

# HEALTH HAZARDS OF FAST FOOD CONSUMPTION AMONGST MEDICAL AND NON MEDICAL UNDERGRADUATES OF AYUB MEDICAL COLLEGE AND COMSATS UNIVERSITY ABBOTTABAD

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## ABSTRACT:

### OBJECTIVES:

To assess and compare the pattern and perception regarding health hazards of fast food consumption among undergraduate students.

**METHODS:** This was cross sectional study conducted in Undergraduate students of AMC and COMSATS University Abbottabad. In AMC, MBBS students from first to fourth year and BDS students from first to third year were included in the study and students of final year were excluded. From each class of MBBS total 60 students and from BDS total 20 students were selected with equal male to female ratio. In COMSATS University total 84 students were selected irrespective of the study department and those who consented were included in the study and those who didn't were excluded.

**RESULTS:** Through data analysis we acquired results that pertained to the current objectives of our study. We found that there was an almost even distribution when it came to how many males vs how many females consumed fast food i.e. 49.2% vs 50.8%, respectively. The number of students that considered the nutritional value of fast food was also investigated and it came to be that only 38.8% considered the nutritional value. 62.2% of the participants understood the health risks associated with fast food consumption. 64.3% of the students ate fast food when they were happy. When asked what their main reason for consumption was, 71.9% of the students said it was because of the taste and flavor whereas only 14.8% of the participants chose to consume fast food because it was convenient. Very few did any research regarding nutritional value of fast food, food brands and restaurant menus. 13% of students from AMC and 14.3% from COMSATS would do this research often.

**CONCLUSION:** The awareness towards the health risks associated with fast food consumption is high with 62.2% understanding these health risks sufficiently. Even with this knowledge there is still not enough reluctance to consume fast food. The students hardly ever consider the nutritional value of the fast food they are consuming and fail to do adequate research regarding the caloric content, food brands and restaurant menus.

**KEY WORDS:** Fast Food, Health Hazards, obesity, hypertension, dyslipidemia, asthma, rhinitis and eczema

## INTRODUCTION

Food is essential part of human life both in terms of quality and quantity 1. It effects the growth and development in early years of life and also regulates the health and disease process throughout human life, two important processes that form preface of the sophisti-

cated book of life 2. Income and mushroom growth of population, coupled with alterations in lifestyle, have enhanced the demand for food and brought about revolutionary changes in food habits of people, food purchasing, and consumption patterns . These changes have manipulated human mind in such a way that very less attention is paid towards our food, whether it is really beneficial to our tender bodies or not . Globalization and urbanization haven't just changed the world of communication. They have also made their presence felt when it comes to ones eating habits and have compelled many people to switch to the consumption of fancy and high calorie foods, popularly known as Fast food 3. The Idea of fast food might seem new, but surprisingly it dates back to the ages of great Rome. In Ancient Rome, cities had street stands – a large counter with a receptacle in the middle from which food or drink would have been served 4. The advent of fast food in united States of America dates back to post World War 1, when automobiles penetrated the markets and in no time, gained immense popularity .This technological Evolution was followed by introduction of drive away restaurants 5 . The Ameri-

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can company White Castle, whose foundations were laid by Billy Ingram and Walter Anderson in 1921, is generally considered with opening the second fast food outlet and first hamburger chain, selling hamburgers for five cents each <sup>6</sup>. With the advent of technology humans have lost their patience. Though this can be of magnanimous convenience when it come to certain fields, like the field of communication and field of transportation that have witnessed revolutionary changes, but it has casted negative effects when it comes to food and human health <sup>7</sup>. With people becoming more reliant on time saving maneuvers, the convenience that fast foods carry has made it a household name. it has compromised not only the food but also health .easy and quick availability of food has given birth to compulsive eating <sup>8</sup>. In a nutshell, fast food has become an important part of our society and it is influencing the dietary habits of modern world together with cultural values . According to a research conducted in America, about 50 million Americans consume fast food every day. That's roughly 1 in 7 people <sup>9</sup>. According to the American Beverage Association, on average, American consumers drink a whopping quantity of more than 54 gallons of carbonated soft drinks each year, making carbonated soft drinks the most popular beverage in the U.S, which is roughly three times more popular than bottled water, milk or coffee <sup>10</sup>. A new report based on the nation's eating habits shows that Australians pay 51.5 million visits to fast food restaurants every month <sup>11</sup>. McDonald's is seeing a mushroom growth in china, with stats showing that McDonalds is opening new outlets in China at the rate of 10 new restaurants per week <sup>12</sup>. In short, fast food industry has witnessed an enormous growth and is a globalized phenomenon. This globalization of fast food comes with a heavy price that counts in terms of human health. If we weigh the pros and cons, we find out that although fast food costs relatively little and tastes good, but the negative effects on physical health last much longer than these immediate concerns <sup>13</sup>. Not only does the fast food diet promote high cholesterol, hypertension, heart attacks, obesity and diabetes; such foods are also laden with added chemicals which bring about disastrous changes in biological factory of human bodies <sup>14</sup>. What more surprising and alarming is, that fast food consumption is not just damaging to humans, it is also hazardous for environment <sup>15</sup>. Fast food places use a heck of a lot of packaging. From the wrappers and straws to the boxes and bags, fast food packaging counts for an estimated 40 percent of all litter (including drinks, chips, candy, and other snacks) with Styrofoam being the most common food waste. Styrofoam takes approximately 900 years to breakdown in landfill. This has alarmed the environmentalists who are now taking every possi-

