International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Socioeconomic Status And Prevalence Of Modifiable Risk Factors Of Non-Communicable Diseases Among Young Adults (Age 25-40 Years) Of Bhawalpur City.

Hafiz Muhammad Kashif[1] Muhammad Nouman Akbar[2] Muhammad Muzamil[3]

ABSTRACT

Introduction:

Non-Communicable Diseases are the leading cause of deaths at global, regional and national levels. The changing lifestyles in the country have resulted in a transition in the health profile of the population. During the last decade, there has been a gradual shift from communicable to non-communicable diseases (NCDs) such as Cardiovascular Diseases (including stroke and heart disease), Cancer, Diabetes and Chronic Airway Diseases. Approximately 50% of the population in Pakistan suffers from one or more of these chronic conditions.' Deaths due to NCDs now far outnumber the deaths due to communicable diseases.

Objective of Study: The objective of the study was to:

Evaluate the **"Socioeconomic Status and Prevalence of Modifiable Risk Factors of Non-Communicable Diseases among Young Adults (Age 25-40 years) of Bahawalpur City."**

Study Design: It was a Descriptive Cross-Sectional Epidemiological study.

Setting: The study was conducted in four areas of Bahawalpur City:

1) Model Town A, B
2) Medical Colony
3) Hansra Basti
4) Tibba Badar

Study Population: The study was conducted on Young Adults of Bahawalpur City, ages between 25-40 years.

Sampling Technique: It is a Non-Probability Convenience Sampling.

Sample Size: According to the available time and resources, it was decided to take a

sample of 240 young adults, both male and female (ages between 25-40 years).

Data Collection Protocol: The data was collected through a pre-formed questionnaire,
which consisted of two parts; section one included the socio-demographic profile of the respondents and section two comprised of questions regarding the well-established modifiable risk factors for NCDs.

Data Analysis: Data was coded and entered into SPSS version 21. Interpretation has been presented in form of tables and figures.

Results: The overall prevalence of all the risk factors was found highest in the respondents
belonging to the middle socioeconomic class. The prevalence of tobacco smoking turned out to be (23.3%) of the entire study sample. Nearly (37.1%) of all respondents were exposed to the risk of second hand or passive smoking. Prevalence of risk factors of low dietary intake of fruits and vegetables in all the respondents was (60%) and (24.2%) respectively. About (25.8%) of the respondents were reported to possess inadequate physical activity. Regarding BMI, (5.8%) of respondents were underweight, (29.6%) pre-obese and (9.6%) crossed the borderline for obesity.

Conclusion: A high burden of risk factors of NCDs was observed in the study sample, with
almost all of them being most prevalent in the middle socioeconomic class and the youngest
age group under study i.e. 25-28 years of age. Variations in the distribution of risk factors based on gender and socioeconomic status argues particular focus on and over individual behaviour, personal choices and personal responsibilities to be highlighted in order to assist in targeting improvement actions. Intentional designing of environments to promote healthy behaviours holds promise to reverse the increase of lifestyle diseases.

Keywords: Cardiovascular Diseases, Cancer, Diabetes, Chronic Airway Diseases.

INTRODUCTION

Non-Communicable Diseases (NCDs) refer to the conditions which are slowly evolving, relentlessly progressing and persisting over

an extended period of time.2 NCDs consist of a vast group of non-infectious medical conditions; however, emphasis has been on Cardiovascular Diseases, Cancer, Diabetes and Chronic Non-Specific Respiratory Diseases,' representing a leading threat to human health and economic development. Contrary to the popular presumption of NCDs as "Diseases of Affluent", the available data demonstrates that 4 out of 5 (80%) deaths resulting from NCDs are in low and middle income countries and in older population. It is, therefore, no exaggeration to describe the situation in developing countries as an impending disaster: a disaster for health, for society and most of all, for national economies.4 However, the developed countries are equally sharing in the scourge, but while the developing countries are facing a double burden, the developed and high income countries have experienced a transition in the health term from communicable to non-communicable diseases.' Not only the burden of NCDs is unequally distributed among different social classes; but also, the risk factors show tremendous variations among men, women and between different income groups. Children, adults and elderly are all vulnerable to risk factors that contribute to NCDs. The risk factors been broadly classified as "Modifiable" and "Non-Modifiable" factors.6' 7 Modifiable risk factors could be identified and prevented much earlier in life and include direct tobacco use and second hand smoke, harmful use of alcohol, physical inactivity, unhealthy diet and obesity.8 9 All these in combination comprise of behavioural factors that can lead to metabolic and physiological changes within the body, ultimately increasing the risk of NCDs. Raised blood pressure, overweight and obesity, high blood glucose level and raised cholesterol level have all been identified to cause significant contribution to various non-communicable diseases.1"3 Non-modifiable risk factors include gender, age, genetics, ethnicity and family history. Clustering of these risk factors significantly increases the risk of morbidity and mortality from NCDs.14

Non-communicable diseases emerge as the leading cause of deaths, causing 60% of all mortalities around the globe.15 Out of the 56 million global deaths in 2012; more than 38 million were attributed to NCDs, 48% of which were in low and middle income countries.16 WHO Global Health

Observatory Data (2014) showed that around 8.5% of the adults aged 18 and above had raised blood glucose, 22% had raised blood pressure, 23% had insufficient physical activity and the prevalence of smoking and overweight and obesity was 22% and 39% respectively. 2.8% of all deaths occurring worldwide were attributed to low consumption of fruits and vegetables.17-23 In Pakistan, the prevalence of tobacco and cigarette smoking in both genders was found to be 22.6% and 14% respectively in the year 2013.24 The National Health Survey of Pakistan, conducted in 2010, estimated that hypertension affects 18% of all adult population. Among them 33% were found to be above 45 years of age.25 According to National Health Survey of Pakistan 2014, Pakistan has been ranked as the 9th country in the world to harbour obesity. The overall prevalence of physical inactivity was 23.6% and total alcohol consumption per capita turned out to be 2.3% in 2010.26

The prevalence of NCDs is showing an upward trend in most countries and for several reasons; this trend is likely to increase. The impact is greatest on the poor countries of subcontinent, of which Pakistan occupies a significant position. This may be attributed to the inaccessibility of the population to the education and services required to prevent and treat NCDs. The little health resources remain focused on reducing the already overwhelmed burden of communicable diseases and other preventable causes of mortality. With the lack of resources, the increased occurrence of NCDs continues to drain the household resources and drive families into poverty. The exorbitant cost often including lengthy and expensive treatment of NCDs are forcing millions of people into poverty annually and stifling development.27 NCDs thus pose a particular threat to Pakistan where it is estimated that by 2020, two out of three Pakistani deaths will be due to NCDs.28

The global NCD epidemic exacts a massive socioeconomic toll throughout the world. Despite of its rapid growth and inequitable distribution, much of the human and social impact caused each year by NCD deaths could be averted through well-understood, cost-effective and feasible interventions. An efficient and proven strategy for significant reduction of burden of NCDs is served by

risk factor modification; 29 needing high levels of commitment, good planning, community mobilization and intense focus on a small range of critical actions.

Until now, very limited and fragmented data is available on the prevalence of risk factors for NCDs in Pakistan, in general and in Bahawalpur City, in particular. In order to effectively address the growing hazard, comprehensive and up-to-date information regarding the risk factors' data is essentially required to evaluate the effectiveness of ongoing public health policies and to develop further NCD prevention and control interventions. The recognition of the impact of non-communicable diseases and reaffirmation of the commitment of the Government to tackle them and their risk factors would be an important herald towards a healthier Pakistan.

LITERATURE REVIEW

"The Doctor of the future will give no medicine, but will interest his patients in the care of the human frame, in diet, and in the cause and prevention of disease."

