

THE EFFECTS OF FOOD NEOPHOBIA AND OPENNESS TO DIFFERENT CULTURES ON ETHNIC FOOD CONSUMPTION: THE CASE OF TOURISM STUDENTS

Sıla Karacaoğlu* & Duran Cankül**

Abstract

Students who have the opportunity to intern and work in different sectors of an international industry such as tourism are often in environments with different, diverse and ethnic foods and are in contact with foreign colleagues and tourists. Moreover, these students will have careers in different fields of tourism in the future, work in various destinations around the world and serve tourists from different cultures. The objective of this study is to evaluate how food neophobia (FN) and openness to different cultures (ODC) influence the consumption of ethnic food among undergraduate students studying tourism in different professions, considering socio-demographic factors. In this scope, a questionnaire was administered online to 3rd and 4th year students studying at undergraduate level in tourism departments of different universities in Türkiye between February-June 2024 and a total of 425 people were reached. The main findings show that socio-demographic variables have various levels of influence on FN and ODC. In addition, the results indicate that students with FN are more cautious and closed to ethnic food consumption preferences, while students who are open to different cultures are more willing and open to ethnic food consumption preferences. In addition, it was determined that students at gastronomy and culinary arts departments had the lowest level of neophobia, while tourism guidance students had the highest level of neophobia. On the other hand, tourism guidance students had the highest level of ODC, while gastronomy and culinary arts students had the lowest level of ODC.

Keywords: Food Neophobia; Openness to Different Cultures; Ethnic Food; Socio-demographic Variables; Tourism Students.

OS EFEITOS DA NEFOBIA ALIMENTAR E DA ABERTURA A DIFERENTES CULTURAS NO CONSUMO DE ALIMENTOS ÉTNICOS: O CASO DOS ESTUDANTES DE TURISMO

Resumo

Os alunos que têm a oportunidade de estagiar e trabalhar em diferentes setores de um setor internacional, como o turismo, geralmente estão em ambientes com comidas diferentes, diversificadas e étnicas e estão em contato com colegas e turistas estrangeiros. Além disso, esses alunos terão carreiras em diferentes campos do turismo no futuro, trabalharão em vários destinos ao redor do mundo e atenderão a turistas de diferentes culturas. Nesse contexto, este estudo tem como objetivo determinar os efeitos da neofobia alimentar (NA) e da abertura a diferentes culturas (ADC) no consumo de alimentos étnicos em termos de características sociodemográficas de alunos que estudam turismo em diferentes áreas em nível de graduação. Nesse escopo, um questionário foi aplicado on-line a alunos do 3º e 4º anos de graduação em departamentos de turismo de diferentes universidades da Turquia entre fevereiro e junho de 2024, atingindo um total de 425 pessoas. Os principais resultados mostram que as variáveis sociodemográficas têm vários níveis de influência na NA e na ADC. Além disso, os resultados indicam que os alunos com NA são mais cautelosos e fechados às preferências de consumo de alimentos étnicos, enquanto os alunos abertos a diferentes culturas são mais dispostos e abertos às preferências de consumo destes alimentos. Além disso, foi determinado que os alunos de gastronomia e artes culinárias tinham o menor nível de neofobia, enquanto os alunos de orientação turística tinham o maior nível de neofobia. Por outro lado, os alunos de orientação turística tiveram o nível mais alto de ADC, enquanto os alunos de gastronomia e artes culinárias tiveram o nível mais baixo de ADC.

Palavras-chave: Neofobia Alimentar; Abertura a Culturas Diferentes; Alimentos Étnicos; Variáveis Sociodemográficas; Estudantes de Turismo.

LOS EFECTOS DE LA NEFOBIA ALIMENTARIA Y LA APERTURA A CULTURAS DIFERENTES EN EL CONSUMO DE ALIMENTOS ÉTNICOS: EL CASO DE LOS ESTUDIANTES DE TURISMO

Resumen

Los estudiantes que tienen la oportunidad de hacer prácticas y trabajar en distintos sectores de una industria internacional como el turismo suelen encontrarse en entornos con comidas diferentes, diversas y étnicas y están en contacto con colegas y turistas extranjeros. Además, estos estudiantes harán carrera en diferentes campos del turismo en el futuro, trabajarán en diversos destinos de todo el mundo y atenderán a turistas de diferentes culturas. En este contexto, este estudio tiene como objetivo determinar los efectos de la neofobia alimentaria (NC) y la apertura a diferentes culturas (ADC) en el consumo de alimentos étnicos en función de las características socio-demográficas de los estudiantes de turismo en diferentes campos a nivel de pregrado. En este ámbito, se administró un cuestionario en línea a estudiantes de 3er y 4to año que estudian a nivel de pregrado en departamentos de turismo de diferentes universidades de Türkiye entre febrero y junio de 2024 y se llegó a un total de 425 personas. Los principales resultados muestran que las variables sociodemográficas tienen diversos niveles de influencia sobre la NA y la ADC. Además, los resultados indican que los estudiantes con NA son más cautelosos y cerrados a las preferencias de consumo de alimentos étnicos, mientras que los estudiantes abiertos a diferentes culturas están más dispuestos y abiertos a las preferencias de consumo de alimentos étnicos. Además, se determinó que los estudiantes de gastronomía y artes culinarias tenían el nivel más bajo de neofobia, mientras que los estudiantes de orientación turística tenían el nivel más alto de neofobia. Por otra parte, los estudiantes de orientación turística tenían el nivel más alto de ADC, mientras que los estudiantes de gastronomía y artes culinarias tenían el nivel más bajo de ADC.

Palabras clave: Neofobia Alimentaria; Apertura a Culturas Diferentes; Comida Étnica; Variables Sociodemográficas; Estudiantes de Turismo.

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1 INTRODUCTION

Human selection of food is a complex activity affected by genes, learning, and culture (Rozin, 1976). Food preferences are regarded as playing an important impact in food selection and consumption. As a result, understanding the evolution of food preferences, as well as the elements that are likely to impact this evolution, is critical in today's world, when selecting the proper food choices is becoming increasingly difficult (Mak, 2018).