ble measure to come up with a satisfactory solution for this menace in spite of being associated with hazards, consumption of fast food is not decelerating but surprisingly accelerating. To explore what drives customers to fast food while realizing its demerits and its negative impacts on students, this study will analyze the students eating habits and take into consideration their foods of interest and the outcome will be presented with practical suggestions on how to tackle this situation. According to world renowned dictionary Cambridge, the world Fast Food means " hot food such as hamburgers that is quick to cook or is already cooked and is therefore served very quickly in a restaurant". Fast food cost little and taste good but as discussed earlier, if look towards the other side of the picture, we will find that consumption of fast food comes with a plethora of negative effects on human body, effects that can lead to disastrous results if not eradicated. Researchers concluded so far into the possible health hazards on consumption of fast foods has given an insight to avoid them, but unfortunately measures taken are not as effective as they need to be . Diseases like coronary artery disease and diabetes mellitus have been seen a profound rise in developing countries and such unhealthy junk food consumption is one of leading cause of these health menaces . This global problem of consumption of junk food can only be dealt with proper health education and convincing the people to switch over to healthy eating habits for better living .Research on a large scale has been done and is going on to find out the many ways in which consumption of fast food effects our health. Michigan, a state in the great lakes and Midwestern region of united states, saw an increase in the prevalence of adult obesity from 18% to 26% from 1995 through 2005 <sup>16</sup>. These statistics clearly establish the fact that obesity is linked to the consumption of fast food. Another study advocates this fact which finds out that diet with containing high sugar, salt, saturated fat and calories is responsible for disabilities like obesity, hypertension, dyslipidemia, and impaired glucose tolerance. Fast food comes as no exception and is a form of diet which is laden with huge quantities of sugars, salts and calories which can leave long lasting impacts in the form of diseases described above <sup>17</sup>.Consumption of fast food is quite popular in children who prefer fast food over homemade meals. Unfortunately, this puts children at risk . According to WHO, children who consume fast food have higher intake of energy( more than the required demand), fats , saturated fats, Sodium, carbonated soft drinks, and lower intake of vitamin A and C, fruits and vegetables then those who do not take fast food. Vitamins as we all know are essential biological compounds that are required for the optimal metabolism and their deficiency can give rise to malfunctioning <sup>18</sup>.

### Study Methodology:

This was cross sectional study conducted in Undergraduate students of AMC and COMSATS University Abbottabad. A self-administered, structured questionnaire was used to collect data regarding age, gender, pattern of fast food consumption, perception regarding health hazards of fast food and knowledge about healthy food etc. The questionnaire consisted of two sections, first contains questions about the pattern and frequency of fast food consumption and second section comprises of questions about perception regarding fast food consumption. Total sample size was 384 and it was calculated using WHO software for estimating a population proportion with specified absolute precision using confidence level of 95%, absolute precision of 5% and anticipated population proportion consuming fast food 52%. Sampling method used was convenience sampling and verbal consent was taken from the students. A total of 400 Questionnaire (300=AMC, 100=COMSATS) were distributed and 384 were returned back with a response rate of 96%. In AMC, MBBS students from first to fourth year and BDS students from first to third year were included in the study and students of final year were excluded. From

each class of MBBS total 60 students and from BDS total 20 students were selected with equal male to female ratio. In COMSATS University total 84 students were selected irrespective of the study department and those who consented were included in the study and those who didn't were excluded. Permission letter was obtained from higher authorities of the university before starting research. Data was analysed using Statistical Package for Social Sciences (SPSS) version 16.0. Variables were described as numbers and percentages. Chi-square test was used for comparison between groups. P value  $\leq 0.05$  was considered statistically significant.

### Results:

This study was carried out on the students of Ayub Medical College and COMSATS Abbottabad. The purpose of the survey was to analyze the patterns and perceptions towards the health hazards of fast food consumption. Total participants of the survey were 384, of which 300 were from Ayub Medical College (240 M.B.B.S. students and 60 B.D.S. students) and 84 were from COMSATS.