— Thomas Alva Edison3°

Non-Communicable Diseases (NCDs) are the major cause of death and disability globally and are of great concern to the World Health Organization (WHO) and countries alike. Recent trends indicate that NCDs are responsible for almost 60% of deaths and 43% of disease burden and predict that they will be responsible for 73% of deaths and 60% of the global burden of disease by 2020.31 An analytical approach, using global, regional and country-specific data to document the magnitude of the problem, project future trends and assess the factors contributing to these trends. As noted, the epidemic of these diseases is being driven by powerful forces now touching on every region of the world i.e. demographic aging, rapid unplanned urbanization, and the globalization of unhealthy lifestyles. While many chronic conditions develop slowly, changes in lifestyles and behaviors are occurring with a stunning speed and sweep. The consequences for societies and economies are devastating everywhere, most especially

so in poor, vulnerable and disadvantaged populations.

In large parts of the developing world, non-communicable diseases are detected late, when patients need extensive and expensive hospital care for severe complications or acute events. Most of this care is covered through out-of-pocket payments, leading to catastrophic medical expenditures. For all these reasons, non-communicable diseases deliver a two punch blow to development causing billions of dollars in losses of national income, and pushing millions of people below the poverty line, each and every year. In order to effectively address this growing problem, accurate information regarding the risk factors that contribute to the development of NCDs becomes a necessity.

In 2015, a cross sectional study was conducted in a working population of 350 participants (aged 18 years and above) in 10 public institutions to find out the prevalence of risk factors for non-communicable diseases.32 The overall prevalence of risk factors was found as physical inactivity (51%), alcohol consumption (36%), 33 overweight (33.1%), hypertension (32.6%), tobacco use (23.4%) 34 and obesity as (6%). About 33% of the participants were consuming more than five servings of fruits and vegetables per day.35 Researchers suggested that there should be healthier lifestyles to reduce non-communicable disease incidence rates and delay the age of onset of non-communicable diseases.

A cross sectional study was conducted in the slums of Hyderabad in the year 2014 to determine the risk factors for non-communicable diseases among young adults of age group 20 years and above.36 The prevalence of risk factors for non-communicable diseases among study population was found as sedentary habits (53.6%), abdominal obesity (35.7%), positive family history (26.8%), overweight and obesity (21.7%), alcohol consumption (19%), high salt intake (18.5%), and tobacco use (15.4%).37-40 The percentage for irregular and inadequate intake of fruits and vegetables (58.8%) was highest among the study population. Suggested recommendations were health promotion programs, healthy dietary practices and adequate physical activity.

In the year 2014, a survey was conducted on 2000 undergraduate students from 4 universities, ranging in ages from 20 to 23 years, in order to determine the prevalence of modifiable risk factors for non-communicable diseases among them in and around Kampala41' 42. In males, the prevalence of risk factors was found as alcohol consumption (49%), smoking (20%), physical inactivity (12%), drug abuse (11%) and low intake of fruits and vegetables (7%).43. 44 Whereas in females, the prevalence was found out as alcohol consumption (40%), physical inactivity (14%), drug abuse (13%), smoking (10%) and low fruit and vegetable intake (7%).45, 46

In June 2013, a cross-sectional study was conducted on 6532 employees (with private health insurance presenting for health risk appraisal), to determine the prevalence of clustering of risk factors for non-communicable diseases among them.47 Participants were within age group 26-46 years and the most prevalent risk factors were physical inactivity (67%) and a basal metabolic index as 62%. Employees who were insufficiently active also had a greater number of other risk factors for NCDs, compared to those meeting recommended physical activity.48 49 The researchers suggested balanced diet and regular exercise to the study population.

A national representative cross-sectional survey was conducted from January to June 2013 on 4,200 respondents (aged 15 to 69 years) to study the prevalence of risk factors for non-communicable diseases using the WHO NCD STEPS instrument.5° Insufficient dietary intake of fruits and vegetables was found as the most prevalent risk factor in almost the entire population (99%) with variable ranges of Hypertension (26%), increased cholesterol (23%), overweight/obesity (21%) and smoking (19%). Harmful use of alcohol, low physical activity and raised blood glucose levels were observed as the least frequent risk factors in Nepal.51-53

A cross-sectional study that included a random sample of 200 adults54' 55 was conducted from August 2011 to January 2012 based on the WHO STEPS questionnaire56 for the assessment of non-

communicable diseases and their risk factors in urban field practice areas of a Medical College in Central District of Delhi.57 Out of the 200 participants, 26% were consuming alcohol58 and 17% were using tobacco products59 while 77.5% were either overweight or obese.6° More than one third of the participants had raised values of systolic and diastolic blood pressures and abnormal lipid profiles.61' 62 More males as compared to females were found to be overweight, in contrast to obesity and raised waist circumference, which were more common in females.

In 2013, data was collected from electronic data basis including Pub Med, Medline and Google Scholar to rule out the conceptual framework for managing modifiable risk factors for CVDs in Indigenous-Fijian and Indo-Fijian population.63 Comparison of prevalence of risk factors for non-communicable diseases was done between the two with the results as decreased vegetable intake (48% versus 56%),64-66 smoking (45% versus 24%),67-69 increased cholesterol level (33% versus 39%),70' 71 hypertension (21% versus 16%),72' 73 alcohol consumption (17% versus 15%),74' 75 low fruit consumption as (17% versus 15%), obesity (17% versus 1 1%),76' 77 and diabetes as (12% versus 21%).

A cross sectional study was conducted from December 2011 to March 2012 to evaluate non-
communicable diseases in adult population of urban areas in Kabul City, Afghanistan and included a total of 1169 respondents (aged 40 years and above).78 The resultant prevalence of the risk factors found in men was hypertension (45.2%), mouth snuff (24.4%), obesity (19.1%), diabetes (16.1%) and smoking at (14.7%). In women, the prevalence of risk factors was hypertension (46.5%), obesity (37.3), diabetes (12%), low dietary consumption of fruits and vegetables (3.37% and 2.96% respectively) and smoking at (0.3%).79

A cross-sectional survey was carried out in a sample population (N = 230); between the months of May and June, 2010 in representative of medical and surgical out-patient population of Korle-Bu Teaching Hospital, to determine the prevalence of certain risk factors of non-communicable diseases (NCDs).8° The proportion of obesity as a risk factor in the study

population was observed as 40.4% with 54% being overweight.81 Alcohol consumption in the respondents was 64.8%,82 physical inactivity 54.3% with 4.8%83-86 of the study population a tobacco abuser. Around 48% and 70.9% of the participants consumed fruits and vegetables on less than three days in a week, respectively. The prevalence of hypertension was 33.6% for men and 35.2% for women.87 Almost 62% of the participants had a combination of three or more risk factors. Researchers called out for cessation of smoking, intake of well-balanced diet and regular physical exercise.

In January 2008, a study was carried out in Gujarat (India) to identify the distribution of risk factors for non-communicable diseases among 1805 urban and 1684 rural people with ages between 15-64 years.88 The prevalence of smoking was higher among rural men (direct tobacco use- 22.8% and consumption of smokeless tobacco products- 43.4%) as compared to urban men (direct tobacco use- 12.8% and smokeless tobacco consumption- 23.1%) along with an evidence of low dietary intake of fruits and vegetables in the rural areas. Prevalence of overweight, obesity and lack of physical activity was found higher in the urban population.89

From September 2008 to January 2009, a cross-sectional study was conducted at Gilgit Gibe Field Research Center of Jinnah University, on individuals aged between 15-64 years (both genders inclusive).9° The prevalence of risk factors for non-communicable diseases in population under study was inadequate per day consumption of fruits and vegetables 27% (rural 25.3%, urban 28.2%), smoking 18% (rural 10.6% and urban 5.3%), low levels of physical activity 16.9% (rural 18%, urban 24.8%) and alcohol consumption 8.7% (rural 2.9% and urban 19.6%).91 The magnitude of prevalence of all risk factors for non-communicable diseases was higher among males as compared to females; physical activity being an exception.92

A survey was conducted on non-communicable diseases' risk factors among physicians and tertiary care hospitals in Mangalore on a total of 100 physicians with a clinical experience of 5 years.93- 94 The prevalence of risk factors was found as

overweight (69%), low physical activity (20%), high triglyceride level (9%), alcohol and tobacco use (6% and 1%), high cholesterol level (3%) and hypertension and diabetes mellitus (2%).95 The risk factor with the highest prevalence in physicians stood out to be inadequate physical activity and they were concluded to be at a higher risk for cardiovascular diseases.

