

Relationship of Frequent Hoteling with Gastrointestinal Disturbances Among Students of the University of Lahore

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Abstract:

a contaminated unhealthy food leads to different gastrointestinal disorders like nausea, vomiting, diarrhea, heartburn, abdominal pain, food poisoning and other food borne illnesses. frequent hoteling in restaurants and eating street food are major causes of gastrointestinal disorders among people. infectious organisms include bacteria, viruses and parasites or their toxins.

Objective:

To determine the relationship of frequent hoteling with gastrointestinal disturbances among students of The University of Lahore.

Methods:

A cross sectional study including 377 students were selected from the University of Lahore Defence road main campus Lahore by simple random sampling technique in the duration of 9 months. The relationship between variables was observed by chi-square test statistics.

Results:

Out of 377 students, the frequency of students who went for hoteling once a week, twice a week, thrice a week or whole week were 20%, 33%, 27% and 18% respectively. Among them 6%, 29%, 23% and 16% had vomiting because of hoteling once, twice, thrice and for a whole week. 10% suffered abdominal pain by eating outside once a week, 28% for twice a week, 26% thrice a week and 18% for a whole week. 5% had food poisoning by eating outside unhygienic food, 19%, 18% and 12% for twice, thrice and a whole week respectively.

Conclusion:

This study concluded that there was a strong

association between frequent hoteling and gastrointestinal disturbances irrespective to number of visits per week.

Keywords:

Gastrointestinal Disorders, Restaurant food, Street food, Food borne illnesses, Personal hygiene.

Introduction:

Changing lifestyles and family structure, limited time to prepare food, among other elements, have led to significant changes in consumer food choices and consumption. The number of meals and snacks eaten away from home has increased vividly over decades.¹ Meal is a food that is consumed in breakfast, lunch and dinner at homes, cafeterias and restaurants in several times a day.² WHO says that nutrition is the intake of food relative to the body's dietary needs. Good nutrition is an ample, well balanced diet combined with regular physical activity and is a keystone of good health whereas a poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity.³ A healthy diet helps to protect against different diseases. Unhealthy diet is at risk to health.⁴ Fast food/Junk food is a quick, convenient, food served mostly in fast food restaurants, markets, schools, colleges, universities cafeterias and tuck shops. When this food is purchased from cart, truck parked or sold by vendors or hawkers especially in the streets is termed as street food. These foods may include potato chips, masala chaat, gol gappas, pizza, sandwich, burgers, shawarma, and samosa etc.⁵ A restaurant or hotel is a commercial

establishment where meals are served to customers on the premises. These restaurants are open 24 hours and 7-days in a week. They provide wide variety of cuisines also deliver their products at homes.⁶ A contaminated unhealthy food or junk food leads to various gastrointestinal disorders which contain nausea, vomiting, diarrhea, heartburn, indigestion/dyspepsia, bloating, abdominal pain, food poisoning and other food borne illnesses. Moving to these illnesses, Nausea is a discomfort in the upper stomach with an involuntary urge to vomit. Vomiting describes the forceful expulsion of the contents of stomach through mouth. Diarrhea is the passage of 3 or more loose or liquid stools per day. Heartburn is a burning sensation in the chest. Food poisoning is caused by eating contaminated food of infectious organisms like bacteria, viruses, parasites or their toxins.⁷ In general, symptoms usually develop within 12 hours of exposure and can last for one or more days; Microorganism can contaminate food by coughing and sneezing by an infected individual.⁸ Prevention of Food poisoning is associated with; (a) Personal hygiene of food handlers from initial production to the consumption of the food and meat inspection (b) Refrigeration like food to be kept in correct temperature, cook and eat the same day (c) Food surveillance.⁹ All safety measures while cooking food in the kitchen must consider if food is properly covered or not contaminated. In food preparation, hand washing is the first things to be considered. Food handler should not have any skin disease and should follow all Parameters of food safety Includes, 1. Cleanliness in terms of use of gloves, dustbin, and hair cap 2. Sources of food 3. Hygiene of staff 4. Utensils cleanliness 5. Food Quality 6. Health of staff 7. Ingredients of food (Whether fresh or not) 8. Popularity of place 9. Presentation of food 10. Surroundings 11. Cooking skills of staff 12. Time of serving 13. Dealing of staff with customers 14. Dealing of staff among themselves 15. Genuine price according to food 16.

