



# Effects of Gender Difference on Fast Food Consumption among Associate Degree Students

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## Authors' contributions

This work was carried out in collaboration between both authors. Author AI designed the study, and wrote the first draft of the manuscript. Author SK performed the statistical analysis, and managed the analyses of the study. Authors AI and SK managed the literature searches. Both authors read and approved the final manuscript.

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## ABSTRACT

**Aims:** This study aims to evaluate the attitudes of associate degree students about fast food and to determine the effect of gender.

**Study Design:** Students who voluntarily agreed to participate in the study were included. Within the scope of the research, the questionnaire was conducted using a simple random sampling method to determine the students' consumption of ready-to-eat food. Questionnaire questions were developed based on the studies in the literature and organised by the purpose of the research.

**Place and Duration of the Study:** The survey was conducted face to face with 326 students (approximately 15 students from each program) studying in 10 different departments and 20 programs of Tekirdađ Namık Kemal University Technical Vocational School in the 2022-2023 fall semester.

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**Methodology:** Before starting the questionnaire, the clarity and validity of the questions were tested with 10 subjects to make necessary corrections when necessary. In the questionnaire, students were asked about their height-weight values and Body Mass Index (BMI) was calculated. Descriptive statistics of the data obtained from the study were evaluated by Crosstabs analysis and Chi-square ( $\chi^2$ ) independence tests in the SPSS ver.18 statistical package program.

**Results:** According to the study results, statistical significance was found in the following dimensions related to gender factor: BMI (\*\*P<0.01), housing status (\*P<0.05), frequency of consumption (\*P<0.05), reason for consuming ready-to-eat food (\*P<0.05), favorite ready-to-eat food (\*\*P<0.01), portions consumed at meals (\*\*P<0.01), finding portions sufficient (\*\*P<0.01), comments about nutritional value (\*\*P<0.01), and thoughts about hygiene (\*\*P<0.01).

**Conclusion:** Understanding the factors affecting fast food consumption can contribute to raising awareness among students about balanced nutrition and developing nutrition strategies. Studies that investigate and understand these factors may be important for companies in the sector to follow consumer preferences and trends. New studies should be conducted among associate degree students, including students from different universities. To these studies; Factors such as family income level, whether the student receives a scholarship, health information, stress factor, social environment, advertising and social media use, food options on campus, and physical activity should be included.

*Keywords: Prepared food; consumption; gender; student.*

## 1. INTRODUCTION

Changes in people's food consumption are realised as a result of the effects of economic, social and cultural developments (Gül et al., 2003). Nutrition is the conscious intake and utilisation of essential food groups and water for growth and development, with their nutritional values intact (Çayır et al., 2011). Ready meals are meals that require few or no additional ingredients, are prepared and finished by external procedures, and are designed to completely and quickly replace the home-cooked main course (Costa et al., 2001; Mahon et al., 2006). These foods are packaged where they are sold and are ready for consumption. Canned foods, ready-to-eat foods, fast food, frozen foods, instant products, dried foods, preserved foods, etc. all fall within the scope of ready-to-eat foods (Meenambekai and Selvarajan, 2012). Ready-to-eat food businesses continue to grow worldwide (Özleyen, 2005). The consumption pattern of fast food has increased significantly among the diverse segments of the population worldwide (Alsabieh et al., 2019; Choi, 2020). It is estimated that approximately 50 million people worldwide consume 'fast food' every day (Behnke and Janssen, 2020). Fast foods are products that are sold ready to eat in commercial establishments with or without seating, have low prices, are generally eaten by hand, sometimes have cutlery in the service, and have low durability, whose packaging is discarded after use (Tayfun and Uygur, 2008). Significant changes are observed in the eating habits of

university students with moving away from home (Shi et al., 2021). University life influences students' behaviour, as they manage their dietary habits to ensure a balanced diet (Isa and Thulasi, 2020). In our country, many university students study in different cities away from their families and nutrition is a serious problem for students. The fact that fast-food-type foods are easy to consume and have good taste and appearance increases the consumption rate among young people (Şanlıer and Ersoy, 2005). Food preferences are influenced by various factors, such as culture, age, and gender (Feraco et al., 2024). Clinical studies have consistently highlighted differences between men and women in various aspects of eating behaviours and nutritional choices (Legget et al., 2023). Understanding the differences in taste and eating habits between men and women is essential in order to develop personalized nutritional strategies and improve the prevention of cardiometabolic diseases. Previous studies have shown that men and women tend to prefer divergent tastes and consume different types of food (Westenhofer, 2005; Gil et al., 2022).

