

Short Communication

Prevalence of Food Poisoning and Related Eating Behaviours among University Hostel Residents in Lahore, Pakistan: A Cross-Sectional Study

Qaisar Raza,¹ Rakhshanda Batool,² Kinza Imran,³ M. Saeed Imran,⁴ Shahana Bashar,⁵ Esha Shakeel⁶

^{1,3,6}Department of Food Science and Human Nutrition, University of Veterinary and Animal Sciences, Lahore, Pakistan;

^{2,5}College of Applied Health Sciences, A'Sharqiyah University, Ibra, Oman; ⁴Department of Pathology, University of Veterinary and Animal Sciences, Lahore, Pakistan

Abstract

Background: Foodborne diseases are a significant health problem in Pakistan, where food safety regulations are poorly implemented. University hostel students are vulnerable to food poisoning due to the unhygienic conditions of the kitchen where large meals are prepared. Despite these concerns, documentation of foodborne outbreaks is limited in these institutional settings in Pakistan, and most cases go unreported.

Objectives This study aimed to address the prevalence of food poisoning and related eating behaviours among university hostel residents in Lahore, Pakistan.

Methods This was a cross-sectional study conducted among university students residing in various hostels in Lahore. The research was conducted among 400 participants aged 18 years and above. Data were collected through random sampling from both public and private hostels. We used a questionnaire to assess dietary habits and hygiene practices. Data were analyzed using SPSS version 23. Descriptive statistics were used to analyze the prevalence and demographic characteristics.

Results The mean age of the participants was 21.9 years. The majority of the students (58%) lived in the university hostel, while 42% lived in the private hostels. Out of 400 participants, 96% were aware of food poisoning, and 66% of participants reported suffering from food poisoning at least once during their hostel stay. Poor sanitary practices were observed among both male and female, although no statistical association was tested.

Conclusion Prevalence of self-reported food poisoning is relatively high among university hostel residents compared to the general population. Factors associated with food poisoning include trends in eating behaviours and hygienic practices that suggest a potential link with food poisoning. The findings of the study highlight that there is a need for food safety awareness, regular monitoring of food safety practices, and training of staff in hostel kitchens as well as local food venues.

Received: 09-09-2024 | **1st Revision:** 25-01-2025 | **2nd Revision:** 15-05-2025 | **Accepted:** 13-08-2025

Corresponding Author | Qaisar Raza, Department of Food Science and Human Nutrition, University of Veterinary and Animal Sciences, Lahore **Email:** qaisar.raza@uvas.edu.pk

Keywords | Food poisoning, eating behaviours, hostel residents, Lahore.

How to cite: Raza Q, Batool R, Imran K, Imran MS, Bashar S, Sahakeel E. Prevalence of Food Poisoning and Related Eating Behaviours among University Hostel Residents in Lahore, Pakistan: A Cross-Sectional Study. Ann King Edw Med Univ.2025;31(3): 355-359



Production and Hosting by KEMU

<https://doi.org/10.21649/akemu.v31i3.5836>

2079-7192/© 2025 The Author(s). Published by Annals of KEMU on behalf of King Edward Medical University Lahore, Pakistan.

This is an open access article under the CC BY4.0 license <http://creativecommons.org/licenses/by/4.0/>

Introduction

Foodborne diseases are caused by ingesting contaminated food or water and remain a critical health issue affecting individuals of all ages and socioeconomic status.^{1,2} Different socioeconomic groups have distinct

exposure to foodborne illnesses depending on their food safety behaviors and dietary differences.³ Common symptoms include nausea, vomiting, diarrhea, abdominal cramps, dizziness, fever, flatulence, and weakness.⁴ Every year, contaminated foods result in 600 million foodborne cases and 420000 deaths due to poor hygienic practices worldwide.⁵ Acute gastroenteritis outbreaks frequently occur where large meals are served, such as in institutions, schools, restaurants, and military units.⁶

The risk of foodborne diseases is severe in low and middle-income countries.⁷ Food poisoning in developing countries is associated with poor hygiene, inadequate food safety measures, contaminated water, sub-standard food production and storage, and a low literacy rate.⁸ There is a need for meaningful behaviour change among people to overcome the incidence of food poisoning; information alone is insufficient.⁹

Research indicates that most parents have good knowledge and attitudes about food poisoning, but poor preventive measures.¹⁰ Most cases go unreported, resulting in inadequate monitoring and evaluation of outbreak trends and their eating behaviours.¹¹

This research focuses on the prevalence of food poisoning and related eating behaviours among undergraduate students residing in hostels. These are at a greater risk of getting foodborne infections because most of the students use hostel mess, which impacts their health due to the food safety practices of food handlers who prepare and serve the meals. The hygienic measures and food practices adopted by the food handlers have a bad effect on the health of these students.¹² This community is exposed to different unhealthy environments (hostel mess, street food, restaurants, and home-based foods) and is at a higher risk of getting foodborne infections.