Dedication towards work.¹⁰

A study conducted in 2008 about an outbreak of food-borne gastroenteritis by Usuku S *et al*, estimated that out of 65 patients diarrhea was dominant in 52% of patients, vomiting in 38%, nausea in 71% and abdominal pain in 54%.¹¹ Also A study on Lower GIT Disorders in 2015 by Sani M *et al*, found diarrhea 21.05%, bloating 28.94, abdominal pain 24.75% in 55% in males and 45% in females with eating outside meal.¹² In 2005 Green LR *et al*., stated about meals eaten outside the home as source of Gastrointestinal Illness found that 11.3% of respondents got nausea, vomiting, diarrhea by a specific meal eaten outside the home.¹³ A research conducted by Guo Y B on association between diet and lifestyle habits and irritable bowel syndrome concluded out of 100 students, 14% were suffered from abdominal pain after eating street food and 12% subject had repeated complaint of abdominal pain.¹⁴ Another cross-sectional study was conducted to assess nutritional status and eating practices among university student by Abdul-Hakim NH in 2012 concluded, out of total of 200 students 45% males and 55% females had food poisoning with eating street food.¹⁵ Badiger S *et al*., found in their research in 2017 on Dietary patterns among students concluded that among 175 students of Nitte University, 75% who ate outside almost daily had stomach upsets regularly and it was much less (46.8%) among those who had a frequency of not more than once a week.¹⁶ Henson S *et al*., in 2006 conducted survey which stated that among respondents, 76.2% consumed food outside of the home at least once per week and 36.3% several times per week. Among them 38.7% reported been ill after eating at a restaurant. These results showed the insights of consumers regarding the causes of food borne illness they have suffered by food eaten in restaurants.¹⁷

This research was done to find the relationship between frequent hoteling and gastrointestinal disturbances, focusing towards minimize

hotelings in order to avoid gastrointestinal disturbances and the provision of safe, sound, hold some and fit food for everyone by all preventive measures during food production, processing, transportation, distribution and consumption.

Methods:

A cross sectional study about the relationship of frequent hoteling with different gastrointestinal disturbances like nausea, vomiting, diarrhea, abdominal pain, burning and food poisoning, total 377 students were selected from The University of Lahore, Defense Road Main Campus, Lahore by simple random sampling technique. The relationship between variables were observed by Pearson chi-square test.

Results:

According to table 1, among all students 96(25.4%) were males and 281(74.5%) were

females. The age of the students ranges from 17-20 were (57.0%) and 21-25 were (42.9%).

Sr. No	Demographics	Frequency	Percentage (%)
1	Male	96	25.4%
2	Female	281	74.5%
3	Age(17-20)	215	57.0%
4	Age(21-25)	162	42.9%

Table 1: Descriptive statistics of demographic

According to Table 2, out of 377 students, 6.3% had vomiting by eating outside once a week, 28.6% who eat outside for twice a week and had vomiting by this, 23.3% for thrice a week and 16.4% were those who used to eat outside for a whole week and had vomiting eating outside food. Frequent hoteling and students experienced vomiting after eating outside food had significant association (P-value <0.05)

Sr No.	Frequency of Hoteling		Students experienced Vomiting After Eating Outside Food		Total (%)	P-Value
			Yes (%)	No (%)		
1	Once a week Hoteling	Yes (%)	24 (6.3%)	53 (14.0%)	77 (20.4%)	0.000
		No (%)	257 (68.1%)	43 (11.0%)	300 (79.5%)	
		Total (%)	281 (74.5%)	96 (25.4%)	377	
2	Twice a week hoteling	Yes (%)	108 (28.6%)	17 (4.5%)	125 (33.1%)	0.000
		No (%)	173 (45.8%)	79 (20.9%)	252 (66.8%)	
		Total (%)	281 (74.5%)	96 (25.4%)	377	
3	Thrice a week hoteling	Yes (%)	88 (23.3%)	13 (3.4%)	101 (26.7%)	0.001
		No (%)	193 (51.1%)	83 (22.0%)	276 (73.2%)	
		Total (%)	281 (74.5%)	96 (25.4%)	377	
4	Whole week hoteling	Yes (%)	62 (16.4%)	6 (1.5%)	68 (18.0%)	0.001
		No (%)	219 (58.0%)	90 (23.8%)	309 (81.9%)	
		Total (%)	281 (74.5%)	96 (25.4%)	377	

Table 2: Association between frequencies of hoteling and vomiting

According to Table 3, out of 377 students, 10.3% were those who eat outside for once a week and feels abdominal pain by having outside food, 28.3% for twice, 25.9% thrice and 17.5% for a whole week respectively. At once a week, thrice a week and for a whole week hoteling had significant association with abdominal pain (P-value <0.05.)

