"Education for Knowledge, Science and Culture"

-Shikhanmaharshi Dr. Bapuji Salunkhe

(स्वायत्त) कोल्हापूर

VIVEKANAND COLLEGE, KOLHAPUR (Autonomous)

DEPARTMENT OF STATISTICS

A PROJECT REPORT
on
"A Statistical Study on the Trends of Fast-food Consumption"

Submitted by

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Ms. Shinde Manisha
Ms. Tandale Gouri

in partial fulfillment for the award of

the degree of

BACHELOR OF SCIENCE

in

STATISTICS

2022-23

(स्वायत्त) कोल्हापूर

VIVEKANAND COLLEGE, KOLHAPUR(Autonomous)
DEAPRTMENT OF STATISTICS

Certificate

This is to Certify that,

Sr. No.	Name	Roll No.
1	Ms. Jadhav Shreya	8338
2	Ms. Patil Prajakta	8349
3	Ms. Shinde Manisha	8354
4	Ms. Tandale Gouri	8357

Have satisfactorily completed the project work on "**A Statistical Study on the Trends of Fast-food Consumption**" as a part of skill enhancement course for **B. Sc. III**, prescribed by the Department of Statistics, *Vivekanand College, Kolhapur (Autonomous)* in the academic year **2022-23**.

This project has been completed under our guidance and supervision. To the best of our knowledge and belief, the matter presented in this project report is original and has not been submitted elsewhere for any other purpose.

Project Guide

(Ms. Pawar V. V.)

Examiner

Head

(Ms. Pawar V. V.)
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DEPARTMENT OF STATISTICS
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(AUTONOMOUS)

ESTD
JUNE
1964
KOLHAPUR - 416003

<u>DECLARATION</u>

Respected Sir,

I undersigned hereby declare that this project entitled **"A statistical study on the trends of fast-food consumption"** is conducted under the guidance of **Ms. Varsha Pawar madam** this is our original work. The empirical finding in the report is based on the work conducted by us personally & is not a reproduction of any source.

If our work is found to be copied, then we will be liable to be punished under the rule.

Date: -

Place: - KOLHAPUR

Miss. Prajakta Patil
Roll No: 8349

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Miss. Gouri Tandale
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ACKNOWLEGEMENT

This report has been made through direct & indirect cooperation of various person for whom we wish to express our appreciation & gratitude.

We are very thankful to **Ms. Varsha Pawar madam** for guiding throughout our project & exceeding useful cooperation during the period with discussion & guidance to success our project works.

Words are insufficient to express our appreciation for the valuable advice & continuous motivation provided by BSc. Department Statistics of Vivekanand College. We take this opportunity to express our deep gratitude to **Ms. Varsha Pawar (Head Dept. of Statistics).**

Miss. Prajakta Patil
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Miss. Shreya Jadhav

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Miss. Manisha Shinde
 Roll No:8354
Miss. Gouri Tandale
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INDEX

INTRODUCTION OF PROJECT

Fast food is the term given to the food that can be prepared and served very quickly. Any meal with low preparation time can be considered to be fast food. The concept of fast-food pops-up during 1920's first witnessed their rapid.

The idea of ready-cooked food for sale is connected with urban development. In Accident Rome cities, there where street stands that sold bread and wine. A fixture of East Asian cities is the noodle shop. In the French Speaking Nation of West Africa, arrange of ready to eat grilled meat sticks were widely sold. Popular Indian Fast-Food dishes include pizza, burger, sandwich etc.

Our main objective in this project is to study the trends of fast-food consumption by the students of Vivekanand college, Kolhapur.

Famous Eating Points in Kolhapur

Harmful effect of fast food on health

- ❖ Regular consumption of fast food is one of the leading factors responsible for obesity.
- ❖ Consumption of soft drinks has been associated with excess weight gain and an elevated risk for the development of type 2 diabetes.
- ❖ Fast food diet is a major cause of heart diseases.
- ❖ Research has suggested that diets high in fat may also impair essential brain functions, like concentration and memory.
- ❖ Lack of vital oxygen, nutrients and proteins particularly can stale your brain cells temporarily.
- ❖ High cholesterol resulting from food puts under strain on the liver, causing long term damage to this essential organ.