Differences in nutritional behaviours between male and female individuals determine the marketing and advertising strategies of the fast-food industry according to the target audience.

Gender may be an important factor in determining these strategies. There is a clear gender difference in food selection and behaviors. In general, females have been

frequently reported to engage in far more health-promoting behaviors than males and to obtain healthier lifestyle patterns. Studies conducted in modern western societies report consistent associations between gender and specific foods, where meat (especially red meat), alcohol, and big portion sizes are associated with masculinity, while vegetables, fruit, fish and sour dairy products are associated with femininity (Arganini et al., 2012). This study aims to evaluate the attitudes of associate degree students about fast food and to determine the effect of gender.

## 2. MATERIALS AND METHODS

The sample of the research was 326 students studying in 10 different departments and 20 programs of Tekirdağ Namık Kemal University Vocational School of Technical Sciences. Students who agreed to participate in the research voluntarily signed an informed consent form. Ethical approval and permission for this study was obtained from Tekirdağ Namık Kemal University Science and Engineering Sciences Scientific Research and Publication Ethics Committee. Within the scope of the research, the questionnaire was conducted using a simple random sampling method to determine the consumption of ready-to-eat food by the students. The questionnaire form was developed based on the studies in the literature and organised by the purpose of the research (Arslan et al., 2023; Demircan et al., 2019; Sayın, 2022). The first part of the questionnaire includes questions on demographic characteristics, the second part on ready-to-eat food preferences, consumption frequency and quantity, and the third part on the issues considered when consuming ready-to-eat food. The survey was conducted face-to-face with 326 students in the autumn term of 2022-2023. Before starting the survey, the clarity and validity of the questions were tested with 10 subjects to make necessary corrections when necessary (Badrie et al., 2004). In the questionnaire, students were asked about their height-weight values and Body Mass Index (BMI) was calculated (Kennedy-Behr et al., 2015). Those with a body mass index of 18.5

kg or less are classified as underweight, 18.5-24.9 kg as normal, 25-29.9 kg as overweight and 30-39.9 kg as obese (Anonymous, 2010).

## 2.1 Statistical Analysis

Descriptive statistics of the data obtained from the study were evaluated by Crosstabs analysis and Chi-square ( $\chi^2$ ) independence tests in the SPSS ver.18 statistical package program (Gujarati, 1995; Mirer, 1995).

## 3. RESULTS AND DISCUSSION

Age groups and housing situations of the students participating in the survey distribution rates are given in Table 1.

There is a significant relationship between the gender of the students and BMI ( $\chi^2$ : 23.404;  $p \leq 0.01$ ). The gender and BMI distribution (%) of the students are given in Table 2. In general, it was determined that the majority of the students (60.7%) were of normal weight. The proportion of overweight and obese students was higher in male students than in female students. This shows that girls are more careful about their weight. This shows that girls are more careful about their weight. Obesity has reached epidemic proportions worldwide and has become an important public health problem (Lau et al., 2007). Koşum and Akbay (2021) examined the fast-food consumption habits of consumers in the city centre of Istanbul and found that 78.3% of those with a BMI of 25 and above consumed fast food. It is thought that the eating awareness approach can regulate eating habits and provide support in achieving and maintaining a healthy body weight. Increasing awareness is important in ensuring the right food choices and developing conscious eating behaviour (Aras and Delen, 2023).

There is a significant relationship between the gender of the students and their housing status ( $\chi^2$ : 6.718;  $p \leq 0.05$ ). The distribution of students' gender and housing status (%) is given in Table 3.