Food is a fundamental human need that is physiologically necessary for human life. However, food is becoming important in the tourist industry (Tikkanen, 2007). According to Sanchez-Canizares & Lopez-Guzman (2012) and Taşkın & Sert (2022), food is a crucial facet of the travel experience, providing travelers with a memorable and enjoyable stay.

Today, many countries use unique ethnic dishes and local gastronomy culture as a tourism value that promotes their own regions for purposes such as providing economic benefits, meeting the increasing demands of tourists, protecting and sustaining local culture (Khanna & Bhagat, 2021; Karacaoğlu & Cankül, 2023).

On the other hand, while novel eating experiences are frequently touted as the draw of a tourist location, they can also put travelers in strange settings. Food experiences can lead to unpleasant emotions such as estrangement, anxiety, and disgust. Such points of view might be related to tourists' tastes for gastronomic innovation or familiarity in the experience of tourism (Cohen & Avieli, 2004).

This circumstance is described in the literature using the terms neophobia (anxiety about trying new food) and neophilia (eagerness to try new food). Tourists with a strong inclination towards neophilia are more likely to engage in culinary experimentation and embrace unexpected dining experiences. In contrast, individuals with a greater degree of neophobia exhibit skepticism or aversion towards unfamiliar food (Pourfakhimi, Nadim, Prayag, & Mulcahy, 2021; Hashemi, Mohammed, Kiumarsi, Kee, & Anarestani, 2023).

Within the existing body of related literature, there have been studies examining the impact of openness to various cultures (ODC) on consumers and visitors (Mascarello, Pinto, Rizzoli, Tiozzo, Crovato & Ravarotto 2020; Sünnetçioğlu, Çakıcı & Erdem, 2020), there is no study conducted on students studying tourism. However, students who have the opportunity to do internships and work in different sectors of an international industry such as tourism are frequently in environments with different, diverse and ethnic foods, and are in contact with foreign colleagues and tourists.

Moreover, it is thought that the fact that the attitudes of students who will make a career in different fields of tourism in the future, work in various destinations of the world and serve tourists from different cultures towards neophobia and ODC have not been investigated before is a deficiency in the literature and understanding the attitudes of students is extremely important. In this perspective, the study intends to assess the impact of neophobia and ODC on ethnic food intake in terms of socio-demographic characteristics of undergraduate tourism students from various fields.

2 CONCEPTUAL FRAMEWORK

2.1 Food Neophobia and Affecting Factors

The definition of food neophobia was initially established by Rozin & Rozin (1981) and further supported by Rozin & Vollmecke (1986). They suggested that this concept fulfills an adaptive and evolutionary function. According to this view, since humans are omnivores, they can eat everything.

This suggests that people should develop a plan to avoid harmful food and prefer foods that are good for their health and growth (Faccio & Fovino, 2019). From an evolutionary standpoint, FN has appeared as a developmental stage in newborns and early children that restricts the intake of atypical and hence possibly harmful objects that might be mistaken for food (Jaeger, Hedderley, & Prescott, 2023).

Food neophobia (FN) is a personality trait characterized by an individual's hesitancy to eat unfamiliar foods because of the fear of potential harm that may arise from consuming them (Pliner & Hobden, 1992). Since food preferences and acceptance are believed to be influenced by food exposure (Pliner, Pelchat & Grabski, 1993), food neophobia, which affects people's daily food choices, is generally thought to be strongly influenced by socio-demographic variables and cultural, social, psychological and sensory acceptance factors (Mak, 2018; Tian & Chen, 2021; Jaeger et al., 2023).

When the related literature is examined various links were found between; age (Soucier, Doma, Farrell, Leith-Bailey & Duncan, 2019), gender (Knaapila, Silventoinen, Broms, Rose, Perola, Kaprio & Tuorila, 2011), place of residence (Flight, Leppard & Cox, 2003), education level (Caber, Yilmaz, Kiliçarslan & Öztürk, 2018), (Meiselman, King & Gillette, 2010), socio-demographic status of parents (Schnettler, Höger, Orellana, Miranda, Lobos, Sepúlveda, Sanchez, Miranda-Zapata, Denegri, Grunert & Salinas-Oñate, 2017) and food neophobia.

For instance, Soucier et al. (2019) found that older persons or those with poorer education likely to have elevated levels of food neophobia. Knaapila et al. (2011) argue that the attitude of neophobia in women is strongly genetically inherent, which comes from the evolutionary drive to raise their children against nature (Knaapila, Sandell, Vaarno, Hoppu, Puolimatka, Kaljonen & Lagstrom, 2015).

In turn, opposite findings were obtained in some studies (Tuorila, Lähteenmäki, Pohjalainen, & Lotti, 2001) or no difference was found (Demattè, Endrizzi & Gasperi, 2014; Meiselman et al., 2010; Flight et al., 2003). Flight et al. (2003) discovered that teenagers in rural settings had greater levels of FN than those in urban areas. According to psychological studies on neophobia, neophobic persons are less open and likely to seek powerful emotions and adventures, as well as being more worried (Demattè et al., 2014).

Food behaviors and preferences are integral components of culture and are interconnected with other facets of culture (Brittin & Obeidat, 2011). Various civilizations exhibit distinct culinary traditions, encompassing diverse food varieties, ingredients, and culinary methods, therefore establishing a significant correlation between culture and gastronomy.

Furthermore, religion can exert a greater impact on individuals' spiritual journey and way of life, including their motivations for selecting food (Mohd-Any, Mahdzan & Cher, 2013; Karaca & Karacaoğlu, 2016). Mascarello et al. (2020) stated that socio-demographic characteristics, such as education, employment, and money, have an impact on people's dining-out habits, ODC (out-of-home dining consumption), degree of awareness of culinary traditions, and food preferences.

The authors claim that ODC improves acceptability and willingness to try new cuisines. Ayoughi, Handley, Garza, Amin, Volpe, and Lammert (2022) emphasized that higher-income parents have less limitations on weight and food management measures, and their children may have lower levels of FN owing to more flexibility to explore and be exposed to varied foods.

