Health Survey in an Urban Area of Chandauli

A PROJECT REPORT FOR
SEMESTER 6
OF
B.Sc. (Hons.) STATISTICS-2024

STB-607

UNDER SUPERVISION OF:

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CERTIFICATE

This is to certify that the data in this report entitled "Health Survey in an Urban Area of Chandauli" has been collected, tabulated , analysed , interpreted and presented by Manami Das student of B.Sc. Semester VI , Statistics (hons.)

This project has been completed in satisfactory manner as a partial fulfillment for the course of B.Sc. Statistics (hons.) for the session 2023-24 of Banaras Hindu University under the guidance of professor Dr. Alok Kumar .

Date:

Head of the Department

External Examiner

Project Guide

ACKNOWLEDGEMENT

It is a genuine pleasure to express my deep sense of gratitude to my guide Dr. Alok Kumar, professor, Department of Statistics, Banaras Hindu University, Varanasi, Uttar Pradesh for his timely advices, meticulous scrutiny, scholarly advices and constant encouragement and support throughout the project work. This has helped me to a very great extent to accomplish my task.

I am very thankful to the Head of Department of Statistics, Professor Dr. Gyan Prakash Singh , for allowing me to make this project.

I owe a deep sense of gratitude to many of my batchmates for their invaluable support and suggestions which they delivered whenever I felt their need.

I shall be failing my duty if I don't express my sincere thanks to my neighbors who were very cooperative and kind enough to be the respondent and give some of their valuable time to answer the questions for the Researcher-administered questionnaires.

ABSTRACT

This project is based on study based on primary data or cross-sectional data. This Project aims to know about the health related problems faced by people residing in an urban area in Chandauli District.

This project also aims to know about diseases prevalent in the area in the months of December, January and February.

The data collected is also used to know about the symptoms faced by the people residing in the area.

The survey included the preference of people suffering from any ailment to consult with any medical professional, if there is any relation of gender or income with the same etc.

CONTENT

CHAPTER 1. INTRODUCTION

In the late 2023 and early 2024 the cases of various disease like dengue and typhoid rose in few areas of Chandauli and nearby areas.
Hence, this survey is used to know the diseases in this time with the most common observed symptoms among the residents and the precautionary measures taken by them for it's cure.
There were even some cases in which the medical practitioner couldn't identify the diseases for the symptoms shown.

World Health Organization has introduced International Statistical Classification of Diseases and Related Health Problems(ICD) which serves a broad range of uses globally and provides critical knowledge on the extent, causes and consequences of human disease and death worldwide via data that is reported and coded with the ICD. Clinical terms coded with ICD are the main basis for health recording and statistics on disease in primary, secondary and tertiary care, as well as on cause of death certificates.
For more than a century, the International Classification of Diseases (ICD) has been the basis for comparable statistics on causes of mortality and morbidity between places and over time.

The ICD captures factors influencing health, or external causes of mortality and morbidity, providing a holistic look at every aspect of life that can affect health.

These health statistics form the basis for almost every decision made in health care today – understanding what people get sick from, and what eventually kills them, is at the core of mapping disease trends and epidemics, deciding how to programme health services and allocate health care spending.

Some basic terms used:

Disease is often used more broadly to refer to any condition that causes pain, dysfunction, distress, social problems, or death to the person affected, or similar problems for those in contact with the person.
Morbidity refer to the existence of any form of disease, or to the degree that the health condition affects the patient.
Acute Disease is a short-lived disease.
Cure is the end of a medical condition or a treatment that is very likely to end it, while remission refers to the disappearance, possibly temporarily, of symptoms.
Symptoms and Sign are the observed or detectable signs, and experienced symptoms of an illness, injury, or condition.
Signs are objective and externally observable; symptoms are a person's reported subjective experiences. A sign for example may be a higher or lower temperature than normal, raised or lowered blood pressure or an abnormality showing on a medical scan. A symptom is something out of the ordinary that is experienced by an individual such as feeling feverish, a headache or other pains in the body.

CHAPTER-2
METHODOLOGY

2.1 SURVEY:

The survey is one of the most common methods of collecting data. The person is interviewed based on a questionnaire. Surveys can be carried out via telephone or in writing (and with greater frequency, via the internet). Respondents give their own answers in all cases.

There are two types of survey as per units selected for the survey:

- **Census Survey:** Also known as complete enumeration is the type of survey in which each and every unit of population is examined for the characteristics under study.
- **Sample Survey:** Only a part of population is selected and examined hence the process used is sample enumeration or sample survey.

This is done for various reasons but the prominent ones are:

- To reduce time required
- To reduce cost
- To get better quality of data

There are 4 types of survey as per deployment methods:

- Online survey
- Paper Survey
- Telephonic Survey
- One-to-One Interviews

The method used for the data collection in this project is One-to-One interview .
The one-to-one interview helps researchers gather information or data directly from a respondent. It's a qualitative research method and depends on the knowledge and experience of a researcher to frame and ask relevant questions one after the other to collect meaningful insights from the interview.

For this survey systematically the households were chosen in the ward and one (preferably the eldest female) member was interviewed to get the information about the family.

PERIOD OF STUDY: The survey was conducted in the months of February and march to gather the information about the symptoms seen in people in the months of December, January and February.

2.2 AREA

The survey was conducted in an urban area of the Chandauli District.
Due to residing in a locality in Ward 17, of Mughalsarai the place was chosen to conduct the survey.

Mughalsarai, officially known as Pandit Deen Dayal Upadhyaya Nagar, is a city and a municipal board in the Chandauli district of Uttar Pradesh. Located around 16 kilometres from Varanasi, an important railway junction is situated in the city.

As of 2011 Indian Census, Mughalsarai had a total population of 109,650, of which 57,682 were males and 51,968 were females thus the Average Sex Ratio of Mughalsarai is 901.

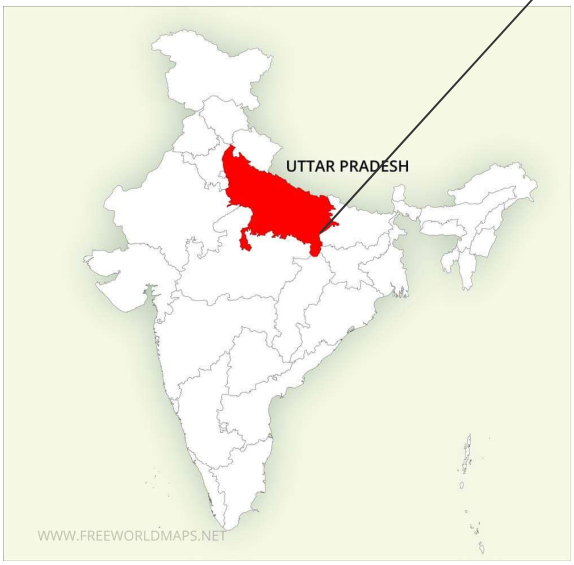
Population within the age group of 0 to 6 years was 14,864. The total number of literates in Mughalsarai was 76,936, which constituted 70.2% of the population with male literacy of 76.0% and female literacy of 63.7%.
The Scheduled Castes and Scheduled Tribes population was 17,943 and 2,093 respectively. Mughalsarai had 16,796 households in 2011.
The total Hindu population in Mughalsarai is 89,303 which is 81.44% of the total population. Also the total Muslim population in Mughalsarai is 18,704 which is 17.06% of the total population.

In Mughalsarai Nagar Palika Parishad out of total population, 29,022 were engaged in work activities. 66% of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 34% were involved in Marginal activity providing livelihood for less than 6 months. Of 29,022 workers engaged in Main Work, 368 were cultivators (owner or co-owner) while 817 were Agricultural labourers.

A ward is a local authority area, typically used for electoral purposes. Mughalsarai is further divided into 25 wards where elections are held every 5 years.

WARD 17

The number of people residing is 3677 with literacy level 69.1% and sex ratio 957.



2.3 STEPS

The different steps in the survey are:

1. **Defining the Objective:** The objective of this project is to:

- To know the diseases diagnosed in the people and their symptoms.
- To know the dependence of factors like gender, education qualification and family income on the utilization of medical assistance.
- To know if there is any dependence of age to morbidity.

2. **Defining the Population:** The population selected here is Ward No. 17 of Mughalsarai.

3. **Preparing the Questionnaire:** The questionnaire finalized is attached at the end of the project. The questionnaire was tried to be made as brief, practical and as objective as possible. Even though made precise it contained all the necessary and precautionary questions so that none of the responses conflicted with each other. The questionnaire was made to be well understood by the surveyor. The questionnaire was not made to be filled by the surveyee .

4. **Choice of Sampling Units:** The sampling frame was prepared for selecting units. Map was used for this door-to-door survey. The frame used here list only clusters. The households which could be sampled were identified.