**Table 1. Age ranges and housing status distribution ratios of the respondents (%)**

Age ranges	(%)	Housing Status	(%)
15-20	71.1	With family	35.1
21-25	25.9	Dormitory/ hostel	37.2
25-36	1.8	Student House	27.7
36-50	0.9		
50>	0.3		

**Table 2. Gender and BMI distribution of students (%)**

Gender	BKİ				Statistics
	Underweight	Normal	Overweight	Obese	
Male	3.9	60.3	28.8	7.0	$\chi^2 = 23.404^{**}$
Female	17.8	61.7	14.0	6.5	
Total	8.3	60.7	24.2	6.8	

*\*\*There is a significant relationship at  $P < 0.01$  level*

**Table 3. Distribution of students' gender and housing status (%)**

Gender	Housing Status			Statistics
	With family	Dormitory/ hostel	Student House	
Male	34.1	34.1	31.8	$\chi^2 = 6.718^*$
Female	37.4	43.9	18.7	
Total	35.1	37.2	27.7	

*\*There is a significant relationship at  $P < 0.05$  level*

**Table 4. Distribution of frequency of consumption of ready-to-eat food by gender (%)**

Gender	Frequency of ready-to-eat food consumption					Statistics
	Once a day	Once a week	Several times a week	Once on the moon	Not consume	
Male	41.5	14.4	37.1	7.0	0.0	$\chi^2 = 10.485^*$
Female	33.6	22.4	34.6	6.6	2.8	
Total	39.0	17.0	36.3	6.8	0.9	

*\*There is a significant relationship at the  $P < 0.05$  level*

There is a significant relationship between the gender of the students and the frequency of consumption of convenience foods ( $\chi^2: 10.485$ ;  $p \leq 0.05$ ). The distribution (%) of students' gender and frequency of consumption of ready-to-eat food is given in Table 4. In general, it was determined that students consumed ready-to-eat food once a day and several times a week. It was determined that 2.8% of female students did not consume ready-to-eat food at all, but all male students consumed ready-to-eat food. Our results were found to be compatible with the results of the studies given below. The frequency of fast food consumption among higher education students is high, causing worrying implications for public health (Oliveira and Raposo, 2024). Tengiz (2018) found that most of the male and female students consumed fast food several times a week and more males than females consumed fast food products every day. Dalrymple (2013) found that 91.8% of the students consumed fast food once or twice a week. Haines et al. (2010) found that 84% of the students consumed fast food products at least once a week in their study. Sayılı and Gözener (2013) found that 24.5% of the students went to fast food restaurants almost daily. In another study, it was determined that men were 1.7 times more likely to consume fast food than

women. They stated that men spend more time outside than women, seeing different environments and their desire to eat more practical food may be effective in their consumption preferences (Koşum and Akbay, 2021).

There is a significant relationship between the gender of the students and the reasons for consuming convenience foods ( $\chi^2: 14.122$ ;  $p \leq 0.05$ ). The distribution (%) of students' gender and reasons for consuming ready-to-eat food are given in Table 5. Students generally stated that they consume ready-to-eat food mostly because it is practical. Önder and Önder (2019) found in their study that most of the students preferred fast food products due to convenience and time limitations. In another study, it was determined that students prefer such products because both preparation and consumption do not require much time (Özdiñç, 2004).

Regarding the reasons why consumers prefer fast food products; Unur and Kaya Gök (2012), because they get hungry mostly when they are out, Morse and Driskell (2009), because they like fast and taste, Özcelik et al. (2007), because it is tasty, cheap and fast, Driskell et al. (2006) determined that it was consumed in limited time

and because they liked its taste. Cömert (2014) found that for fast food consumption among university students was that it was fast, followed by being economical, tasty, healthy, popular and safe, respectively. Sinir et al. (2014) determined that university students prefer fast food products because they are cheaper and easily accessible. Kingır et al. (2015) concluded in their study that the most important reasons affecting students' fast-food consumption were product features, followed by speed and price policy. Yazıcıoğlu et al. (2013) determined that the most important for fast food consumption of university students were price, product features and speed.