OBJECTIVES

Objectives of this project work are as follows:

1) To find out how many students eat fast food.
2) To find out which is the most preferred fast food amongst student.
3) To find out which is the most preferred fast-food location amongst students.
4) To compare the trends of fast-food consumption according to time.
5) To study the consumption of fast food amongst different faculty.

COLLECTION OF DATA

In this project, we want to study the impact of fast food on the students of Vivekanand college Kolhapur. We have collected the data by using SRSWOR method.

We have selected a sample of 120 students. We have collected the information about place of fast-food stores, visiting times, different fast foods. We have prepared a questionnaire which overlaps all the maximum characteristics of a good questionnaire.

Statistical tools used for analysis

❖ Diagrammatical representation of data
1. Pie Chart
2. Bar Diagram
3. Sub-divided Bar Diagram

1)Test for proportions
2)F-Test of equality of variance of two populations

Software used:

R Software

TECHNIQUES

The data classified according to many characteristics. Various charts have been drawn in order to understand trends of fast-food consumption. The Chi square test for independence of two attributes is applied for testing the consumption of fast food and gender is independent or not and Confidence interval for average cost spent on fast food and test of population proportion for proportion of male and female fast-food eaters is equal or not.
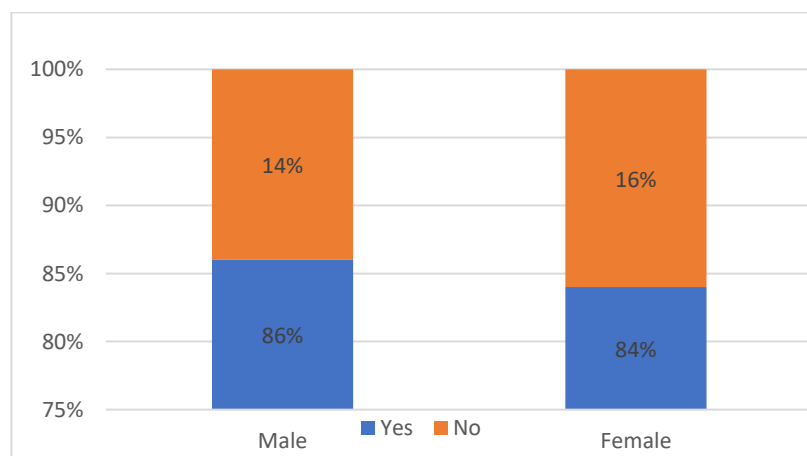
DIAGRAMMATIC REPRESENTION OF DATA

Devision:

Fast food eaters and non-eaters

Yes
No

15%

85%

Interpretation:

1) From the above pie chart, it can be said that 85% students eat fast food and 15% students do not eat fast foods.

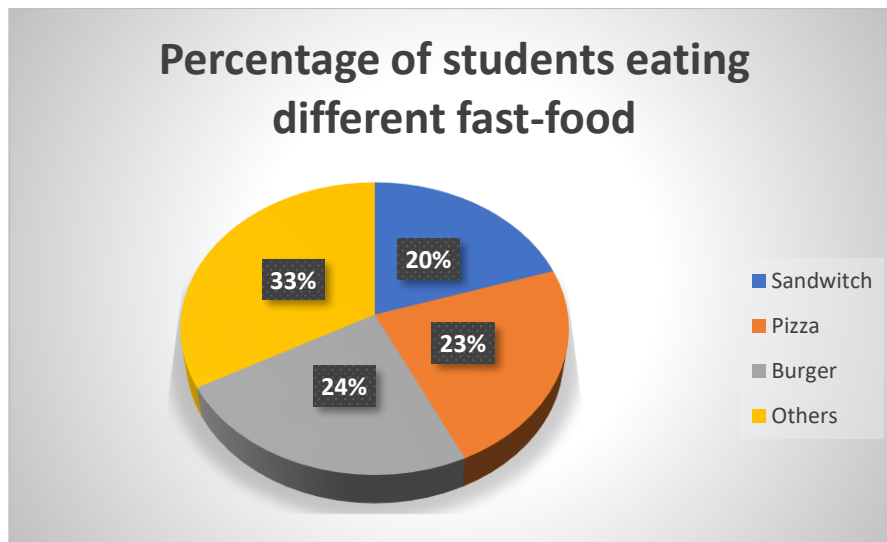## Gender Wise division:

