



# UNIVERSITY OF RAJSHAHI

## DEPARTMENT OF STATISTICS

Research Project

[According to B.Sc. Syllabus]

*Research On*

**Difference in expenditure on junk and fast-food consumption between  
male and female students in Rajshahi University**

A Report Submitted in Partial Fulfillment of the Requirements for the degree of  
B.Sc. in Statistics for the year 2021

**Submitted by**

Examination Roll No : \_\_\_\_\_

Registration No : \_\_\_\_\_

Session : 2017-18

Examination Year : 2021

Date of Submission : \_\_\_\_\_

**Dedicated to**  
**My**  
**Teacher**

---

# ACKNOWLEDGEMENT

At first, my gratefulness is to almighty Allah for giving me physical and mental strength, patience and ability to complete this research project. All the progress and successes throughout my life is due to God blessing.

The range of statistical applications has become very wide almost times. It has wide acceptance as information technology among the common people in the world. For trustful results from statistics, we require accurate information and data.

I wish to express my sincere and deep sense of gratitude to my reverend teacher and research supervisor. He suggests me to take up this work. His constant guidance, encouragement and valuable selections in various aspects of my study help me to complete this research project.

I am deeply indebted to the chairman and all the respectable teachers of the department of statistics for their nice co-operation and allowing me to use the seminar and accessing the computer facilities for this purpose.

I would like to thank all my friends and department seniors for their help during the project work. I am also thankful to my all well-wishers for their support and encouragement during this project work.

Finally, I gratefully remember my family members. I also grateful to my favourite teacher of primary school. He was the role-model behind my studies to come this far. My gratitude to him cannot be overstated.

The Author

## ABSTRACT

Now a day's research is more important than before. So the Department of Economics of Rajshahi University opens a research project for B.Sc. (part-4) course. Topic of my research is "Difference in expenditure on junk and fast-food consumption between male and female students in Rajshahi University." Measurement of expenditure on junk and fast-food consumption compared to male and female can give an idea on addiction on this kind of foods. We take 80 samples for observations from the target area Rajshahi University. This paper compiles and synthesizes currently available research on the association between expenditure and age and measures of nutritional status related outcomes between male and female students. In my research study, the main goal is to observe the effect of some factors related to fast food on expenditure of fast food consumption between male and female students. And this will indicates about the knowledge of associations between dependent and independent variables. Here I use frequency distributions, independent sample t-test, chi-square test and multiple linear regression model test for analyzing the association between dependent and independent variables. Descriptive statistics of the study illustrate that mean of the average expenditure can be changed for male respondent  $60.48 \pm 161.10$  and for female respondent  $61.25 \pm 63.23$  respectively. Whole study indicates that in average 80% students are consumed fast food whereas 21.30% male and 25% female has low expense record, 15% male and 18.80% female has high expense record. Even though respondents fast-food consumption not associated or effected by BMI (Body Mass Index) in gender groups. But some other factors like pressure on other monthly expenditure, digestion problem, disease related to fast-food eating habit etc. has significant difference between male and female groups. Hopefully, this study will be effective to know about the rational of fast-food consumption in male and female population, awareness of nutritional status and the researchers for further inspection.

## Table of Contents

ACKNOWLEDGMENT	i
ABSTRACT	ii
CHAPTER ONE: INTRODUCTION	3 - 6
1.1 Background and Rational	3
1.2 Statement of the problem	4
1.3 Objective of the study	4
1.4 Scope of the study	5
1.5 Importance of the study	5
1.6 Layout	5
CHAPTER TWO: LITERATURE REVIEW	7 - 11
2.1 Introduction	7
2.2 Relevant Literature	7
2.3 Conclusion	11
2.4 Research Gap	11
CHAPTER THREE: RESEARCH METHODOLOGY	12 - 18
3.1 Introduction	12
3.2 Target Area and Population	12
3.3 Study Design	13
3.4 Sample/Participant Selection	13
3.5 Calculation of Sample Size	13
3.6 Data Collection	14
3.7 Data Processing and Analysis	14
3.8 Data Entry and Analysis	15
3.9 Measurement and Scaling	15
3.10 Outcome Variable	15
3.11 Independent Variable	15
3.12 Statistical Analysis	16
3.13 Ethical Consideration	18
3.14 Software	18

---

<b>CHAPTER FOUR: RESULT AND DISCUSSION</b>		<b>19 - 33</b>
	4.1 Descriptive Statistics	19
	4.2 Frequency Analysis	19
	4.3 Variable Distribution	27
	4.4 Regression Analysis	32
<b>CHAPTER FIVE: SUMMARY AND CONCLUSION</b>		<b>34 - 37</b>
	5.1 Introduction	34
	5.2 Summary	34
	5.3 Policy Recommendation	36
	5.4 Limitations of the Study	37
<b>REFERENCE</b>		<b>38 - 39</b>
<b>APPENDIX</b>		<b>40 – 42</b>

# **CHAPTER ONE**

## **INTRODUCTION**

For years, fast food and junk food have been one and the same, and it's about time we understand that they are similar, but not identical. It's important to keep in mind that while they all very often fall into the "unhealthy" category, that's not entirely true either. Junk food and fast food are two types of food that we buy in restaurants instead of healthy food at home. Excessive consumption of fast food and junk food can increase the risk of diseases such as diabetes, cancer and heart disease. Spending on eating junk food or fast food is increasing day by day for both men and women.

### **1.1 Background and Rational**

Fast-food could be defined as easily prepared processed food served in snack bars, street-vended setups, and restaurants as a quick meal or to be taken away. With the process of urbanization and modern lifestyle, fast-foods and process foods have been an inseparable item in our daily food basket. Although fast foods and street foods are popular among all age groups and people with different socio-economic status, the main consumers are adolescents and student at college and university level. Consumption of fast-food is associated with a number of long-term health consequences, including diabetes, obesity, cardiovascular diseases, people are still inclined to fast-food consumption for many reasons. Regarding the gender perspective of fast-food consumption, it is assumed that women consume more fast-food than men. High obesity among women might be attributable to more fast-food consumption.

University students are the important population groups for the intellectual development of a country. In Bangladesh, there are few studies conducted to observe the fast-foods and street foods consumption among university students. Moreover, these studies were conducted in a setting, Dhaka city, where fast foods were highly available and did not consider any gender difference in expenditure on fast food consumption. Rajshahi University is one of the pioneer universities in Bangladesh outside the Dhaka city. To make a comparison, it would be important to observe how the students who are studying at university level outside Dhaka. The findings could be useful to understand the current situation, therefore, for policy

formulation regarding how the high prevalence of fast-food consumption could be controlled. The findings might also be useful for menu planning in the residential halls in public universities.

## **1.2 Statement of the Problem**

Bangladesh is a developing and lower middle-income country with changing economy and rapidly growing population, in where the general prosperity of the society is reflected by the economic and health status of the population besides lot more factors. University students are the important population groups for the intellectual development of a country. There are few studies conducted to observe the fast-foods and street foods consumption among university students. Fast foods are highly available nowadays and expenditure on fast food consumption is increasing day by day for both male and female.

## **1.3 Objectives of the Research**

Research is a scientific method of answering a research question, solving a research problem, or developing new knowledge by collecting, organizing, and analyzing data in a systematic and orderly manner, with the ultimate purpose of making research findings helpful in decision-making. It is a method of searching for information in a systematic manner. Every study has its own set of aims and goals.

The goal of our research are,

- To learn about the nature of expenditure on fast food purchasing in Rajshahi University.
- The main goal is identifying the differences of expenditure on fast food consumption in male and female groups.
- Genderwise comparison of socioeconomic and some other factors related with fast food consumption.
- To find out the impact on health for fast food consumption as well as their differences between male and female.
- To check any long-term trends in the socioeconomic or other factors on Expenditure of fast food consumption.



## 1.4 Scope of the Study

This study is mainly designed for B.Sc honors project that is why I kept it in a limited form, of course there is scope to extend this work in a greater extent. I had considered only a few people in my university. Since the population size of my study is very small it would be better if I could increase the population size. If I could collect data from all the public universities then I think my project paper would be fulfilled and would get a nearly report about this topic. Furthermore we may conduct this study overall educational institutions of our country to see expenditure impact of fast food consumption among the students and difference between male and female. So, there is a greater opportunity to extend this study in a wider field in our country.

## 1.5 Importance of the Study

To form a civilized smart healthy population effect of fast food awareness is a must. It is the key point for developing a country. So, for lack of awareness and knowledge we have to know how many factors lying behind this. After the analysis we can know which factors plays important role. Here, we also get information that, how nutritional status effects on the health of young people. By analyzing we can find out the weak point and then we can take necessary steps for improving our system.

## 1.6 Layout

The layout of the report means as to what the research report should contain. A comprehensive layout of the research report should comprise preliminary pages; the main text and the end matter.

The report comprised into five chapters:

**Chapter one** provides an overview of the fast food consumption in Rajshahi University. Here we see the background and rationals of the study. Statement of the problem of fast food consumption introduced here. It also provides objectives and scope of the research.

**Chapter two** presents a review of the relevant literature to the study. Some literature are analyzed here, it gives some gaps of the literature and conclusion of the literature review.

