factors affecting eating behaviour, especially those of young people, are their living arrangements, i.e. whether they are close to or away from their family environment, since moving out leads to eating convenience food⁵, and the proper knowledge of current eating guidelines and nutrition awareness⁶.

Students comprise a group of adults who change their lifestyle and, thus, their diet during their studies⁷⁻⁹. Enrolment at university marks a period of freedom and autonomy in food choice and preparation¹⁰ and, therefore, many students have difficulty in following a healthy lifestyle. According to studies that took place in the Mediterranean region, younger generations, particularly students, are susceptible to nutrition mistakes³. They demonstrate poor adherence to the Mediterranean diet and they shift towards a less healthy Western dietary pattern, ignoring their cultural background¹¹. Several studies have shown that during the first year of study, which is a period of adjustment, the eating behaviour of students changes, while their weight increases by 1.6 to 3.1 kg^{9,12,13}. The main reason for the changes in their dietary behaviour is their translocation from their place of residence. There are significant dietary differences between students who are still living with their family after their enrolment to university, compared to those who live by themselves¹⁴. Finally, there are additional factors leading to changes in students' eating behaviour, such as the lack of financial resources, the high availability of fast food, personal preferences and beliefs, lack of time, and peer influence^{3,15-17}.

Many researchers argue that students need guidance since their studying period could affect their quality of life during adulthood¹⁰. In studies conducted

in Greece and abroad^{3,11,18-21}, efforts have been made to study the dietary behaviour of students, as they form the basis for the promotion of a healthy lifestyle to the adult population.

The students of educational departments are an influential group of people that may affect the eating behaviour of future generations and their attitudes towards a healthy diet. As tomorrow's teachers, they will instruct and inspire their students about healthy nutrition and its benefits. Taking into account the broad audience of schools and that the future teachers have the ability to promote dietary guidelines, they do have a key role in shaping eating habits, by setting themselves as an example. Based on studies²²⁻²⁵, teacher's knowledge, attitudes, and practices about nutrition and physical activities could have a positive impact on children's nutritional habits. It is, therefore, important to examine their eating behaviour so that we will be able to support them through intervention programmes and strategies during their studies with the view to improve the quality of their dietary behaviour. In this respect, universities can provide students with information and become the place, where health programmes will be developed aiming at improving students' health and promoting healthy behaviour²⁶⁻²⁸.

The purpose of this research is to examine the dietary behaviour of first-year students attending an education department of future early childhood educators. The "dietary behaviour" refers to a diet pattern that determines not only food intake and variety or food preparation, but also the frequency with which meals (breakfast, lunch, and dinner) are consumed²⁹. Therefore, the research questions are whether the dietary behaviour of first-year students differences depending on:

- a) Whether they live with or without their family;
- b) Their place of residence prior to their studies;
- c) Their level of nutritional awareness;
- d) Whether they believe that they follow healthy eating guidelines.

Methods

In order to respond to these research questions and to study the eating behaviour of first-year students, we chose a survey as our research method. A survey allows us to research a large sample of people in a short period of time, while the subjects are not affected, as the researcher does not come in direct contact with them³⁰.

Participants

The research was conducted in January 2018 at the Department of Educational Sciences and Early Childhood Education (DESECE) of the University of Patras in Greece and convenience sampling was used for the sample selection³⁰. Out of the total 230 DESECE first-year students of the academic year 2017-2018, 182 students who attended a compulsory course were asked to participate voluntarily. Out of these 182 students, eventually 104 first-year female students took part in the research.

Instrument

We chose a questionnaire used in three similar surveys conducted in Italy, Scotland, and Greece respectively, for the collection of our research data. In 2013, Bagordo, Grassi, Serio, Idolo and De Donno²⁹ used this questionnaire in order to study the dietary behaviour of first-year students of Salento University in Italy. Bagordo and his associates relied on the food frequency questionnaire conducted in 2003 by Papadaki and Scott³¹ and they adjusted it to the Italian daily routine. The questionnaire was modified slightly in 2007 by Papadaki and her colleagues³ to better reflect local eating habits and food availability in Greece. This specific research tool was chosen for four reasons: it meets the objectives of our research, it was first designed for a country neighbouring with Greece (a country that also follows the Mediterranean diet), this questionnaire will permit us to compare our findings with the findings of previous usages, and finally, it had already been validated for the Greek population^{3,31}.