There is a significant relationship between the gender of the students and their favourite ready-to-eat food ( $\chi^2$ : 37.596;  $p \leq 0.01$ ). The distribution (%) of the gender of the students and their favourite ready-to-eat food is given in Table 6. In general, it was determined that hamburgers, doner and pizza were the most favourite ready-to-eat foods consumed by the students.

In our study, it was determined that hamburger (25.5%) was the favourite ready-to-eat food consumed by female students, while male students preferred doner (15.7%) in the first place.

**Table 5. Distribution of students' reasons for consuming ready meals by gender (%)**

Reason for consuming ready-to-eat food	Gender			Statistics
	Male	Female	Total	
Practicality	56.3	65.1	59.1	$\chi^2 = 14.122^*$
Nutritive value	0.9	0.0	0.6	
Saving time	14.4	11.2	13.4	
Price favourability	12.6	1.9	9.2	
Enjoyable consumption	4.4	5.7	4.8	
Delicious	7.0	12.3	8.7	
Product diversity	4.4	3.8	4.2	

\*There is a significant relationship at  $P < 0.05$  level

**Table 6. Distribution of the most favorite ready-to-eat foods by gender (%)**

The most popular ready-to-eat food	Gender			Statistics
	Male	Female	Total	
Frozen Pizza	7.0	9.4	7.8	$\chi^2 = 37.596^{**}$
Döner kebab	15.7	12.3	14.6	
Pizza	11.8	14.2	12.5	
Dürüm	7.9	3.8	6.6	
Chips	3.9	6.6	4.8	
Hamburger	11.8	25.5	16.1	
Chocolate	2.1	4.7	3.0	
Meatball	3.1	2.8	3.0	
Noodle	4.4	4.7	4.5	
Lahmacun	2.6	3.8	3.0	
Soup	6.6	3.8	5.7	
Types of canned food	2.2	1.9	2.1	
Patso	7.8	1.9	6.0	
Pita	1.3	0.8	1.2	
Toast	3.5	0.0	2.4	
Kebab	2.2	0.0	1.5	
Grilled chicken	3.5	0.0	2.4	
Nugget	1.3	0.0	0.9	
Raw meatballs	0.4	3.8	1.5	
Chicken pilaf	0.9	0.0	0.6	

\*\*There is a significant relationship at  $P < 0.01$  level

Data from Tacad et al.'s study indicate that the relationships between eating behavior characteristics, food preference, food choice motivations, and dietary intake/quality are different between men and women (Tacad et al., 2024). Özcelik et al. (2007) determined in their study that males preferred to go to kebab and meatball restaurants and females preferred to go to hamburger restaurants. Boğaz (2003) concluded that consumers prefer meat doners, grilled meatballs and chicken doners the most among traditional fast-food type foods, and hamburgers, french fries and chicken burgers the most among Western-style foods. Sürücüoğlu and Çakıroğlu (2000), in their study on the fast-food preferences of Ankara University students, determined that the most preferred food by men and women was minced meat pita.

There is a significant relationship between the gender of the students and the portion of ready-to-eat food consumed at one meal ( $\chi^2$ : 16.109;  $p \leq 0.01$ ). The gender of the students and the portion distribution (%) of ready-to-eat food consumed at one meal are given in Table 7. When the Table 7 is analysed, it is seen that

male students consume more portions than female students. The majority of female students (81.1%) stated that they consumed one portion. Driskell et al. (2006) reported that fifty per cent of males typically did not consider portion sizes, while 53% of females considered smaller portion sizes. Gender variances in sustainable consumption have been investigated in numerous studies. One study revealed that male consumers tend to exhibit weaker green consumption values compared to their female counterparts, with this contrast partially attributed to varying levels of intrasexual competition (Otterbring, 2023).