5. **Drawing the Samples:** The convenience sampling is used. It is a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access. This can be due to geographical proximity, availability at a given time, or willingness to participate in the research. Sometimes called accidental sampling, convenience sampling is a type of non-random sampling.

6. **Deciding the method of data collection:** The method used was interview method. With few non-response the data collection was completed in almost two months.

7. **Tabulation and Analysis of data:** The tabulation of the data was done in MS Excel by manually feeding the data collected. The primary table was further utilized for deriving necessary estimates for population characteristics, for presenting the data using various descriptive statistical tools and diagrams like bar diagram, pie diagram etc. Chi-Square test was used to check the association between some attributes and regression analysis was used to estimate relation between a response variable and predictor. MS-Power Point was used to compile and frame the whole analysis in presentable manner.

2.4 PRESENTATION OF DATA

After the data was collected and fed in the excel for tabular representation like shown in the table 1 below , various factors could be grouped to get frequency, this gave frequency data which is treated for various purpose in further pages.

Diagrammatic Representation of data: For effective representation of compiled data , diagrams can be used , unlike the representation of exact quoted values in tables diagram gives only a rough idea about the variation in data.

Table 1

	Family Details						Personal Details					
S.No.	Locality	H.No	Caste	Religion	Family Type	Family Income	Member No.	Age	Gender	Education Qualification	Profession	Health problem within 3 months
1	Ravinagar	1	OBC	Hindu	Nuclear	6,00,000.00	1	50	Male	Graduate	Gov Job	No
2	Ravinagar	1	OBC	Hindu	Nuclear	6,00,000.00	2	45	Female	Graduate	Home maker	Yes
3	Ravinagar	1	OBC	Hindu	Nuclear	6,00,000.00	3	16	Male	Class10	Student	No
4	Ravinagar	1	OBC	Hindu	Nuclear	6,00,000.00	4	21	Female	UG	Student	No
5	Ravinagar	2	General	Hindu	Nuclear	9,00,000.00	1	60	Male	MA+Bed	Gov Job	No
6	Ravinagar	2	General	Hindu	Nuclear	9,00,000.00	2	83	Female	Middle School	Home maker	No
7	Ravinagar	2	General	Hindu	Nuclear	9,00,000.00	3	51	Female	Class12	Home maker	No
8	Ravinagar	2	General	Hindu	Nuclear	9,00,000.00	4	30	Male	PG	Artist	No
9	Ravinagar	2	General	Hindu	Nuclear	9,00,000.00	5	26	Female	UG	Student	Yes

Types of Diagram used:

Bar Diagram: A bar chart or bar graph is a chart or graph that presents categorical data with rectangular bars with heights or lengths proportional to the values that they represent. The bars can be plotted vertically or horizontally. A vertical bar chart is sometimes called a column chart.
A bar graph shows comparisons among discrete categories. One axis of the chart shows the specific categories being compared, and the other axis represents a measured value. Some bar graphs present bars clustered in groups of more than one, showing the values of more than one measured variable called Multiple bar diagram.

Stacked Bar diagram: The stacked bar chart extends the standard bar chart from looking at numeric values across one categorical variable to two. Each bar in a standard bar chart is divided into a number of sub-bars stacked end to end, each one corresponding to a level of the second categorical variable.

Pie Diagram: A pie chart is a circular statistical graphic which is divided into slices to illustrate numerical proportion. In a pie chart, the arc length of each slice (and consequently its central angle and area) is proportional to the quantity it represents.

Scatter Diagram: A scatter plot is a type of plot or mathematical diagram using Cartesian coordinates to display values for typically two variables for a set of data.

MAJOR VARIABLES:

The major variables involved in this survey are gender, age, annual income, education qualification and profession.
The relation of these variables with the health problems and the health professional consulted are tried to be studied in this survey.

2.5 SUMMARIZATION OF DATA

Raw data is summarized to an easily manageable form. The data may arise in two ways. The quantitative character is called variable or variate and the qualitative character is called an attribute.
Frequency tables , graphical representations and other tools are used to summaries the data to further utilize it for gaining required information.

Measures of Central Tendencies used:

Arithmetic Mean: It is obtained by dividing the sum given values of a variable by their number. If the variable is denoted by **x** and if **n** values of **x** are given then the arithmetic mean of **x** is

$$\text{Mean } (\overline{x}) = \frac{\sum_{i=1}^{n} x_i}{n}$$

Mode: The mode of a variable is the value of the variable having highest frequency.

2.6 Chi Square Test for Independence of Attributes:

A chi-square (χ^2) test of independence is a nonparametric hypothesis test. You can use it to test whether two attributes are related to each other.

When a chi-square test of independence is performed, the best way to organize the data is a type of frequency distribution table called a contingency table.

A contingency table, also known as a cross tabulation or crosstab, shows the number of observations in each combination of groups. It also usually includes row and column totals.

Let the two attributes be A and B, A is divided into r classes and B into s classes, this classification is called manifold classification. The contingency table is rxs manifold contingency table

here $\Sigma^{r}_{i=1} A_i = \Sigma^{s}_{j=1} B_j = N$, where N is total frequency

Now, Expected number of persons possessing the attributes A_i and B_j is

$$(A_i B_j)_o = \frac{(A_i)(B_j)}{N}$$

The test for the independence of attributes is given by

$$\chi^2 = \sum^{s}_{j=1} \sum^{r}_{i=1} \left[\frac{\{(A_i B_j) - (A_i B_j)_o\}^2}{(A_i B_j)_o} \right]$$

The statistic is distributed as χ^2 –variate with (r-1)(s-1) degree of freedom.

If any one or more of the theoretical frequencies is less than 5, then the frequency is needed to be pooled with the preceeding or succeeding frequency and the lost degree of freedom is subtracted for the tabulated value.

CHAPTER-3
ANALYSIS
OF
DATA

3.1 LOCALITY

The survey was done in two neighboring localities in Ward 17 namely Ravinagar and Kailashpuri. A total of 77 families and 369 people's information is collected.

Table 3.1.:

LOCALITY	NUMBER OF FAMILIES	NUMBER OF PEOPLE
RAVINAGAR	44	194
KAILASHPURI	33	175

FIG1:FAMILIES

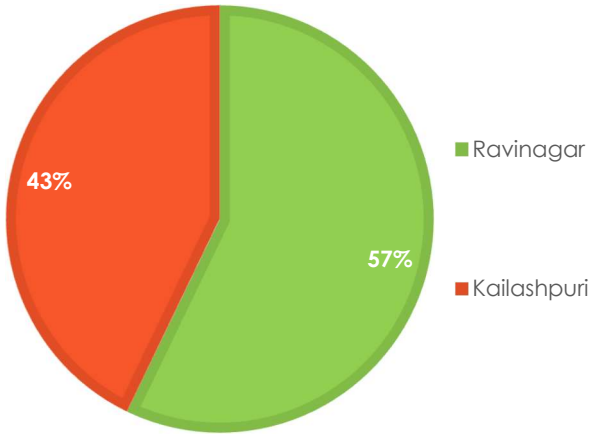
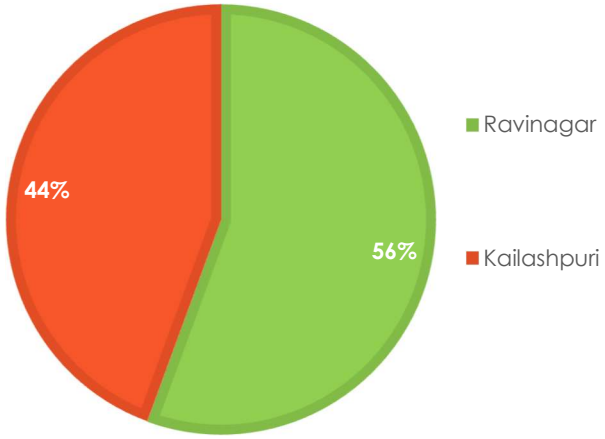


FIG2:RESIDENTS



Interpretation:

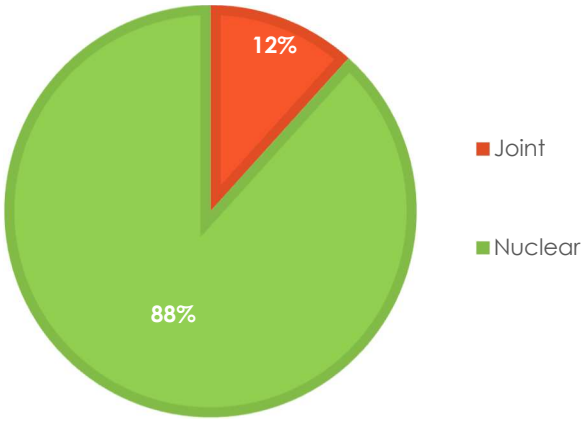
From the above pie charts it can be interpreted that among the data collected 57% of the families and 56% of the people were from Ravinagar whereas 43% families and 44% people resided in Kailashpuri.