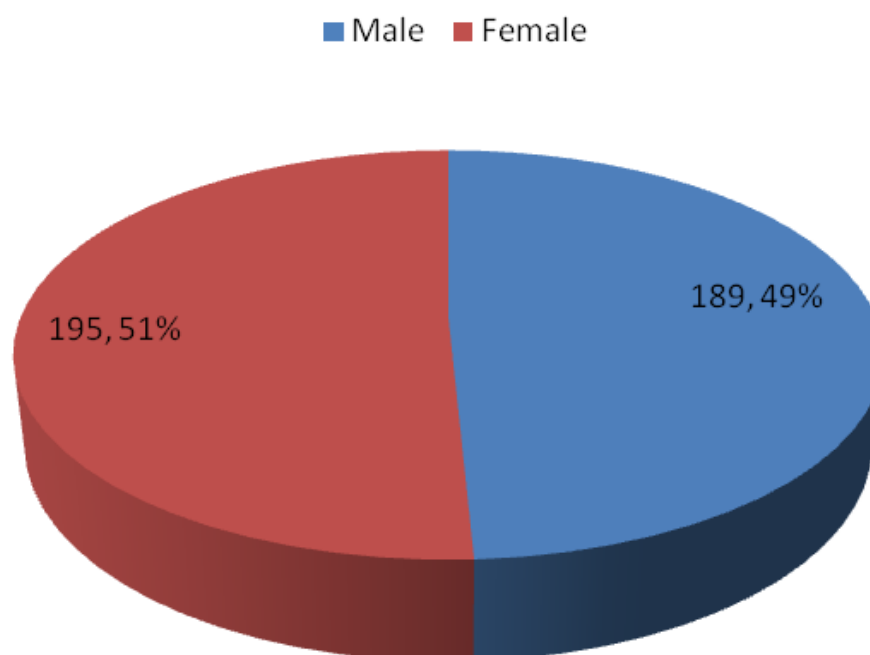


Figure 1: frequency of Gender distribution of the students

Table 1: Institute wise distribution

Institute	AMC	COMSATS	TOTAL
Frequency	300	84	384
Percentage	78.1	21.9	100

Department wise, 63.3% of the participants are M.B.B.S students, 14.8% are B.D.S. students and 21.9% are non-medical students

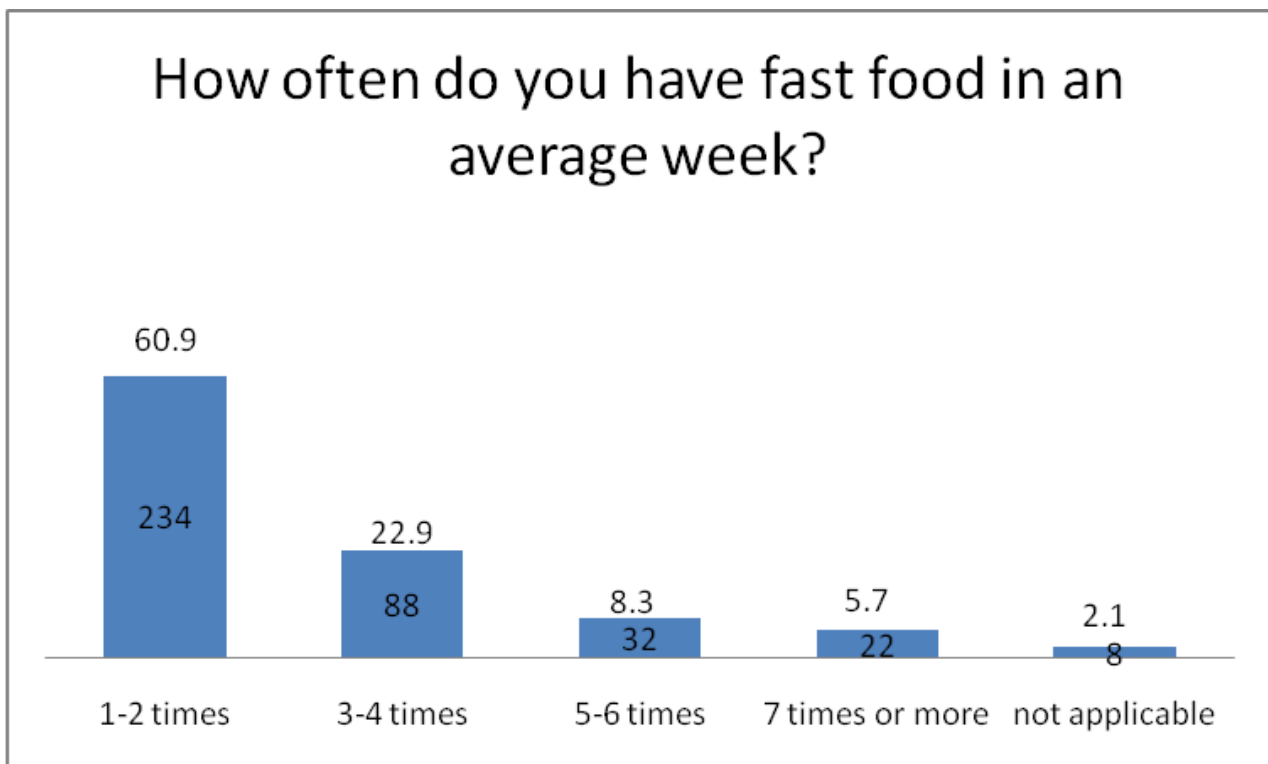
**Table 2: Types of food eaten and times at which they were consumed**