"Your lifestyle- how you live, eat, emote, and think- determines your health. To prevent disease you may have to change How You Live."

-- Brian Carter.96

OBJECTIVES

The objective of the study was to evaluate the "**Socioeconomic Status and Prevalence of Modifiable Risk Factors of Non-Communicable Diseases in Young Adults (Age 25-40 Years) Of Bahawalpur City**"

OPERATIONAL DEFINITIONS

Modifiable Factors:

These are the factors which are liable to be altered in order to prevent the occurrence of disease or to change the course of the disease.

It includes smoking, physical inactivity, fruit and vegetable consumptions and Body Mass Index (BMI).

Socio-Economic Status:

Socio-economic status is to be assessed on the basis of 3 parameters i.e. education, occupation and monthly family income (in Rs):

Occupation	**Score**
Businessmen	7
Professionals (Doctors, Engineer, Lawyers, Educationists)	6
Government Employee (Gazetted/Private Employee Enjoying Equal Salary Status) Government Employee (Non-Gazetted (Grade 5-16)	5
Private Employee Enjoying Equal Salary Status)	4
Government Employee (Grade 4)/Laborer	3
Students	2
Home Makers	1

Education	**Score**
Post-Graduation (M.S, M-Phil, PhD, FCPS, DS)	7
Graduation (MBBS, BS Hons, LLB)	6
Intermediate or Post High School Diploma	5
Higher Secondary School	4
Middle School or Matriculation	3
Primary School	2
Illiterate	1

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Monthly Family Income (In Rs.)	Score
>100000	7
75000-100000	6
60000-74999	5
45000-59999	4
30000-44999	3
15000-29999	2
<15000	1

Socio-Economic Class	Score
Upper Class	18-21
Middle Class	7-17
Lower Class	3-3

Tobacco User/ Smoker

A person with a current smoking status of more than 5 cigarettes per day or one who has been chewing tobacco from last six months.

Low Physical Activity

It refers to less than 150 minutes of sports per week such as jogging or 10 minutes or less of any type of physical activity per day.such as walking to reach the work place, doing physical activity during work or at home, riding bicycle or other similar activity.

Low Fruit and Vegetable Consumption

It refers to less than or equal to 2 servings of fruits or vegetables per day.

One Serving of Fruit

It comprises of one medium sized piece of apple, banana or orange/ half cup of chopped, canned fruit or half cup of fruit juice not flavored artificially.

One Serving of Vegetable

It comprises of one cup of raw green leafy vegetable/ half cup of other vegetable (cooked or chopped raw) or half cup of vegetable juice.

Body Mass Index (BMI)

$$\frac{\text{Weight in kilogram}}{\text{B1\41}^{98}\text{= Height in meter square}}$$

Underweight	< 18.5
Normal	18.5-24.9
Pre-obese	25-29.9
Obese I	30-34.9
Obese II	35-39.9
Obese III	> 40

METHODOLOGY

Study Design:

It was a Descriptive Cross-Sectional Epidemiological study. Study Area:

The study was conducted in four areas of Bahawalpur City:

1) Model Town A, B
2) Medical Colony
3) Hansra Basti
4) Tibba Badar Sher

Study Population:

The study was conducted on Young Adults of Bahawalpur City, ages between 25-40 **years. Sampling Technique:**

It is a Non-Probability Convenience Sampling.

Ethical Issues:

Informed consent was taken from all participants.

Sample Size:

According to the available time and resources, it was decided to take a sample of 240 young adults, both male and female (ages between 25-40 years).

Inclusion Criteria:

All young adults, males and females between ages 25-40 years, whether single or married were included in the study; who had no prior history of a well-established non-communicable disease.

Exclusion Criteria:

Young adults who were not willing to participate in the study were excluded. Data

Collection Protocol:

The data was collected through a pre-formed questionnaire, which consisted of two parts; section one included the socio-demographic profile of the respondents and section two comprised of questions regarding the well-established modifiable risk factors for NCDs.

A pre-test assessment was done prior to study to look for any ambiguities in the questionnaire.

Data Analysis:

The data was encoded and entered into SPSS Version 21. Frequencies were run and percentages were calculated. The results were presented in the form of frequency distribution tables. The interpretations were summarized in the form of bar charts and pie charts for an easy comprehension of the statistical data.

RESULTS

The study analyzed several demographic indicators including socioeconomic status, gender, age, education and occupation of the respondents in relation to the prevalence of risk factors of NCDs. Among the 240 subjects studied by far, 72.5% (N=174) were males and 27.6% (N=66) were females (Table 2). Age distribution showed that 48.33% (N=116) of the respondents belonged to ages 25-28 years, followed by 10.83% (N=26) falling into the age group 29-32 years, 14.17% (N=36) within 33-36

years and 26.67% (N=64) in 37-40 years of age (Figure 4). The mean age of the respondents was calculated as 31.55. Regarding socio¬demographic profile of the study sample, more than half 58.3% (N=140) of the participants belonged to the middle socioeconomic class, 22.1% (N=53) to the upper socioeconomic class and 19.6% (N=47) to the lower socioeconomic class (Table 1). Data regarding occupation of the respondents showed a higher percentage of Laborers 33.8% (N=81), followed by Homemakers 19.6% (N=47), Businessmen 10.8% (N=26), Professionals 9.6% (N=23), Students 6.7% (N=16), Govt. Employees (grade 5-16) 4.6% (N=11) and Govt. Employees (Gazetted) 4.2% (N=10) (Table 4). Regarding education, majority of the participants were Graduate 22.1% (N=53), followed by Post-Graduates 21.3% (N=51), then Illiterates 17.1% (N=41) and others 39.5% (N=85) with some level of education (Table 3). About 28.33% (N=68) had a monthly family income of Rs. >100000, 28.33% (N=68) had Rs. <15000 and 43.32% (N-104) had an income ranging between Rs.100000 and Rs.15000 (Figure 2).

The overall prevalence of tobacco smoking was found to be 23.3% (N=56), of which only 0.8% (N=2) were females and 22.5% (N=54) were males (Table 5) (Figure 14). Majority of the tobacco smokers belonged to the middle socioeconomic class 11.3% (N-27) (Figure 13).

with characteristic prevalence (15%) in the youngest age group under study i.e. 25-28 years (Figure 15); most of them being Graduates 7.1% (N=17) (Figure 16). Tobacco smoking was found most prevalent in the Laborers 8.3% (N=20) (Table 17) and in respondents with a total monthly family income of Rs. <15000 6.67% (N=16) (Table 18). Majority 56.6% (N=124) of the smokers smoked 11-20 cigarettes each day (Figure 3).

None of the female subjects was found to use smokeless tobacco products while males using these constituted 6.7% (N=16) of all respondents (Figure 44); majority of them 3.33% (N=8) belonged to the lower socioeconomic class (Figure 43) and the youngest age group 25-28 years 2.92% (N=7) (Figure 45). Nearly half 3.33% (N=8) of all smokeless tobacco product users were Illiterate (Figure 46) and most of them

5.42% (N=13) were Laborers (Figure 47) with a monthly family income of Rs. <15000 4.58% (N=16) (Figure 48).

The prevalence of passive smoking in the study sample was 37.1% (N=89) (Figure 5). Participants who were exposed to the risk of passive smoking comprised about 29.6% (N=71) males and 7.5% (N=18) females (Figure 20). The middle socioeconomic class constituted most of the passive smokers 19.6% (N=47) (Figure 19). Passive smoking prevailed high in the youngest age group 25-28 years and in Graduates 10.4% (N=59) (Figure 22). The risk factor was found most prevalent in the Laborers constituting 11.7% (N=28) of total passive smokers followed by Businessmen 5.8% (N=14) (Figure 23) in the same order.