**Chapter three** outlines the research methods and procedures, specially looking at the data collection and analysis procedures used. In this chapter study area and data collection method are described. Study design and sample size selection is one of the best part of research methodology. As well as data processing and analysis an important step was described in this chapter. Determining the outcome variable and independent variable of the study was key process of this chapter. Also where we need to input data and method data entry, what statistical analysis methods are applied and software used for the whole findings of the study was briefly discussed in chapter three. Therefore we may conclude that chapter three that means research methodology is a important chapter of a research study. It indicates proper steps that we must need to follow to complete our study.

In **chapter four** all the analysis and statistical application are performed to get our results of the study. Mainly here the findings are presented, interpreted and discussed. Firstly descriptive statistics of age, household numbers, average expenditure on fast food consumption and others scale factors are presented. Then frequency distribution of demographic, socioeconomic and some other related factors associated with fast food consumption illustrated to see the nature of the categorical data. Finally here we presented variable distribution where actually we showed the genderwise distribution of all variables and statistically checked the differences between male and female groups.

At last **chapter five** presents the summary of findings, policy recommendation, limitations and direction of future research. It is the conclusion chapter of our research.

**Reference** and **Appendix** are also important as like as above five chapters. We have mention this two topics following the proper rules.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.1 Introduction**

Bangladesh is a densely populated country in the southeastern region. It has more than 160 million inhabitants, of which adolescents make up 20.5% (MCH, 2016). Recently, the prevalence of obesity among adolescents is increasing rapidly in urban settings in Bangladesh (Banik and Rahman, 2018; Bulbul and Hoque, 2014; Rahman et al., 2014). The reduction in the number of playgrounds has likely led to less physical activity and a more sedentary lifestyle, which will contribute to the growing problem of overweight and obesity among urban adolescents (Goon, 2015). College-aged adolescents consume fast food both occasionally and regularly, which may contribute to an increased risk of obesity and related health complications, resulting in increased health care costs. There is a paucity of available literature on fast food consumption and obesity risk among adolescents in Bangladesh. Therefore, the aim of this study was to determine the prevalence of fast food consumption and to assess the association of fast food consumption with obesity in college-aged adolescents.

### **2.2 Relevant Literature**

Bipasha & Goon (2013)

The prevalence of fast food consumption among these students was 98.5% and 43.3% of their pocket money was spent on its purchase. Good taste, easy availability, increased convenience and pocket-friendly nature are among the important factors for preference for fast food. About 22% of respondents said they eat fast food 4 days a week and more than a fifth have it every day. Fifty-four percent of respondents skipped breakfast for a variety of reasons, including class pressure, and ate fast food after class, either from university cafeterias or other fast food establishments. Although 98% of the students were well informed about the negative effects associated with excessive consumption of fast food, they were still deeply addicted to it.

Specific health education programs, dietary guidelines, and effective public awareness campaigns could be initiated to address the unhealthy lifestyles of college students and improve their health.

Banik et al. (2020)

Fast food consumption is increasingly popular in the urban area of Bangladesh. The prevalence of fast food consumption (68.1%) among college-going adolescents in Bangladesh is significantly high. About 64% often consumed fast food, and the main drivers of fast food consumption were taste or pleasure and convenience. Fast food consumption is positively related to a higher prevalence of obesity. Specific health awareness campaigns and dietary guidelines can be initiated to increase public awareness of fast food consumption.

The report showed that street foods like Fuchka, Bhelpuri, Jhaalmuri and various types of pickled vegetables contain high levels of pathogens (Staff Correspondence, 2017).

Khongrangjem et al. (2018)

About 51 (31.87%) participants had insufficient knowledge, 67 (41.88%) participants had moderate knowledge and 42 (26.25%) participants had sufficient knowledge about the effect of fast food consumption. The majority of respondents 116 (73.5%) said that the main reason for their consumption is the delicious taste of fast food.

Although fast foods are tasty, they are low in nutritional value and high in calories. Nutritional counseling regarding the importance of a balanced diet and the harmful effects of fast food can help curb fast food addiction.

Vinay Gopal J. et al. (2018)

Junk foods are high in calories, salt and fat. Excessive consumption of junk food would lead to a wide range of health disorders.

The analysis showed that 30% of the students are not aware of the harmful effects, nutritional value, quality of food, chemicals present and their effect on human health. Almost 85% of students stated their opinion of junk food as unhealthy in the questionnaire. Based on the study, it was found that 18% of people took junk food as a breakfast alternative, 68% of

individuals liked junk food for its taste as it was one of the predominant factors in their choice.

The results concluded that the respondents were diplomatic in their answers and few of them realized that the continuous consumption of fast food can have serious health effects.

A Mohammadbeigi et al. (2018)

Currently, the prevalence of both fast food consumption and overweight/obesity has increased. The aim of this study was to estimate the prevalence of fast food consumption and assess its association with abdominal and total obesity. In an analytic cross-sectional study, 300 students from the two largest universities in Qom, central Iran, studying medicine and basic science were randomly selected in 2015. Data collection was performed with a modified version of the NELSON Fast Food Questionnaire and anthropometric measurements including Waist-Hip Ratio (WHR) and Body Mass Index (BMI). Chi-square, independent t-test and multivariate logistic regression were used for statistical analysis. According to our results, 72.4% (67.4% of women vs. 80.7% of men) had at least one type of fast food in the past month, including a sandwich 44.4%, pizza 39.7%, and fried chicken 13.8 %, according to BMI and WHR obesity prevalence was 21.3% (95% CI: 19.4, 23.2%) and 33.2% (95% CI: 0.7, 35.7). Fast food consumption was associated with abdominal obesity as WHR (OR: 1.46, 95% CI: 1.11, 2.26) but not with total obesity as BMI (OR: 0.97, 95% CI: 0.63 , 1.52). The prevalence of fast food consumption and obesity/overweight among Iranian students is high. Fast food consumption was associated with abdominal obesity based on WHR, but not with general obesity based on BMI.

Ruimao Zheng et al. (2019)

The frequency of takeaway food consumption has increased rapidly among Chinese university students, contributing to the high prevalence of obesity. However, the relationships between takeout consumption, body mass index (BMI), and other individual factors influencing eating behavior among college students are still unclear. This study investigated the association of takeaway food consumption with gender, BMI, physical activity, high-fat-high-sugar (HFHS) food preference, major category, and education level among Chinese university students.

Out of 1220 college students, 11.6% of college students were overweight or obese. Among personal and lifestyle characteristics, high frequency of takeout was significantly associated with non-medical orientation, high HFHS food preference, education level, and higher BMI, but not with physical activity.

Among Chinese college students, takeout food consumption may be influenced by major category, HFHS food preferences, education level, and BMI. This could provide guidance for reducing the high consumption of takeaway food, which contributes to the high prevalence of obesity and the high risk of metabolic diseases.

Oyedunni S. Arulogun & Modupe O. Owolabi (2011)

Fast food consumption has gradually become a common lifestyle in Nigeria, especially in urban areas and among young people despite the associated adverse health consequences. college students' pattern of fast food consumption and their perception of this practice as a risk factor for non-communicable diseases (NCDs) have not been fully explored. This study was designed to evaluate fast food consumption pattern and its perception as a risk factor for non-communicable diseases among university students Ibadan. Four hundred university students were recruited using a three-stage sampling technique from halls residence participated in the survey. Data were collected through a pre-tested self-administered questionnaire and analyzed using descriptive statistics and the Chi-square test.

The average age of the respondents was  $22.0 \pm 3.3$  years old, 57.3% were men, 98.5% were single and 85.4% of their parents were employed. The majority (99.5%) were they know fast food and 54.6% perceived it as food with minimal processing time. Perception of time when it was possible to consume fast food, it was breakfast (69.5%); lunch (69.5%) and dinner (69.5%). Main types only flour-based products (81.1%) and flour-based products together with carbonated drinks (17.7%). Frequency of consumption classified as 1x per week (19.1%), 2x per week (15.6%), three times a week (10.3%) and every day (8.0%). Only 6.5% of respondents preferred fast food over home-cooked meals and reasons for this choice included availability and stress-free (66.6%) and more delicious and nutritious (19.1%). The consumption of fast food was significantly higher among men and those whose parents were employed ( $p < 0.05$ ). 55.0% had no idea how consuming fast food can be a risk factor for the development of non-communicable diseases. Education campaigns and communication on behavior change about health, nutrition and lifestyle of young people are thereby promoted.

## **2.3 Conclusion**

Multiple studies have been conducted on the prevalence of fast food consumption among college students and its relationship with obesity and other health issues. The studies show that fast food consumption is prevalent among college students and is driven by factors such as taste, convenience, and availability. The results also show that fast food consumption is positively related to obesity and that there is a lack of awareness among students about the negative health effects of fast food. Different studies have suggested that health education programs, dietary guidelines, and public awareness campaigns could be effective in addressing the unhealthy lifestyles of college students. The studies also suggest that personal and lifestyle factors such as education level, food preferences, and physical activity may also influence fast food consumption among college students.

## **2.4 Research Gap**

A research gap is an area where there is a lack of understanding or knowledge within a particular field, or a gap in the existing research.