The researchers conducted a series of experiments to gain a more profound understanding of people's inclination to reject unfamiliar meals, a phenomenon known as food neophobia. This term refers to the tendency to avoid novel foods in specific situations, locations, and scenarios. Various metrics have been developed to evaluate individuals' opinions of unfamiliar culinary options within this particular framework.

Upon reviewing the literature, it was found that several previous studies utilized the Food Neophobia Scale (FNS), which was developed by Pliner & Hobden (1992) and Pliner (1994), to assess the attitudes of both children (Galloway, Lee & Birch, 2003; Laureati, Bergamaschi & Pagliarini, 2015; Estay, Zhong & Guinard, 2023) and adults (Stratton, Vella, Sheeshka & Duncan, 2015; Soucier et al., 2019; Sogari, Menozzi & Morea, 2019).

This scale is widely applied to various communities and working groups in different fields, such as health (Kang & Jeong, 2008; Costa, Silva & Oliveira, 2020; Cartagena & Blikci-Koyu, 2023), education (Olabi Najm, Baghdadi & Morton, 2009; Edwards, Hartwell and Brown, 2010; Tian & Chen, 2021), marketing (Henriques, King & Meiselman, 2009; Choe and Cho, 2011; Siegrist, Hartmann & Keller, 2013) and tourism (Caber et al., 2018; Lai, Wang & Khoo-Lattimore, 2020; Hashemi et al., 2023).

2.2 Related Literature

Because this article looks at university students' perspectives regarding food neophobia, a literature review was undertaken to address the study group in issue. Olabi et al. (2009) conducted a study to ascertain the prevalence of food neophobia (FN) among college students in Lebanon and the U.S.A. The study revealed that Lebanese university students demonstrated a greater degree of neophobia, or aversion to new foods, in comparison to their counterparts in the USA.

In their study, Edwards et al. (2010) found that Asian graduate students exhibited higher levels of FN in comparison to European students. Asperin et al., (2011) researched how Western university students perceive Chinese and Thai cuisine and discovered that individuals with high degrees of neophobia have unfavorable sentiments regarding these cuisines. On the other hand, no relationship was found between FN and students' age, gender and place of residence.

De Andrade Previato & Behrens (2015) performed a research on postgraduate students at a Brazilian institution and discovered that 72.5% of the students had a neutral level of FN. The researchers reported that the neophobia level was low (17.5%) since the students resided in a major urban center in Brazil and had received a better degree of education.

Schnettler et al. (2017) examined the relationship with FN (food neophobia) and subjective well-being in university students residing in the southern region of Chile. The findings revealed that 67.7% of the students had food neophobia, and it was stated that this was due to the family diet. Conti et al. (2018) found that Italian university students are eager to explore novel foods outside of Italian cuisine.

While gender was shown to have a substantial influence on food selection, male students were more likely to distinguish other protein sources, such as worms and insects. Sahilli Birdir, İflazoğlu & Birdir (2019) investigated tourism guidance students' fear of trying new foods and their attitudes towards food. The data revealed that students were neophobic and unwilling to try ethnic food. In addition, no significant difference based on gender was found in research by Sahilli Birdir, İflazoğlu, and Birdir (2020), undergraduate tourism students exhibited varying levels of food neophobia.

Gastronomy and culinary arts students were more receptive to sampling new cuisines, whereas tourist guidance students had the greatest level. Furthermore, there were no significant discrepancies observed in relation to gender, marital status, or food neophobia. Tian & Chen (2021) found that Chinese university students displayed a significant level of food neophobia. Although gender did not exert a substantial influence on food neophobia, the implementation of comprehensive nutrition courses had a profound impact on the level of food neophobia observed in university students.

Kalkan & Büyükdöğaç (2022) assessed the level of receptiveness among university students enrolled in the culinary program towards unfamiliar culinary creations. While the findings indicated that students were closed to trying new foods (neophobic), no effect of socio-demographic variables on FN was found. In contrast, Pulluk (2022) discovered through a separate study involving students enrolled in the cookery programme that they expressed a desire to experiment with and prepare unfamiliar dishes. Their rationale was that understanding the taste of different foods is essential for professional growth and acquiring knowledge.

The research done by Çetin & Soybalı (2022) examined food neophobia among undergraduate students majoring in tourism and the results revealed that, overall, the students had a moderate degree of food neophobia. However, it was observed that students in gastronomy departments exhibited the lowest levels of food neophobia.

There was no discernible disparity observed between the gender variable and food neophobia. In the analyses of the reasons for food neophobia, it was also concluded that students generally avoid trying new foods due to religious sensitivities. Sahrin, Banna, Rifat, Tetteh, Ara, Hamiduzzaman, Spence, Kundu, Abid, Mehedi Hasan, Akter, Biswas & Jharna (2023) found that the level of FN among Bangladeshi university students was dominant (52.6%), and that female participants were almost three times more neophobic than male participants. He stated that family income, being underweight or overweight, and

food allergy to any food significantly affected the FN of Bangladeshi students.

3 METHODOLOGY

3.1 Data Collection and Sampling Design

This research set two distinct goals after an intensive literature investigation. The main goal of this research is to examine how the fear of trying new things and obsessive-compulsive tendencies affect the consumption of ethnic cuisine among undergraduate students who are studying tourism, while considering their socio-demographic characteristics. Furthermore, the aim is to understand the viewpoints of students enrolled in different tourism departments about FN (food and nutrition) and ODC (outdoor dining experiences). This study is important for revealing the perspectives of students on their willingness to try new meals and embrace many cultures, especially those who may pursue jobs in different areas of the global tourist business.

For this study, it was determined that the research group would consist of third and fourth year undergraduate students studying tourism in multiple universities in Türkiye during the spring semester of 2023-2024. Given that students are only eligible to do internships starting from the end of their second year, and since industry experience is mostly gained after this point, the study omitted data from the first and second years. The instructors briefed the students about the research, received their agreement, and assured them that their replies would only be used for scientific research purposes and that confidentiality would be maintained.