3.2 TYPE OF FAMILY

Table 3.2.:

TYPE OF FAMILY	NUMBER OF FAMILIES
Joint	9
Nuclear	68

FIG3:FAMILY TYPE

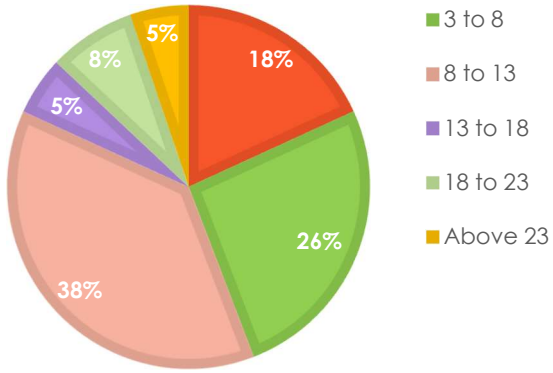


3.3 ANNUAL INCOME OF FAMILY

Table 3.3.:

INCOME(in lakhs)	NUMBER OF FAMILIES
0-3	14
3-8	20
8-13	29
13-8	4
18-23	6
23 +	4

FIG4:
ANNUAL FAMILY INCOME
(IN LAKHS)



Interpretation:

From the figure 3 it is seen that 12% families are joint families and 88% are nuclear families. The pie chart shown in figure 4 shows the annual income of the surveyed families. 38% families have annual income in the range of 8 to 13 lakhs, 26% in the range of 3 to 8 lakhs, 18% below 3 lakhs, 8% in the range of 18 to 23 lakhs and 5% each in the range of 13 to 18 lakhs and above 23 lakhs.

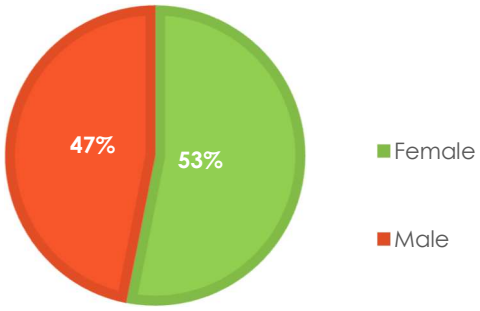
3.4 DEMOGRAPHIC DETAILS

3.4.1. GENDER

Table 3.4.:

	FREQUENCY
Female	196
Male	173

FIG5:GENDER

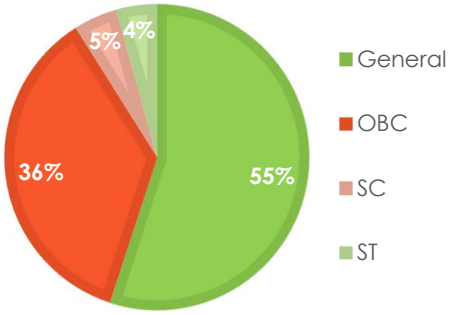


3.4.2. CASTE

Table 3.5.:

	FREQUENCY
General	203
OBC	133
SC	17
ST	16

FIG6:CASTE

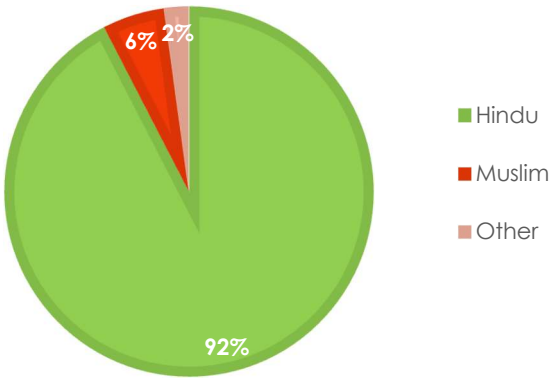


3.4.3. RELIGION

Table 3.6:

	FREQUENCY
Hindu	341
Muslim	20
Other	8

FIG7:RELIGION

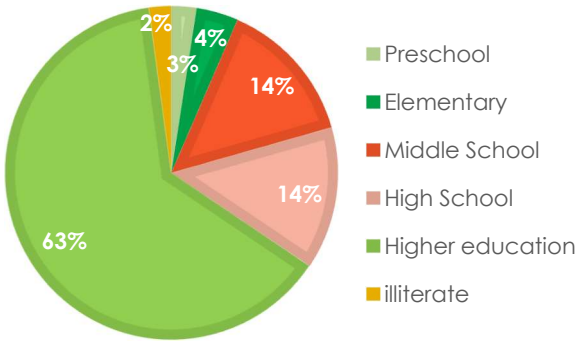


3.4.4. EDUCATION QUALIFICATION

Table 3.7:

	FREQUENCY
Preschool	9
Elementary	15
Middle School	52
High School	51
Higher education	234
Illiterate	8

FIG.8 EDUCATION QUALIFICATION



3.4.5. AGE GROUP

Table 3.8:

	FREQUENCY
0 - 9	16
9-18	40
18 - 27	107
27 - 36	36
36 - 45	34
45 - 54	88
54 - 63	31
63 - 72	6
72+	11

3.4.6. PROFESSION

Table 3.9:

	FREQUENCY
Home Maker	90
Student	150
Government job	28
Private job	12
Worker	2
Businessman	35
Teaching profession	15
Other	29
Retired	4
Too young	4

FIG.9 AGE

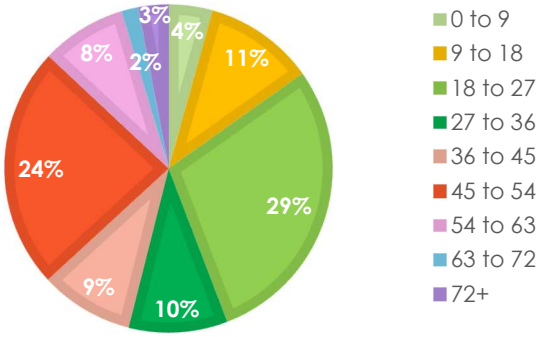
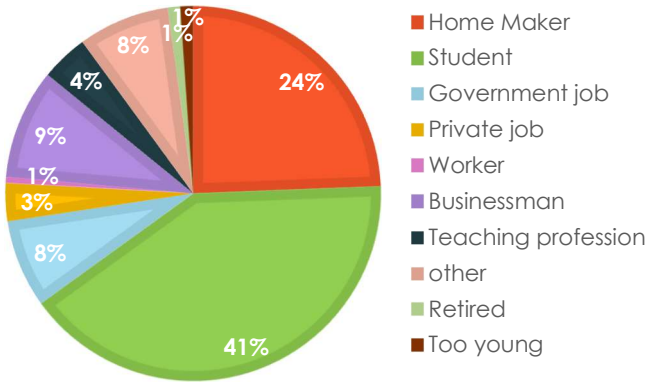


FIG.10 PROFESSION



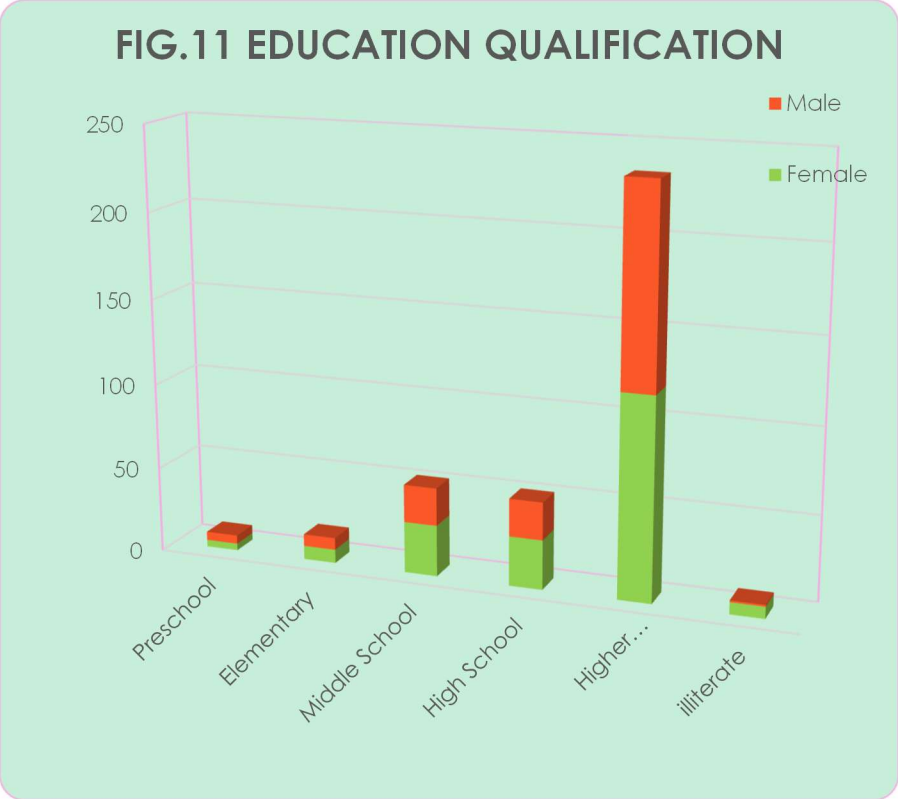
Interpretation:

From the figure 5 it is seen that 53% of the surveyee are female whereas 47% are male. Figure 6 shows 55% belongs to general, 36% to OBC, 5% to SC and 4% to ST category as per their caste. Figure 7 shows 92% of the sample are from Hindu religion, 6% from Muslim and 2% have other religion. Figures 8 tells about the education qualifications and 63% are seen to have higher education. Figure 9 distinguishes age group the people belongs to, 29% are seen to be of age 18 to 27 and 24% are of the age group 45 to 54. Figure 10 gives information about the profession of people, 41% of the sample is observed to be students and 24% are home maker.