Time	Type	Frequency	Percent
Breakfast	Fast food	32	8.3
	Non-fast food	310	80.7
	Do Not Know	42	10.9
	Total	384	100
Lunch	Fast food	40	10.4
	Non-fast food	306	79.7
	Do Not Know	38	9.9
	Total	384	100
Dinner	Fast food	42	10.9
	Non-fast food	300	78.1
	Do Not Know	42	10.9
	Total	384	100
Random	Fast food	89	23.2
	Non-fast food	61	15.9
	Do Not Know	234	60.9
	Total	384	100

**Table 3: Sources of food at different times**

<i>Time</i>	<i>Source</i>	<i>Frequency</i>	<i>Percent</i>
<b>Breakfast</b>	<i>Home</i>	113	29.4
	<i>Hostel</i>	197	51.3
	<i>Restaurant</i>	26	6.8
	<i>Not applicable</i>	48	12.5
	<i>Total</i>	384	100
<b>Lunch</b>	<i>Home</i>	29.4	27.3
	<i>Hostel</i>	51.3	50.3
	<i>Restaurant</i>	6.8	11.7
	<i>Not applicable</i>	12.5	10.4
	<i>Total</i>	100	99.7
<b>Dinner</b>	<i>Home</i>	98	25.5
	<i>Hostel</i>	171	44.5
	<i>Restaurant</i>	72	18.8
	<i>Not applicable</i>	43	11.2
	<i>Total</i>	384	100
<b>Random</b>	<i>Home</i>	37	9.4
	<i>Hostel</i>	66	17.2
	<i>Restaurant</i>	45	11.7
	<i>Not applicable</i>	236	61.5
	<i>Total</i>	384	99.4

- 93.2% of the participants accepted that they ate fast food.
- 74.7% of participants believed fried foods are fast food. 61.5% also agreed that bakery items were fast foods. 87% think that pizzas and cold drinks are fast food. Lastly, 59.6% believe energy drinks come under fast food.
- When consuming fast food, 44.8% of participants said that they prefer carbonated drinks. 34.6% drink flavored shakes. 41.4% tend to eat burgers. 49% tend towards eating a pizza. 31% consume fried chicken.
- 31.8% of the participants preferred eating with their family, 24.2% preferred eating alone and 78.4% would like to eat with their friends.



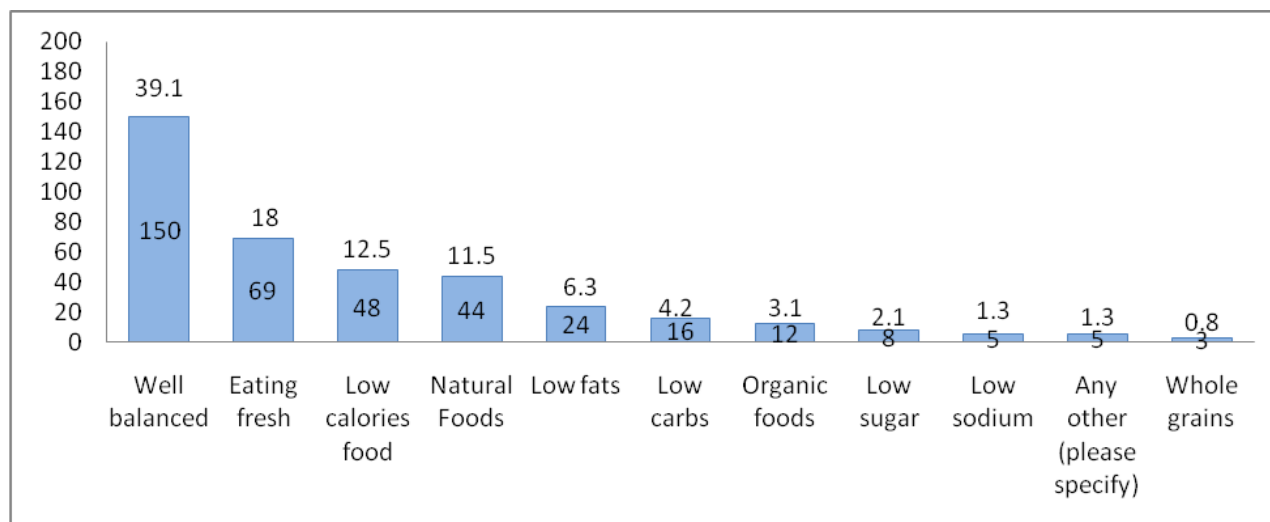
**Figure 3: the frequency of consumption of fast food within an average week**

- when asked about the portion sizes the participants tended to have, 23.4% would tend to have a small portion size, 47.7% would opt for the medium, 18% would get a large portion, 6.8% would get an extra-large portion and 4.2% opted for a family deal.
- 3.1% of the participants preferred fast food in breakfast, 22.9% would have it for lunch, 62.5% would have it in the evening and 8.6% would have it at random times of the day.