The research used convenience sampling, a kind of non-probability sampling method. The objective was to surpass the minimum sample size when determining the quorum of the sample. This was based on the assumption made by Yazıcıoğlu and Erdoğan (2004) that the sample size should be 384 if the population falls between 1 million and 100 million, with a sampling error of $d = \pm 0.05$ and a confidence interval of $p = 0.05$, $q = 0.05$. The study findings were acquired by online convenience sampling, considering considerations such as time, cost, and location. From February to June 2024, a survey was conducted with a total of 425 pupils.

3.2 Measurement Instruments and Data Analysis

The quantitative investigation employed a questionnaire as the primary instrument for data collection. We divide the questionnaire form into three separate sections. The initial segment consists of a 5-item scale developed by Pliner & Hobden (1992) to evaluate individuals' anxiety about trying new food (Food Neophobia Scale-FNS).

The second component consists of a 7-item scale, developed by Mascarello et. al. (2020), specifically designed to evaluate individuals' willingness to embrace and understand diverse cultures (referred to as the Openness to Different Cultures Scale-ODCS). We used a 5-point Likert-type scale to categorize the questions in both categories, ranging from 1 (strong disagreement) to 5 (strong agreement). We conducted surveys in the previous section to collect socio-demographic data on the individuals.

We analyzed the collected data using SPSS 25, also

known as the Statistical Package for the Social Sciences, and SPSS AMOS software. Initially, we conducted tests to ensure the data's accuracy, reliability, precision, and consistency. Once we verified the trustworthiness of the gathered data, we proceeded to perform explanatory factor analysis (EFA) and confirmatory factor analysis (CFA) in order to assess the coherence and dependability of the measurement variables.

We conducted additional correlation studies to ascertain the direction and strength of the relationship between the variables and to evaluate the hypotheses. We also employed t-tests and one-way analysis of variance (ANOVA) tests to investigate group differences, evaluate the suitability of the study model, and assess the validity of the hypotheses.

3.3 Hypotheses Development

Food preferences are strongly influenced by numerous individual factors. Neophobic individuals may reject traditional and ethnic foods, especially those familiar only to a particular culture, as novel foods. For this reason, research is frequently conducted in different fields and samples to identify the factors that cause FN due to their negative effects on consumers' decisions.

Addition to this, it is known that individuals' ODC habits are shaped by their personal characteristics, parents and the settlement they live in. Therefore, socio-demographic characteristics of students may create differences in food consumption habits in terms of FN and ODC. The hypotheses of the research are also based on determining these differences. The research hypotheses were formulated in accordance with the study objective in the following manner:

- *H1: Students' FN levels differ according to gender.*
- *H2: Students' level of ODC differs according to gender.*
- *H3: Students' FN levels differ according to income.*
- *H4: Students' level of ODC differs according to income.*
- *H5: Students' level of FN differs according to their father's education level.*
- *H6: Students' FN levels differ according to their mother's level of education.*
- *H7: Students' level of ODC differs according to their father's level of education.*
- *H8: Students' level of ODC differs according to their mother's level of education.*
- *H9: Students' level of FN differs according to where they live.*
- *H10: Students' level of ODC differs according to where they live.*
- *H11: Students' level of FN differs according to the department of education.*
- *H12: Students' level of ODC differs according to the department of education.*
- *H13: Students' FN levels differ according to ethnic food consumption preference.*
- *H14: Students' ODC differs according to ethnic food consumption preference.*

The sample of the study consists of undergraduate students studying in different departments of tourism. Students who have the opportunity to do internships and

work in different sectors of an international industry such as tourism are frequently in environments with different, diverse and ethnic foods, and are in contact with foreign colleagues and tourists. In addition, considering that the curricula of the departments in which they study include courses on gastronomy and ethnic cultures, the other hypothesis formed within the scope of the research is as follows:

H15: There is a significant relationship between students' FN levels and their ODC.

4. RESULTS

4.1 Socio-Demographic Characteristics of Participants

The participants' demographic information are shown in Table 1. According to these data, 56% of the participants are female and 44% are male. When the place where the participants live is analysed, it is seen that 56.7% live in the province, 35.3% live in the district and 8% live in the town/village. Upon analyzing the educational status, it is evident that 31.1% of the students' mothers have graduated from elementary school, whereas 32.9% of the students' fathers have graduated from high school.

The majority of the students' families have a medium income of 72.5%. 33.9% of the students are studying in tourism management, 33.2% in tourism guidance and 32.9% in gastronomy and culinary arts programme. In terms of ethnic food preferences, 77.9% of the students prefer to consume.

4.2 Validity and Reliability Analysis and Factor Analysis Findings

We assessed the reliability of internal consistency by calculating Cronbach's Alpha coefficients. According to the evaluations, the study had a dependability of 0.720, as assessed using Cronbach's alpha. This outcome demonstrates the reliability and credibility of the research. We determined the factor structures in the research by applying explanatory and confirmatory factor analyses to the collected data, respectively.

We conducted a study to assess the suitability of the data for exploratory factor analysis by examining the KMO coefficient and Bartlett's test results. We calculated the KMO coefficient to be 0.908, indicating a substantial level of sampling adequacy. The Bartlett's test yielded a value of

0.00, indicating statistical significance at a significance level of $p < 0.01$. Both values were considered appropriate for conducting explanatory factor analysis.

Table 1. Findings Related to Socio-Demographic Characteristics

Demographic Characteristics	Number (n)	Percentage (%)
Gender		
Female	238	56
Male	187	44
Total	425	100
Place of Residence		
Province	241	56.7
District	150	35.3
Town/Village	34	8
Total	425	100
Education Level of the Student's Mother		
Literate	22	5.2
Primary School	132	31.1
Middle School	104	24.5
High School	119	28
Undergraduate	36	8.5
Postgraduate	12	2.8
Total	425	100
Education Level of the Student's Father		
Literate	6	1.4
Primary School	101	23.8
Middle School	76	17.9
High School	140	32.9
Undergraduate	83	19.5
Postgraduate	19	4.5
Total	425	100
Annual Household Income		
Low	72	16.9
Middle	308	72.5
High	45	10.6
Total	425	100
Programme of Study		
Tourism Management	144	33.9
Tourism Guidance	141	33.2
Gastronomy and Culinary Arts	140	32.9
Total	425	100
Ethnic Food Consumption Preference		
Yes	331	77.9
No	94	22.1
Total	425	100

Source: own elaboration.