3.4.7. EDUCATION QUALIFICATION AND GENDER RELATION

Table 3.10:

	FEMALE	MALE
Preschool	4	5
Elementary	8	7
Middle School	30	22
High School	29	22
Higher education	118	116
Illiterate	7	1



SOME OTHER INFORMATIONS ABOUT THE SAMPLE:

- The average family size is seen to be 4.79.
- The mode family size is 4.
- The female to male ratio for complete sample is seen to be 1.38.
- Most number of joint families were seen to reside in Ravinagar.

3.5 HEALTH PROBLEMS FACED IN DECEMBER (2023), JANUARY AND FEBRUARY(2024)

Table 3.11:

FACED ANY HEALTH PROBLEMS?	FREQUENCY	NEED OF MEDICAL ASSISTANCE?	FREQUENCY	CONSULTED TO	FREQUENCY
Yes	138	Yes	108	Doctor	66
No	231	No	20	Pharmacist	16
				Chemist	26

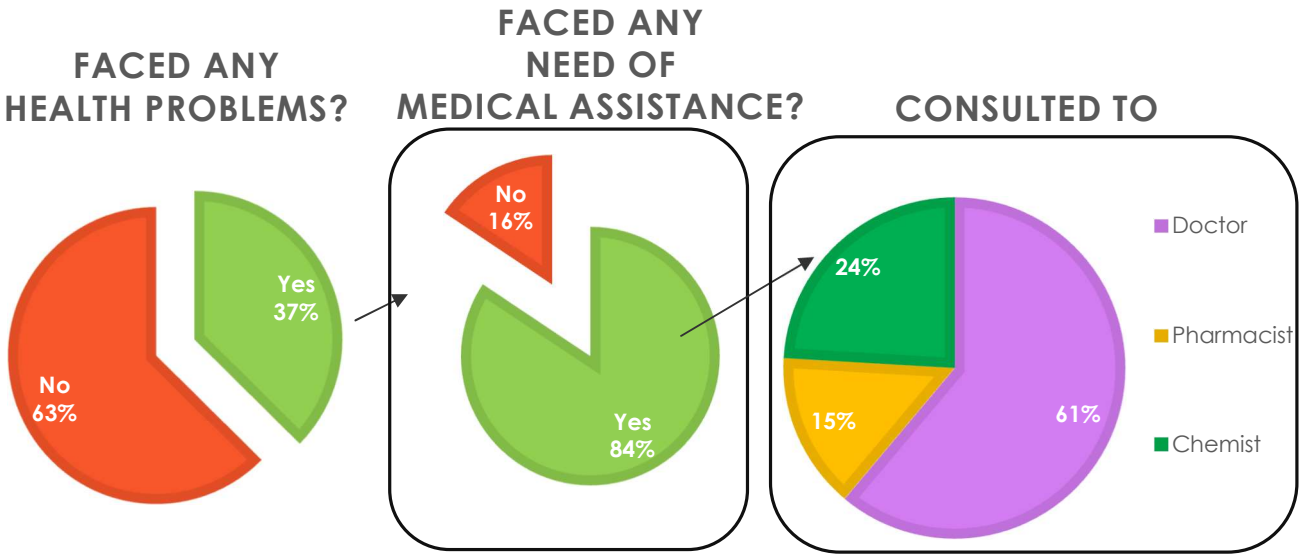


FIG 12:

Interpretation:

From the figure 12 it can be observed that 63% of the surveyee suffered from any health problems in the time period mentioned , among them 84% have consulted by any medical professional for curing their symptoms. 61% consulted doctor, 24% consulted chemist and 15% consulted pharmacist for their medical requirements.

3.6 SYMPTOMS SHOWN

The people who faced health problems in the time period were inquired about their symptoms, which is compiled below:

Table 3.12:

		AVERAGE DAYS IT LASTED			SEVERITY			
	Total number of people	Total	With Medicine	Without Medicine	Mild	Moderate	High	Mode Cure
FEVER	98	4.66	4.65	4.74	13	84	1	Medicine
NAUSEA	13	4.92	7.2	3.5	8	5	0	No special need
PERIODIC FEVER	19	8.16	8.16	-	0	19	0	Medicine
VOMITING	20	2.5	3.33	2.35	17	3	0	No special need
SKIN RASHES	21	10	10	-	0	21	0	Medicine
FATIGUE	35	8.08	9.4	7.87	29	6	0	No special need
SEVERE HEADACHE	46	5.41	6.66	4.36	25	21	0	Medicine
REDNESS OR ITCHING IN EYES	4	5.74	5	6.5	2	2	0	Medicine
BODY ACHES AND BACKACHES	70	7.8	10.06	7.02	48	22	0	No special need
LOSS OF APPETITE	25	3.96	8	2.95	20	5	0	No special need
COUGH	84	6.15	6.79	5.3	36	48	0	Medicine
RUNNY NOSE	67	5.66	6.43	5.3	46	21	0	No special need
SUDDEN WEIGHT LOSS	7	-	-	-	6	1	0	Nutritious Food
SORE THROAT	24	5.79	8	5.21	19	5	0	Gargle
LOW BLOOD PLATELET COUNT	8	-	-	-	0	7	1	Medicine
Others	10	-	-	-	-	-	-	-

It is seen that maximum people suffered from fever and other contagious symptoms followed after it.
Body pain is also seen in large number of people.
For many symptoms the cure is seen to be medicines but there are some symptoms which cured without any special precautionary measures.

FIG.13 SYMPTOMS SHOWN

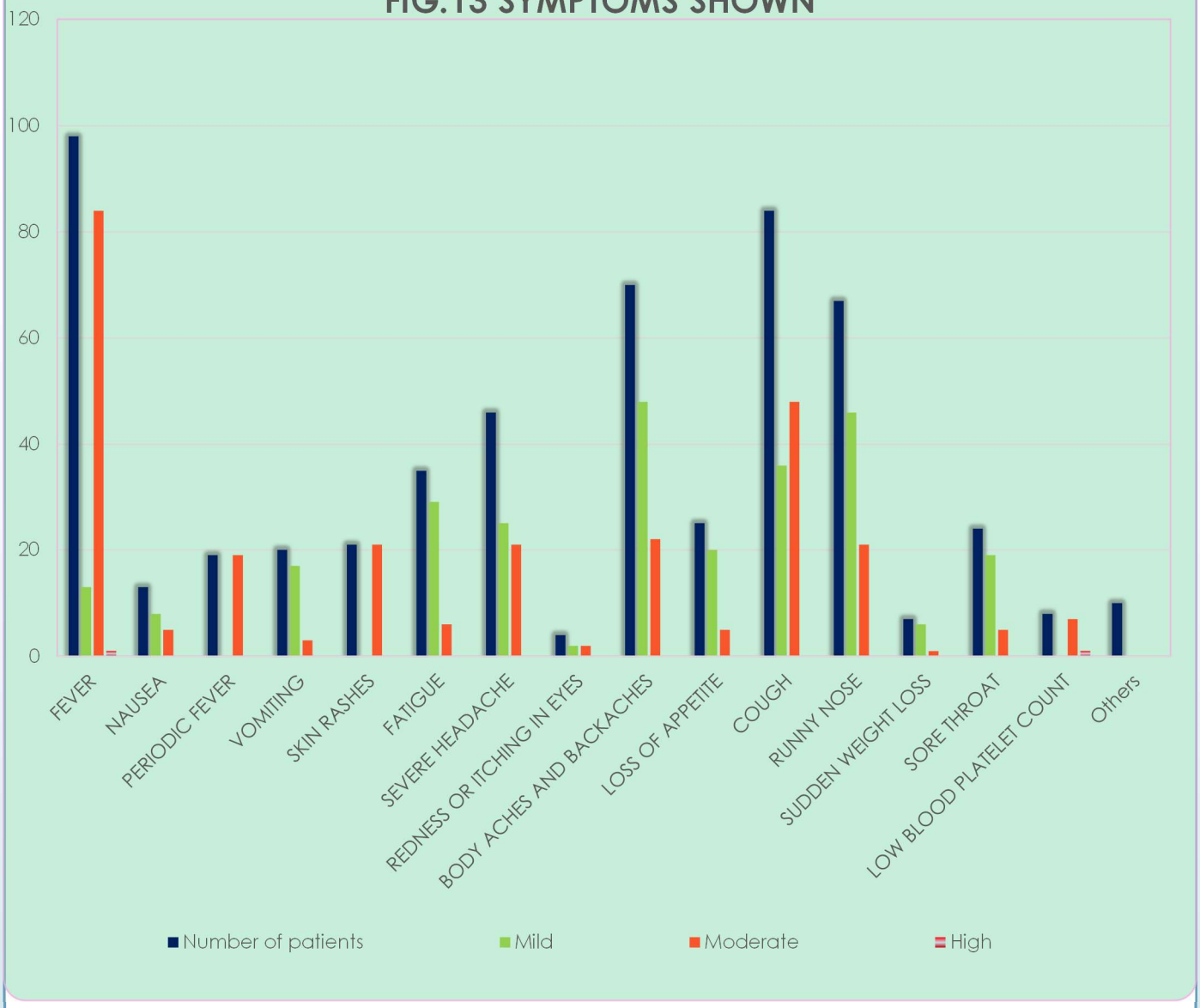
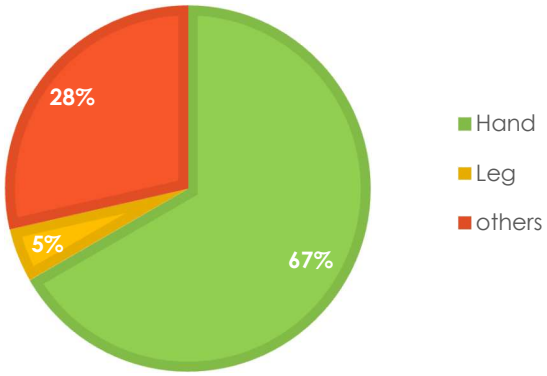