**Table 4: Frequency through different methods of consumption**

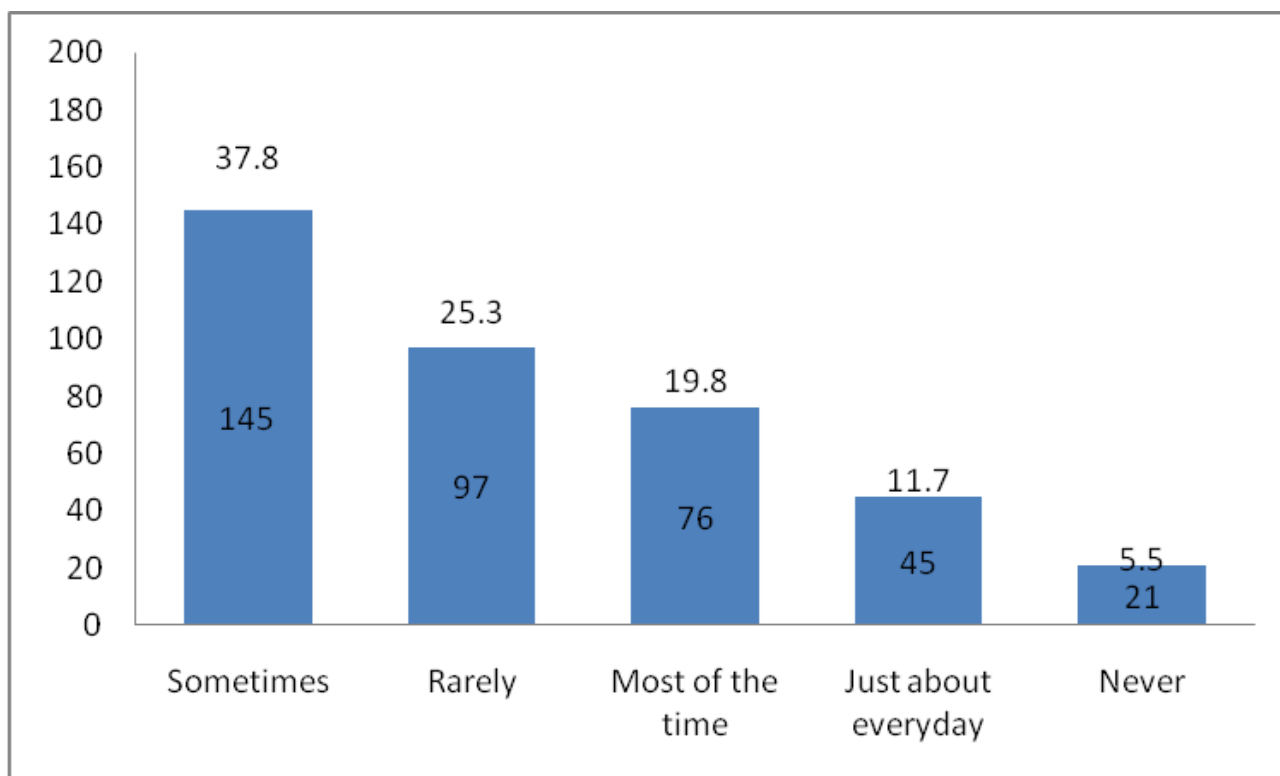
<i>Method of Consumption</i>	<i>Answer</i>	<i>Frequency</i>	<i>Percent</i>
Eat - in	Yes	234	60.9%
	No	150	39.1%
Takeaway	Yes	144	37.5%
	No	240	62.5%
Delivery	Yes	212	55.2%
	No	172	44.8%

- 71.9% gave the reason of consumption as taste and flavour, 3.6% said the price was the main reason for purchasing. 14.8% said convenience was the main reason. 15.4% also said it was because of the variety of options. 9.9% had limited time for cooking themselves. 4.4% of the participants also said chose the speed of service as one of the reasons.
- Regarding the financial spending on fast food, 44.8% spend up to 1000pkr, 27.1% spend up to 2000pkr and 28.1% spend upwards of 2000pkr.
- 67.2% of the participants had food at home that could be prepared instantly.
- When given the statement "I eat fast food when I am", 64.3% gave the choice happy, 3.1% said when they consumed it when they were sad, 4.4% when depressed, 3.1% when stressed, 4.2% when lonely, 1.8% when angry and 19% decided to specify.