Based on the literature review, the following could be potential research gaps related to our research title:

1. Limited research has been conducted specifically on students of Rajshahi University and their fast-food consumption habits, making it an under-researched area.
2. There is limited research exploring the different dimensions of fast-food consumption, such as frequency, portion size, and type of fast food consumed.
3. There is a lack of research examining the factors that influence fast-food consumption habits among students in developing countries like Bangladesh.
4. Research is limited on the impact of fast-food consumption on health outcomes among students, such as obesity and related diseases.
5. There is a scarcity of research on the relationship between fast-food consumption and socioeconomic factors such as income, education, and occupation.

# **CHAPTER THREE**

## **RESEARCH METHODOLOGY**

### **3.1 Introduction**

Research methodology is a way to systematically address a research problem and is considered the science of how research is conducted scientifically. The term "research" refers to a systematic method consisting of stating a problem, formulating a hypothesis, collecting facts or data, analyzing data and reaching a certain conclusion either in the form of a solution to a given problem or in certain generalizations for some theoretical formulation. It is most important part for every researcher to understand not only the research methodology but also consider the logic behind the methods that is needed for research study and to explain the research work. In any research work data is an essential element that plays an important role in entire research work. Data source, quality and methodology are the important part for obtaining accurate findings and lastly comment on those findings for any research. Regarding the above importance, this chapter provides a brief description of data sources, selection of project title, study area, population and sample, sampling design, questionnaire preparation, data collection and processing, computer application in research, conceptual framework, methodology and limitation of present study. Therefore, expenditure of fast food consumption in last 7 days can be used as an indicator for expense status and used to check association with some factors like age, average expense etc. can be expected. Height means the measurement of someone or something from head to foot or from base to top. Weight means a body's relative mass or the quantity of matter contained by it, giving rise to a downward force; the heaviness of a person or thing.

### **3.2 Target Area and Target Population**

In this study our target was Rajshahi University, one of the pioneer universities in Bangladesh outside the Dhaka city. Data was collected from all four year undergraduate students. Both male and female students are target population of this study.





### 3.3 Study Design

Cross-section design will be employed to observe the difference in expenditure on fast-food consumption between male and female students in Rajshahi University campus.

### 3.4 Sample/Participant Selection

Participants would be selected conveniently. Although random sampling is the most preferred one for this study design, it would be difficult to make sampling frame and perform random sampling due to lack of time, human resources, and budget. Therefore, convenient sampling would be considered. However, participants from each of halls and from those who are living outside hall will be considered. It will help to make the sample size representative to the study population.

### 3.5 Calculation of the sample size

Sample size will be calculated by following formula:

$$N = P(1-P) \times Z^2 / d^2$$

Where, P= population proportion, Z= 1.96 for standard normal distribution at 95% confidence level, d= degree of error which is 0.05. There is no available data showing population prevalence of fast-food consumption. Therefore, to consider the population proportion (P), we considered the study conducted by Bipasha & Goon (2013). This study

was conducted among private university students in Dhaka and found 98% students consumed fast-food. As a divisional city, it could be assumed that the fast-food consumption among students in Rajshahi will be less than that in Dhaka. So, we assumed a population prevalence of 95%. Therefore, our calculation gives  $n = 73$  which means at least 73 respondents to be interviewed for data collection. In this study, 80 students (40 males and 40 females) will be interviewed.

### **3.6 Data Collection**

Data would be collected through face-to-face interviews using a questionnaire. Both open and close ended questions will be used to have responses from the participants. Items in the questionnaire would be selected in such a way that they are already validated by other studies.

### **3.7 Data Processing and Analysis**

#### **3.7.1 Data processing**

Data processing is the key factor for conducting a research and to write a report. Data processing procedure consists three parts as editing, coding, and tabulation. The entire process is done with help of a personal computer.

#### **3.7.2 Data editing**

After collecting necessary data, at first the researcher edits those data orderly as it can be easily analyzed in computer for getting expected result of the study. Without editing it is very difficult to analyze the data properly. So, data editing is very important factor in research.

#### **3.7.3 Data coding**

The recoded data were coded in code sheets according to a comprehensive code plan. I tried my best to minimize possible bias due to coding of open question.

#### **3.7.4 Computeraization**

Edited and coded data were next processed in computer. At first I made entry of each data in worksheet and prepare for analyzing. I have to select a suitable computer program for data entry and analyze.

### **3.7.5 Tabulation**

Tabulation is the process of summarizing raw data, and displaying same in compact form for further analysis. It is an orderly arrangement of data in columns and rows.

### **3.8 Data Entry and Analysis**

The analysis of data is an important part of any research project work. At first I again coding entire questionnaire according to the predetermined code plan and entry them into the computer. I have different type of table, such as frequency table, association which are needed. I have used different test statistics to test the validity of significance of our data for quick assessment, I have also made bar diagram, pie chart and others graphical presentation in this direction.

### **3.9 Measurement and Scaling**

From the data, we have Age, Height, Weight as the measurement of the respondent and the corresponding scales for those measurements are year for age, metre (m) for height, kilogram (kg) for weight, taka (tk) for income and expenditure.

### **3.10 Outcome Variable**

We have considered several variables as for example age, number of family members, average expense, BMI and so on for making my study more reliable and meaningful. We had to choose some independent and dependent variables. For the sake of making analysis associated to the association. From our questionnaire I have selected average expenses per day as my dependent variable of the study.

### **3.11 Independent Variable**

In my research the independent variables are age, gender, number of siblings, weekly expense, BMI, number of household members and so on.

### **3.12 Statistical Analysis**

Frequency distribution of all variables was done to find the situation of some particular variables such as expenditure, age, gender etc. Descriptive statistics, frequency distribution are executed to see the nature of the data. Then multiple linear regression were applied to observe the association of expenditure with different variables. A value of  $P < 0.05$  will be considered as statistically significant in the analysis.

#### **3.12.1 Descriptive Statistics**

Descriptive statistics are brief information coefficients that summarize a given data set. Descriptive statistics summarize or describe the characteristics of a data set. Here we used descriptive statistics to learn about the nature of our quantitative data. It will be helpful to calculate minimum, maximum, means and standard deviations of respondent's age, household numbers, expense in last 7 days, average expense in a day and BMI. A total sample of 80 university student was analyzed in this study.

#### **3.12.2 Frequency Distribution**

Frequency analysis is part of descriptive statistics. In statistics, frequency expresses the number of occurrences of an event. Frequency analysis is an important area of statistics that deals with the number of occurrences (frequency) and analyzes measures of central tendency, variance, percentiles, etc.

What is a frequency distribution? A frequency distribution is a representation, either in graphical or tabular format, that shows the number of observations in a given interval. The size of the interval depends on the analyzed data and the goals of the analyst. Intervals must be mutually exclusive and exhaustive. A total sample of 80 respondent was analyzed in this study where gender is equal.

#### **3.12.3 Chi-square Test**

Data analysis is the process of bringing order structure and meaning to the mass of collected data. There are many ways for analyzing data. Here I use cross-table and Chi-square test for association analysis.

From the cross tabulation alone, it is impossible to tell whether these differences are real or due to chance of variation. We can check the chisquare test to be sure.

The chi-square test measures the discrepancy between the observed cell counts and what you would expect if the rows and columns were unrelated. If asymptotic significance (pvalue) is less than  $\alpha\%$  where  $\alpha$  is the level of significance, then null hypothesis may be rejected.

The test statistic is,

$$\chi^2 = \sum_i^n \frac{(O_i - E_i)^2}{E_i} \sim \chi^2_{(r-1)(c-1)}$$

where, r=number of rows and c=numbers of columns

### 3.12.4 Independent Sample t-test

The independent sample t test is the most common form of the t-test statistic. It helps you to compare the means of two sets of data. For example, you could run a t-test to see if the average test scores of males and females are different; the test answer the question, “Could these difference have occurred by random chance?”

Assumption of Independent Sample t-test,

- **Assumption of Independence:** You need two independent, categorical groups that represent your independent variable. In the above example of test scores “males” or “females” would be your independent group.
- **Shot Assumption of Normality:** The dependent variable should be approximately normally distributed. The dependent variable should also be measured on a continuous scale.
- **Assumption of Homogeneity of Variance:** The variance of the dependent variable should be equal.
- **Hypothesis:** That is I wish to test hypothesis,  
H0: There is no difference in mean of two groups.  
H1: There is difference in mean of two groups.

### 3.12.4 Regression Analysis

To predict the average expenditure in fast food consumption, multiple regression analysis was utilized to examine the relationship between Expenditure and socioeconomic, demographic and behavioural factors. Average expenditure was used as the dependent variable. The multiple regression model is a powerful statistical tool for finding the relationship between dependent (continuous) and independent variables. The multiple regression models is written as:

$$Y_{ij} = \beta_0 + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \dots + \beta_k X_{kij} + e_{ij}; i = 1, 2, \dots, n$$

Where,  $\beta_0$  and  $\beta_1, \beta_2, \dots, \beta_k$  are fixed regression coefficients; In multiple regression analysis, an important assumption is that the explanatory variables are independent of each other; that is, there is no significant correlation between the explanatory variables used to estimate the ordinary least squares (OLS) relationship. However, in some applications of regression, the explanatory variables are related to each other.