Out of 60% (N=144) of all respondents consuming low dietary fruits (Table 7), 50% (N=120) with low dietary intake of fruits fell in youngest age group 25-28 years (Figure 27). Highest percentage was found among the Illiterate comprising 15% (N=36) of all participants with low dietary fruit intake, followed by Graduates 10.8% (N=26) (Figure 28). 27.9% (N=67) of the respondents with low dietary intake were reported to be Laborers (Figure 29). Respondents with a monthly family income of Rs. <15000 constituted a huge majority of sample with low fruit intake 24.2% (N=58) (Figure 30).

Dietary intake of vegetables was reported to be low in 24.2% (N=58) of the respondents (Figure 6); of which 15.4% (N=37) were males and 8.8% (N=21) were females (Figure 32). Majority 12.5% (N=30) of them belonged to the middle socioeconomic class followed by the upper socioeconomic class 8.8% (N=21) (Figure 31). Age wise distribution of low dietary intake of vegetables showed that it was most prevalent in the youngest age group 25-28 years 10.8% (N=26) (Figure 33) and among Graduates 7.9% (N=19) (Figure 34). Out of 24.2% (N=58) of the respondents with low dietary intake, 5% (N=12) were Professionals, 3.3% (N=8) were Businessmen, 2.9% (N=7) Students and 3.3% (N=8) Laborers in the same order (Figure 35). Majority 10.8% (N=26) of the study sample consuming low dietary vegetables had a monthly family income of Rs. >100000, followed by 4.2% (N=10) with

an income between Rs. 75000-100000 (Figure 36).

25.8% (N=62) of all the respondents were found to have less than adequate physical activity (Table 8), of which 12.9% (N=31) were males and 12.9% (N=31) females (Figure 38); most of them 18.3% (N=44) belonged to the middle socioeconomic class (Figure 37). Low physical activity was found equally prevalent 10% (N=24) in the youngest as well as the oldest age group under study i.e. 25-28 years and 37-40 years (Figure 39). Education wise distribution of low physical activity showed that out of all the respondents with low physical

were males and 10% (N=24) were females (Figure 26) and most of them were found to come

from the middle socioeconomic class (Figure 25). Most of the study sample 32.1% (N=77)

activity 8.75% (N=21) were Post-Graduates, followed by 7,9% (N=19) Graduates and then 5.83% (N=14) Intermediates in the same order (Figure 40). Low physical activity was found most prevalent in Home Makers constituting 10% (N=24) of all the respondents with insufficient physical activity followed by Businessmen 4.58% (N=11) (Figure 41).

Regarding BMI, more than half 55% (N=132) of the respondents were categorized to be normal, 5.8% (N=14) underweight, 29.6% (N=71) pre-obese and 9.6% (N=23) obese (Table 10). Majority of the obese respondents came from the middle socioeconomic class i.e. 7.5% (N=18) (Figure 7) and more than half 5.42% (N=13) of them were females (Figure 8). Obesity was found to be most prevalent in the oldest age group (37-40 years) at 4.2% (N=10) followed by 3.8% (N=9) in the youngest age group (25-28 years) (Figure 9). Home Makers constituted about half 4.2% (N=10) of the all obese respondents, followed by Students 2.5% (N=6) (Figure 11). Majority 2.92% (N=26) of the respondents with obesity had a monthly family income of Rs. >100000 (Figure 12).

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 1. Frequency Distribution of Socioeconomic Status among the Respondents

Socioeconomic	**Class Frequency**	**Percent %**
Lower Class	47	19.6
Middle Class	140	58.3
Upper Class	53	22.1
Total	240	100.0

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 2. Frequency Distribution of Gender among the Respondents

Gender	Frequency	Percent %
Male	174	72.5
Female	66	27.5
Total	240	100.0

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

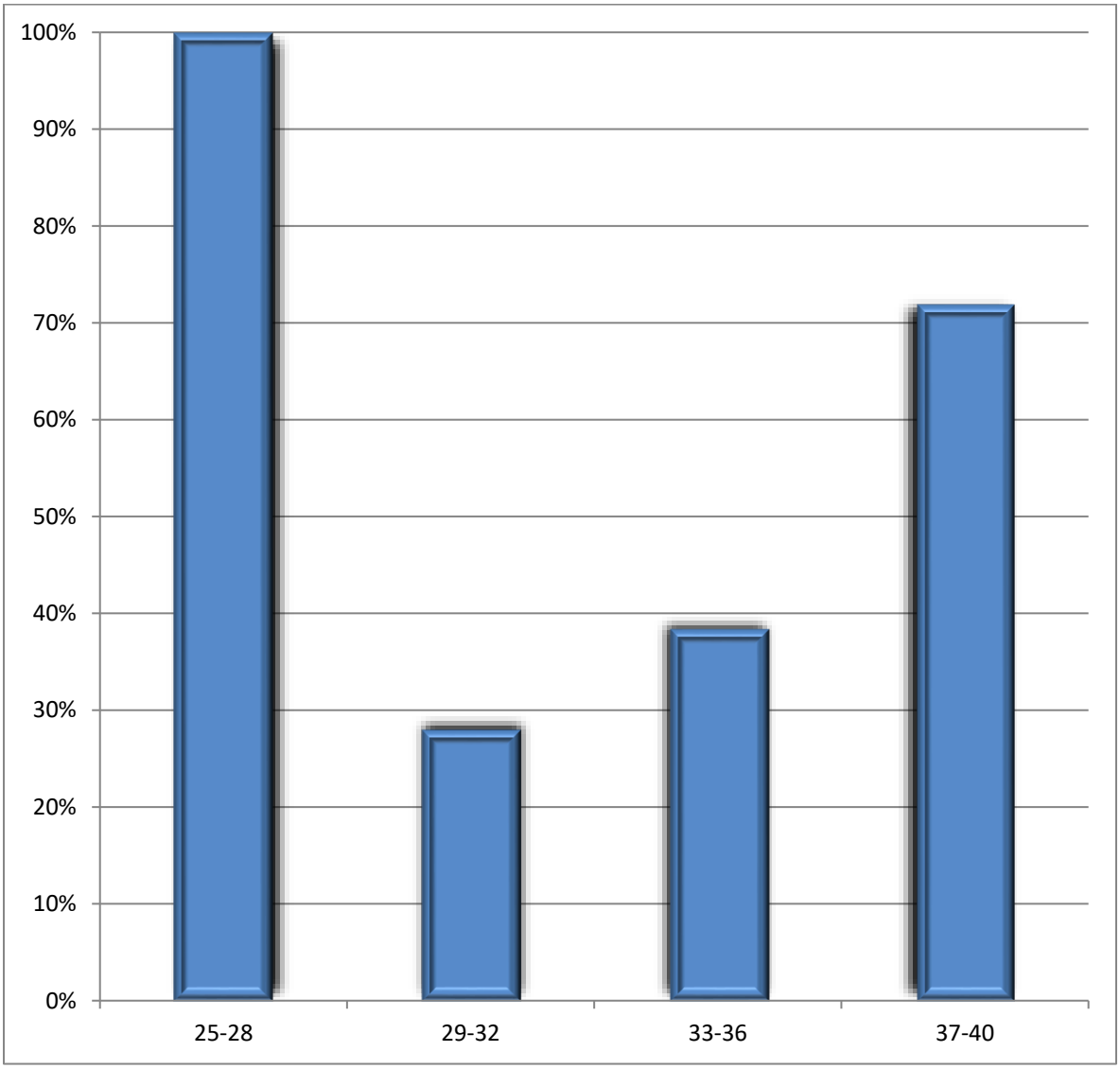


Figure No-1 Age Distribution among the Respondents.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 3. Frequency Distribution of Education among the Respondents