There is a significant relationship between the gender of the students and their finding ready-to-eat food portions satisfying ( $\chi^2$ : 8.669;  $p \leq 0.01$ ). The distribution (%) of students' gender and their satisfaction with ready-to-eat food portions is given in Table 8. In general, 55.2% of the students stated that they found ready-to-eat food portions satisfying and 44.8% stated that they did not find them satisfying. Female students found ready-to-eat food portions more satisfying than male students.

**Table 7. Distribution of servings of ready-to-eat food consumed at a meal by gender (%)**

Distribution of servings of ready-to-eat food consumed					
Gender	1 Portion	1.5 Portion	2 Portion	More portions	Statistics
Male	59.4	27.9	9.6	3.1	$\chi^2$ : 16.109**
Female	81.1	11.3	6.7	0.9	
Total	66.3	22.7	8.7	2.3	

\*\*There is a significant relationship at  $P < 0.01$  level

**Table 8. Gender of students and their perception of ready-to-eat food portions as satisfying (%)**

Finding ready meal portions satisfactory			
Gender	Yes	No	Statistics
Male	49.8	50.2	$\chi^2 = 8.669^{**}$
Female	67.0	33.0	
Total	55.2	44.8	

\*\*There is a significant relationship at  $P < 0.01$  level

**Table 9. Distribution of student's interpretation of the nutritional value of ready-to-eat food by gender (%)**

Students' interpretation of the nutritional value of ready-to-eat food					
Gender	High	Low	Acceptable	No idea	Statistics
Male	7.9	31.9	38.4	21.8	$\chi^2 = 13.556^{**}$
Female	4.7	35.5	22.4	37.4	
Total	6.9	33.0	33.3	26.8	

\*\*There is a significant relationship at  $P < 0.01$  level

There is a significant relationship between the gender of the students and their interpretation of the nutritional value of ready-to-eat food ( $\chi^2$ : 13.556;  $p \leq 0.01$ ). The distribution (%) of the gender of the students and their interpretation of the nutritional value of ready-to-eat food is given in Table 9. 33.3% of the students found the nutritional value of ready-to-eat food acceptable, 33.0% found it low, 26.8% had no idea, and 6.8% found it high. In many works, the authors point to differences depending on gender in observing the principles of a healthy lifestyle, including eating behaviours (Stock et al., 2001; Li et al., 2012; Kowalska and Tarnowska, 2019). Nutrition is an action that should be taken consciously to get the nutrients the body needs in sufficient quantities and at the necessary time to maintain and improve health and quality of life (Kutlu and Çivi, 2009). Fast food refers to high-calorie food that usually lacks essential micronutrients such as vitamins (A and C), minerals, amino acids, and fibre (Palos Lucio et al., 2020). Research consistently shows that consuming fast food may significantly contribute to poor diet quality and lead to excess body weight in individuals (Lachat et al., 2012). In their study, Goyal and Singh (2007) reported that university students went to fast-food restaurants but thought that homemade food was much better than the food served in fast-food outlets.

There is a significant relationship between the gender of the students and their suspicion of the hygiene of prepared foods ( $\chi^2$ : 9.377;  $p \leq 0.01$ ). The distribution of the gender of the students and their doubts about the hygiene of ready-to-eat foods is given in Table 10. When the rate of yes and sometimes responses of the students participating in the survey is evaluated together, it is seen that the rate of doubting the hygiene of ready-to-eat foods is high. Asiegbu et al. (2016) concluded that gender, race, education level and monthly income affect the way consumers who consume street foods perceive the safety of street foods and their willingness to purchase them. In his study, Sayin (2022) stated that the

participants had the perception that hygiene rules were not followed in fast-food-style establishments. ALFaris et al. (2015) determined that hygiene and safety standards of restaurants were the main source of concern about fast food for 62.2% of girls in their study.