### 3.13 Ethical Consideration

Personal information of the participants would be kept confidential, and any information will be used for the research purposes only. Before interviewing the consent of the participants will be received, and purpose of the study will be explained. Principles of the declaration of Helsinki will be followed while interviewing and collecting data from the participants.

### 3.14 Software

In this study, I have used SPSS software to analyze the data in version 20. SPSS is the acronym of Statistical Package for the Social Science. Microsoft Excel version 2013 have been used for graphical representation.

# CHAPTER FOUR

## RESULTS AND DISCUSSION

In previous chapters, the background of the study and the method of data collection and computerization are discussed. Generally, it is important to know the characteristic or nature of the data before performing any statistical analysis. In order to know the nature and characteristics of the data, frequency distribution and graphical representation could be very useful.

### 4.1 Descriptive Statistics

**Table 1:** Descriptive distribution of all scale data including age, number of family members, expense in last 7 days, average expense in a day and BMI.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	80	19	27	23.05	1.534
No. of Family Members	80	0	15	5.21	2.079
Expense in last 7 days	80	0	1500	226.91	281.432
Average expense in a day	80	0	200	43.30	45.771
BMI	80	16.08	34.41	22.2812	3.473

From the above table we observed that the age of our respondent ranging from 19 to 27 with mean age  $23.05 \pm 1.534$ . Then the minimum value of number of family members is 0 and maximum is 15 where average household number is 5.21 with 2.079 standard deviation. The minimum value of expense in last 7 days and average expense per day is 0 which implies that there are some responden who are not consumed any fast food. The maximum spending in last 7 days is 1500tk with value 226.91 and the maximum spending in a day is 200tk with average amount 43.30tk. By height and weight we calculated the BMI which varied from 16.08 to 34.41  $\text{kg/m}^2$  with a mean of 22.28  $\text{kg/m}^2$ .

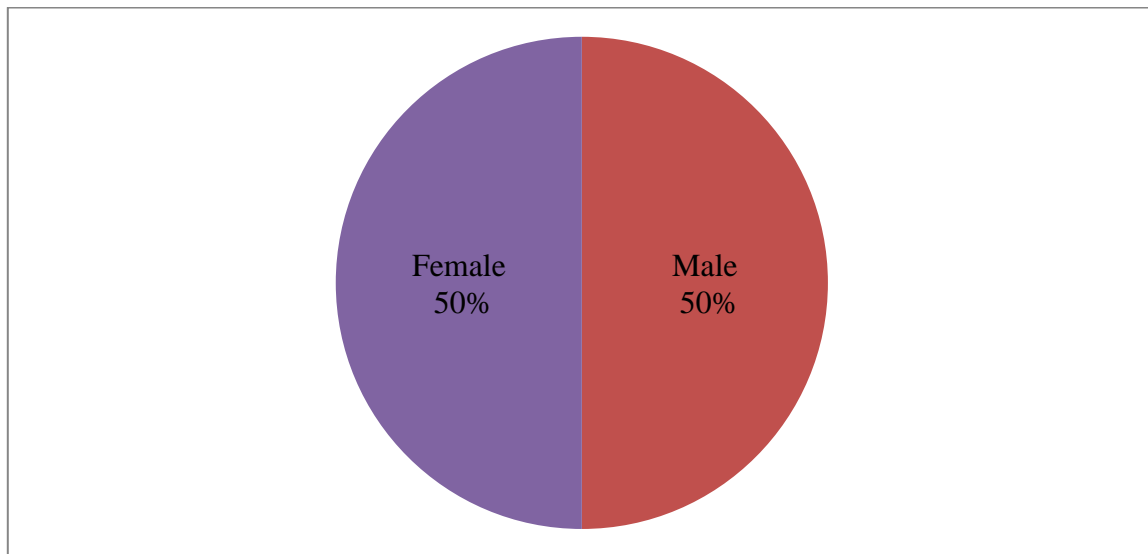
### 4.2 Frequency Analysis

Now, I would like to present frequency distribution and relevant graphs to have a quick look of my categorical data.

**Table 4.2.1:** Frequency distribution of Gender

Gender	Frequency	Percent	Cumulative Percent
Male	40	50%	50%
Female	40	50%	100%

Table 4.2.1 shows the frequency distribution of Gender of our respondent. It was observed that 50% male and remaining 50% are female.



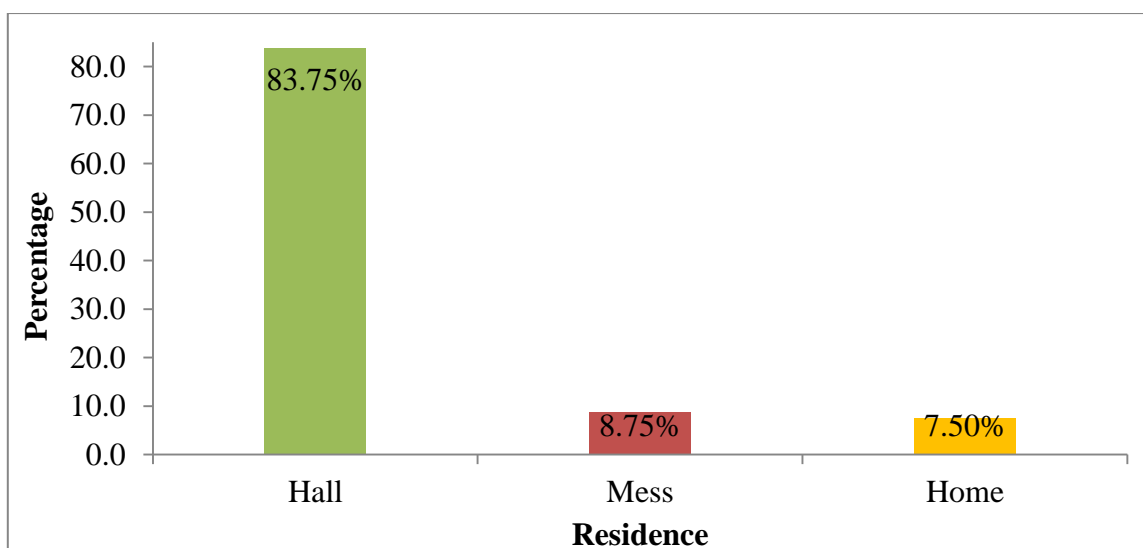
**Fig4.2.1: Pie Chart of Gender Distribution**

**Table4.2.2:** Frequency distribution of respondent residential status at Rajshahi University campus.

Type of Residence	Frequency	Percentage
Hall	67	83.8
Mess	7	8.8
Home	6	7.5
Total	80	100.0

The distribution table and following bar diagram implies that most of the student (83.8%) currently live in Hall and a tiny piece of students 8.8% and 7.5% are from Mess and Home respectively (Table4.2.2 & Figure 4.2.2).



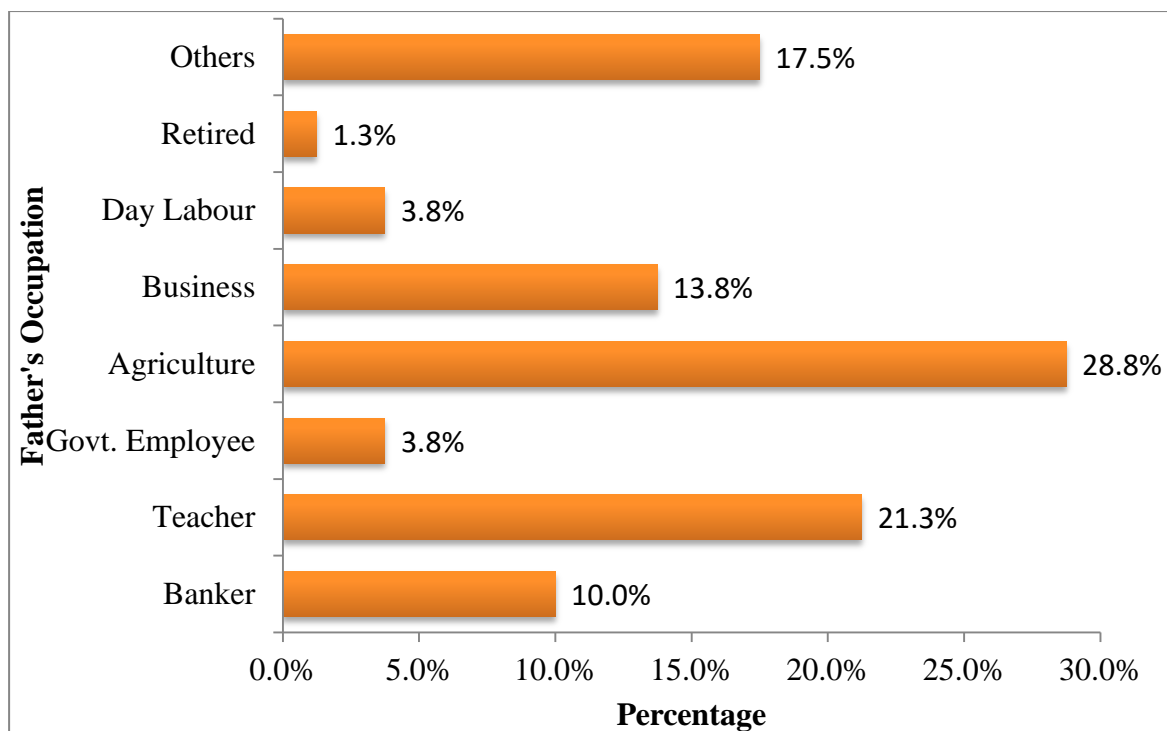


**Fig4.2.2: Bar Diagram of Residential Status**

**Table4.2.3:** Frequency distribution of fathers profession of the respondent.

Father's Occupation	Frequency	Percentage
Banker	8	10.0
Teacher	17	21.3
Govt. Employee	3	3.8
Agriculture	23	28.8
Business	11	13.8
Day Labour	3	3.8
Retired	1	1.3
Others	14	17.5
Total	80	100.0

The above table and following Gantt chart shows the occupation status of the respondents father. It was observed highest percentage is 28.8% in Agriculture domain and the lowest 3.8% is Labour and Govt. Employee equally. Surprisingly 21.3% are holding job as a Teachers. The others 17.5% implies nongovernmental employers or something else (Figure 4.1.3).