Level of Education	Frequency	Percent %
Illiterate	41	17.1
Primary	6	2.5
Middle	32	13.3
High School	26	10.8
Intermediate	31	12.9
Graduate	53	22.1
Post Graduate	51	21.3
Total	240	100.0

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 4. Frequency Distribution of Occupation among the Respondents

Occupation	Frequency	Percent %
Businessmen	26	10.8
Professionals	23	9.6
Govt. Employee (Gazetted)	10	4.2
Private Employee Enjoying Equal Salary Status of Gazetted	4	1.7
Govt. Employee (Grade 5-16)	12	5.0
Private Employee Enjoying Equal Salary Status of Grade 5-16	11	4.6
Govt. Employee (Grade 4)	10	4.2
Laborers	81	33.8
Student	16	6.7
Home Maker	47	19.6
Total	240	100.0

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

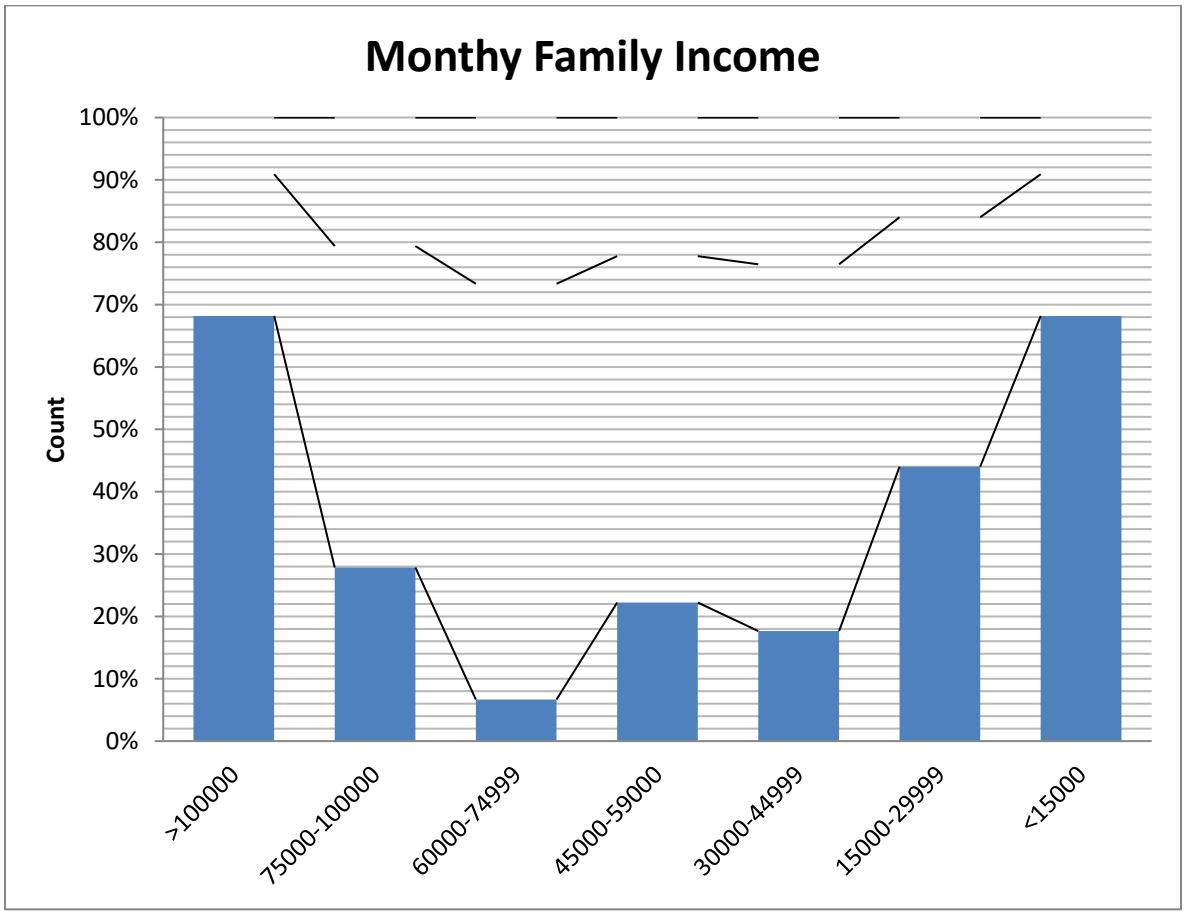


Figure No.2. Distribution of Monthly Family Income among the Respondents.

Table No. 5. Prevalence of Tobacco Use among the Respondents

Tobacco Use	**Frequency**	**Percent %**
Smokers	56	23.3
Non-Smokers	184	76.7
Total	240	100.0

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 6. Frequency Distribution of Duration of Tobacco Use among the Smokers