In the current research, the self-administered questionnaire was modified slightly in order to include questions about the demographic and cultural elements of our participants and questions about their dietary behaviour and the frequency with which they consumed certain foods. Therefore, the questionnaire contained twelve questions in total divided into three sections, one concerning sociodemographic data, the other dietary habits, and the last consumption frequencies.

In particular, two questions about age and place of residence of students prior to their studies were added to the demographic data section, while questions about the students' department and gender were removed (since in this research only students of one sole department were taken into consideration, all of whom were female). The answers to questions about the place where the students were having their meals

(breakfast, lunch, and dinner) were modified in order to match the campus facilities of the University of Patras, where a student's residence hall, canteens and cafés are available. In addition, the negative answer concerning frequency "Never" was modified to "Rarely" and the answer "Once a month" was removed. To ensure the validity of the questionnaire's responses, all answers were also turned to a weekly scale, as students are more likely to remember what they consumed during a week than during a month.

Adjustments were also made to the cultural elements section, in the food and their consumption frequency category so that the food groups would be more distinct to the respondents. As a result, "Raw vegetables" and "Cooked vegetables" merged into "Vegetables", "Snacks" and "Chips" into "Snacks (chips etc.)", and "Meat products" and "Meat and poultry" into "Meat and poultry". Moreover, "Pizza" turned into "Pizza/Pies" (cheese pies, spinach pies etc.) and "Dairy products", and "Eggs" were separated into three (different) categories: "Milk", "Dairy products (cheese, yoghurt)" and "Eggs", while two more food options were added: "Margarine/Butter" and "Souvlaki". As far as the frequency consumption of these food products is concerned, the answer "Never" and the answer "1-3 times per month" turned into "Not at all/Rarely" to ensure the better validity of the answers, as aforementioned. The rest of the answers "1-2 times a week", "3-4 times a week", "5-6 times a week" and "Every day" remained unchanged.

Procedure

The questionnaire was computer generated using Google Forms and pilot-tested on 11 first-year female students of DESECE so that potential problems could be detected. The participants were a random sample out of the 182 students, who attended the compulsory course and they did not take part in the second and final phase of the research. During the pilot survey of the questionnaire, no serious problems of research feasibility were detected. However, after considering the proposals made by the respondents during the pilot phase, which related to one open-ended question, further clarifications were made to certain questions. For example, in question 11, the answer "Cooked meals" became "Homemade meals", the answer "Raw/Cold meals" became "Raw meals (Fruits, Vegetables, etc.)", and the option "Pre-Cooked meals" turned into "Reheated homemade meals".

During the second phase of the survey, the questionnaire took its final form (see questionnaire in Appendix),

after the changes that emerged from its pilot-testing had been made. Then it was sent electronically to the rest of the female students (171 students) and it was completed by 104 of them.

Statistical analysis

This study focused on the examination of eating behaviour (food intake and attitudes) of first-year students of DESECE and their nutritional awareness. Before analysing the survey data, modifications were made to certain variables of our research. Our decision to reduce the categories of some qualitative variables was based on satisfying the assumptions for conducting inductive analysis³². In particular, the variable for the place of residence before studying became a variable with two values: "Urban area" and "Non-urban area". The variable referring to the students' level of nutritional awareness also became a variable with two values: "Satisfactory" and "Unsatisfactory". The variable referring to whether students believe that they follow healthy eating guidelines became a variable with two values: "They do not follow the guidelines" and "They follow the guidelines". The categorical variables were presented with relative frequencies (%). To look at the relationship between two categorical variables we used the Pearson's chi-square test³⁹.