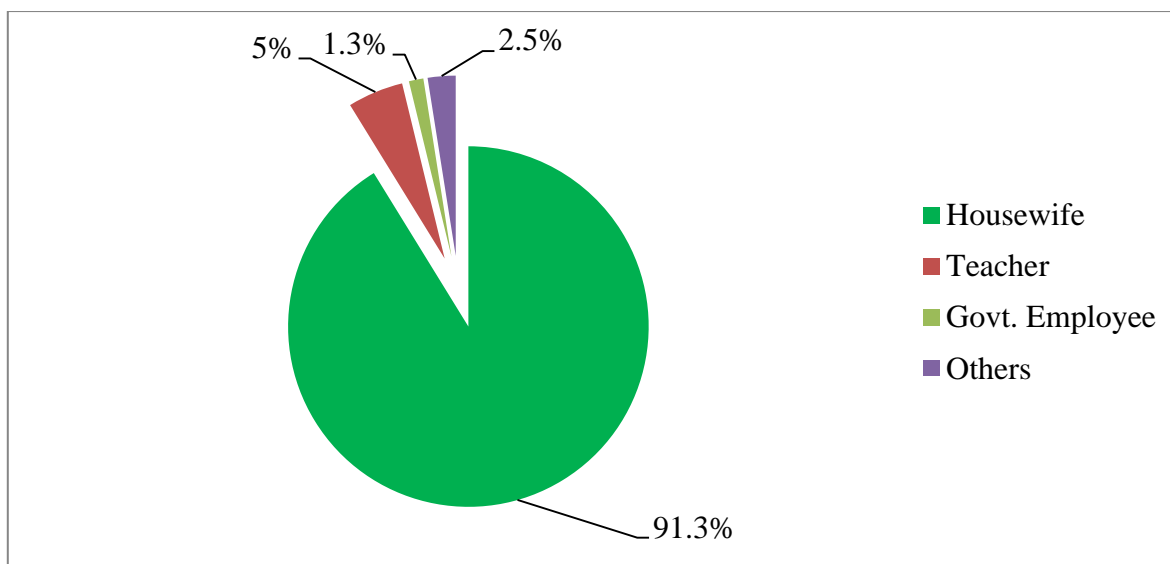


**Fig4.2.3: Gantt Chart of Fathers Occupation**

**Table4.2.4: Frequency distribution of Mother's Occupation.**

Mother's Occupation	Frequency	Percentage
Houswife	73	91.3
Teacher	4	5
Govt. Employee	1	1.3
Others	2	3.5
Total	80	100

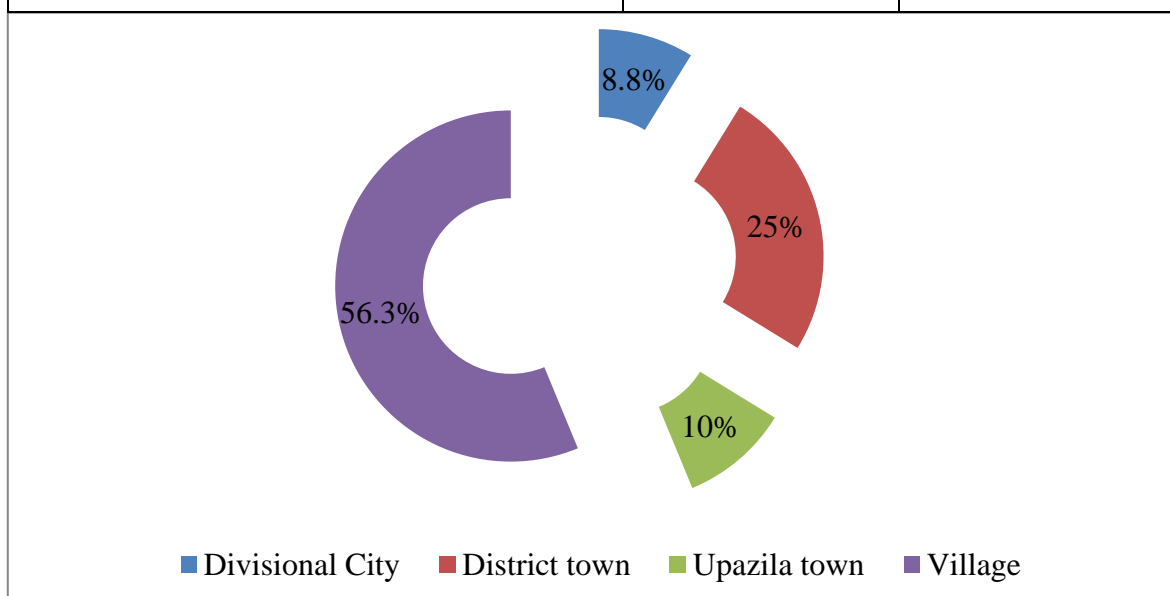
Table4.2.4 shows the frequency distribution of respondent mother's occupation. Where maximum 73 are housewife out of 80 that is 91.3%. And remaining 8.7% are teacher, govt. employee and others. The following graph shows the distribution of this table (Fig4.2.4).



**Fig4.2.4: Pie Chart of Mother's Occupation**

**Table4.2.5: Frequency distribution of childhood living place.**

Childhood living place	Frequency	Percentage
Divisional city	7	8.8
District level town	20	25
Upazila level town	8	10
Village	45	56.3

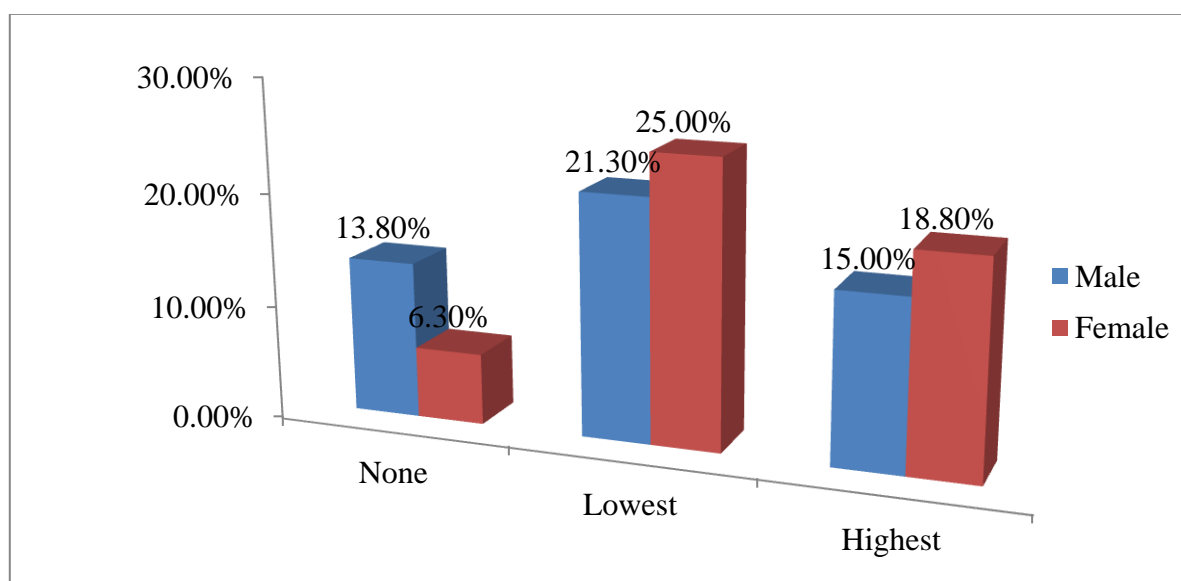


**Fig4.2.5: Doughnut Chart of Childhood living place**

Table4.2.5 and Figure4.2.5 clearly implies the distribution of type of place where respondent are grew up. More than half (56.3%) of the total respondent spend their time in village. Then about 25% are in district level town and lowest is 8.8% from divisional city. It is clearly visible in the above doughnut chart how the childhood living place represented.

**Table4.2.6: Frequency distribution of Expense in last 7 days by Gender.** To give a clear understanding of the expenditure of fast food consumption from our data, we converted it to categorical data and performed frequency analysis in favour of Gender.