Although foodborne illness is a recognized issue but there are limited studies that specifically examine the prevalence and eating behaviours of food poisoning. This study aimed to address the gap by exploring how eating behaviors contribute to the risk of food poisoning in the targeted population.

This leads to the following research questions for further exploration.

What is the prevalence of food poisoning among hostel students in Lahore?

How is food poisoning associated with eating behaviours?

Methods

This was a cross-sectional study conducted among university students living in public and private hostels in Lahore from February to March 2024. This study initially included 450 participants aged 18 years and above. However, 50 responses were discarded as they were either incomplete or the students were not willing to participate, leading to their exclusion. Consequently, the final sample size of the study was 400 participants, resulting in a response rate of 88.8%.

A random sampling technique was used to collect data from university and private hostels, with participants selected randomly from within the hostel premises to ensure unbiased representation.

Data were collected using a questionnaire based on their experience and relevant knowledge of their food choices and hygienic practices, respectively. Food poisoning was defined based on self-reporting gastrointestinal issues related to the symptoms, including nausea, vomiting, diarrhea, and abdominal pain. The questionnaire included demographic characteristics (age, weight, height, ethnicity, religion), health, lifestyle, and eating behaviours. Questionnaires were available in hard form as well as online. Students were contacted in person and online to complete the questionnaire. All variables in this study were self-reported, which introduces a potential for recall bias and social desirability bias, both of which are acknowledged as limitations of the study. Participation was voluntary, and verbal consent was obtained before data collection. Data were analyzed with the help of IBM SPSS version 23. Descriptive statistics (frequency, mean, and percentages) were used to analyze the demographic characteristics, eating behaviours, and prevalence of food poisoning among university students residing in hostels.

Results

Table 1 shows the anthropometrics and demographic characteristics of hostelites living in Lahore. The average age of participants was 21.9 years. A significant proportion of the students who participated in the study were female (59%). Most students (58%) were residents of university hostels, as shown in Table 1. The majority of the sample consisted of Punjabi ethnicity. All participants were Muslims.

Table 2 describes the health and eating behaviors of participants. Of the total sample population, 54% reported their immune system as fair, and 3% described their immune system as poor. Most students (66%) reported being affected by food poisoning at least once. A large

Table 1: *Anthropometrics and demographics among hostel students in Lahore*

	Men (n=164)n(%)	Women (n=236)n(%)	Total (n=400)
1. Mean Age in years	22.27	21.68	21.92
2. Mean Height in inches	68.63	63.15	65.40
3. Mean Weight in kg	68.98	55.83	61.22
4. Sex	164(41%)	236(59%)	400
5. Hostel Type			
University Hostel	108(65.8%)	124(52.5%)	232
Private Hostel	56(34.1%)	112(47.4%)	168
6. Mean Number of roommates	4	5	4
7. Mean BMI in kg/m	22.673	21.664	22.077
8. BMI Categories			
Normal	120(73.1%)	144(61%)	264
Underweight	16(9.7%)	52(22%)	68
Overweight	21(12.8%)	31(13.1)	52
Obese	7 (4.3)	9(3.8)	16
9. City of birth			
Lahore	5 (11.1%)	10(15.4%)	15
Other	40 (88.9%)	54 (83.1%)	94
10. Ethnicity			
Punjabi	88 (53.6%)	184 (78%)	272
Balochi	8 (4.9%)	4 (1.7%)	12
Pakhtoon	24 (14.6%)	4 (1.7%)	28
Kashmiri	4 (2.4%)	12 (5.1%)	16
Other	32 (19.5)	20 (8.5%)	52
Saraiki	8 (4.9%)	12 (5%)	20

number of male students (78%) out of the total male sample in our study suffered from food poisoning. A significant number of students (26%) used to dine out twice a week, and most male students (26.8%) preferred eating out. The majority of participants were skipping breakfast four times a week, and 59% of participants were non-vegetarian.