To analyse the responses of students about the food consumption frequency, we used factor analysis to reduce a data set to a more manageable size while retaining as much of the original information as possible³². Factor analysis conducted using principal component analysis and varimax rotation³². Taking into account the results of the factor analysis (see results section), were calculated three new variables: (a) "Fats"; (b) "Healthy foods"; and (c) "Alcoholic Drinks". These continuous variables (we calculated the average of the responses for each group of items) are presented with Means and Standard Deviations (SD). To look at the relationship between the transformed categorical variables ("Place of residence before studying", "students' level of nutritional awareness", "students believe that they follow healthy eating guidelines", and "Students live with their family") and the continuous variables, we used the Student's t-test³⁹. Finally, SPSS Statistics 24 was used for data analysis, and significance level was set to 0.05 (5%)³².

Results

According to the results of our research, most students (94.3%) were aged 18-20 years old, 3.8% were

21-23 years old, and only 1.9% were older. 33.6% of the students lived with their family during their studies and 66.4% without them. Most students (70.5%) were coming from urban areas, while 29.5% came from non-urban areas (Table 1).

Eating behaviour

As far as eating behaviour is concerned, 52.4% of female students of DESECE said that they eat breakfast (question 7) at home, 11.4% said that they eat breakfast in canteens/cafés, 10.5% prepares food at home and takes it with them, and 25.7% stated that they do not eat breakfast at all. The participants' statements were then grouped together into eating "at home" and "outdoors" and their answers do not differ significantly depending on their place of residence prior to their studies ($p > .05$), whether they believe that they follow healthy eating guidelines ($p > .05$), their level of nutritional awareness ($p > .05$), or whether they stay with or without their family ($p > .05$).

As far as lunch (question 8) is concerned, 64.8% of the students said that they eat lunch at home, 28.6% at campus, 2.9% buy their lunch from canteens/cafés, 1% prepares lunch at home and takes it with them, and 1.9% does not eat lunch at all. Subsequently, the statements of the participants were grouped together into taking their meals "at home" and "outdoors". Their answers do not differ significantly depending on their place of residence prior to their studies ($p > .05$), on their nutritional awareness level ($p > .05$), and whether they believe they follow healthy eating guidelines ($p > .05$). The only significant difference ($\chi^2 (1, N=104)=9.416$,

TABLE 1. Descriptive characteristics of the study sample (N=104)

	Frequencies	Relative frequencies
Age		
18-20	98	94.3%
21-23	4	3.8%
at least 24	2	1.9%
Live with their family		
yes	35	33.6%
no	69	66.4%
Family area residence		
Urban	73	70.5%
Non-urban	31	29.5%

$p < .05$) was found in whether they live with or without their family. To be more specific, from the students who live with their family, 86.5% eats at home, while the rate for students living without their families reaches 56.9% (Figure 1).

Regarding dinner (question 9), 88.6% of the students said they eat dinner at home, 4.8% at the campus, 1.9% buy their dinner from canteens/cafés, 1% prepares food at home and takes it with them, and 3.8% does not eat dinner at all. Subsequently, the statements of the participants were grouped together into taking their meals “at home” and “outdoors”. Their answers do not differ significantly depending on their place of residence prior to their studies ($p > .05$), their nutritional awareness level ($p > .05$), or whether they believe they follow healthy eating guidelines ($p > .05$). Regarding eating behaviour and in particular, the preparation of their meals (question 11), the rate of students that eat homemade meals (homemade meals cooked at home, reheated homemade meals, and homemade sandwiches) is 76.2%, while those who eat non-homemade meals (raw meals, frozen convenience meals, meals prepared outdoors) is 23.8%. This result does not differ significantly depending on students’ place of residence prior to their studies ($p > .05$), their level of nutritional awareness ($p > .05$), and whether they believe they follow the healthy eating guidelines ($p > .05$). However, statistically significant differences ($\chi^2(1, N=104)=6.28, p < .05$) were found in whether they live with or without their family (Figure 2). More specifically, 89.7% of students living with their family said they eat homemade meals, while 68.2% of the students who said that they live without their family eat homemade meals.