Duration	Frequency 55	Percent %
In Years	55	98.3
In Months	1	1.78
Total	56	100

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

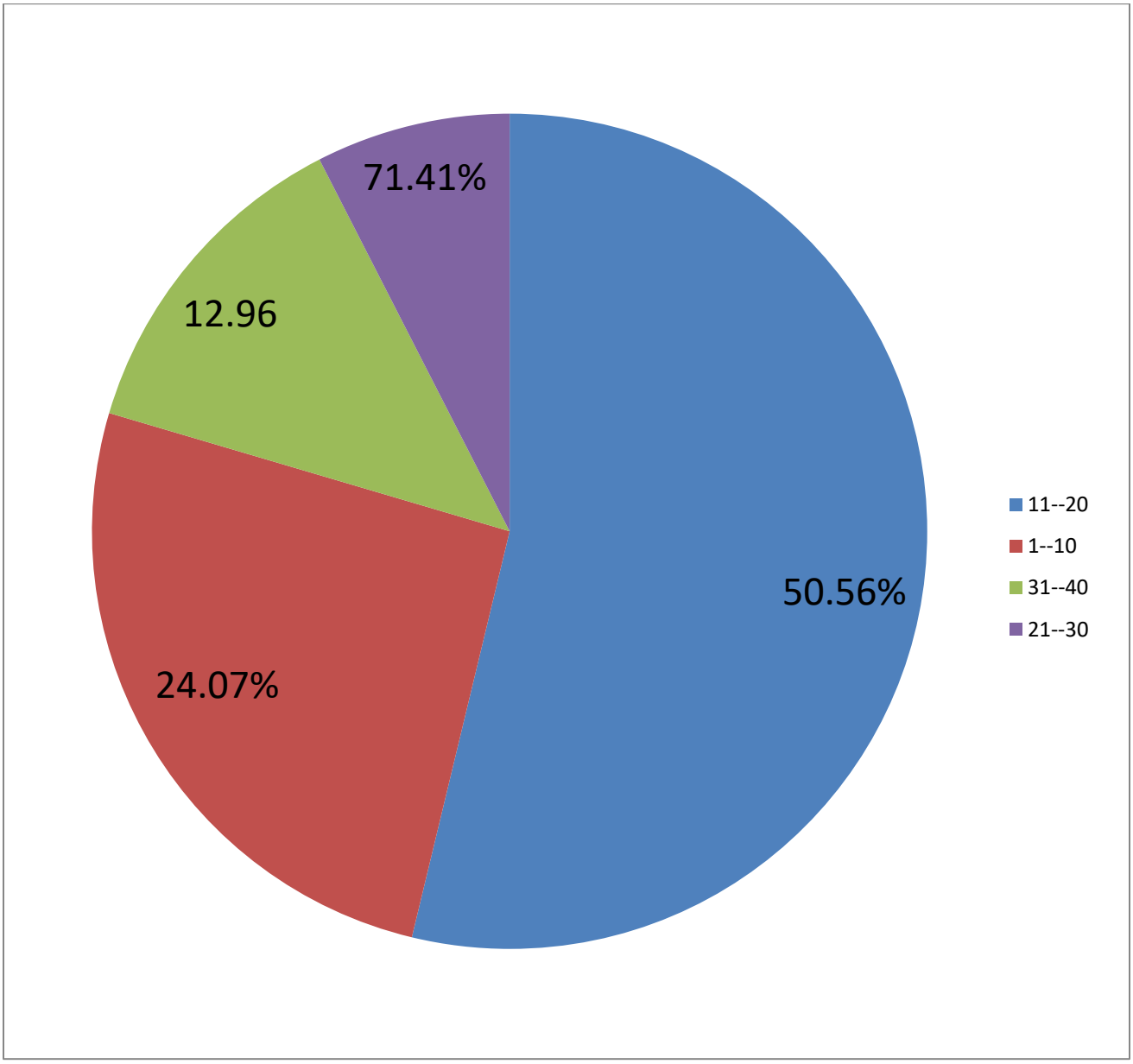


Figure No.2. Distribution of Daily Cigarette Consumption among the Smokers

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

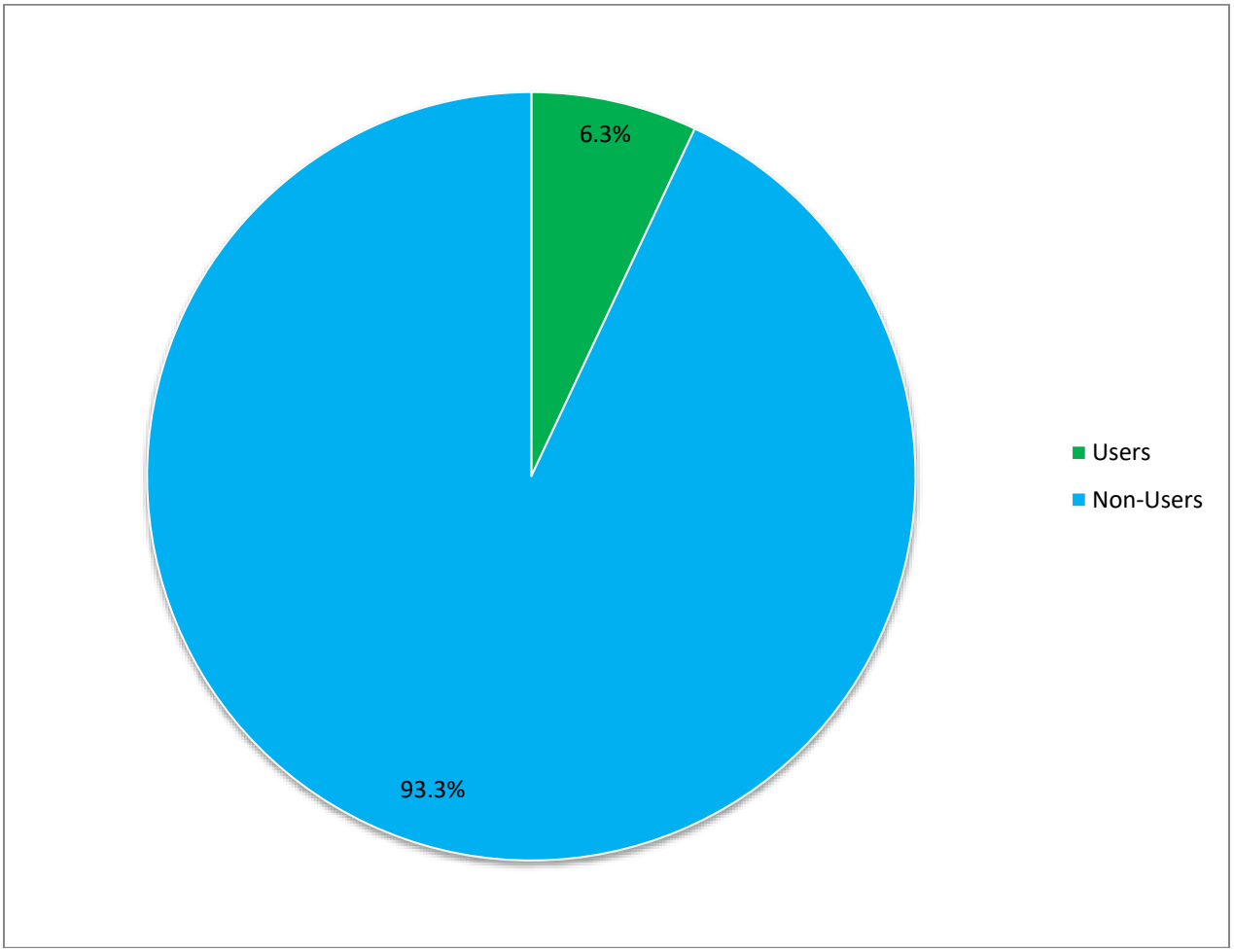


Figure No.4.Prevalence of Use Smokeless Tobacco Products among Respondents.