FIG.14 BODY PART WHERE RASHES WERE SEEN



Interpretation:

From the figure 13 it is easier to know and observe the symptoms shown by people and to know their severity. Here mild represents number of cases where any medicine wasn't required for its cure, moderate represents medication was required to cure the symptom and high represents the number of people hospitalized for the symptoms.

It can be seen that there are symptoms like fever and cough for which, most of the people took medication for it's cure.

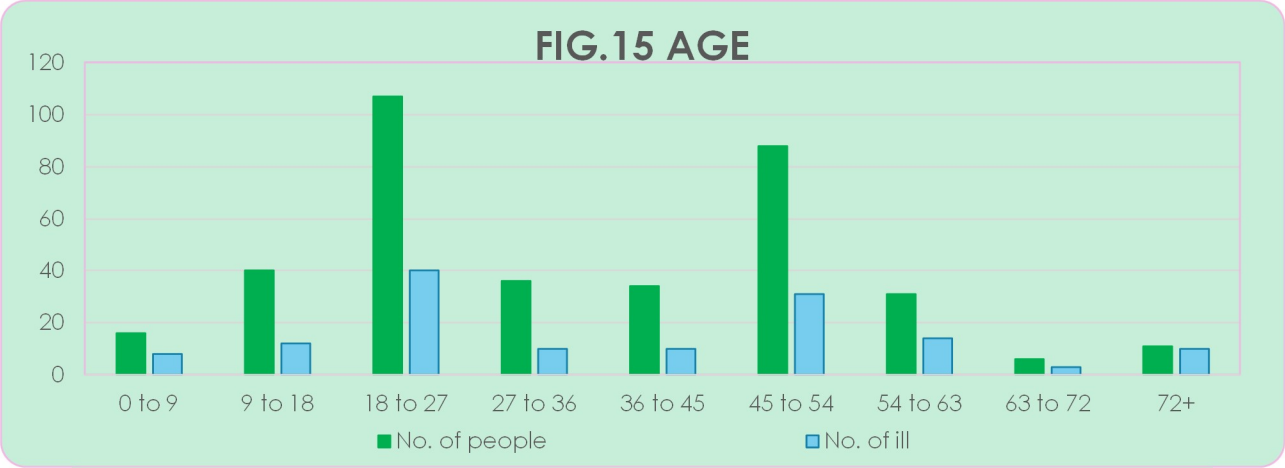
The symptom of skin rashes were cured only by the usage of medicines (in this sample).

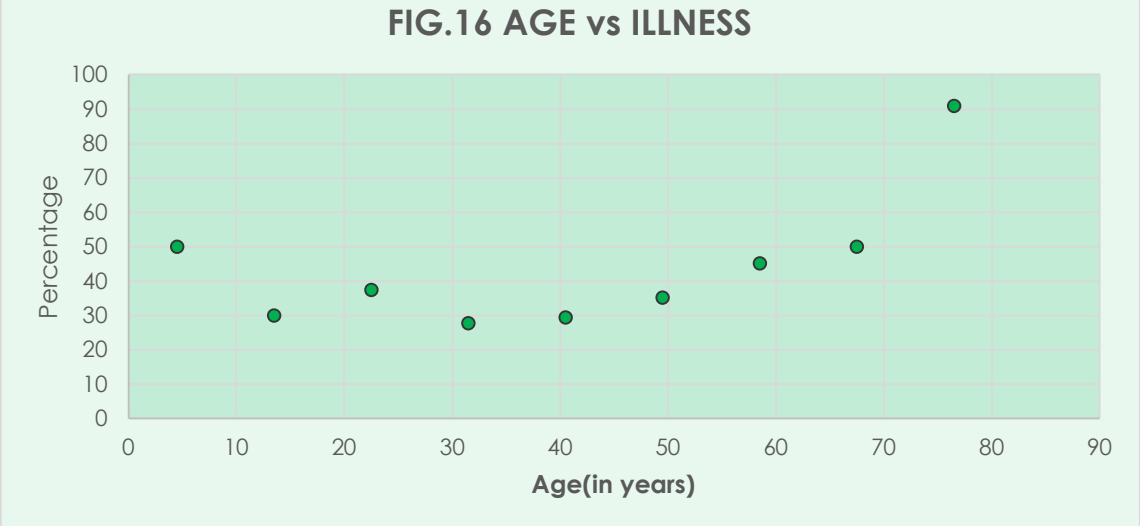
Further the figure 14 shows the part where rashes were prominently seen, for 67% of the people with skin rashes, the rashes were in their hand.

3.7 RELATION OF AGE WITH ILLNESS

Table 3.13:

	TOTAL	WITH HEALTH PROBLEMS	PERCENTAGE
0 - 9	16	8	50
9-18	40	12	30
18 - 27	107	40	37.38
27 - 36	36	10	27.78
36 - 45	34	10	29.41
45 - 54	88	31	35.23
54 - 63	31	14	45.16
63 - 72	6	3	50
72+	11	10	90.91





Interpretation:

From the figure 16 it can be observed that for the given sample good percentage of young children are suffering from any health problems and the percentage reduces with increase in age, becomes similar for middle age and again starts increasing for aged people.