Yes ■ No

Male — 86% / 14%
Female — 84% / 16%

Interpretation:

- ➢ From above bar diagram we conclude that 86% male students eat fast foods.
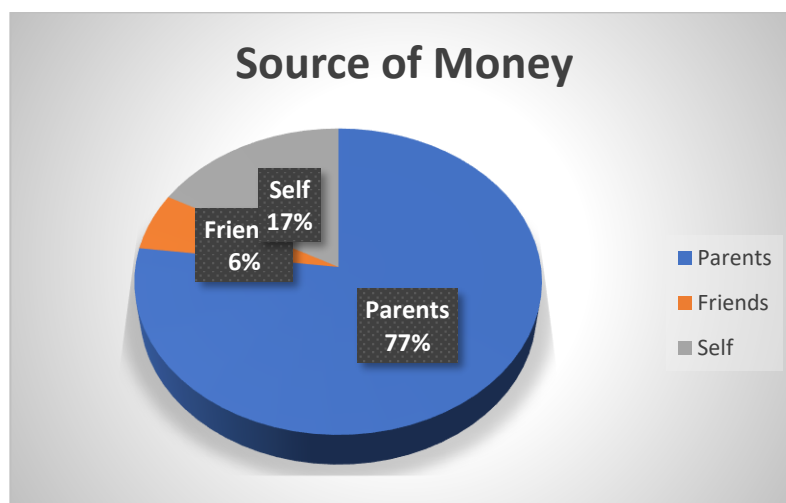- ➢ From above bar diagram we conclude that 84% female students eat fast foods
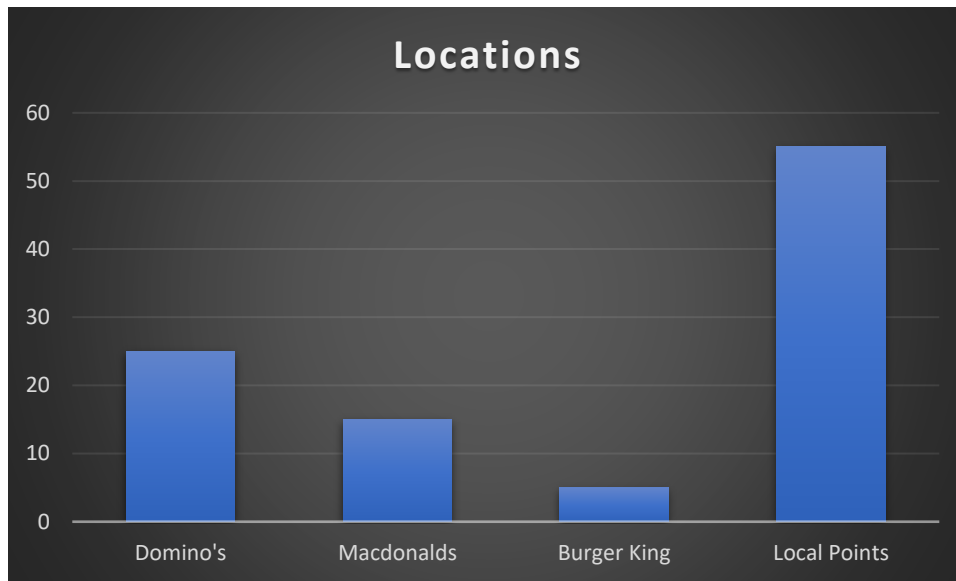
Fast Foods:

Interpretation:

This pie chart shows that 23% students eat pizza, 20% students eat sandwich, 24% students eat burger and 33% students eat other foods.