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

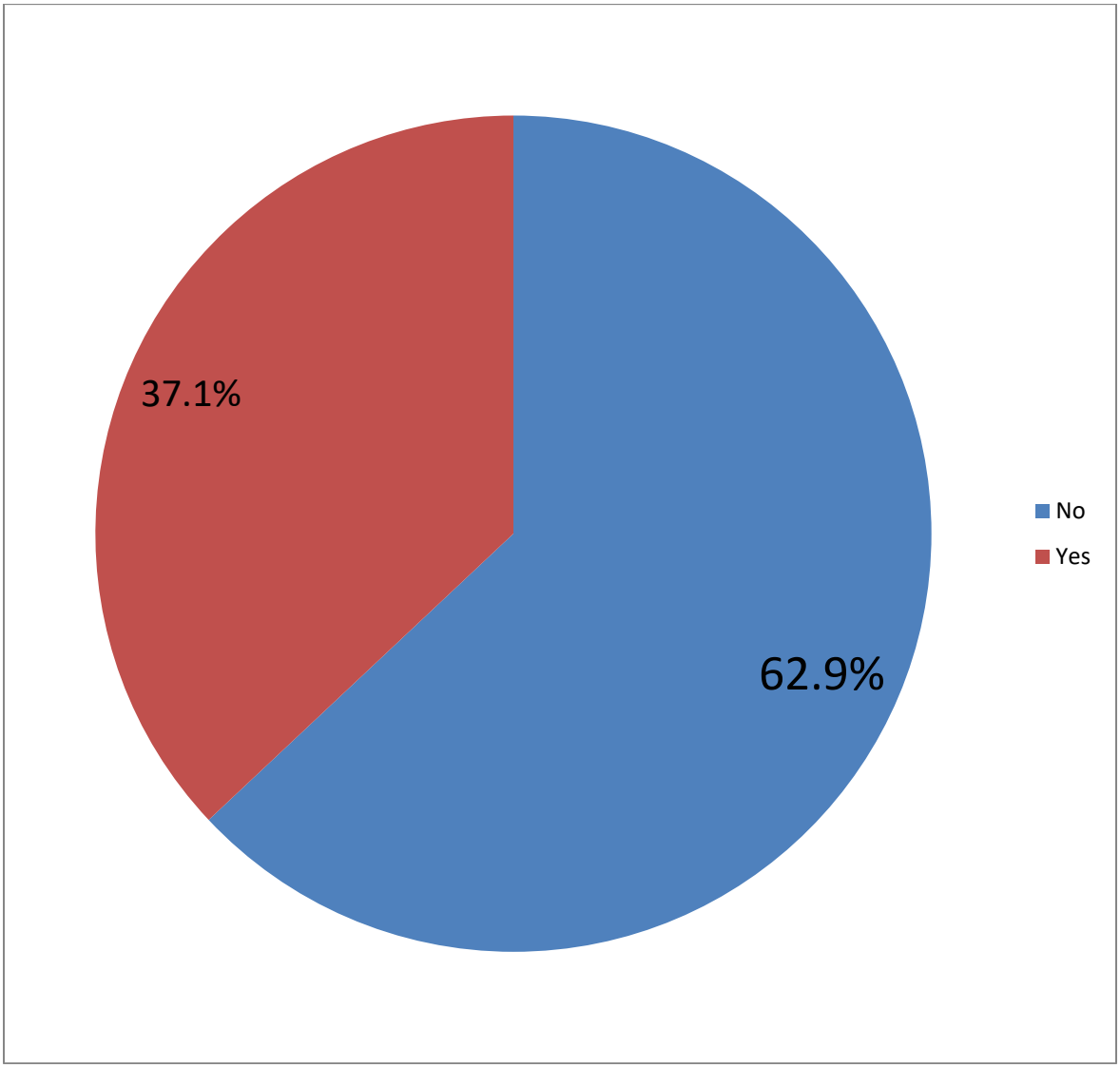


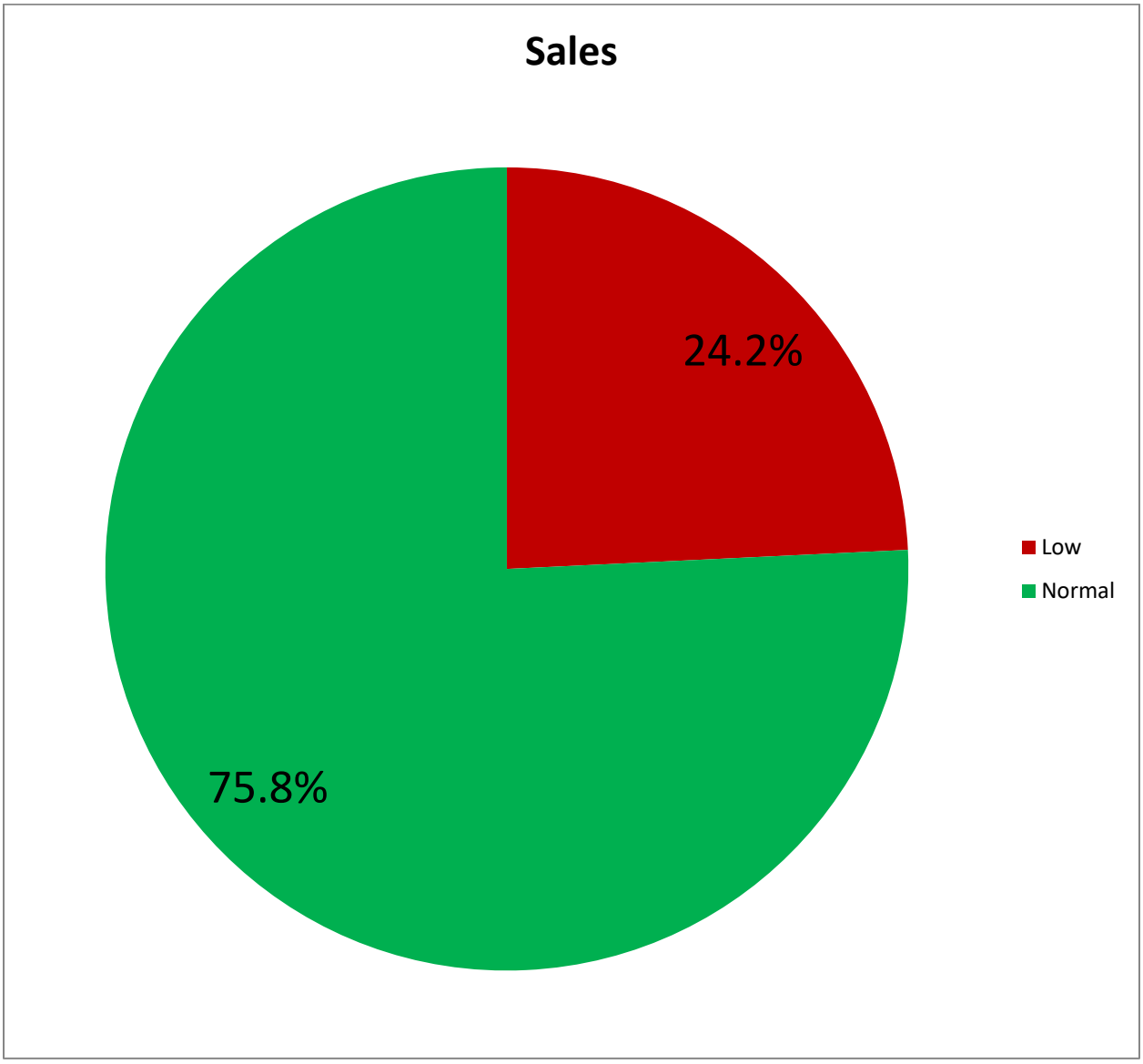
Figure.5.Prevalence of Passive Smoking among the Responders.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 6. Frequency Distribution of Dietary Intake of Fruits among the Respondents

Fruit Intake	Frequency	Percent 0%
Low	144	60.0
Normal	**96**	**40.0**
Total	**240**	**100.0**

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018



International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

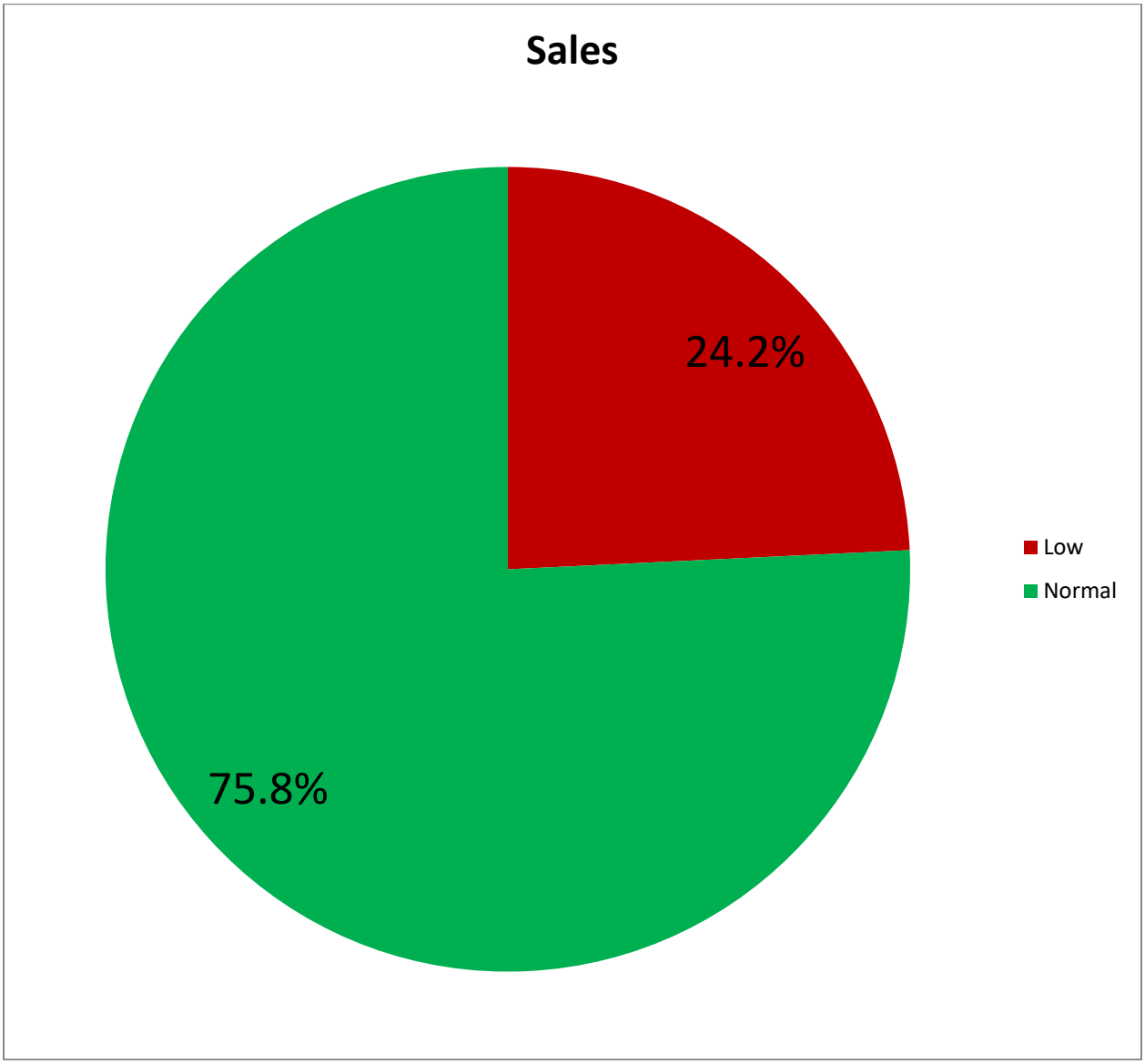


Figure No.6. Distribution Dietary Intake of Vegetable among the Respondents.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 8. Frequency Distribution of Duration of Physical Activity among the Respondents.