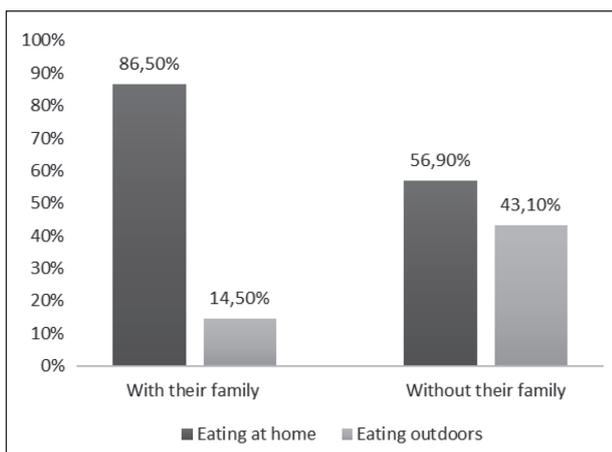


Figure 1. Place of lunch intake depending on whether the students live with or without their family.

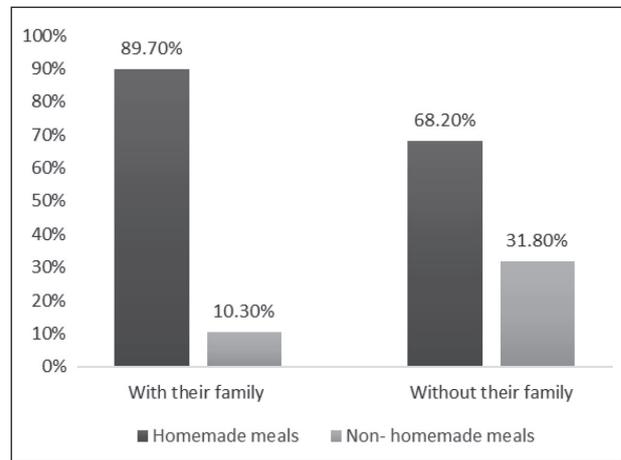


Figure 2. Meal preparation according to the students’ living arrangements (living with or without their family).

Approximately 1-2 students believe that their eating behaviour has changed since their admission to the university (question 12), from moderately to extremely, 18.1% of the students stated that their eating behaviour has not changed “at all”, 32.4% said they have changed slightly, 24.8% moderately, 18.1% considerably, and 6.7% said that their eating behaviour has changed extremely. Changes in dietary behaviour of first-year students seem to differ statistically significantly ($\chi^2(1, N=104)=14.16, p < .05$) depending on whether they live with or without their family after their enrolment to the university. To be more specific, only 25.6% of the participants living with their family stated that their dietary behaviour has changed from moderately to considerably, while the rate of those who live without their family is 63.7%. Changes in their eating behaviour do not differ statistically significantly depending on the participants “place of residence prior to their studies” ($p > .05$), their level of nutritional awareness ($p > .05$), or whether they believe that they follow the healthy diet’s guidelines ($p > .05$).

Food categories consumed by students

Table 2 presents the students’ response relative and absolute frequencies on the 23 food categories consumed by them (question 10). The 23 foods were sorted in descending order according to the sum of the two last columns (“5-6 times a week” and “every day”). Therefore, it appears that the students consume almost on a daily basis “Dairy Products (cheese/yoghurt)”, “Milk”, “Coffee/Tea”, “Bread/cereals”, “Vegetables”, “Fresh juice”, and “Fruits”, while they do not consume at all or they rarely seem to consume “Fish”, “Margarine/Butter”,

TABLE 2. Students' response relative and absolute frequencies on the 23 food categories consumed by them (N = 104 students)