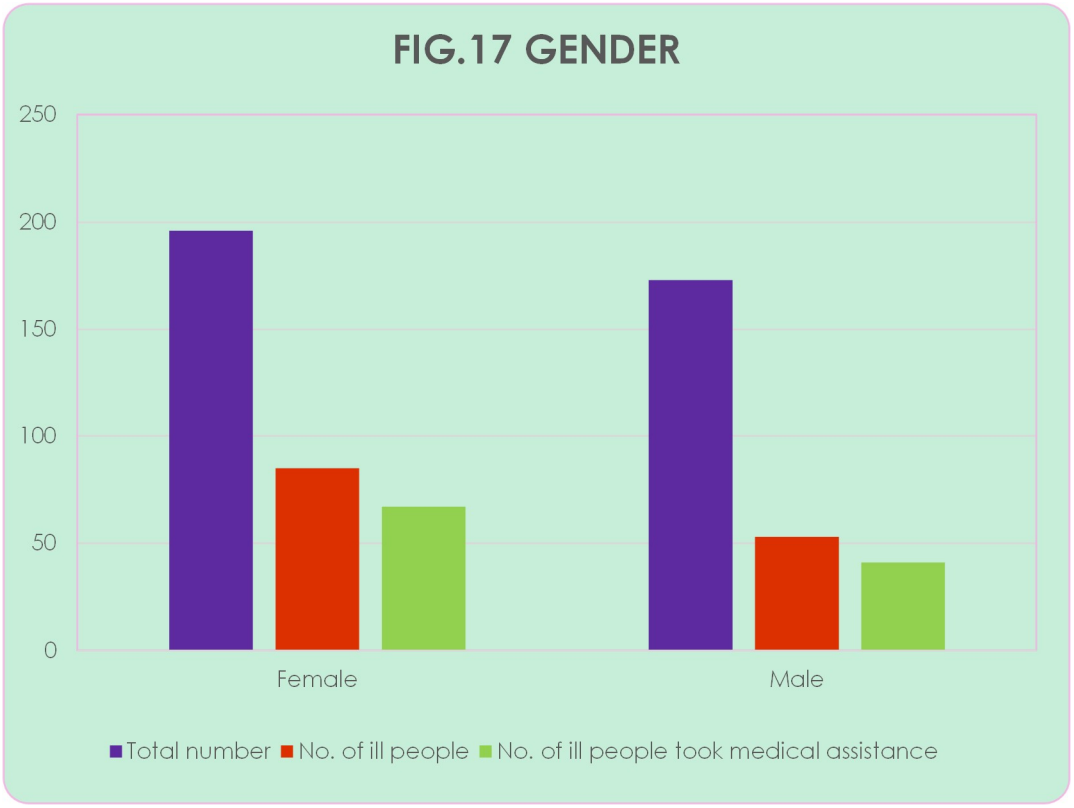
3.8 NEED OF MEDICAL ASSISTANCE

Table 3.11 shows the number of people who needed medical assistance for their symptoms. Now further the data was classified according to its relation to other variables.

3.8.1. GENDER

Table 3.14:

	TOTAL	WITH HEALTH PROBLEM	PERCENTAGE	CONSULTED MEDICAL PROFESSIONAL	PERCENTAGE
Female	196	85	43.37	67	78.82
Male	173	53	30.64	41	77.36



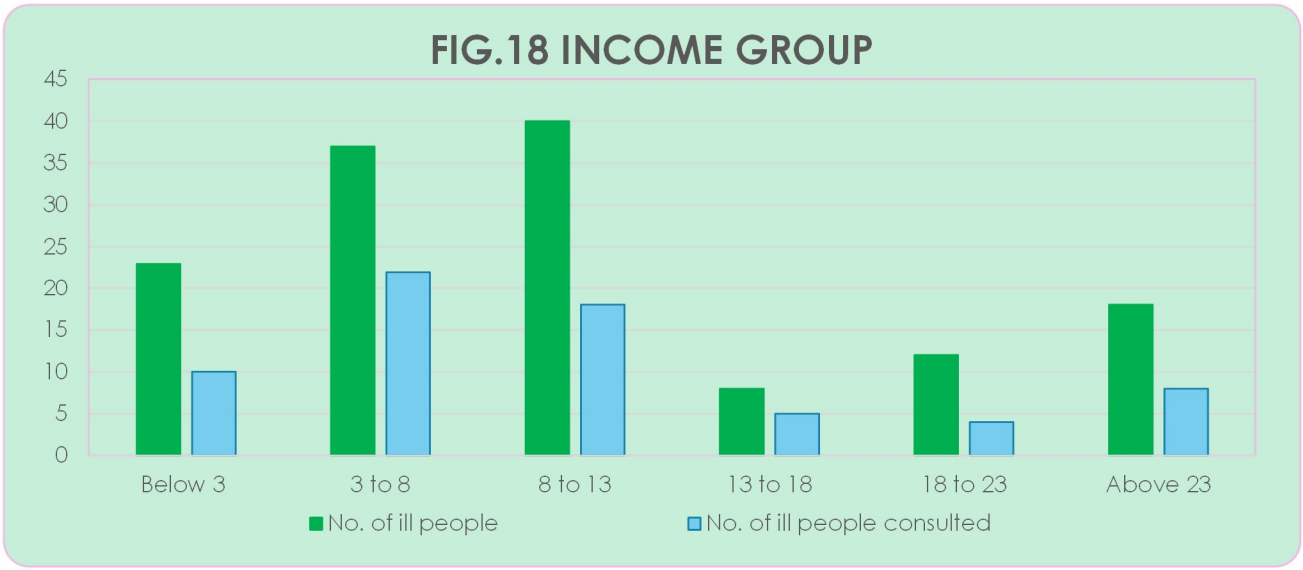
Interpretation:

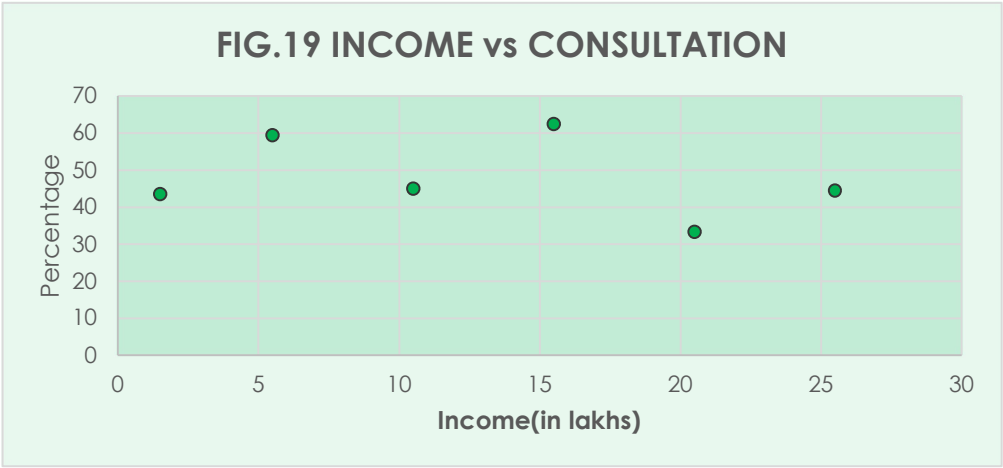
From the table 3.14 it is observed that 77.36% of male consulted a medical professional for cure of their symptoms and 78.82% females did the same.

3.8.2. INCOME

Table 3.15:

	WITH HEALTH PROBLEM	CONSULTED MEDICAL PROFESSIONAL	PERCENTAGE
0-3	23	10	43.48
3-8	37	22	59.46
8-13	40	18	45
13-18	8	5	62.5
18-23	12	4	33.34
23+	18	8	44.44





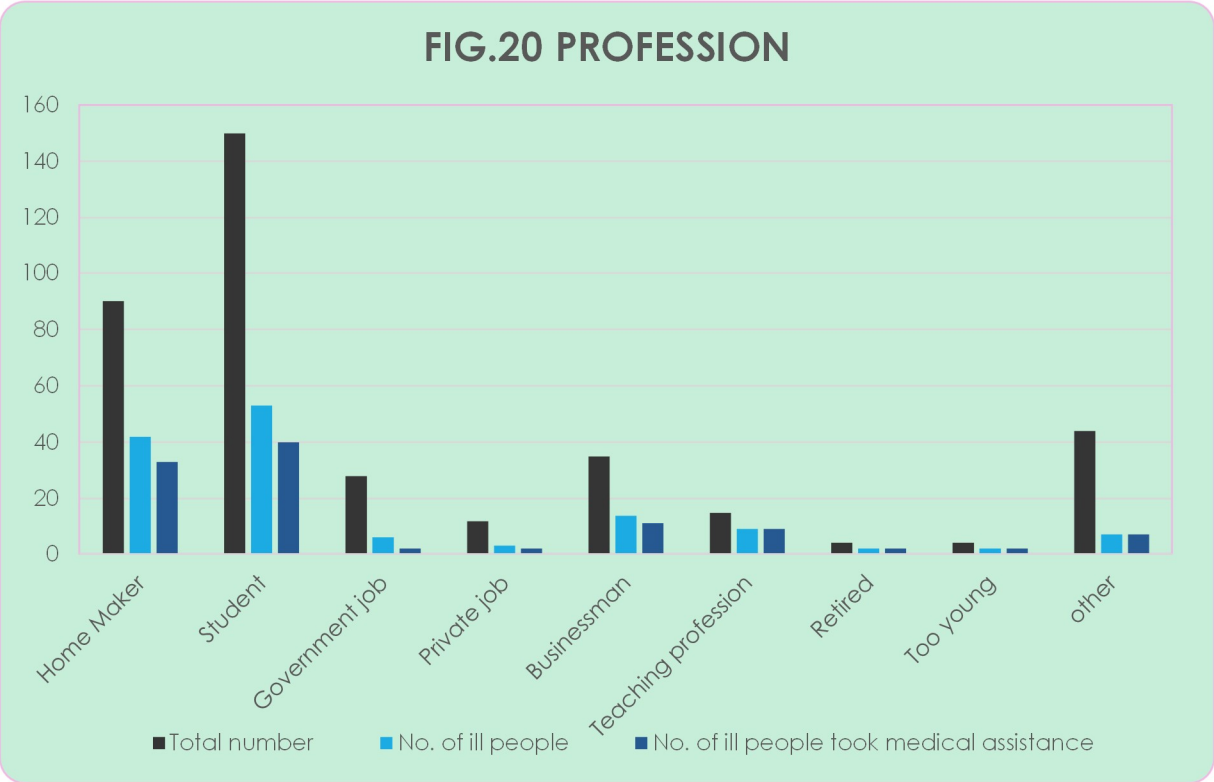
Interpretation:

From the figure 19 it can be observed that for the given sample there is no particular relation between people with health problems belonging to a family of particular income group and whether they are consulting any medical professional.