Source of Money

Interpretation: Most of the students take money from their parents.
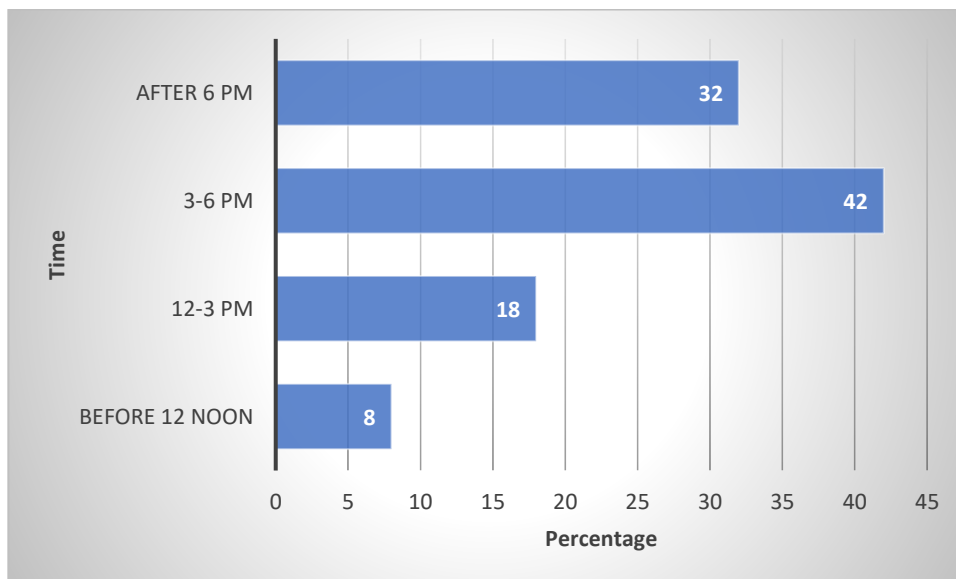
Locations

Interpretation:

Most of the students like to eat fast foods at local eating points.
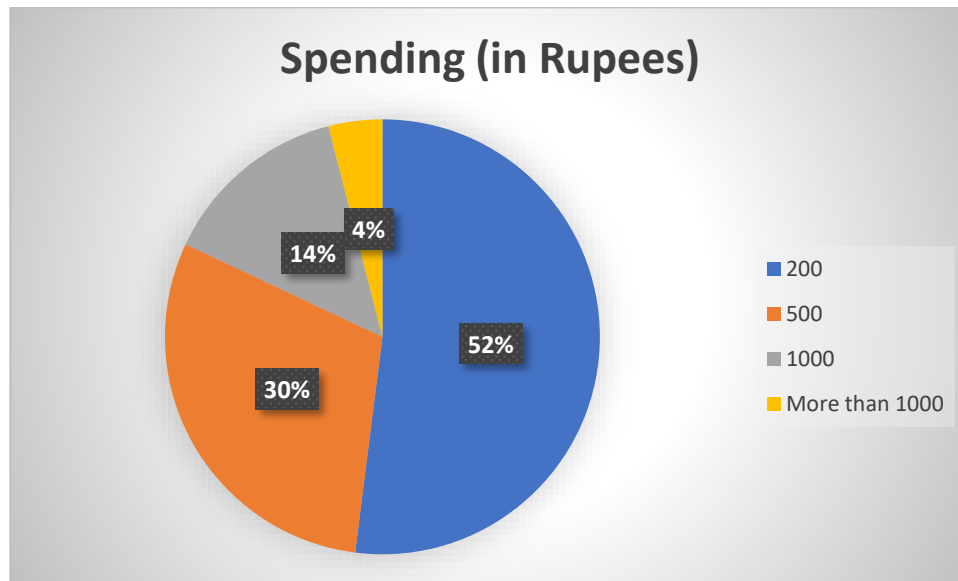
Time