Expense in last 7 days	Male	Female	Total
None	13.80%	6.30%	20.00%
Low	21.30%	25.00%	46.30%
High	15.00%	18.80%	33.80%
Total	50.00%	50.00%	100.00%



**Fig4.2.6: Bar Diagram of Fast Food Consumption**

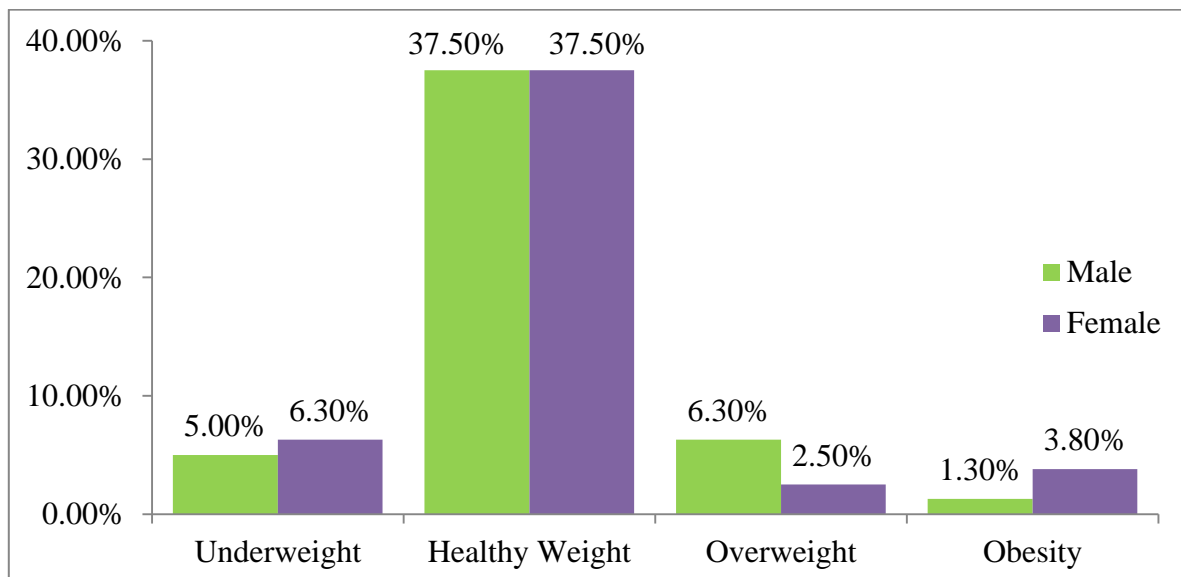
Table4.2.6 and Figure4.2.6 state that highest percentage of respondent are in low category of fast food consumption where 21.30% are male and 25% are female. In total of 80% respondent are eating junk food or fast food and the high expenditure percentage is 33.80%.

**Table4.2.7: Frequency distribution of BMI by Gender.** To learn any difference between male and female in the health status, we converted body mass index (BMI) to a categorical variable and performed frequency analysis in favour of Gender.

Following conditions are applied to do this category,

Below 18.5     Underweight  
 18.5 – 24.9     Healthy Weight  
 25.0 – 29.9     Overweight  
 30.0 and Above     Obesity

Body Mass Index	Male	Female	Total
Underweight	5.00%	6.30%	11.30%
Healthy Weight	37.50%	37.50%	75.00%
Overweight	6.30%	3.50%	8.80%
Obesity	1.30%	3.80%	5.00%
Total	50.00%	50.00%	100.00%

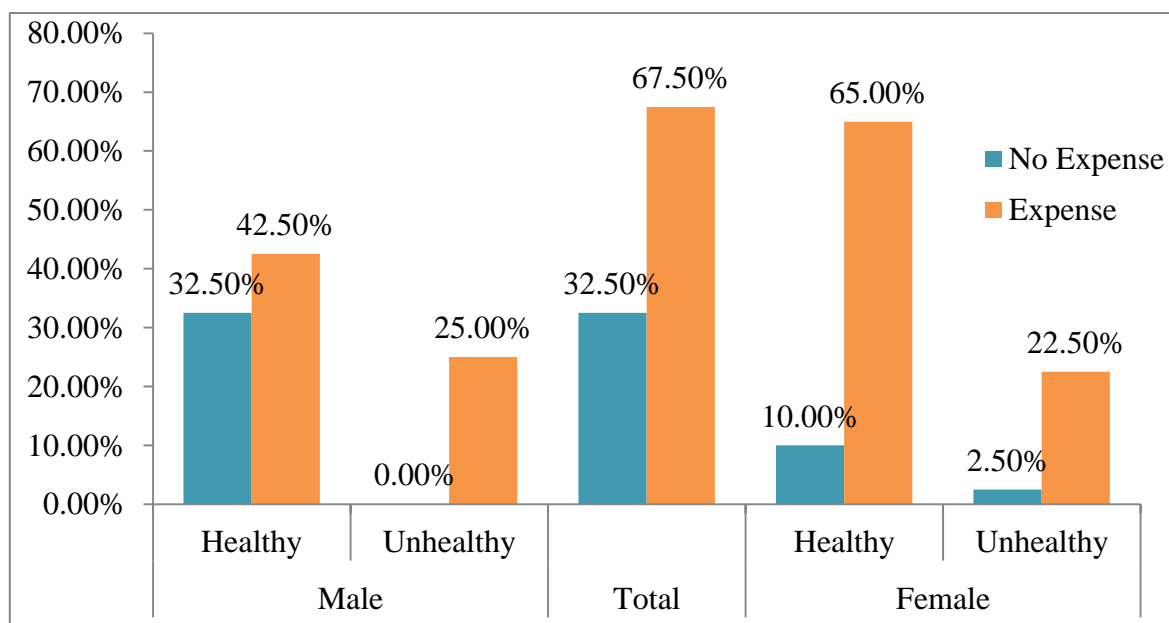


**Fig4.2.7: Bar Diagram of Body Mass Index**

Table4.2.7 and Figure4.2.7 illustrate that equally 37.5% are in healthy condition for both male and female respondent. In male 5% are Underweight, 6.30% are overweight, 1.3% are obese and in female 6.30% are underweight, 2.50% are overweight, 3.80% are obese.

**Table4.2.8: Frequency distribution of Health Status by Expense in Fast Food Consumptin with gender difference.** Determined the health status from BMI result and catergorized the consumption details in expense and no expense condition.

Gender	Health Status	Expense in last 7 days		Total
		No Expense	Expense	
Male	Healthy	32.50%	42.50%	75.00%
	Unhealthy	0.00%	25.00%	25.00%
	Total	32.50%	67.50%	100.00%
Female	Healthy	10.00%	65.00%	75.00%
	Unhealthy	2.50%	22.50%	25.00%
	Total	12.50%	87.50%	100.00%



**Fig4.2.8: Bar Diagram of Health Status with Expenditure**

Table4.2.8 and Figure4.2.8 represent the health status of the respondent in favour of fast food consumption. Among the 75% healthy respondent 32.5% male and 10% female are healthy who don't buy fast food where 42.5% male and 65% female are healthy who consume junk food or fast food. But it is insane that 25% of male and 22.50% of female respondents are unhealthy who usually eat fast food.

### 4.3 Variable distribution

Variable distribution is the whole observation of each variable distributed in table in two group male and female. For all variables percentage of the frequency by gender wise stated. Furthermore, some test statistics applied to check the association or differences between variable and gender. Chi-square test or Fisher exact test and independent sample t-test are used here.

**Table4.3.1** Variable distribution of Section A all demographic factors including age, religion, parents occupation, number of family members, type of residence etc by Gender.

	Variable	Boys % n (n=40)	Girls % n (n=40)	P value
1	Type of residence			0.000034
	Hall	50.0%	33.8%	
	Mess	0.00%	8.8%	
	Home	0.00%	7.5%	
2	Age (mean $\pm$ SD)	23.40 $\pm$ 1.499	22.70 $\pm$ 1.506	0.040
3	Fathers' occupation			0.001
	Banker	2.50%	7.50%	
	Teacher	2.50%	18.80%	
	Govt. Employee	1.30%	2.50%	
	Agriculture	22.50%	6.30%	
	Business	7.50%	6.30%	
	Day Labour	1.30%	2.50%	
	Retired	1.30%	0.00%	
	Others	11.30%	6.30%	
4	Mothers' occupation			0.156
	Housewife	45.00%	46.30%	
	Teacher	1.30%	3.80%	
	Govt. Employee	1.30%		

	Others	2.50%		
5	Number of family members (mean $\pm$ SD)	5.45 $\pm$ 3.66	4.98 $\pm$ 1.28	0.311
6	Type of area grew up			0.001
	Divisional City	3.5%	6.3%	
	District level town	7.5%	17.5%	
	Upazila level town	1.3%	8.8%	
	Village	38.8%	17.5%	
7	Religion			0.007
	Muslim	48.8%	38.8%	
	Non Muslim	1.3%	11.3%	

This table summarizes the results of a study that compares demographic variables between boys and girls. The sample size for boys is 40, and the sample size for girls is 40. The variables compared are type of residence, age, fathers' occupation, mothers' occupation, number of family members, type of area grew up, and religion.