	Not at all/ Rarely	1-2 times a week	3-4 times a week	5-6 times a week	Every day
Dairy products (cheese/yoghurt)	9.5% (10)	25.7% (27)	13.3% (14)	22.9% (24)	28.6% (29)
Milk	22.9% (24)	16.2% (17)	13.3% (14)	10.5% (11)	37.1% (38)
Coffee/Tea	22.9% (24)	23.8% (25)	14.3% (15)	13.3% (13)	25.7% (27)
Bread/cereals	17.1% (18)	30.5% (32)	20.0% (21)	13.3% (14)	19.0% (19)
Vegetables	15.2% (16)	34.3% (36)	26.7% (27)	8.6% (9)	15.2% (16)
Fresh juice	20.0% (21)	36.2% (38)	21.9% (23)	7.6% (8)	14.3% (14)
Fruits	29.5% (31)	32.4% (34)	18.1% (18)	5.7% (6)	14.3% (15)
Desserts	12.4% (13)	40.0% (42)	28.6% (29)	9.5% (10)	9.5% (10)
Potatoes/rice/pasta	2.9% (3)	24.8% (26)	53.3% (55)	11.4% (12)	7.6% (8)
Meat/poultry	7.6% (8)	37.1% (39)	39.0% (40)	10.5% (11)	5.7% (6)
Margarine/Butter	54.3% (56)	25.7% (27)	7.6% (8)	5.7% (6)	6.7% (7)
Lunch and Deli meats	36.2% (38)	35.2% (37)	17.1% (18)	8.6% (9)	2.9% (2)
Sauces	38.1% (40)	37.1% (39)	15.2% (16)	7.6% (7)	1.9% (2)
Refreshments/package juice	40.0% (42)	36.2% (38)	15.2% (16)	4.8% (4)	3.8% (4)
Legumes	27.6% (29)	47.6% (50)	18.1% (19)	5.7% (5)	1.0% (1)
Eggs	42.9% (45)	41.0% (43)	10.5% (11)	2.9% (3)	2.9% (2)
Pizza/Pies (cheese pies. spinach pies etc.)	35.2% (37)	45.7% (48)	14.3% (15)	3.8% (3)	1.0% (1)
Snacks (chips etc.)	41.9% (44)	37.1% (39)	16.2% (17)	4.8% (4)	0.0% (0)
Souvlaki	22.9% (24)	58.1% (60)	14.3% (15)	2.9% (3)	1.9% (2)
Wine	69.5% (72)	21.9% (23)	6.7% (7)	1.0% (1)	1.0% (1)
Beer	80.0% (83)	15.2% (16)	3.8% (4)	1.0% (1)	0.0% (0)
Alcoholic drinks	66.7% (69)	28.6% (30)	3.8% (4)	1.0% (1)	0.0% (0)
Fish	56.2% (58)	42.9% (45)	1.0% (1)	0.0% (0)	0.0% (0)

Notes: in the parentheses are the absolute frequencies

"Snacks (crisps etc.)", "Refreshments/Packaged juice", "Beer", "Wine", and "Alcoholic drinks".

In order to identify the factorial structure of students' responses to the aforementioned items, we conducted factor analysis regarding the frequency intake of the 23 foods in question (five-point scale) with the objective to identify certain unobservable factors from the observed variables which summarises their nutritional behaviour³². According to Field (p. 629)³², "by reducing a data set from a group of interrelated variables to a smaller set of factors, factor analysis achieves parsimony by explaining the maximum amount of common variance in a correlation matrix using the smallest number of explanatory constructs".

Before carrying out the factor analysis, we coded the students' responses as follows: 0 for "Not at all/rarely", 1.5 for "1-2 times a week", 3.5 for "3-4 times a week", 5.5 for "5-6 times a week", and 7 for "Every day". From the factor analysis conducted using principal component analysis, we obtained a satisfactory structure (KMO=.623, Bartlett's Test of Sphericity $p < .001$) of three factors explaining 39.15% the variability of the initial statements. We decided to keep three factors based on scree plot, since the slope of the generated scree plot indicated the cut-off for the number of three factors to extract from the factor analysis³². Additionally, we used varimax rotation since the oblique rotation demonstrated a negligible max intercorrelation