Interpretation

We conclude that from above bar graph most of the students like to eat fast foods in the interval 3-6 pm.
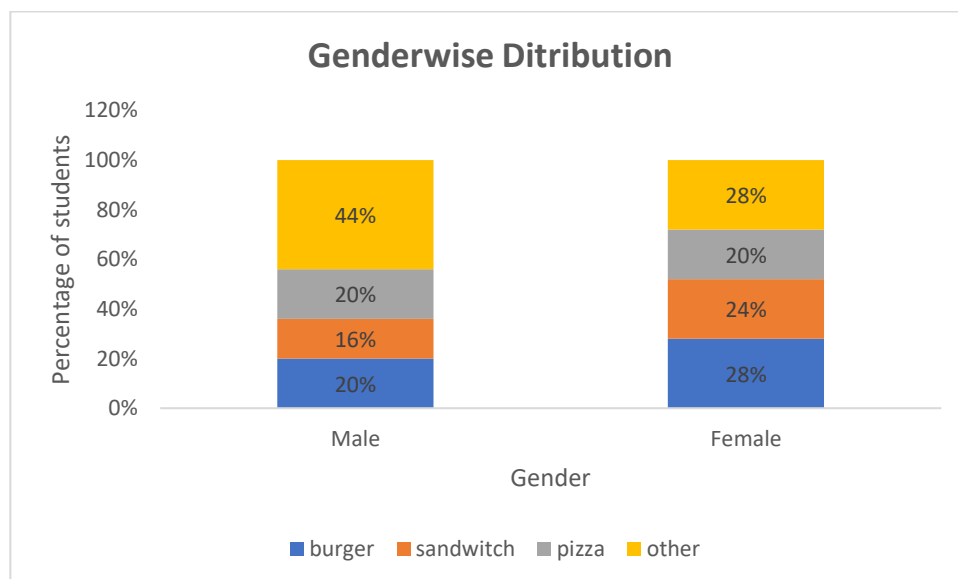
Spending

Spending (in Rupees)

- 200
- 500
- 1000
- More than 1000

52%
30%
14%
4%

Interpretation:

Most of students spend Rs 200/- on fast food per week.

FAST FOOD:

Genderwise Ditribution

Percentage of students

120%
100%
80%
60%
40%
20%
0%

Male: 44%, 20%, 16%, 20%
Female: 28%, 20%, 24%, 28%

Gender

■ burger ■ sandwitch ■ pizza ■ other

Interpretation: Most of the female students like to eat burger and other food while most of the male students like to eat other fast food.

SPENDING MONEY
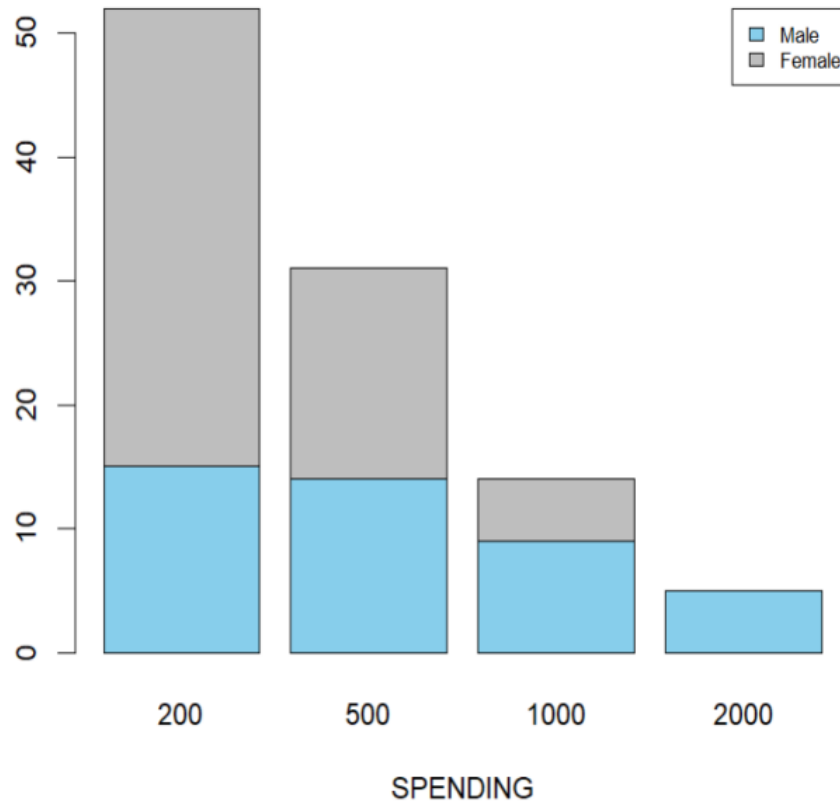
Interpretation:

From above bar graph we conclude that most of male students spends up to Rs 200/- on fast food.

From above bar graph we conclude that most of female students spend up to Rs 200/- on fast food.

1) Chi square test for independence of two attributes.