The results show that the type of residence (hall, mess, or home) is significantly different between boys and girls, with 50% of the boys living in halls compared to 33.8% of the girls. The mean age of the boys is  $23.40 \pm 1.499$  years and the mean age of the girls is  $22.70 \pm 1.506$  years, with a p-value of 0.040, indicating a significant difference in age between the two groups.

Fathers' occupation was also found to be significantly different between the two groups, with bankers and teachers being more common among the girls. Religion was also found to be a significant difference, with 48.8% of the boys being Muslim and 38.8% of the girls being Muslim.

Mothers' occupation and the number of family members did not have significant differences between the two groups.



**Table4.3.2** Gender wise Variable distribution of Section B, all fast food consumption factors like fast food items, place prefer to eat, reasons, expenditure cost etc.

	Variable	Boys % n (n=40)	Girls % n (n=40)	P value
1	Did you eat any fast-food or street food in last 7 days?			0.210
	Yes	32.50%	40.00%	
	No	17.50%	10.00%	
2	Which of the following items do you eat most frequently?			0.256
	None	3.80%	1.30%	
	Fast foods in restaurant	10.00%	16.30%	
	Street foods	23.80%	26.30%	
	Food from vendors	12.50%	6.30%	
3	Why do you like to eat these foods?			0.585
	Don't like	3.80%	1.30%	
	Feels tasty	21.30%	25.00%	
	Easily available	10.00%	12.50%	
	Dissatisfied with regular meals	8.80%	8.80%	
	Offered by the friends	6.30%	2.50%	
4	While eating these foods, whom are you usually accompanied by?			0.455
	Not Applied	3.80%	1.30%	
	Alone	13.80%	8.80%	
	Friends	30.00%	36.30%	
	Family members	2.50%	3.80%	
5	Usual time of fast-food consumption			0.442
	None	3.80%	1.30%	
	Morning	0.00%	2.50%	
	Noon	2.50%	5.00%	
	Afternoon	15.00%	16.30%	

	Evening	23.80%	21.30%	
	Night	5.00%	3.80%	
6	How much did you spend for these foods in last 7 days? (mean $\pm$ SD)	199.08 $\pm$ 283.18	254.75 $\pm$ 280.47	0.380
7	On an average, how much do you pay for these foods per day? (mean $\pm$ SD)	60.48 $\pm$ 161.10	61.25 $\pm$ 63.23	0.977
8	Does paying for fast-food or street food pose extra pressure on your other monthly expenditure?			0.042
	Yes	28.7%	16.3%	
	No	21.3%	33.8%	

The research looks at the fast-food consumption habits of students at Rajshahi University, focusing on gender differences. The sample size was 40 students each for boys and girls. The study found that 32.5% of boys and 40% of girls reported eating fast-food or street food in the last 7 days. The most frequent item consumed by boys was street foods (23.8%) and for girls it was fast foods in restaurants (16.3%). When asked about why they like eating these foods, the most common reason cited by both boys and girls was that it "feels tasty" (21.3% of boys and 25% of girls).

The study also found that most students consumed fast food with friends (30% of boys and 36.3% of girls), followed by eating alone (13.8% of boys and 8.8% of girls). The most popular time to consume fast food was in the evening for both boys and girls (23.8% of boys and 21.3% of girls). The study found no significant difference between boys and girls in terms of the amount they spend on fast food in 7 days or the average amount they spend per day.

However, the study found that paying for fast food posed extra pressure on monthly expenditure for a higher percentage of boys (28.7%) than girls (16.3%). The difference was statistically significant ( $p = 0.042$ ).

**Table4.3.3** Gender wise Variable distribution of Section C, all health factors like BMI, disease, digestion problem etc.

	Variable	Boys % n (n=40)	Girls % n (n=40)	P value
1	BMI (wt in Kg/ height in square meter) (mean $\pm$ SD)	22.01 $\pm$ 2.86	22.42 $\pm$ 4.03	0.601
2	Did you suffer from any disease in last 1 month?			0.066
	Yes	13.8%	25.0%	
	No	36.3%	25.0%	
3	Do you have any problem with digestion (gastric related problem)?			0.024
	Yes	15.0%	28.7%	
	No	35.0%	21.3%	
4	Do you need to regularly take any medication for any purposes?			0.001
	Yes	6.3%	22.5%	
	No	43.8%	27.5%	

This table summarizes the results of a study on the different dimensions of fast-food consumption among students at Rajshahi University. The sample size is 80 students, with 40 boys and 40 girls. The table compares the answers of the two groups of students on various variables, and the p-value is reported for each comparison.

The mean body mass index (BMI) is 22.01  $\pm$  2.86 for boys and 22.42  $\pm$  4.03 for girls, with a p-value of 0.601, indicating that there is no significant difference in BMI between the two groups.

In the past month, 13.8% of boys and 25% of girls reported suffering from a disease, with a p-value of 0.066, indicating that there is a borderline significant difference between the two groups. 15% of boys and 28.7% of girls reported having a gastric-related problem, with a p-value of 0.024, indicating a significant difference between the two groups. 6.3%

of boys and 22.5% of girls reported regularly taking medication for any purpose, with a p-value of 0.001, indicating a highly significant difference between the two groups.

#### 4.4 Regression Analysis

##### Effects of some factors on Expense in consumption fast food or junk food:

We will keep common independent variables which are related to the dependent variables and take maximum two variables in every time the regression is conducted. Thus, Multiple linear regression model was selected in this study for the continuous outcome data which is Average expense per day and we will take account total weekly expense and BMI as independent variable.

Based on these analysis, the intercept of the multiple linear regression analysis exhibited a significant result ( $\beta_0 = 154.92$ ,  $p < 0.05$ ). The coefficient of expense in last 7 days was positive ( $\beta_1 = 0.224$ ,  $p < 0.05$ ), respondent whose expense in last 7 days higher than their average expenditure than their counterparts. The coefficient of BMI was positive ( $\beta_2 = -6.704$ ,  $p < 0.05$ ), who has higher BMI their average expenditure is less than their counterparts. (Table 4.3.1).

Therefore we may write the model as follows:

$$\text{Average Expenditure} = 154.92 + 0.224X_1 - 6.704X_2 + \epsilon$$

Where,

$X_1$  = Expense in last 7 days

$X_2$  = BMI

**Table 4.4.1 Effects of some factors on Expenditure using multiple linear regression model (Coefficients Table)**

Variable	Unstandardized Coefficients		t	Sig.
	Beta	Std. Error		
Intercept	154.924	72.536	2.136	0.036
Expense in last 7 days	0.224	0.039	5.691	0.000
BMI	-6.704	3.184	-2.106	0.039

**Table 4.4.2** Coefficient of determination (R Square).

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.575	0.330	0.313	98.348

R-square 0.330 implies the total 33% variation for the dependent variable could be explained by the independent variables BMI and expense in last 7 days (Table 4.3.2).

# CHAPTER FIVE

## SUMMARY AND RECOMMENDATION

### 5.1 Introduction

This chapter intends to draw the major conclusions and suggest some recommendations which may illustrate the process of more pragmatic policy making and implementation. Findings from various sources and angle have been compared, contrasted, associated and viewed from diversified perspective.

### 5.2 Summery

From the data set of 80 respondent we see that 40% are male and 40% are female. All the students lies in the age group 19-27. The age of subjects varied from 19 to 27 with mean age  $23.40 \pm 1.499$  years for male and mean age  $22.70 \pm 1.506$  for female. Number of household members average  $5.45 \pm 3.66$  ranging from 0 to 15. We can see that most of the students 83.8% respondents are from hall whereas 50% male and 33.8% female, then 8.8% are from mess those are females and 7.5% are from home also those are female. 10% father's are bankers, 21.3% are teacher, 13.8% are businessman, 28.8% are farmer, 17.5% are in others category. Most of the mothers occupation status lie in home maker which is 91.3%. Most of the respondent spend their money to purchase fast food regularly which is 80% and among them 21.30% male and 25% female has low expense record, 15% male and 18.80% female has high expense record. Most students remarks the cause of liking junk food that it feels tasty which is 46.30% where we see that 26.3% prefer fast food in restaurent, 50.1% prefer street foods among them 23.8% male and 26.30% female, 18.8% prefer fast food from vendors. 45% respondents are like eat fast food at evening time, 31.3% prefers afternoon time and remains are like to eat fast food as their convenient times. Paying for fast-food or street food pose extra pressure on other monthly expenditure varies to male 28.7% and female 16.3%. The BMI varied from 16.08 to  $34.41 \text{kg/m}^2$  with a mean of

22.01±2.86kg/m<sup>2</sup> for male and 22.42±4.03kg/m<sup>2</sup> for female. We checked the BMI in category with fast food consumption to know about the health status. There is 42.50% male and 67.50% female are healthy after all they consumed fast-food in a regular basis. Also a significant amount of respondent are either underweight or overweight. The percentage of this unhealthy respondent is about 25% among them 10.6% are male and 14.4% are female.

From the p-value of chi-square test and independent sample t-test we got significant difference between two group of gender, difference between type of residence and gender of respondent, difference between age and gender of respondent, difference digestion problem and gender of respondent. We don't notice the significance difference in two group of gender about fast food consumption.