Table 2. Results of exploratory factor analysis

Statements	Factor Load	Variance Explained	Core Value
Food Neophobia (FN)		22.924	2.751
I don't trust new foods	0.674		
If I don't know what is in a food, I won't try it	0.740		
Ethnic food looks too weird to eat	0.735		
I am afraid to eat things I have never had before	0.740		
I am very particular about the foods I will eat.	0.673		
Openness to Different Cultures (ODC)		29.992	3.599
I am very comfortable dealing with non-Turkish	0.742		
I like to go to places where I can be among non-Turkish	0.802		
I like to participate in activities of non-Turkish	0.745		
Some of my friends are non-Turkish	0.607		
I often read foreign newspapers or magazines	0.685		
I often watch foreign television	0.651		
I like to study foreign languages	0.715		
Total explained variance		52.916	

Source: own elaboration.

Table 2's explanatory factor analysis results revealed that a two-factor structure accounts for 52.916% of the total variation. Subsequently, the study's objective and the existing literature led to the identification of the two-factor structure as FN and ODC. A confirmatory factor analysis was conducted to validate the two-factor structure that emerged from the later stages of the explanatory factor analysis.

We then evaluated the confirmatory factor analysis using the widely recognized standard fit criteria commonly used in the literature. Figure 1 presents the outcomes of the confirmatory factor analysis conducted using the SPSS AMOS statistical software. We evaluated the proposed model throughout the study using the standard criteria to determine its appropriateness.

When the findings in Table 3 are analysed, it is seen that the model proposed within the scope of the research is valid and the two-factor structure obtained from EFA was confirmed.

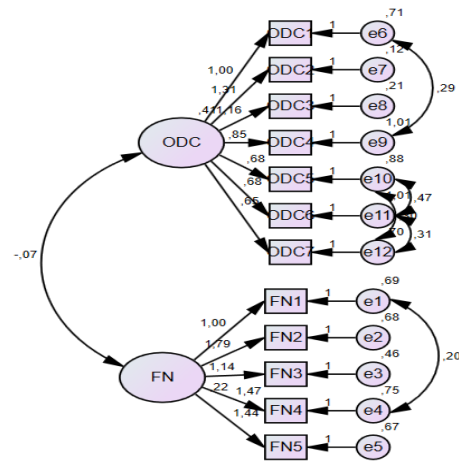


Figure 1. Confirmatory Factor Analysis Results
Source: own elaboration.

Table 3. Evaluation of the Proposed Model According to Standard Fit Criteria

Compliance Criteria	Good Compatibility	Acceptable Compliance	Model Value	Compliance
χ^2/sd	$0 \leq \chi^2 / sd < 2$	$2 \leq \chi^2 / sd \leq 5$	3.653	Acceptable
RMSEA	$0 \leq RMSEA < 0.05$	$0.05 \leq RMSEA \leq 0.10$	0.079	Acceptable
SRMR	$0 \leq SRMR < 0.05$	$0.05 \leq SRMR \leq 0.10$	0.074	Acceptable
NFI	$0.95 < NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$	0.91	Acceptable
IFI	$0.95 < IFI \leq 1.00$	$0.90 \leq IFI \leq 0.95$	0.93	Acceptable
GFI	$0.95 < GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$	0.93	Acceptable
AGFI	$0.90 < AGFI \leq 1.00$	$0.85 < AGFI \leq 0.90$	0.90	Acceptable

Source: own elaboration.

4.3 Testing of the Hypotheses

When Table 4 is analysed, students' ODC and their perceptions of FN do not show a significant difference according to gender (FN, $t=-0.495$; $P>0.05$; ODC, $t=-1.857$; $P>0.05$). When Table 5 is analysed, it is seen that there is no significant difference between annual household income and perception of FN ($F=0.630$; $P>0.05$).

Table 6 indicates a notable difference between the yearly household income and ODC ($F=10.218$; $P<0.05$). Through the conducted analyses, it has been determined that there is an important difference between income levels categorized as low and medium, low and high, and medium and high at a significance level of $P<0.05$.

Table 4. T-Test Results of FN and ODC by Gender

Variables	Groups	n	x	s.s	t-test		
					t	df	p
FN	Female	238	2.82	0.70	-0.495	423	0.621
	Male	187	2.86	0.81			
ODC	Female	238	3.53	0.69	-1.857	423	0.065
	Male	187	3.65	0.71			

Source: own elaboration.

Table 5. ANOVA Results of Students' Annual Household Income According to FN Level

Annual Household Income	N	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Low (1)	72	2.89	0.86	Between Groups	0.714	2	0.357	0.630	0.533	
Middle (2)	308	2.84	0.70	Within Groups	239.312	422	0.567			
High (3)	45	2.73	0.88	Total	240.026	424				
Total	425	2.84	0.75							

Source: own elaboration.

Table 6. ANOVA Results of Students' Annual Household Income According to the Level of ODC

Annual Household Income	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Low (1)	72	3,35	0,73	Between Groups	9,878	2	4,939	10,218	0,000	1-2; 1-3; 2-3
Middle (2)	308	3,58	0,70	Within Groups	203,964	422	0,483			
High (3)	45	3,95	0,54	Toplam	213,842	424				
Total	425	3,58	0,71							

Source: own elaboration.

Upon analyzing Table 7, it becomes evident that there is a noteworthy difference between the educational attainment of the students' fathers and their perception of FN ($F=4.042$; $P<0.05$). The analyses conducted to identify the education levels between which this difference exists reveal that the difference is significant at the $P<0.05$ level for both secondary school versus literacy level and secondary school versus postgraduate level.