Discussion

This study aimed to determine the prevalence and eating behaviours of food poisoning among hostel students living in Lahore. Results show a high prevalence (66%) of self-reported food poisoning among hostel students. Male students had a higher prevalence of food poisoning (78%) than female students (57.6%) within their respective groups. This study is consistent with a study conducted in Bangladesh by Islam et al. 2022, where 64.3% of students reported having symptoms of food poisoning among university students. The findings of the study showed that more than half of the students (51.2%) didn't like the taste of the hostel mess, which strongly influenced their preference to dine out; this significantly affected their food choices. It has been estimated that 96% of the participants know about the risk of food poisoning, but many of them (29.3%) did not follow the food safety practices. This trend is higher in male participants, where 16.9% of the male participants have poor sanitary practices. The results align with the study by Hossain (2023), where 40% of the male participants did not exhibit better sanitary practices

Table 2: *Health and dietary patterns of hostelite students living in Lahore*

	Men (n=164) n(%)	Women (n=236) n(%)	Total (n=400)
1. Have you ever heard about food poisoning?			
Yes	156 (95.1%)	228 (96.6%)	384
No	8 (4.9%)	8 (3.4%)	16
2. Did you ever get food poisoning?			
Yes	128 (78%)	136 (57.6%)	264
No	36 (22%)	100 (42.4%)	136
3. Do you often suffer from gastric issues?			
Yes	84 (51.2%)	124 (52.5%)	208
No	80 (48.8%)	112 (47.5%)	192
4. What do you think about your immune system/overall health?			
Excellent	40 (24.4%)	44 (18.6%)	84
Good	116 (70.7%)	100 (42.4%)	216
Fair	4 (2.4%)	88 (37.3%)	92
Poor	4 (2.4%)	4 (1.7%)	8
5. Do you always take antibiotics whenever you get a bacterial infection?			
Yes	100 (61%)	168 (71.2%)	268
No	64 (39%)	68 (28.8%)	132

6. If yes, are they of high potency			
Yes	44 (26.8%)	80 (33.9%)	124
No	108 (65.9%)	136 (57.6%)	244
No idea	12 (7.3%)	20 (8.5%)	32
7. Comorbidities			
Present	4 (2.4%)	12 (5.1%)	16
Absent	160 (97.6%)	224 (94.9%)	384
8. Where do participants prefer to eat?			
Hostel mess	60 (36.5%)	68 (28.8%)	128
Outdoors	48 (29.2%)	56 (23.7%)	104
Home-cooked meals	48 (29.2%)	100 (42.3%)	148
Self-made	8 (4.8%)	12 (5%)	20
9. How many times a week do participants eat out?			
Once	12 (7.3%)	28 (11.8%)	40
Twice	44 (26.8%)	60 (25.4%)	104
Thrice	28 (17.1%)	64 (27.1%)	92
Four Times	40 (24.4%)	20 (8.5%)	60
Five times	24 (14.6%)	16 (6.8%)	40
Six times	4(2.4%)	0	4
Never	0	0	0
Daily	0	36 (15.3%)	36
Once/Twice a month	12 (7.3%)	12 (5.1%)	24
10. Reasons for not eating from the hostel mess?			
Poor sanitary practices	16 (9.7%)	40 (16.9%)	56
Food isn't tasty	48 (29.2%)	52(22%)	100
Staff isn't cooperative	4 (2.4%)	0	4
Peer pressure	0	4 (1.7%)	4
Never tried hostel mess			
I eat home cooked meals.	20 (12.2%)	28 (11.9%)	48
I just don't like the food	60 (36.6%)	96 (40.7%)	156
I eat self-cooked meals.	4 (2.4%)	0	4
Other	4 (2.4%)	0	4
None	8 (4.9%)	16 (6.8%)	24
11. How many times a week do participants skip their breakfast?			
Once	12 (7.3%)	28 (11.9%)	40
Twice	28 (17.1%)	28 (11.9%)	56
Thrice	16 (9.7%)	44 (18.6%)	60
Four Times	44 (26.8%)	40 (16.9%)	84
Five times	28 (17.1%)	4(1.7%)	32
Six times	8 (4.9%)	32 (13.5%)	40
Never	16 (9.8%)	24 (10.2%)	40
Daily	0	12 (5.1%)	12
Once/Twice a month	12 (7.3%)	24 (10.2%)	36
12. Nature of participants			
Vegetarian	20 (12.2%)	28 (11.9%)	48
Vegan	16 (9.7%)	20 (8.5%)	36
Neither	88 (53.7%)	116 (49.1%)	204
Both	40 (24.4%)	72 (30.5%)	112

than females. Another Tanzania study by Masiku et al. (2024) shows a higher odds of poor sanitary practices among university boys (OR 0.52, 95% CI 0.34–0.81). Comorbidities due to food poisoning were rare, as the participants were young. However, 52% reported having gastric issues frequently, which could be linked to dietary practices of unsafe food and poor hygiene.