**Figure 4: perception of participants about healthy food.**

- 62.2% of the surveyees understood these health risks, 16.7% have heard about the major health risks but fail to understand them, 16.1% know what poor eating habits are but they don't quite understand the major health risks and finally, 4.9% are not well versed in this matter.
- 77.6% of participants believe fruits should be a part of every healthy balanced diet. 74.5% of them also agree that vegetables should be included, 58.8% say that pulses and cereals should be included, 59.9% also say that dairy products are part and parcel of a healthy balanced diet and lastly 61.5% of the people surveyed said yes to whether fish, meat and poultry should be part of a healthy balanced diet.
- Regarding the major health risks, 32.8% believe cardiac diseases are a consequence of taking fast food on a regular basis, 66.7% of the participants said obesity was also a massive health risk of taking fast food on a regular basis. 48.7% believe stomach problems are also related. 10.9% said that sleep disorders are part of the health risks. 9.9% think depression is a health risk, 17.2% think addiction is a consequence of taking fast food frequently. 10.9% believe bone weakness to be a risk, 12% think that lethargy is a health hazard and finally, 15.1% of the same sample agreed that diabetes mellitus is a health consequence of taking fast food frequently.
- 38.8% of the participants have considered the nutritional value of fast food.
- 74% of the students surveyed agree that fast food eating habits changes one's attitude towards a normal balanced diet
- 53.9% of the students said yes to giving up fast food for health reasons.



**Figure 5: frequency of participants getting their five daily servings of fruit and vegetables.**

- When asked whether the students did their own research regarding the nutritional value of foods, food brands and restaurant menus, 13.3% said they often did, 20.8% said sometimes, 28.4% exclaimed rarely, 36.5% said they never did any of their own research and 1% specified a time.

**Table 5: Institute vs Student's research on nutritional value of food, food brands and restaurant menus.**

Institute		Response of students whether they do any research on the nutritional value of fast food.					Total	p.value
		Often	Sometimes	Rarely	Never	Other		
AMC	Count	39	63	83	115	0	300	0.003
	% within institute	13.00%	21.00%	27.70%	38.35	0.00%	100%	
COMSATS	Count	12	17	26	25	4	84	
	% within institute	14.30%	20.20%	31.00%	29.80%	0.00%	100%	

From the table above, more students from COMSATS do their own research more often than students from AMC (14.3% vs 13% respectively). These results are significant (P value is < 0.05).

**Table 6: Institute vs consideration of the nutritional value of fast food cross tab.**

<i>Institute</i>		<i>Response of students to nutritional value of fast food.</i>		<i>Total</i>	<i>P-value</i>
		<i>Yes</i>	<i>No</i>		
<b>Amc</b>	<b>Count</b>	108	192	300	0.033
	<b>% within institute</b>	36.0%	64.0%	100.0%	
<b>Comsats</b>	<b>Count</b>	41	43	84	
	<b>% within institute</b>	48.8%	51.2%	100.0%	

From the above table it is clear to see that from both institutions, there are more people who have never looked at the nutritional value of fast food, that is 192 out of 300 and 43 out of 83 for AMC and COMSATS respectively. These values are significant (p-value is < 0.05)

**Table 7: Cross tabs between fast food consumption and times at which they are consumed**

<i>Gender</i>		<i>Time during which you like to eat fast food</i>					<i>Total</i>	<i>p-value</i>
		<i>Breakfast</i>	<i>morning</i>	<i>lunch</i>	<i>Evening</i>	<i>Other</i>		
<b>Male</b>	<b>Count</b>	8	4	28	132	17	189	0.001
	<b>% within gender</b>	4.20%	2.10%	14.80%	69.80%	9.00%	100.00%	
<b>Female</b>	<b>Count</b>	3	8	60	108	16	195	
	<b>% within gender</b>	1.50%	4.10%	30.80%	55.40%	8.20%	100.00%	

It is evident from the table above that that most students prefer their fast food in the evening and from those students, males, 69.8%, outnumber the females, 55.4%. These results are significant (P value is <0.05).

**Table 8: Cross tab between gender and fast food consumption**

<i>Gender</i>		<i>Do you eat fast food ?</i>		<i>Total</i>	<i>P-value</i>
		<i>Yes</i>	<i>No</i>		
<b>Male</b>	<b>Count</b>	174	15	189	0.371
	<b>% within gender</b>	92.1%	7.9%	100.0%	
	<b>% in total</b>	45.3%	3.9%	49.2%	
<b>Female</b>	<b>Count</b>	184	11	195	
	<b>% within gender</b>	94.4%	5.6%	100.0%	
	<b>% in total</b>	47.9%	2.9%	50.8%	

The above table shows the gender wise division related to fast food consumption. The total number of students that eat fast food is 358. From this, 184 females and 174 males eat fast food. More females, 94.4% eat fast food than males, 92.1%. These results are not significant (P-value is >0.05).