($r=.097$) among the three extracted factors. In this three factors' structure, 15 of the above statements load satisfactorily (loadings $>.500$) (see Table 3). To be more specific, the first factor "Fats" consists of six items: Snacks, Lunch and Deli meats, Pizza/Pies (cheese pies, spinach pies etc.), Souvlaki, Desserts, and Meat/poultry with loading $>.500$ and explains the 13.72% of the variance. The second factor "Healthy Foods" consists of the six items: Dairy Products (Cheese/Yoghurt), Legumes, Milk, Bread/Cereals, Vegetables, and Eggs, with loading $>.514$ explaining 13.69% of the variance. The third factor "Alcoholic drinks" consists of the three items: Beer, Wine, and Drinks with loadings $>.515$ explaining 11.75% of the variability. Finally, these factors are characterised by marginally satisfactory reliability of internal consistency³³. Cronbach's alpha coefficients are for the first factor .665, for the second factor .691, and for the third factor .784. The remaining statements about the consuming of Fruits, Margarine/Butter, Refreshments/package juice, Fresh juice, Sauces, Fish, Potatoes/rice/pasta, and Coffee/Tea, were excluded from the factorial structure because of the low intercorrelations with other statements and in some statements very low loadings ($<.400$).

Following the final formation of our factorial struc-

ture, we constructed three new variables (Fats, Healthy Foods, and Alcoholic drinks) based on the scale (of five points: 0, 1.5, 3.5, 5.5, and 7) of the statements. Table 4 presents the descriptive statistics of three new variables (three factors). Taking into account the mean and the percentiles in each factor, the students seem to consume more healthy food than fats and very few alcoholic drinks on a weekly basis. For example regarding the median (50th percentile) the half of the students seem to consume fat food about 1-2 times a week, healthy food about 3-4 times a week, and no alcoholic drinks.

Then a series of tests were performed in order to determine any differences in the scores of the factors in the different groups of the students as these were distinguished by their demographic characteristics. Table 5 shows Means and Standard Deviations of factors' scores for each group. Regarding the new variables that we created, taking into account the factor analysis, we noticed that the factor "Fats" has a mean of 2.00 (SD=1.05) (approximately 2 times a week). Regarding the place of residence before studying, whether the students live with or without their family and their nutritional awareness level, this specific factor does not differ significantly ($p >.05$). However, with regard

TABLE 3. Standardised loadings (rotated component matrix) of items for each factor

	F1: Fats	F2: Healthy Foods	F3: Alcoholic drinks
Snacks (chips etc.)	.633		
Lunch and Deli meats	.675		
Pizza/Pies (cheese pies, spinach pies etc.)	.596		
Souvlaki	.568		
Desserts	.565		
Meat/poultry	.549		
Dairy products (cheese/yoghurt)		.753	
Legumes		.615	
Milk		.657	
Vegetables		.529	
Bread/cereals		.594	
Eggs		.564	
Beer			.888
Wine			.893
Alcoholic drinks			.563

Note N=104. The extraction method was Principal Component Analysis principal with varimax rotation

TABLE 4. Descriptive statistics of three factors (N=104)

	F1: Fats	F2: Healthy Foods	F3: Alcoholic drinks
Mean	2.00	2.87	0.57
SD	1.05	1.43	0.91
Minimum	0.25	0.00	0.00
Maximum	5.33	6.00	4.83
Percentiles			
10	0.75	1.05	0.00
20	1.02	1.42	0.00
25	1.25	1.58	0.00
30	1.42	1.87	0.00
40	1.58	2.45	0.00
Median	50	1.83	3.08
60	2.17	3.25	0.50
70	2.50	3.83	0.50
75	2.58	4.00	1.00
80	2.75	4.33	1.00
90	3.17	4.92	1.50

Note: 0 for «Not at all/rarely», 1.5 for «1-2 times a week», 3.5 for «3-4 times a week», 5.5 for «5-6 times a week», and 7 for «Every day».

to whether the students follow healthy eating guidelines, there are significant differences ($t(102) = 2.366$, $p < .05$). Students who stated that they do not follow healthy eating guidelines seem to consume fats more

frequently compared to those that follow the guidelines of a healthy diet.