Upon analyzing Table 8, it becomes evident that there exists a substantial disparity between the educational accomplishments of the students' mothers and their perception of FN ($F = 3.208$; $P<0.05$). According to the conducted studies, there is a significant difference between the literacy level and the level of education achieved, with a statistical significance of $P<0.05$.

Upon analyzing Table 9, a notable disparity is observed between the educational attainment of the students' fathers and their perception of ODC ($F=9.022$; $P<$

0.05). The analyses conducted to determine the differences between education levels revealed significant disparities between primary school and undergraduate, primary school and graduate level, secondary school and undergraduate, secondary school and graduate level, and high school and undergraduate education levels at a significance level of $P<0.05$.

After examining Table 10, a significant discrepancy is evident in the educational achievements of the students' mothers and their perception of ODC ($F = 12.436$; $P<0.05$). Upon performing analyses, it has been noted that there exists a substantial disparity, at a significance level of $P<0.05$, between literacy and high school education, literacy and undergraduate degree, primary school and high school education, primary school and undergraduate degree, secondary school and high school education, and secondary school and undergraduate degree.

Table 7. ANOVA Results of Father's Education Level According to FN Level

Father's Education Level	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Literate (1)	6	2.80	0.43	Between Groups	11.04	5	2.209	4.042	0.001	3-1; 3-6
Primary School (2)	101	2.86	0.73	Within Groups	22.98	419	0.546			
Middle School (3)	76	3.09	0.79	Total	240.02	424				
High School (4)	140	2.72	0.71							
Undergraduate (5)	83	2.88	0.76							
Postgraduate (6)	19	2.37	0.67							
Total	425	2.84	0.75							

Source: own elaboration.

Table 8. ANOVA Results of Mother's Education Level According to FN Level

Mother's Education Level	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Literate (1)	22	3.17	0.64	Between Groups	8.849	5	1.770	3.208	0.007	1-6
Primary School (2)	132	2.86	0.74	Within Groups	231.177	419	0.552			
Middle School (3)	104	2.96	0.78	Total	240.026	424				
High School (4)	119	2.72	0.71							
Undergraduate (5)	36	2.76	0.74							
Postgraduate (6)	12	2.35	0.72							
Total	425	2.84	0.75							

Source: own elaboration.

Table 9. ANOVA Results of Father's Education Level According to the Level of ODC

Father's Education Level	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Literate (1)	6	3.33	0.49	Between Groups	20.785	5	4.157	9.022	0.000	2-5; 2-6; 3-5; 3-6; 4-5
Primary School (2)	101	3.37	0.61	Within Groups	193.056	419	0.461			
Middle School (3)	76	3.39	0.75	Total	213.842	424				
High School (4)	140	3.60	0.73							
Undergraduate (5)	83	3.90	0.62							
Postgraduate (6)	19	4.07	0.53							
Total	425	3.58	0.71							

Source: own elaboration.

Table 10. ANOVA Results of Mother's Education Level According to ODC

Mother's Education Level	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Literate (1)	22	3.21	0.66	Between Groups	27.63	5	5.527	12.436	0.000	1-4; 1-5; 2-4; 2-5; 3-4; 3-5;
Primary School (2)	132	3.35	0.62	Within Groups	186.207	419	0.444			
Middle School (3)	104	3.47	0.71	Total	213.842	424				
High School (4)	119	3.83	0.71							
Undergraduate (5)	36	4.04	0.55							
Postgraduate (6)	12	3.88	0.56							
Total	425	3.58	0.71							

Source: own elaboration.

Upon analyzing Table 11, it is evident that there is no statistically significant distinction between the pre-university place of residence and the perception of FN ($F=2.915$; $P>0.05$).

Upon analyzing Table 12, a notable disparity is observed between the pre-university place of residence and the perception of ODC ($F=5.862$; $P<0.05$). After conducting analyses to determine the differences between settlement types, it was found that there is a significant distinction between province and district settlements, as well as province and town/village settlements, at a significance level of $P<0.05$.

Table 13 clearly demonstrates a significant difference between the curriculum and the perception of FN, as supported by the statistical analysis ($F = 22.338$; $P<0.05$).

The analyses have revealed a significant distinction between the tourism management and tourism guidance programs, as well as between the tourism guidance and gastronomy and culinary arts programs, with a significance level of $P<0.05$.

Table 14 demonstrates a significant disparity between the study program and ODC, as indicated by a computed F-value of 38.326 and a p-value below 0.05. We conducted analyses and discovered a significant difference between the tourism guidance and gastronomy and culinary arts program, the tourism management and tourism guidance program, and the tourism management and gastronomy and culinary arts program. This discrepancy is identified with a significance level of $P<0.05$.

Table 11. ANOVA Results According to the FN Level of the Students' Place of Residence

Place of Residence	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Province (1)	241	2.77	0.71	Between Groups	3.271	2	1.636	2.915	0.055	
District (2)	150	2.91	0.76	Within Groups	236.755	422	0.561			
Town/Village (3)	34	3.04	0.88	Total	240.026	424				
Total	425	2.84	0.75							

Source: own elaboration.

Table 12. ANOVA Results According to the Level of ODC Where the Students Live

Place of Residence	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
Province (1)	241	3.67	0.67	Between Groups	5.780	2	2.890	5.862	0.003	1-2; 1-3
District (2)	150	3.50	0.73	Within Groups	208.061	422	0.493			
Town/Village (3)	34	3.31	0.71	Total	213.842	424				
Total	425	3.58	0.71							

Source: own elaboration.

Table 13. ANOVA Results According to the Neophobia Level of the Programme the Students Study

Programme of study	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
T. Mng. (1)	144	2.74	0.71	Between Groups	22.978	2	11.489	22.338	0.000	1-2; 2-3
T. Guid. (2)	141	3.16	0.71	Within Groups	217.048	422	0.514			
Gast. and Cul. Arts (3)	140	2.62	0.72	Total	240.026	424				
Total	425	2.84	0.75							

Source: own elaboration.