This research was cross-sectional, which highlighted the issue but did not provide an in-depth picture of the eating behaviours and lifestyle factors that contribute to food poisoning precisely. We need explorative research in the future to study in detail the causal relationship between eating behaviours and foodborne diseases.

Conclusion:

This cross-sectional study examined the prevalence of food poisoning and related eating behaviours among university hostel students. This study would be beneficial in identifying the contributing factors of food poisoning so that preventive actions can be taken to alleviate the occurrence of food poisoning. Therefore, a public awareness campaign and training sessions must be carried out to ensure hygienic and safe food handling. In addition, the food environment of universities can be improved by introducing more healthy meals in the university canteens and messes.

Conflict of Interest: The authors declare no conflict of interest.

Funding Source: None

Authors' Contribution:

QR: Conception & design, critically revision for important intellectual content, final approval of the version to be published

RB: Acquisition of data, analysis & interpretation of data

KI: Acquisition of data, analysis & interpretation of data

MSI: Acquisition of data, analysis & interpretation of data

SB: Acquisition of data, analysis & interpretation of data

ES: Analysis & interpretation of data, drafting of article

References

1. Adley CC, Ryan MP. The nature and extent of foodborne disease. Antimicrobial food packaging: 1st Edition: Elsevier; 2025. p. 3-14. DOI:10.1016/B978-0-12-800723-5.00001-2
2. Salamandane A, Malfeito-Ferreira M, Brito L. The socioeconomic factors of street food vending in developing countries and its implications for public health: a systematic review. *Foods*. 2023;12(20):3774. doi: 10.3390/foods12203774.
3. Lee J, Pelto GH, Nordhagen S. Beliefs, values, and sociocultural patterns related to food safety in low-and middle-income countries: a synthesis of the descriptive ethnographic literature. *Appetite*. 2022;178:106265. doi: 10.1016/j.appet.2022.106265.
4. Gallo M, Ferrara L, Calogero A, Montesano D, Naviglio D. Relationships between food and diseases: What to know to ensure food safety. *Food Res Int*. 2020; 137: 109414. doi: 10.1016/j.foodres.2020.109414.
5. World Health Organization. Estimating the burden of foodborne diseases: a practical handbook for countries: a guide for planning, implementing and reporting country-level burden of foodborne disease. Geneva: World Health Organization; 2021.
6. Akram KS, Baig MA, Hussain Z, Chaudhry A, Baig MZI, Saeed A, et al. An Outbreak of Gastroenteritis among students of a religious boarding school, district Islamabad: A Retrospective Cohort Study. *Glob Biosecurity*. 2021;3(1) 1-6. doi.org/10.31646/gbio.99
7. Grace D. Burden of foodborne disease in low-income and middle-income countries and opportunities for scaling food safety interventions. *Food Secur*. 2023; 15(6):1475-88.
8. Subedi D, Paudel M, Poudel S, Koirala N. Food safety in developing countries: common foodborne and waterborne illnesses, regulations, organizational structure, and challenges of food safety in the context of Nepal. *Food front*. 2025;6(1):86-123. doi:10.1002/fft2.517.
9. James Jr HS, Segovia MS. Behavioral ethics and the incidence of foodborne illness outbreaks. *J Agric Environ Ethics*. 2020;33(3):531-48. doi: 10.1007/s10806-020-09837-w.
10. Mekonnen B, Solomon N, Yosef T. Knowledge, attitude, practice and food poisoning associated factors among parents in Bench-Sheko zone, southwest Ethiopia. *Int J Gen Med*. 2021:1673-81. doi: 10.2147/IJGM. S294294.
11. Bisht A, Kamble MP, Choudhary P, Chaturvedi K, Kohli G, Juneja VK, et al. A surveillance of food borne disease outbreaks in India: 2009–2018. *Food Control*. 2021; 121: 107630.
12. da Vitória AG, de Souza Couto Oliveira J, de Almeida Pereira LC, de Faria CP, de São José JFB. Food safety knowledge, attitudes and practices of food handlers: A cross-sectional study in school kitchens in Espírito Santo, Brazil. *BMC Public Health*. 2021;21(1):349. doi.org/10.1186/s12889-021-10282-1.