This study is conducted to find out the students expenditure of fast food purchasing on the basis of gender differentiation in the University of Rajshahi. We tried to understand the factors fast food consumption with the gender differentiation. We also attempt to obtain the association between expenditure and gender and BMI with other factors. Various junk or fast food eating behavior like cause of liking fast food, usual time to take fast food, accompany, pressure on other expenditure, disease of digestion problem history related to students has been studied in this study. Socio economic condition and BMI also has been studied in this study. We have shown the graphical representation of these characteristic to illustrate the condition easily. Paying for fast-food or street food pose extra pressure on other monthly expenditure has a statistical significant difference between male and female. The study tell us that the pressure is on male greater than female. We have found that spending in junk food have a significant association with BMI of the students. Students whose BMI are greater they usually have less addiction in fast food consumption. Disease and digestion problem also have a significant difference with between gender group. There is a high risk in female from male to have a digestion problem after eating fast-food. We have also seen that there is a insignificant difference between BMI and gender. In overall study we have found that the junk or fast food consumption behaviour of the students of the University of Rajshahi is high.

They are not that much aware of their food habit it also varies in male and female. It is needed to increase the awareness of the effect on the health of eating fast food and they need to change their food habit.

### **5.3 Policy Recommendation**

Based on these findings, the following policy recommendations can be made:

1. Increase awareness: The study suggests that the consumption of junk or fast food is high among the students of the University of Rajshahi. Therefore, there is a need to increase awareness among students about the negative effects of consuming fast food on health.
2. Promote healthy eating: Universities should take initiatives to promote healthy eating habits among students by providing healthier food options in cafeterias, organizing workshops on healthy eating, and encouraging the consumption of fresh fruits and vegetables.
3. Address gender-based differences: The study reveals that there are significant differences between male and female students in terms of their fast food consumption behavior and the pressure of spending on fast food. Universities should address these differences and develop gender-sensitive policies to promote healthy eating habits among all students.
4. Address digestion problems: The study found that there is a high risk of digestion problems in female students after consuming fast food. Therefore, universities should take initiatives to address this issue, such as providing access to medical facilities for students who suffer from such problems.
5. Encourage physical activity: The study shows that a significant number of students have an unhealthy BMI. Universities should encourage physical activity among students by providing access to sports facilities and organizing fitness programs.

Overall, the policy recommendations aim to promote healthy eating habits and lifestyles among students, and address the negative impact of fast food consumption on health.



## **5.4 Limitation of the Study**

Since the data set does not represent the whole students of Rajshahi University, generalization of the findings and recommendation are risky. It is not possible in the part of researcher to deal with all the aspects of a problem within limited time and resource constrain. It is difficult to maintain all process of research for some environmental, social, economic, physical, educational problem. Research is a long-term process. But we do not get sufficient time to do it properly. Some of the important problems given below:

1. I could not increase the sample because of time and money constant.
2. The research respondent had shown the tendency of hiding correct answer of some aspects such as family income, education level and age of starting work.
3. Non sampling error may arise for this.
4. Lack of knowledge.
5. Lack of awareness about the research of the respondent

## REFERENCE

- Banik, R. et al. (2020). "Fast food consumption and obesity among urban college going adolescents in Bangladesh: a cross-sectional study." *Obesity Medicine*, 17, 100161.
- Banik, S. and Rahman, M. (2018). "Prevalence of overweight and obesity in Bangladesh: a systematic review of the literature." *Current Obesity Reports* 7 (4), 247–253. <https://doi.org/10.1007/s13679-018-0323-x>
- Bipasha, M. S. and Goon, S. (2013). "Fast food preferences and food habits among students of private universities in Bangladesh." *South East Asia Journal of Public Health*, 3(1), 61-64.
- Biva, N. A., Ismail, I., Azad, F., Rifat, M. A., & Alim, S. R. (2019). "Microbiological quality of some common dairy beverages available in Dhaka University campus of Bangladesh." *Cogent Food & Agriculture*, 5(1), 1707054.
- Bulbul, T. & Hoque, M.(2014). "Prevalence of childhood obesity and overweight in Bangladesh: findings from a countrywide epidemiological study." *BMC Pediatr* 14 (1), 1–8. <https://doi.org/10.1186/1471-2431-14-86>
- Goon, S.(2015). "Fast food consumption and obesity risk among university students of Bangladesh." *Eur. J. Prev. Med.* 2 (6), 99. <https://doi.org/10.11648/j.ejpm.20140206.14>
- Khongrangjem, T., Dsouza, S. M., Prabhu, P., Dhange, V. B., Pari, V., Ahirwar, S. K., & Sumit, K. (2018). "A study to assess the knowledge and practice of fast-food consumption among Pre-University students in Udupi Taluk, Karnataka, India." *Clinical Epidemiology and Global Health*, 6(4), 172-175.
- MCH Service Unit. (2016). National strategy for adolescent health 2017-2030. Ministry of Health and Family Welfare, Bangladesh Retrieved from. <http://coastbd.net/wpcontent/uploads/2017/07/National-Strategy-for-Adolescent-Health-2017-2030- Final-Full-Book-21-06-17.pdf>
- Gopal J.V., Sriram S., Kannabiran K., & Seenivasan R. (2018). "Student's perspective on junk foods: Survey in VIT University, Vellore, Tamil Nadu (India)." *Biomolecules and Genetics Division*.
- Zheng, R., Jiang, Y., Wang, J., Wu, S., Li, N., Wang, Y., Liu, J., Xu, X., He, Z., Cheng, Y., Zeng, X., Wang, B., Zhang, C., Zhao, M., Su, Z., Guo, B., & Yang, W. (2018). "Association between Take-Out Food Consumption and Obesity among Chinese University Students: A Cross-Sectional Study." *International Journal of Environmental Research and Public Health*, 16(6), 1071.

Arulogun, O.S., & Owolabi, M.O. (2011). "Fast Food Consumption Pattern among Undergraduates of the University of Ibadan, Nigeria: Implications for Nutrition Education." *Journal of Agriculture and Food Technology*, 1(6), 89-93.

Rahman, S., Islam, M.T., & Alam, D.S. (2014). "Obesity and overweight in Bangladeshi children and adolescents: a scoping review." *BMC Public Health*, 14(1), 1-8.  
<https://doi.org/10.1186/1471-2458-14-70>

Saha, S., Al Mamun, M.A., & Kabir, M.R. (2022). "Factors affecting fast food consumption among college students in South Asia: a systematic review." *Journal of the American Nutrition Association*, 41(6), 627-637.

Mohammadbeigi, A., Asgarian, A., Moshir, A., Heidari, E., Afrashteh, H., Khazaei, S., & Ansari, H. (2018). "Fast food consumption and overweight/obesity prevalence in students and its association with general and abdominal obesity." *Journal of Preventive Medicine and Hygiene*, 59(3), E236.

[www.cdc.gov/growthcharts/clinical\\_charts.htm](http://www.cdc.gov/growthcharts/clinical_charts.htm)

<https://www.researchgate.net>

<https://www.statisticshowto.datasciencecentral.com>

# APPENDIX

## Questionnaire

Date: \_\_/\_\_/\_\_\_\_

### Participant information

Participant No.:	Name:
Department:	Year:
Home district:	Upazila:

### Section A: Socio-demographic information

No.	Questions/items	Response
A1	Type of residence (give tick)	1= Hall 2= Mess 3= Home
A2	Age (year)	
A3	Gender (give tick)	1= Male 2= Female 3= Others
A4	Father's occupation (write)	
A5	Mother's occupation (write)	
A6	Number of siblings	
A7	Number of family members	
A8	Type of area you grew up (give tick)	1= Divisional city 2= District level town 3= Upazila level town

		4= Union and village level area
A9	Religion	1= Muslim 2= Hindu 3= Buddhism 4= Christianity 5= Others
A10	How do you manage your expenses? (Multiple responses possible)	1= support from family members 2= self-income 3= study loan 4= scholarship

### Section B: Consumption of junk food and fast-food and related expenditure

No.	Questions/items	Response
B1	Did you eat any fast-food or street food in last 7 days?	1= yes 2= no
B2	If yeas, how many days did you eat any fast-food and street food in last 7 days?	_____ days
B3	Which of the following items do you eat most frequently?	1= fast foods in restaurants 2= street foods 3= foods from vendors
B4	Why do you like to eat these foods?	1= feels tasty to me 2= easily available 3= dissatisfied with regular meals 4= offered by the friends
B5	While eating these foods, whom are you usually accompanied by?	1= nobody/alone 2= friends 3= family members
B6	Usual time of fast-food consumption	1= morning/mid-morning

		2= noon 3= afternoon 4= evening 5= night
B7	How much did you spend for these foods in last 7 days?	BDT_____
B8	On an average, how much do you pay for these foods per day?	BDT_____
B9	Does paying for fast-food or street food pose extra pressure on your other monthly expenditure?	1= yes 2= no

### Section C: Health related information

No.	Questions/items	Response
C1	Body weight (Kg)	
C2	Height	___feet ___inches
C3	Did you suffer from any disease in last 1 month?	1= yes 2= no
C3.1	If yes, what kind of diseases? (Please write)	
C4	Do you have any problem with digestion (gastric related problem)?	1= yes 2= no
C5	Do you need to regularly take any medication for any purposes?	1= yes 2= no