The “Healthy foods” factor has a mean (M) of 2.87 (SD = 1.43) (approximately 3 times a week). As far as the place of residence before studying is concerned, this specific factor does differ significantly ($t(102) = 2.056$, $p < .05$). This means that the students who used to live in urban areas prior to their studies seem to consume healthier foods compared to those who used to live in non-urban areas. Furthermore, there are statistically significant differences among the two groups of students’ levels of nutritional awareness ($t(102) = 2.757$, $p < .05$), i.e. those who are well-aware of nutrition seem to consume healthier foods more frequently compared to those who are not that well-informed. Additionally, there is a statistically significant differentiation ($t(102) = 3.973$, $p < .05$) depending on whether the students follow healthy eating guidelines. Students who reported that they follow healthy eating guidelines seem to consume healthier foods more frequently compared to those who said that they do not follow them. Finally, there are significant differences ($t(102) = 1.98$, $p < .05$) depending on whether students live with or without their family. Students who reported living with their family seem to consume healthier foods more frequently compared to those who stated living without their family.

The “Alcoholic drinks” factor has a mean of 0.57 (SD=0.91) (not at all and rarely on a weekly basis). Regarding this factor, there are no statistically signifi-

TABLE 5. Descriptive statistics (Mean and Standard Deviation) of three factors for each group

	F1: Fats		F2: Healthy Foods		F3: Alcoholic drinks	
	Mean	SD	Mean	SD	Mean	SD
Place of residence before studying						
Urban areas	1.88	.97	3.05	1.47	.56	1.00
Non-urban areas	2.28	1.19	2.47	1.26	.59	.66
Nutrition awareness level						
Unsatisfactory	2.12	1.16	2.48	1.20	.47	.84
Satisfactory	1.89	.95	3.23	1.53	.66	.97
Follow healthy eating guidelines						
Follow the guidelines	2.10	1.07	2.67	1.39	.57	.88
Not follow the guidelines	1.42	.70	4.15	.96	.58	1.11
Students live with their family						
Yes	1.96	1.06	3.22	1.39	.58	1.04
No	2.02	1.06	2.68	1.43	.56	.84

cant differences depending on the students' place of residence prior to their studies, whether they live with their family, their level of nutritional awareness, and whether they follow healthy eating guidelines.

Discussion

The present study examines how 104 first-year students of an education department view their eating behaviour. The results of our survey indicate that only 60% of students reported eating breakfast and lunch at home. Students seem to consume mainly healthy foods (approximately 3 times a week) and fewer fats (approximately 2 times a week) and they rarely drink alcohol throughout the week, or they do not drink at all. One in two students stated that her eating behaviour has been changed moderately to considerably since her enrolment at the university.

The factor which explains more often the changes in dietary behaviour of Greek female students is whether they live with or without their family after their enrolment at the university. Most students living with their family said that their eating behaviour remains the same, in contrast with those who live without their family. Furthermore, in line with the findings of other similar studies^{3,18}, the majority of students living with their family prefer eating at home (mostly homemade and healthy meals) while the rate seems to decrease for those living without their family. Students living with their family after their enrolment at university, tend to consume healthier foods than those who live by themselves^{3,29}. This may be because parents can still affect their children's nutrition in a positive way¹⁸.

According to the factorial structure of food consumed by students, the factor analysis revealed three factors. These factors have satisfactory reliability and are: Fats, Healthy Foods, and Alcoholic drinks. The students mainly consume: Fat food approximately 2 times a week, Healthy food 3 times a week, and Alcoholic drinks rarely on a weekly basis. The students' place of residence prior to their studies, i.e. whether they come from urban or non-urban areas, and their level of nutritional awareness seems to enlighten their eating behaviour. It should be highlighted that in contrast to the results of previous studies^{3,4}, in this study students from urban areas seem to consume more healthy foods than those coming from non-urban areas. This may be due to the fact that in urban areas the access to sources of information is easier and, thus, people are more likely to be aware

of nutrition because of the urban lifestyle.

As far as students' nutritional awareness is concerned, those students who are well aware of healthy nutrition seem to choose healthier foods compared to those who are not well-informed, as recent studies show^{6,10,18}. The students' answers to question 4 on whether they believe they follow the healthy eating guidelines, confirm this result. Students who admitted that they follow healthy eating guidelines consume high-fat foods less frequently than those who replied that they do not follow them. Notably, compliance to the Mediterranean diet is not solely related to low high-fat foods consumption. No statistically significant differences were found between the other food categories.