3.8.3. PROFESSION

Table 3.16:

	TOTAL	WITH HEALTH PROBLEM	CONSULTATED MEDICAL PROFESSIONAL	PERCENTAGE
Home Maker	90	42	33	78.57
Student	150	53	40	75.47
Government job	28	6	2	33.33
Private job	12	3	2	66.67
Businessman	35	14	11	78.57
Teaching profession	15	9	9	100
Retired	4	2	2	100
Too young (toddler)	4	2	2	100
other	44	7	7	100



Interpretation:

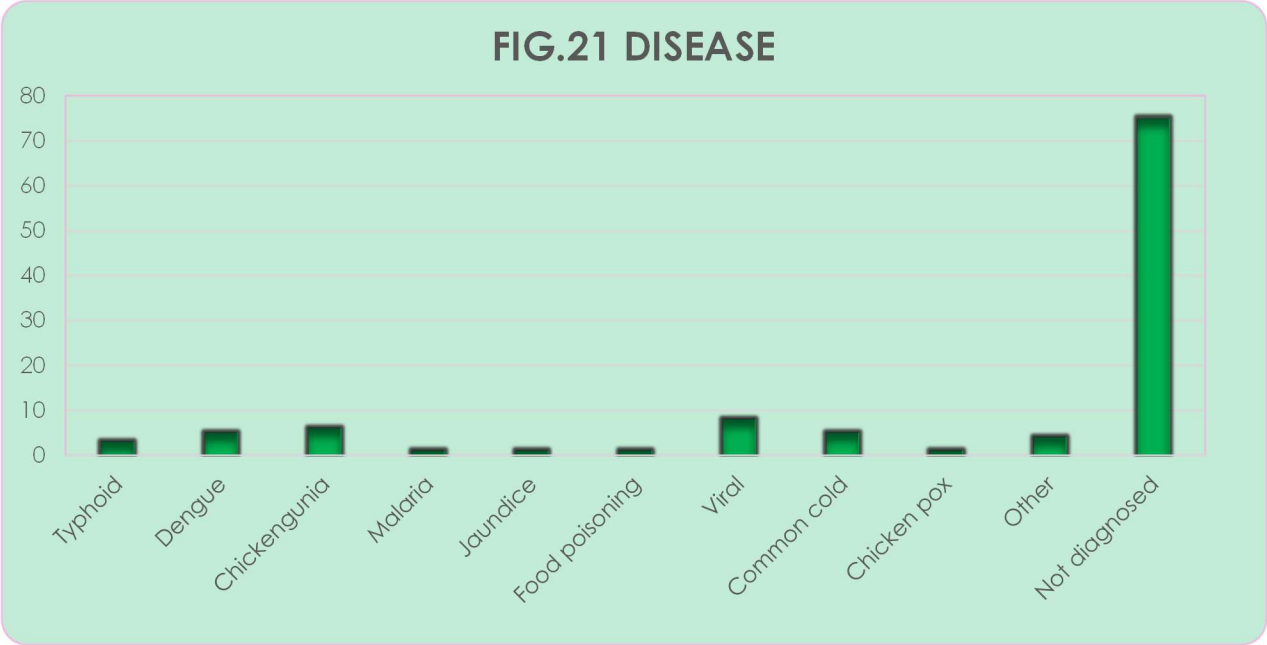
From the figure 20 the frequency of people with any health problem and among them how many have consulted a medical professional can be observed From the table 3.16 it can be seen that all the retired and toddlers suffering from any health problem have taken medical assistance.

3.9 DIAGNOSED ILLNESS

The people who faced health problems in the time period were inquired about their diseases diagnosed by the medical professional, which is compiled below:

Table 3.17:

	FREQUENCY
Typhoid	3
Dengue	5
Chickengunia	6
Malaria	1
Jaundice	1
Food poisoning	1
Viral	8
Common cold	5
Chicken pox	1
Other	4
Not diagnosed	75



Interpretation:

From the figure 21 it can be observed that 69.44% of the people with any health problems weren't diagnosed with any particular disease.

The frequency of other diseases is mentioned in table 3.17.

3.10 DIAGNOSED ILLNESS AND THERE SYMPTOMS

The diagnosed illness and the symptoms shown in the people is compiled below:

Table 3.18:

	Total	Infectious Symptoms	Fatigue and Ache	Appetite Issues	Rashes and Itchiness	Low Blood Platelet Count
Typhoid	3	3	2	2	1	1
Dengue	5	5	5	2	2	3
Chickengunia	6	5	6	1	3	1
Malaria	1	1	1	1	1	1
Jaundice	1	1	1	1	1	1
Food poisoning	1	1	1	1	1	0
Viral	8	7	3	5	0	0
Common cold	5	5	2	2	0	0
Chicken pox	1	1	1	0	1	0
Other	4	3	1	2	1	0
Not diagnosed	75	54	37	43	9	1

Here,

infectious symptoms includes fever, cough, runny nose and sore throat

appetite issues include nausea, vomiting, loss of appetite and sudden weight loss

Table 3.18 shows the symptoms faced by patients of a particular disease in the sample taken. This can be helpful in classifying a disease using the symptoms shown by them.

SOME OTHER INFORMATIONS ABOUT THE SAMPLE:

- The average sick members to total member in a family is found to be 0.37 .
- During the survey 8 cases were found to be ongoing at the time of survey.
- Two people in total were hospitalize among all the people who suffered . One of them was admitted after being diagnosed by Jaundice.
- Among the people who suffered from any symptom 44 of them suffered already from other disease mentioned in table 3.19 and among them 36 took medication for the disease. Few of them suffered from multiple diseases.

Table 3.19:

Disease	Frequency
High BP	13
Diabetes	7
Migraine	2
Tonsilitis	2
Hepatitis B	1
Thyroid	8
Sinusitis	3
Joint Pain	2
Tuberculosis	3
Skin disease	2
Other heart disease	4
Others	11

3.11
ANALYSIS USING CHI SQUARE TEST

3.11. TEST-1

The frequency of people showing any symptoms of any gender and whether they consulted for medical assistance is observed. Then to check their dependence to each other the Chi square test is used

We want to test

Null Hypothesis: H_0: Gender and whether they consulted any medical professional are independent of each other

Alternative Hypothesis: H_1: : Gender and whether they consulted any medical professional are not independent of each other.

The observed and expected frequencies are shown in table 3.20.

Table 3.20:

	OBSERVED FREQUENCY			EXPECTED FREQUENCY			CALCULATION FOR TEST STATISTIC	
Gender	YES	NO	Total	YES	NO	Total	YES	NO
Female	67	18	85	66.52174	18.47826	85	0.003438	0.012379
Male	41	12	53	41.47826	11.52174	53	0.005515	0.019852
Total	108	30	138	108	30			

$$\chi^2 = \sum \frac{(o_i - e_i)^2}{e_i}$$

$$= 0.04$$

Degree of freedom= (2-1)(2-1)=1

Tabulated χ^2 for level of significance (α) 5% is

$$\chi^2_{0.05,1} = 3.84$$

here,

$$\chi^2_{calculate} < \chi^2_{0.05,1}$$

TEST-1

Conclusion: Since the calculated value of test statistic is less than the tabulated value , there is no sufficient evidence to reject the null hypothesis. Hence, we conclude that there is no significant dependence of patient's gender to whether they consulted any medical professional for their cure.

3.11.2 TEST-2

The frequency of people showing any symptoms belonging from a household of particular income range and to whom they consulted for medical assistance is observed. Then to check their dependence to each other the Chi square test is used

We want to test

Null Hypothesis: H_0: Income range and the medical professional consulted are independent of each other

Alternative Hypothesis: H_1: Income range and the medical professional consulted are not independent of each other.

The observed and expected frequencies are shown in table 3.21.