Sr No.	Frequency of Hoteling		Students experienced Abdominal Pain After Eating Outside Food		Total (%)	P-Value
			Yes (%)	No (%)		
1	Once a week Hoteling	Yes (%)	39 (10.3%)	38 (10.0%)	77 (20.4%)	0.000
		No (%)	271 (71.8%)	29 (7.6%)	300 (79.5%)	
		Total (%)	310 (82.2%)	67 (17.7%)	377	
2	Twice a week hoteling	Yes (%)	107 (28.3%)	18 (4.7%)	125 (33.1%)	0.228
		No (%)	203 (53.8%)	49 (12.9%)	252 (66.8%)	
		Total (%)	310 (82.2%)	67 (17.7%)	377	
3	Thrice a week hoteling	Yes (%)	98 (25.9%)	3 (0.7%)	101 (26.7%)	0.000
		No (%)	212 (56.2%)	64 (16.9%)	276 (73.2%)	
		Total (%)	310 (82.2%)	67 (17.7%)	377	
4	Whole week hoteling	Yes (%)	66 (17.5%)	2 (0.5%)	68 (18.0%)	0.000
		No (%)	244 (64.7%)	65 (17.2%)	309 (81.9%)	
		Total (%)	310 (82.2%)	67 (17.7%)	377	

Table 3: Association between frequencies of hoteling and abdominal pain

According to Table 4, the frequency of students who went for hoteling once, twice, thrice and for a whole week and among them 5.0% had food poisoning by eating outside unhygienic food, 19.0%, 17.5% and 12.2% for twice, thrice and a whole week respectively. Frequent hoteling and food poisoning had significant association (P-value < 0.05)

Sr No.	Frequency of Hoteling		Students suffered from Food Poisoning after eating outside food		Total (%)	P-Value
			Yes (%)	No (%)		
1	Once a week Hoteling	Yes (%)	19 (5.0%)	58 (15.3%)	77 (20.4%)	0.000
		No (%)	184 (48.8%)	116 (30.7%)	300 (79.5%)	
		Total (%)	203 (53.8%)	174 (46.1%)	377	
2	Twice a week hoteling	Yes (%)	72 (19.0%)	53 (14.0%)	125 (33.1%)	0.303
		No (%)	131 (34.7%)	121 (32.0%)	252 (66.8%)	
		Total (%)	203 (53.8%)	174 (46.1%)	377	
3	Thrice a week hoteling	Yes (%)	66 (17.5%)	35 (9.2%)	101 (26.7%)	0.007
		No (%)	137 (36.3%)	139 (36.8%)	276 (73.2%)	
		Total (%)	203 (53.8%)	174 (46.1%)	377	
3	Whole week hoteling	Yes (%)	46 (12.2%)	22 (5.8%)	68 (18.0%)	0.012
		No (%)	157 (41.6%)	152 (40.3%)	309 (81.9%)	
		Total (%)	203 (53.8%)	174 (46.1%)	377	

Table 4: Association between frequencies of hoteling and food poisoning

Discussion:

In current study the strong relationship is found between gastrointestinal disturbances with having unhygienic food from outside the home. 80% students suffered nausea after having outside meal, 54.6% suffered from vomiting.

Abdominal pain was found in 82% students after having outside meal and found the relationship of gastrointestinal disturbances with the frequency of hoteling. A strong association was found with eating outside for once a week, twice a week, thrice a week or for a whole week. Comparing GIT disturbances with eating outside food with a similar study by Usuku S *et al.*, estimated that out of 65 patients diarrhea was dominant in 52% of the patients, whereas vomiting was seen in 38% of the patients, nausea was dominant symptom seen in 71% of the patients and abdominal pain in 54%.¹¹ Also a study conducted by Sani M *et al.*, found diarrhea 21.05%, bloating 28.94 and abdominal pain 24.75% in 55% in males and 45% in females with eating outside meal.¹² Another supporting study by Green LR *et al.*, on gastrointestinal illness concluded that 11.3% of respondents got nausea, vomiting, diarrhea by a specific meal eaten outside the home.¹³ Relating with another study conducted by Guo Y B, results provided are out of 100 students, 14% were suffered from abdominal pain after eating street food and 12% subject had repeated complaint of abdominal pain.¹⁴ Relating with another study conducted by a researcher, results provided that 14% were suffered from abdominal pain after eating street food and 12% subject had repeated complaint of abdominal pain.¹⁵ In current research, 54% students suffered from severe food poisoning after consuming unhygienic food from outside, compared with a research which is giving strength to current study which found that 75% of students who were eating outside almost daily had stomach upsets regularly and it was much less (46.8%) among those who had a frequency of not more than once a week.¹⁶ Similarly, a study of Henson S *et al.*, during 2006 stated that 76.2% respondents were consuming food outside the home at least once per week, and of these 36.3% were consuming food outside the home several times per week. Among them 38.7% reported being ill after eating outside.¹

Conclusions:

There was a strong association between frequent hoteling and gastrointestinal disturbances irrespective of number of visits per week. Contaminated food or food cooked in poor hygienic conditions outside the home has also associated with gastrointestinal disorders. All factors like poor personal hygiene of vendors and consumers, lack of knowledge about food safety of food handlers were the major causes of food borne diseases in consumers. Overall it was concluded that one should minimize eating outside in order to avoid gastrointestinal disturbances.

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