Gündüz and Aydoğan (2015) determined that the average food safety awareness level of the students surveyed in their study was 52%. Baral et.al. (2020), in their study on food hygiene and perception of the nutritional value of food, approximately two-thirds of the participants stated that they evaluated the food hygiene in restaurants as somewhat hygienic. Altaş and Uzun (2017) stated that students prefer eating and drinking places that they find hygienic. Korkmaz (2005), in his study conducted in Ankara province, stated that the three important factors affecting students' decision to buy fast food are cleanliness, healthy products and quality. Islam and Ullah (2010) reported that students rated brand reputation as the most important factor when choosing fast food, followed by proximity and accessibility, similar taste, cost and quality relationship, discount and taste, cleanliness and hygiene.

Unhealthy food consumption is becoming an increasing problem among college students (Egan et al., 2007). When eating out, consumers expect to obtain quality food with an acceptable level of food hygiene, which reduces the risk of foodborne illness (Djekic et al., 2014). Food safety is one of the most important issues in public health (Scallan et al., 2011). Food sanitisation generally refers to the rules and procedures that apply within the food industry during production, packaging, handling or service (Djukic et al., 2016). Poor hygiene and sanitation in food management can affect the quality of the food produced (Aldiani, 2018). It is very important to maintain proper hygiene habits at all times to preserve food (Febriyani et al., 2022).

**Table 10. Gender and doubts about the hygiene of prepared foods (%)**

Gender	Doubt about the hygiene of ready-made foods			Statistics
	Yes	No	Sometimes	
Male	43.2	18.3	38.5	$\chi^2 = 9.377^{**}$
Female	39.6	7.6	52.8	
Total	42.1	14.9	43.0	

*\*\*There is a significant relationship at  $P < 0.01$  level*

Öztürk and Onurlubaş (2022) reported that the majority of students (62.5%) thought that fast-food consumption habits were harmful. Uğur (2018) reported in his study that a significant portion of young people continue to consume fast food despite thinking that fast food is unhealthy. In another study, 93.9% of the participants stated that fast-food or packaged prepared food products were not healthy products (Mititelu et al., 2023). Fast food-style foods cause some health problems in the long term because they are not balanced in terms of energy and some nutrients (Akdağ, 2015). Although the harmful effects of fast food consumption on health are known, students prefer it due to peer interactions and social media advertisements. Providing appropriate nutrition education to young people on healthy eating is important to limit the frequency of fast food consumption (Anitha et al., 2022). High dietary intake of ultra-processed foods is associated with a range of adverse health outcomes and non-communicable diseases, disorders and conditions, thus having the potential to significantly impact the global disease burden (Elizabeth et al., 2020). Public health strategies should focus on making healthy options more accessible, convenient, and tasty in order to encourage students to choose nutritious meals (Graça et al., 2023).

#### 4. CONCLUSION

The findings of our study are consistent with the studies published on the subject. Food habits change over time. Ready-to-eat food consumption is quite common among university students and is a part of their lifestyle. In this study, it was determined that gender, which is one of the most important demographic characteristics of individuals, affects the ready-to-eat food consumption status of associate degree students. In general, it was determined that students consume ready-to-eat food once a day and several times a week and prefer it more because it is practical. The type of ready-to-eat food consumed and the amount of portions consumed in a meal differed in male and female students. Although fast food offers a fast and practical solution; High calories and low nutritional value can cause malnutrition, various metabolic diseases and digestive problems. This may hinder students' healthy eating habits. Since it carries health risks, its consumption should be limited. The results of our research can help improve the eating habits of college students, develop healthy food alternatives, and offer

customized products based on gender factor. In order to reduce ready-made food consumption and encourage healthier food choices, university students should be made aware of balanced nutrition awareness campaigns via social media. Other studies should be conducted to analyze more deeply the psychological, social and economic factors affecting students' ready meal preferences. Studies investigating these factors may be important for companies in the sector to follow consumer preferences and trends and increase market share.

#### DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

#### ETHICAL APPROVAL

Ethical approval and permission for this study was obtained from Tekirdağ Namık Kemal University Science and Engineering Sciences Scientific Research and Publication Ethics Committee (Meeting Date-Time: 2022-11-11 - 11.00, Meeting Number: T2022-1164).

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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