Table 14. ANOVA Results According to the Level of ODC of the Programme Students Study

Programme of study	n	x	s.s	Source of Variance	Sum of Squares	Df	Mean Squares	F	P	Significance
T. Mng. (1)	144	3.49	0.61	Between Groups	32.872	2	16.436	38.326	0.000	1-2; 1-3; 2-3
T. Guid. (2)	141	3.96	0.69	Within Groups	180.970	422	0.429			
Gast. and Cul. Arts (3)	140	3.30	0.65	Total	213.842	424				
Total	425	3.58	0.71							

Source: own elaboration.

Table 15. T-Test Results of FN and ODC According to Ethnic Food Consumption Preference

Variables	Groups	n	x	s.s	T test		
					t	df	p
FN	Yes	331	2.67	0.67	-9.204	423	0.000
	No	94	3.42	0.70			
ODC	Yes	331	3.69	0.66	5.793	423	0.000
	No	94	3.20	0.73			

Source: own elaboration.

Table 16. Correlation Analysis Results Regarding Students' FN Levels and ODC

Correlation	ODC
FN	Pearson Correlation
	Sig. (2-tailed)
	n
	425

Source: own elaboration.

When Table 15 is analysed, students' ODC and their perceptions of neophobia show a significant difference according to their ethnic food consumption preferences (FN, $t=-9.204$; $P<0.05$; ODC, $t=5.793$; $P<0.05$). Upon analyzing the table, it is revealed that students with neophobia are more closed to ethnic food consumption preferences ($X=3.42$), while students with a greater willingness to embrace diverse cultures are also more likely to have a preference for consuming ethnic foods ($X=3.69$).

Upon analyzing Table 16, it is evident that there is no statistically significant correlation between students' FN levels and their ODC, with a correlation coefficient of -0.49 and a p-value of 0.318 .

4.4 Discussion

Food preferences have a significant impact on both adults' and children's dietary choices and eating habits. Hence, in the present scenario, where the selection of appropriate dietary options has become complex, it is critical to understand the formation of food preferences and the elements that are likely to impact this advancement (Mak, 2018).

Prior studies have demonstrated that food neophobia (FN) impacts individuals' dietary preferences, leading those with this characteristic to be less willing to experiment with unfamiliar foods (Siegrist et al., 2013; Hsu, Robinson & Scott, 2018). Furthermore, individuals who actively participate in multiple cultures and fully embrace international exchange are more likely to encounter a wide range of cultural diversity. In this scenario, the relationship between ODC and FN is interdependent.

Multiple studies have demonstrated the significant impact of socio-demographic variables on individuals' food preferences and perceptions. This article aimed to evaluate the levels of fear of negative evaluation (FN) and obsessive-compulsive disorder (ODC) among 3rd and 4th year undergraduate students in tourism departments (tourism management, tourism guidance, and gastronomy and culinary arts) at different universities in Turkey, based on their socio-demographic characteristics.

The analysis of the research findings revealed no significant differences in students' perceptions of FN based on their gender. This finding is consistent with specific studies in the literature (Asperin et al., 2011; Sahilli Birdir et al., 2020; Çetin & Soybalı, 2022), but contradicts others (Okumus, Dedeoğlu & Shi, 2021; Tian & Chen, 2021). Furthermore, the analysis indicates that there is no statistically significant disparity in ODC perception depending on gender.

This discovery aligns with the research conducted by Mascarello et al., 2020, which investigated the socio-demographic connections between Italian consuHowever, because the study focused on examining FN and ODC levels in students of the same age group, it was not possible to analyze the age variable. the age variable.

Nevertheless, existing research suggests that there is no definitive correlation between gender and FN (false negatives) and ODC (omissionInstead, researchers have found more substantial associations between FN and the variable of age, with FN tending to increase as age

advances.e as age advances.

There is no notable distinction seen between the participants' yearly household income and FN levels. However, there is a considerable disparity between annual household income and ODC. Although no relationship was found between FN level and income in this study, the findings in the literature indicate that neophobic consumers are less educated and have lower socio-economic status (Pliner, et al., 1993; Meiselman et al., 2010; Siegrist et al., 2013; Mascarello et al., 2020).

On the other hand, the finding of a significant relationship between annual household income and ODC is similar to the results of Mascarello et al., 2020. Consequently, individuals who are receptive to diverse cultures tend to possess higher levels of education and income. Additionally, the study reveals that the FN levels of students vary based on the educational attainment of their parents. However, this differentiation could not be detected positively among all levels. On the other hand, as the educational level of the students' parents increases, the level of ODC also increases.

It can be said that food preferences and acceptance are generally related to food exposure. In this context, education, occupation and income affect the chance of exposure to new and different foods. Because individuals may prefer travelling, eating out and learning about different cultures and gastronomic traditions (Mascarello et al., 2020). Furthermore, it was found that the students' place of residence prior to attending university did not have a noteworthy impact on their perception of FN.

However, there was a notable disparity in the perception of ODC based on the students' place of residence before university. Considering the averages of the provincial centre had lower levels of FN than those living in the district and village; and those living in the district had lower levels of FN than those living in the village. The urban residents exhibited a greater degree of ODC compared to the residents of the district and village.

Therefore, the relationship between the size of a person's home and their exposure to different cultures implies that students who have more exposure to cultural diversity are more open to trying new foods, resulting in greater acceptance and willingness to experiment. This discovery aligns with the research conducted by de Andrade Previato & Behrens (2015).

FN tends to vary according to individual differences (Promsivapallop & Kannaovakun, 2020). The research findings indicate a notable disparity between the curriculum and FN levels. Specifically, it was established that tourist guiding students had greater FN levels compared to other students. This is followed by tourism management students and finally gastronomy and culinary arts students.

This finding coincides with the research results of Sahilli Birdir et al. (2020). This finding is quite expected as gastronomy and culinary arts students have the opportunity to make and experience new foods and ethnic dishes compared to the students of other departments due to their departments. Contrary to expectations, there are also discoveries in the literature indicating that students studying gastronomy and culinary arts exhibit a hesitancy in

experimenting with unfamiliar and diverse dishes (Yiğit & Doğdubay, 2017).