**Table 9: Cross tabulation between Institute and whether obesity is a health abnormality of fast food consumption.**

<i>Institute</i>		<i>Do you think obesity is the health hazard of taking fast food frequently</i>		<i>Total</i>	<i>P-value</i>
		<i>Yes</i>	<i>No</i>		
<b>Amc</b>	<b>Count</b>	227	73	300	0.00
	<b>% within institute</b>	75.7%	24.3%	100.0%	
<b>Comsats</b>	<b>Count</b>	29	55	84	
	<b>%within institute</b>	34.5%	65.5%	100.0%	
<b>Total</b>	<b>Count</b>	256	128	384	
	<b>%within institue</b>	66.7%	33.3%	100.0%	

From the above table it is evident that 75.7% of the participants from AMC do consider obesity a medical condition associated with fast food intake whereas 34.5% of surveyees from COMSATS believe the same thing. These results are significant (P-value is <0.05)

#### **Discussion:**

The demand for fast food in Pakistan is rising at an exponential rate. New fast food restaurants are opening in cities around Pakistan every day. It is therefore very relevant to the study which we carried out. We conducted a study amongst the undergraduate students of Ayub Medical College, Abbottabad and COMSATS University, Abbottabad. We collected data from 300 students from AMC and 84 students from COMSATS in an effort to discover the students' perception to what they knew fast food to be, their reasons for consumption and what they believed were some of the hazards associated with the intake of fast food. According to a recent study headed by scientists from university of Las Palmas and university of Granada, consuming commercially prepared products (fairy cakes, croissants, doughnuts, etc) and fast food (hamburgers, hotdogs and pizza) is associated depression, a common medical illness that has engulfed a major chunk of human population. Published in the Public health nutrition journal, the result of this study made it crystal clear that consumers of fast food, compared to those who are not much into fast food, are 51% more likely to develop this disease and other related disorders 19. From the very first day fast food penetrated the markets, people have known that this kind of food is unhealthy and comes up with more hazards than benefits. The labels people attach to fast food are always "high in calories", "low in nutrition at value" and "additives", It is more like a common sense now that fast food is harmful to body fitness. A study named "local Concentration of Fast food outlets is associated with poor nutrition and obesity" was conducted in May/ June 2014 which established the result that habitants are more likely to face the adverse consequences of poor nutrition because of the patterns in local food availability, which may halt the

success of nutrition promotion efforts and health promoting endeavors 20. In 2014, a study was conducted in America by Chandran and colleagues, to find out the association between increased consumption of fast food and risk of breast cancer, as incidence of breast cancer in America was increasing at an alarming rate 21. In this study, well trained interviewers conducted interviews and questionnaires to 1732 African American and 1487 east American women who were diagnosed cases of breast cancer, age ranging from 20-75, the result of this study showed a positive association of frequency of fast food intake with breast cancer. Higher proportions of east American women had higher education and were non-obese compared to African American women. Most of the cases were on hormone replacement therapy also. Another study, which was published in the Journal of Adolescence Health, discovered that eating just one serving of French fries in a week during adolescence increased women's breast cancer risk later in life by 27% 22. This study found out that breast cancer is related to consumption of commercially prepared food. University of Minnesota School of Public Health researchers also conducted a thorough research in this regard. They examined the eating habits of residents in Singapore and found new evidence that a diet consisting of fast food enhances the risk of developing Type 2 diabetes and coronary heart disease, two disabilities that are becoming headache for the health professionals owing to their rapid rise in number 23. Another latest research, published online July 2 by the American Heart Association's journal Circulation, found that people who eat fast food even once a week increase their risk of dying from coronary heart disease by 20 percent in comparison to people who avoid fast food. For people eating fast food two-three times each week, the risk increases by 50 percent, and the risk

skyrocket to nearly 80 percent for people who consume fast food items four or more times each week. According to a study, attempted to find possible connections between consumption of fast foods and the development of various allergic diseases like asthma, rhinitis (chronic stuffy nose) and eczema, a skin condition. The researchers surveyed a staggering number of 500,000 kids from 31 countries, which were divided in two age groups: ages 6 to 7 and ages 13 to 14. In both groups, kids who ate fast food three times a week or more were more prone to the risks of asthma, rhinitis, and eczema—as much as a 39% increase in severe asthma risk for teens and 27% for younger kids. And what is more mesmerizing is that just three or more servings of good old fruit appeared to reduce the severity of symptoms for all three conditions, something that also establishes the importance of good food and its role in curbing various diseases 24. An ecological analysis carried out using the International Study of Asthma and Allergies in Childhood (ISAAC), data on asthma, rhinitis and eczema showed strong associations between a high intake of calories from cereal and rice and protein from cereal and nuts and decreased symptom prevalence of all three conditions. Various other studies were conducted to support this association between dietary intake and allergic conditions in human body. Harmful effects of linoleic acid and trans fatty acids was also emphasized to minimize the consumption of fast food. An association between sugar consumption in the perinatal period and symptoms of severe asthma in 6–7-year-old children. It was found out that's high consumption burgers was associated with a higher life time asthma prevalence of asthma. A study conducted in Sweden, on effects of 'maternal diet during pregnancy' in which an astonishing correlation between maternal diet and fetal immune and airway development was found. A study was published in the American Journal of Clinical Nutrition in 2011 which showed that healthy people who ate junk food for only 5 days performed poorly on cognitive tests that measured attention, speed, and mood. This study concluded that consumption of fast food, even for a minimal five days can render your memory useless and effect yours learning capabilities, something that is surprising but at the same time, very alarming and grave in nature 25. Delving deep into the result of this study and finding the root cause, we can see that it probably stems from the fact that a poor or toxic diet can bring about certain chemical reactions that results in inflammation in the hippocampus are, a part of limbic system that is involved in the consolidation of memory from short term to long term. Diets that are high in sugar and fat can suppress the activity of a brain peptide called BDNF (brain-derived neurotrophic factor), a member of neurotrophin family of growth factors that assists with learning and memory formation. Moreover, the brain contains synapses, sort of neuronal junctions, which are responsible for learning and memory. Eating too many calories can interfere with the healthy production and functioning of these synapses. Awareness on health hazards of fast foods needs to be taught at schools so as to minimize its consumption. Parents have to set an example themselves by not eating fast foods and improving home food to support