Table 3.21:

Income Range	OBSERVED FREQUENCY					EXPECTED FREQUENCY				
	Doctor	Chemist	Pharmacist	No one	Total	Doctor	Chemist	Pharmacist	No one	Total
Below 3	15	2	0	6	23	10.83	2.67	4.33	5.17	23
3 to 8	20	8	5	4	37	17.43	4.29	6.97	8.31	37
8 to 13	12	5	13	10	40	18.84	4.64	7.54	8.98	40
13 to 18	6	0	2	0	8	3.77	0.93	1.51	1.79	8
18 to 23	6	0	0	6	12	5.65	1.39	2.26	2.69	12
Above 23	6	1	6	5	18	8.48	2.09	3.39	4.04	18
Total	65	16	26	31	138	65	16	26	31	138

Table 3.22: Calculation for χ^2

Medical Professional	Income Range	FREQUENCY				$((o_i-e_i)^2)/e_i$
		Observed(o_i)	Pooled	Expected (e_i)	Pooled	
Doctor	Below 3	15	15	10.83333	10.83333	1.602564
	3 to 8	20	20	17.42754	17.42754	0.379719
	8 to 13	12	18	18.84058	22.6087	0.939465
	13 to 18	6		3.768116		
	18 to 23	6	6	5.652174	5.652174	0.021405
	Above 23	6	8	8.478261	11.14493	0.88745
Chemist	Below 3	2		2.666667		
	3 to 8	8	13	4.289855	8.927536	1.857731
	8 to 13	5		4.637681		
	13 to 18	0	1	0.927536	8.73913	6.853558
	18 to 23	0		1.391304		
	Above 23	1		2.086957		
Pharmacist	Below 3	0		4.333333		
	3 to 8	5	5	6.971014	6.971014	0.557293
	8 to 13	13	13	7.536232	7.536232	3.961232
	13 to 18	2	8	1.507246	7.15942	0.098692
	18 to 23	0		2.26087		
	Above 23	6		3.391304		
No one	Below 3	6	6	5.166667	5.166667	0.134409
	3 to 8	4	4	8.311594	8.311594	2.236616
	8 to 13	10	10	8.985507	8.985507	0.11454
	13 to 18	0	11	1.797101	8.536232	0.711105
	18 to 23	6		2.695652		
	Above 23	5		4.043478		

$$\chi^2 = \sum \frac{(o_i - e_i)^2}{e_i}$$

$$= 20.36$$

Degree of freedom= (4-1)(6-1)-10=5

Tabulated χ^2 for level of significance (α) 5% is

$$\chi^2_{0.05,7} = 11.07$$

here,

$$\chi^2_{calculate} > \chi^2_{0.05,7}$$

TEST-2

Conclusion: Since the calculated value of test statistic is greater than the tabulated value, the null hypothesis is rejected. Hence, we conclude that there is dependence of patients belonging to family of a particular income range to the health professional they consult to.

3.11. TEST-3

The frequency of people showing any symptoms of any education qualification and whether they consulted for medical assistance is observed. Then to check their dependence to each other the Chi square test is used. Here this is done for people aged between 18 and 65 years.

We want to test

Null Hypothesis: H_0: Education qualification of an ill person and whether they consulted any medical professional are independent of each other

Alternative Hypothesis: H_1: Education qualification of an ill person and whether they consulted any medical professional are not independent of each other.

The observed and expected frequencies are shown in table 3.23.

Table 3.23:

	OBSERVED FREQUENCY			EXPECTED FREQUENCY		
Education Qualification	YES	NO	Total	YES	NO	Total
Middle School	11	5	16	12.34	3.66	16
High School	12	3	15	11.57	3.43	15
Higher education	58	16	73	57.09	16.91	73
Total	81	24	105	81	24	105

Table 3.24: Calculation for χ^2

	Education Qualification	FREQUENCY				$((o_i-e_i)^2)/e_i$
		Observed(o_i)	Pooled	Expected (e_i)	Pooled	
	Middle School	11	11	12.37736	12.37736	0.153273
yes	High School	12	12	11.60377	11.60377	0.01353
	Higher education	58	58	57.24528	57.24528	0.00995
	Middle School	5	8	3.622642	7.018868	0.137147
no	High School	3		3.396226		
	Higher education	16	16	16.75472	16.75472	0.033996

$$\chi^2 = \sum \frac{(o_i - e_i)^2}{e_i}$$
$$= 0.35$$

Degree of freedom= (4-1)(2-1)-2=1

Tabulated χ^2 for level of significance (α) 5% is

$$\chi^2_{0.05,1} = 3.84$$

here,

$$\chi^2_{calculate} < \chi^2_{0.05,1}$$

TEST-3

Conclusion: Since the calculated value of test statistic is less than the tabulated value , there is no sufficient evidence to reject the null hypothesis. Hence, we conclude that there is no significant dependence of patient's education level to whether they consulted any medical professional for their cure.

CONCLUSION

It can be concluded that

- A large number of people with health problems in the time given had suffered from fever and other infectious symptoms.
- Irritation and itching in eyes was the least common symptom.
- Only 2 people were required to be hospitalized.
- There are diseases with similar symptoms as the others.
- The age vs morbidity curve shows almost an inverse bathtub shape.
- There is a large number of people with health problems whose disease haven't been diagnosed.
- Among those who were diagnosed viral infection is seen to be the major disease followed by Chickengunia.
- It is observed that for maximum symptoms the average number of days suffered with medication is greater than that of without medication.
- On being suffering from any symptom 84% of the sample population are consulting a medical professional disregarding their gender and education level.
- For the sample taken the annual income of the person's family plays a significant role in choosing the medical professional they consult to.

FIELD EXPERIENCE AND DIFFICULTIES

“In the middle of every difficulty lies opportunity” is a quote I believe diligently. This project provided me an opportunity to earn many experiences.

This project has made me realize how big of an impact a project can have on someone's schedule. Even though I started my work on this project since November 2023 but still I felt the time crunch. After selecting the topic, the major decision to be taken was which questions should be added in the questionnaire for brief yet meaningful survey, and with the constant guidance of the professor, under whom I was allotted the project , I was able to make the questionnaire, but I underestimated the time and efforts required after that.

There are different people in this society. There were plenty of houses where I was welcomed and they gave me their precious time for this survey but there were few times I was not given the same response. There were few rejections I met with but that helped me to understand how I should change my approach so that I could convince people to give me the data in future.

The major problem which I faced was the hesitance of people to tell their annual income, some even joked about me reporting their income to the Income Tax Office.

Another problem was the lack of information for some family members. Hence, I preferred to take the data from the eldest female of the house. As, the information about the medical problems were required to be from few months before the survey, there were some instances were responders were not able to give the exact information.

This was an experience I learnt a lot from and I still vividly remember majority of the household I visited and their responses.

The only thing I regret is my ignorance to the fact that I should have started the reporting of this project sooner.

This survey helped me gain many new and unique experiences which I would have not gained in any other way.

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www.censusindia.gov.in

Book Used:

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Spreadsheet:

Microsoft Excel

Presentation Program:

Microsoft PowerPoint

QUESTIONNAIRE

QUESTIONNAIRE

This survey is conducted to get information about health problems in the given area.

1.Town _____ 2.Area/Colony_____ 3.Date _____

4.Household S.no._____

5.Caste _____ 6.Religion _____ 7.Family Size _____

8.Type of family: Nuclear ☐ Joint ☐ 9.Family income : _____

10.Number of females : _____ 11.Number of males : _____

12.Number of mortalities within 3 months : _____

Table 1

Member S.no.	Name	Age	Gender	Education Qualification	Profession	Any health problems within 3months? Yes	No

Dead members(if any) :

Table 2

Member S.no.	Name	Age	Gender	Education Qualification	Profession	Cause of death

For medical history:

1.Household no.____ 2.Area/Colony_____

3.Member No.___ 4.Age:_____ 5. Gender_____

6.Did you suffer with any health problems within 3 months? _____

7.

	Symptoms Shown (i)	Severity (ii)			Precautionary needs (iii)	Number of days it lasted (iv)	Medical History (3 months prior)(v)	Precautionary needs or any ongoing treatment(vi)
		Mild	Moderate	High				
a.	☐Sudden , high fever							
b.	☐Nausea							
c.	☐Periodic fever							
d.	☐ Vomiting							
e.	☐Skin Rashes							
f.	☐Fatigue							
g.	☐Severe Headache							
h.	☐Redness or itching in eyes							
i.	☐Body aches and Backaches							
j.	☐Loss of appetite							
k.	☐Cough							
l.	☐Runny Nose							
m	☐Sudden weight loss							
n.	☐Sore throat							
o.	☐Others (mention) _____ _____ _____							

1

8.Any medical assistance needed? ☐ Yes ☐ No

If yes

a) Whom did you consult?

Doctor ☐ Pharmacist ☐ Chemist ☐ Quack ☐

Other_____

b) Diagnosed illness

☐ Typhoid ☐ Malaria ☐ Dengue ☐ Conjunctivitis

☐ Chicken pox ☐ Other _____

c) Were you hospitalized?

Yes ☐ For how many days?____

No ☐

d) Mention any precautionary needs needed in future with no. of days_____

If no

Mention how the symptoms were cured_____

_____

9.Mention any prolonged symptoms left

_____

_____