On the other hand, it can be interpreted as an interesting result that although tourism guidance students have the opportunity to experience various foods and dishes during their tours and travels, their FN levels are the highest. The other finding is that there is a significant difference between the programme of study and ODC. Accordingly, tourism guidance students have the highest level of ODC.

This is followed by tourism management students and gastronomy and culinary arts students. The tendency of tourism guidance students to be open to different cultures is quite understandable. Compared to the students of other departments, they receive language education and courses on different languages for more intensive hours. In addition, due to their profession, they are in long-term and intensive communication with foreign tourists, other tourism enterprises and local people during their tours and travels.

Owing to globalization, the rising prevalence of internet usage, and the expansion of dining out as a mode of consumption, individuals now have greater opportunities to

experience diverse cuisines from various parts of the globe. Furthermore, students interning/working in the tourism sector, which makes up the study's population, interact with guests from all over the world and learn about their cultures.

The differences between FN and ODC and ethnic food consumption were analysed. Accordingly, it was found that students' perceptions of FN and ODC differed according to their ethnic food consumption preferences. It is seen that students with FN are more cautious and closed to ethnic food consumption preferences, while students who are open to different cultures are more willing and open to ethnic food consumption preferences (Mascarello et. al., 2020; Moutinho & Meneses, 2023).

Because culture is an important determinant affecting food consumption (Verbeke, Poquiviqui López, 2005; Mak, Lumbers, Eves & Chang, 2017). Finally, it was examined whether there is a relationship between FN and ODC. Consequently, it was concluded that there was no correlation. Manipulating the degree of neophobia has no impact on the level of ODC.

Table 17. Summary of the consolidated results.

Theory	Results
Culture is an important determinant of food consumption (Verbeke & Poquiviqui López, 2005; Mak, et.al., 2017). Food practices and food preferences are part of culture and are related to various aspects of culture (Brittin & Obeidat, 2011).	Students' FN perceptions and divergent ODC status differed according to their ethnic food consumption preferences.
Food neophobia, which affects people's daily food choices, is generally thought to be strongly influenced by socio-demographic variables and cultural, social, psychological and sensory acceptance factors (Mak, 2018; Tian & Chen, 2021; Jaeger et. al., 2023).	The findings suggest that socio-demographic variables have different levels of influence on FN levels and that neophobic students are more cautious and not open to ethnic food consumption preferences.
Socio-demographic factors influence individuals' eating out habits, ODC and food preferences (Mascarello et. al., 2020).	Findings indicate that socio-demographic variables have several levels of effect on ODC and that students who are open to different cultures are more willing and open to ethnic food consumption preferences.

Source: own elaboration.

In the Implications and suggestions section, suggestions regarding the findings are presented.

5 CONCLUSIONS

In this study, the relationship between food neophobia and openness to different cultures and ethnic food consumption was analyzed together with socio-demographic variables. As a result, it was found that students with high levels of food neophobia do not consume ethnic foods, while students with high levels of openness to different cultures do. In addition, neophobic students tend not to be open to different cultures.

Some socio-demographic variables were found to be significantly associated with food neophobia (e.g., level of education of students' parents, program of study) and openness to different cultures (e.g., annual household income, level of education of students' parents, place of residence before university education, program of study). The results of this study may be useful to understand the profiles of tourism students who are reluctant to adopt different, novel and ethnic foods and to guide them. In addition, it can be expected to contribute to the literature on the related subject.

5.1 Implications and Suggestions

In order to succeed in the tourism industry, it is advisable for students specializing in tourism to be receptive to diverse cultures and willing to explore new cuisines. This is particularly important for those who will be working in accommodation, travel and transportation, food and beverage, and recreation businesses, as they will be serving individuals from various cultural backgrounds.

It is feasible to provide recommendations to students in order to minimize FN. Lack of knowledge about these novel food items is the primary cause of apprehension towards trying them. In this context, courses that encourage intercultural sensitivity and address the cuisines and diets of different cultures can be added to the curricula.

Activities related to these courses can be organised. In order to experience cultural interaction, students may prefer that the destinations and businesses where they do their internship/work are predominantly visited by international tourists. On the other hand, they can improve their attitudes towards ODC through mass media and learning different foreign languages.

They may prioritise seeing different countries, experiencing cultures and ethnic cuisines through study and work abroad programmes or backpacking. Thus, they can

overcome their fears and prejudices against new foods and have new perspectives through their own experiences. Specifically, students studying tourism guidance can acquire ample knowledge about unfamiliar cuisines by conducting a preliminary investigation on the local food of the destination they are about to visit. This will empower aspiring guides to approach new dishes with confidence and potentially enhance their inclination to sample and consume novel foods (Sahilli Birdir et al., 2019).

5.2. Limitations and Future Research

Finally, we present the study's limitations and recommendations for future research. Similar to any other research, this study undeniably possesses specific limitations. We conducted the study on students currently enrolled in tourist management, tourism guidance, and gastronomy and culinary arts programs at various universities in Turkey.

Therefore, we cannot generalize the study's findings to encompass all students studying tourism in Turkey. Hence, the assessments and suggestions derived from the study findings are applicable only to the sample group in which the research was performed. Another limitation is that the study used convenience sampling because of its cost-effectiveness, time efficiency, high response rate, and ability to collect data online.

It is thought that more research should be conducted in order to enrich the findings in the theoretical literature. In this direction, it can be suggested that future researchers should increase the number of samples, conduct research with students studying tourism in different countries and make intercultural comparisons, and discuss the socio-demographic factors affecting the levels of FN and ODC in different dimensions. Analyses can be made using different variables and models. Similarly, it can be analysed whether there are differences in the levels of current students and graduates. On the other hand, qualitative and mixed research methods can contribute to the literature by collecting data and using different analysis methods.

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Term	Definition	Author 1	Author 2
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims	x	
Methodology	Development or design of methodology; creation of models	x	x
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components	x	
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs	x	
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data		x
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection		
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools		x
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse	x	
Writing - Original Draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)	x	x
Writing - Review & Editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages	x	x
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/ data presentation	x	x
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team	x	
Project administration	Management and coordination responsibility for the research activity planning and execution	x	
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