discouragement of fast foods. This would minimize life style disorders among children to a greater extent 26. From figure 1 in the results section we can infer that there is almost equal distribution when it comes to which gender eats fast food. 49.2% of the participants are males and 50.8% are female. Females fractionally ahead of the males. A study published by UC Davis differs from this result by stating in it that more males would get fast food as compared to females 27. This may be due to the difference in ages of people questioned. Our survey was for students whereas the people questioned in the study are income earning. Another study in Kuwait carried out on shopping mall users that were selected at convenience also shows that men consume fast food more frequently than women. 28. The factors that would influence the differences in results would include location and age of people surveyed. In our study we found that only 38.8% considered the nutritional value of fast food so it didn't prove too heavy of a factor in their choice of consumption. 66.7% of the participants said obesity was a major health risk associated with fast food consumption. The cross tabulation on table 10 also explains this. 62.2% of the participants understood the health risks associated with intake of fast food but even with this information, 93.2% have eaten fast food. In the survey carried out in Kuwait, the findings were similar in that 95% of the consumers knew fast food to be injurious to health, but even with this knowledge, 92% carried on with their intake. When asked whether the intake of fast foods regularly causes obesity, 71% answered yes 29. This result is similar to our own where 66.7% agreed to the same question, explained in detail on table 10. This shows that knowledge of these health hazards doesn't have enough of an effect on a person's reluctance to purchase and consume fast food. In this study, a table is also given compiling the results from a question concerning what people considered was fast food. It was divided into western foods and local to Kuwait foods. 73.4% of participants believed pizza was a fast food. This is in concurrence to our study which also shows that 87% of participants believe pizza and cold drinks are fast food. In the study, 92.2% of people believe and 96% of the same participants agreed that fried foods like French fries and burgers were part of the fast food category, respectively. In our study, 74.7% of the students believed fried foods such as French fries to be a fast food. There is a clear resemblance between both results. There is a clear commonality between what people believe fast food to be and their perception of health hazards regarding fast food even when there are two different locations sampled and two different age groups surveyed. These similarities are there but these factors do not prevent the increasing consumption of fast food daily. Regarding table 5, There is a low number of participants, 14.3% from COMSATS vs. 13% from AMC, that do their own research regarding the nutritional value of fast food, fast food restaurant menus and food brands. This is comparison to a study conducted in Malaysia where it was shown that the majority of students surveyed preferred to have nutritional information provided. Table 6 shows that 64% of students from AMC and 51.2% of students from COMSATS did not consider the nutritional value of fast

food. This shows a lack of care or even ignorance towards following a healthy diet as they didn't care what the food contained or how it could affect their health before they purchased the fast food. In comparison to this, the study carried out on students of medical and dentistry institutions in Malaysia showed a completely different result. The students preferred to have nutritional information provided and this affected their choice. The average for the level of fat, sodium and calories were drastically different when they knew the nutritional value of the fast food they were consuming. The mean calories consumed decreased from 1187.34 to 815.78, the average fat intake decreased from 52.36 to 35.98 grams and the mean sodium consumed went down from 7.29 to 5.88 after they were provided the nutritional facts about their food before eating. This shows much more care on their part towards eating healthier and being conscious of the composition of the food they were eating and avoiding over eating habits for the sake of their health. There is a clear lack of nutritional information labeling on fast foods provided here as most of the chains are local, especially here in Abbottabad. This lack of concern can lead unknowingly on the person's part, towards increased calorie, fat and sodium consumption which

have their own deteriorating and devastating effects on health.

### Conclusion:

It is clear that there is a high demand for fast food and it is increasing on a daily basis. The awareness towards the health risks associated with fast food consumption is high with 62.2% understanding these health risks sufficiently. Even with this knowledge there is still not enough reluctance to consume fast food. The students hardly ever consider the nutritional value of the fast food they are consuming and fail to do adequate research regarding the caloric content, food brands and restaurant menus. This is in part due to failure of the local fast food chains and even the international ones in Pakistan not providing nutritional value labeling on their menus or on their food packaging. It's clear from studies done in other countries that nutritional value labeling is helpful in enabling a person to be more conscious about the content of their fast food. [29] It helps them choose healthier and eat less calories. More education regarding the health risks such as obesity could also be provided to the students through local advertising and seminars.

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