Finally, during our research we faced two basic limitations; the small convenience sample consisted only of women attending one sole education department.

Conclusions

We strongly believe that further studies should be conducted that would illustrate the dietary behaviour of different groups of educators attending various education departments in order to have a more complete picture of the dietary behaviour of Greek educators. Furthermore, it would be interesting to add to the questionnaire a question about students' weight before and after their admission to the university to investigate if weight increases and if the current weight status is somehow related to the nutritional changes.

Admission to the university is a transition period, which affects the nutrition of first-year students, as recent literature and the results of this study indicate. As a result, a syllabus providing students with scientific knowledge about nutrition is now a necessity. The above mentioned teaching proposal becomes even more compelling when we consider the fact that students are the children's future educators, the ones who are going to shape their diet attitudes, since children are not affected only by their family but also by their social circle (like their school and friends) as well^{34,35}. When educators themselves adopt healthy eating habits, they can inspire the children to follow a similar healthy dietary behaviour focusing on prevention from obesity, which is spreading to young people all over the world²⁷.

After taking the findings of this research into consideration, we support the view that the University of Patras should offer educational programmes on

nutrition with the Mediterranean diet as the suggested dietary pattern. Moreover, special health education programmes could be proposed in order to address the extreme changes in eating behaviour resulting from dietary choices and to support those people who need to improve their health¹⁸. The university staff responsible for the catering services of the campus could also encourage students to adopt healthy eating habits by shaping the food programme of the Students Residence Hall according to the new research data regarding nutrition. In addition, public awareness campaigns could be a useful tool for promoting healthy eating⁶. It is worth noting that careful planning of strategies and cooperation between the competent bodies will ensure long-term success¹⁹.

Acknowledgement

The authors thank the first-year students of DESECE who participated in this research.

Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Appendix

Questionnaire: Dietary behaviour of first-year female students of DESECE

1. Age: (18-20, 21-23, Other)
2. Place of residence prior to your studies:
3. To what extent do you think you are aware of healthy eating? (*Not at all, Slightly, Moderately, Considerably, Significantly*)
4. To what extent do you believe you follow healthy eating guidelines? (*Not at all, Slightly, Moderately, Considerably, Significantly*)
5. What are your information sources regarding healthy eating? You can select more than one answer: (*Television, Popular Science Publications, Scientific Publications, Brochures, University/Training Courses, Family, Doctors, Internet, Friends, Other*)
6. During your studies at DESECE you live: (*With your family, Without your family*)
7. On a typical day at university you eat breakfast: (*At home, At Students Residence Hall, In canteens/cafés, Food prepared at home that I take with me, I don't eat at all, Other*)
8. On a typical day at university you eat lunch: (*At home, At Students Residence Hall, In canteens/cafés, Food prepared at home that I take with me, I don't eat at all, Other*)
9. On a typical day at university you eat dinner: (*At home, At Students Residence Hall, In canteens/cafés, Food prepared at home that I take with me, I don't eat at all, Other*)

10. How often do you eat the following foods on a weekly basis?

	I don't eat them at all/Rarely	1-2 times a week	3-4 times/week	5-6 times/week	Every day
Fruits					
Vegetables					
Desserts					
Potatoes/rice/pasta					
Meat/poultry					
Fish					
Milk					
Dairy products (cheese/yoghurt)					
Margarine/butter					
Lunch and Deli meats					
Eggs					
Snacks (chips etc.)					
Refreshments/packaged juice					
Fresh juice					
Bread / cereals					
Legumes					
Pizza/Pies (cheese pies, spinach pies etc.)					
Souvlaki					
Beer					
Wine					
Alcoholic drinks					
Coffee/Tea					
Sauces					

11. Usually your meals are: (Homemade meals, Raw food {fruit, vegetables, etc.}, Reheated homemade meals, Frozen convenience Foods, Meals prepared outdoors, Homemade sandwiches)

12. Has your eating behaviour changed since you started studying at DESECE? (Not at all, Slightly, Moderately, Considerably, Significantly)