Consumption of fast food→ ___ Gender ↓	Yes	No	Total
Male	a=43	b=7	a+b=50
Female	c=59	d=11	c+d=70
Total	a+c=102	b+d=19	N=120

Hypothesis:

H0: The consumption of fast food and gender is independent.

Vs

H1: The consumption of fast food and gender is not independent.

Formula:

Under test statistics H_0

Let α is level of proportions under test statistics

$$\chi^2_{cal}= \frac{N(ad-bc)^{\wedge}2}{(a+b)(a+c)(b+d)(c+d)}$$

$$= \frac{120[(43*11)-(7*59)]^{\wedge}2}{(50)(102)(19)(70)}$$

$\boldsymbol{\chi^2}$cal =0.0636

$\boldsymbol{\chi^2}$tab=3.841

$\boldsymbol{\chi^2}$cal<$\boldsymbol{\chi^2}$tab

We accept H_0 at 5% level of significance.

CONCLUSION: Consumption of fast food is independent on gender.

2) Confidence interval for average cost spent on fast food per week/month

$\bar{x}$= 500.83

$\sigma = 437.51$

$Z_{\alpha/2}$=1.96

Calculation:

Lower limit= $(\bar{x} - \frac{\sigma}{\sqrt{n}} Z_{\alpha/2})$

$= (500.83 - \frac{437.51}{\sqrt{120}} 1.96)$

= 423.73

Upper limit= $(\bar{x} + \frac{\sigma}{\sqrt{n}} Z_{\alpha/2})$

$= (500.83 + \frac{437.51}{\sqrt{120}} 1.96)$

=579.13

CONCLUSION: Confidence interval for average cost spent on fast food.

(Lower limit, upper limit)

(423.73,579.13)

3)Test for population proportion:

$Z = \frac{p - P}{\sqrt{\frac{PQ}{n}}}$

$= \frac{0.41 - 0.5}{\sqrt{\frac{0.5*0.5}{120}}}$

Z = 2

Zcal=2

Ztable=1.96

Zcal>Ztable therefore we reject H_o

i.e., Proportion of male and female fast-food eaters is unequal.

<u>CONCLUSION</u>

- ➢ **From our data, 85% students eat fast foods.**
- ➢ **From our data, we conclude that 33% students preferred fast food more than other foods.**
- ➢ **Most of the students preferred local eating points.**
- ➢ **From our data, most of the students are likely to eat fast food in between 3-6 pm.**

REFRENCE

Books

    1)Fundamental of mathematical statistics, S.C. Gupta and V.V.Kapoor.

    2) Basic statistic by B.L.Agarwal

Questionary

A STATISTICAL STUDY ON THE TRENDS OF FAST-FOOD CONSUMPTION

Do you eat fast food.

   a) Yes
   b) No

A) If No,

1) Are the reasons? What
   a) Do not like it
   b) It is expensive
   c) Other

B) If yes,

1) What are the reasons?
   a) Taste
   b) Variety
   c) Time saving
   d) None of these

2) Which place do you prefer eat to food?
   a) Dominos
   b) McDonalds
   c) Burger King
   d) Local eating food

3) Which fast food do you prefer?
   a) Burger
   b) Sandwich
   c) Pizza
   d) Other

4)Where do you prefer to you eat fast food more?

        a) Eating points

        b) Home

        c)Both

5) During the past one month how many times did eat fast food?

        a) Mostly

        b) Sometimes

        c)Rarely

        d)Can't say

6) At what time do you usually eat fast food?

        a) Before12 Noon

        b) 12-3 PM

        c) 3-6 PM

        d) After 6 PM

7) On an average how much you individually spend money for fast food meal per month? (Approx)

        a) 200 RS

        b) 500 RS

        c) 1000 RS

        d) More than 2000 RS

8) What the source of money you spend on fast food?

a) Self

b) Parents

c) friends

9) Which factor influences the selection of fast food?

a) Hunger

b) Cost

c) Quality

d)Mood

10) Do you think fast food is unhealthy?

a) Yes

b) No

11) Do you eat more when you are in stress?

a) Mostly

b) Rarely

c) some times

d) can't say

12) Have you ever faced any health problems after eating fast food?

a) Yes

b) No

13) Do you eat fast food in spite of fact that it lacks nutritive values?

a) Yes

b) No