Physical Activity Per Day	Frequency	Percent %
Low (<10 minutes)	62	25.8
Adequate (>10 minutes	178	74.2
Total	240	100.0

Sports Activity (In a Week)	Frequency	Percent %
Yes	68	**28.3**
No	**172**	**71.7**
Total	**240**	**100.0**

Table No. 9. Frequency Distribution of Respondents involved in Sports Activiti

Table No. 10. Frequency Distribution of BMI among the Respondents.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

BMI	Frequency	Percent %
Underweight	14	5.8
Normal	132	55.0
Pre Obese	71	29.6
Obese I	19	7.9
Obese II	3	1.3
Obese III	1	0.4
Total	240	100.0

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 11. Prevalence of Risk Factors of NCDs according to Socioeconomic Status

Risk Factors		Socioeconomic Status			
		Lower Class	Middle Class	Upper Class	Total
BMI	Underweight	7	7	0	14
	Normal	25	84	23	132
	Pre Obese	12	31	28	71
	Obese I	3	14	2	19
	Obese II	0	3	0	3
	Obese III	0	1	0	1
Tobacco Smoking	Yes	11	27	18	56
	No	36	113	35	184
Use of Smokeless Tobacco Products	Users	8	6	2	16
	Non-Users	39	134	51	224
Passive Smoking	Yes	20	47	22	89
	No	27	93	31	151
Fruit Intake	Low	42	80	22	144
	Normal	5	60	31	96
Vegetable Intake	Low	7	30	21	58
	Normal	40	110	32	182
Physical Activity	Low(<10 Minutes)	0	44	18	62
	Adequate (<10 Minutes)	47	96	35	178

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 12. Gender Wise Prevalence of Risk Factors of NCDs

Risk Factors		Gender		
		Male	Female	Total
BMI	Underweight	14	0	14
	Normal	99	33	132
	Pre Obese	51	20	71
	Obese I	9	10	19
	Obese II	1	2	3
	Obese III	0	1	1
Tobacco Smoking	Yes	54	2	56
	No	120	65	184
Use of Smokeless Tobacco Products	Users	16	0	16
	Non-Users	158	66	224
Passive Smoking	Yes	71	18	89
	No	103	48	151
Fruit Intake	Low	120	24	144
	Normal	54	42	96
Vegetable Intake	Low	37	21	58
	Normal	137	45	182
Physical Activity	Low(<10 Minutes)	31	31	62

	Adequate (<10 Minutes)	143	35	178

Table No. 13. Age Wise Prevalence of Risk Factors of NCDs

Risk Factors		Class interval (Age)				
		25-28	29-32	33-36	37-40	Total
BMI	Underweight	**9**	1	**2**	2	14
	Normal	**71**	16	**21**	24	132
	Pre Obese	**27**	8	**8**	28	71
	Obese I	**8**	0	**2**	9	19
	Obese II	**1**	1	**0**	1	3
	Obese III	**0**	0	**1**	0	1
Tobacco Smoking	Yes	**36**	5	**8**	7	56
	No	**80**	21	**26**	57	184
Use of Smokeless Tobacco Products	Users	**7**	2	**3**	4	16
	Non-Users	**109**	24	**31**	60	224
Passive Smoking	Yes	**59**	10	**9**	11	89
	No	**57**	16	**25**	53	151
Fruit Intake	Low	**77**	15	**21**	31	144
	Normal	**39**	11	**13**	33	96
Vegetable Intake	Low	**26**	3	**11**	18	58
	Normal	**90**	23	**23**	46	182

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 14. Education Wise Prevalence of Risk Factors of NCDs

Risk Factors	Education					
Physical Activity	Low(<10 Minutes)	**24**	4	**10**	24	62
	Adequate (<10 Minutes)	**92**	22	**24**	40	178

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

		Illiterate	Primary	Middle	High School	Intermediate	Graduate	Post Graduate	Total
BMI	Underweight	**5**	0	**4**	4	0	1	0	14
	Normal	**23**	4	**24**	12	15	29	25	132
	Pre Obese	**10**	2	**3**	7	8	18	23	71
	Obese I	**3**	0	**1**	3	5	5	2	19
	Obese II	**0**	0	**0**	0	3	0	0	3
	Obese III	**0**	0	**0**	0	0	0	1	1
Tobacco Smoking	Yes	**10**	2	**11**	5	4	17	7	56
	No	**31**	4	**21**	21	27	36	44	184
Use of Smokeless Tobacco Products	Users	**8**	1	**0**	3	1	0	3	16
	Non-Users	**33**	5	**32**	23	30	53	48	222
Passive Smoking	Yes	**18**	2	**12**	7	10	25	15	89
	No	**23**	4	**20**	19	21	28	36	151
Fruit Intake	Low	**36**	6	**26**	17	18	26	15	144
	Normal	**5**	0	**6**	9	13	27	36	96
Vegetable Intake	Low	**5**	1	**5**	2	7	19	19	58
	Normal	**36**	5	**27**	24	24	34	32	182
Physical Activity	Low(<10 Minutes)	**0**	1	**3**	4	14	19	21	62
	Adequate (<10 Minutes)	**41**	5	**29**	22	17	34	30	178

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Table No. 15. Occupation Wise Prevalence of Risk Factors of NCDs

Risk Factors		Occupation										
		Business Men	Professionals	Govt Employee (Gazetted)	Private Employee Enjoying Salary Status of Gazetted	Govt Employee Grade 5-16	Private Employee Grade 5-16	Govt Employee Grade 4	Laborers	Students	Home Makers	Total
BMI	Underweight	0	0	0	0	0	1	1	11	1	0	14
	Normal	12	10	6	3	7	7	8	48	7	24	132
	Pre Obese	14	12	3	1	4	3	0	19	2	13	71
	Obese I	0	1	1	0	1	0	1	3	5	7	19
	Obese II	0	0	0	0	0	0	0	0	1	2	3
	Obese III	0	0	0	0	0	0	0	0	0	1	1
Tobacco Smoking	Yes	14	4	3	2	3	4	3	20	2	1	56
	No	12	19	7	2	9	7	7	61	14	46	184
Use of Smokeless Tobacco Products	Users	1	1	0	0	0	1	0	13	0	0	16
	Non-Users	25	22	10	4	12	10	10	68	16	47	224
Passive Smoking	Yes	14	6	6	2	6	4	3	28	8	12	89
	No	12	17	4	2	6	7	7	53	8	35	151
Fruit Intake	Low	13	9	5	1	4	3	10	67	13	19	144
	Normal	13	14	5	3	8	8	0	14	3	28	96
Vegetable Intake	Low	8	12	2	2	1	2	2	8	7	14	58
	Normal	18	11	8	2	11	9	8	73	9	33	182

Physical Activity	Low(<10 Minutes)	11	5	3	1	3	4	5	0	6	24	114
	Adequate (<10 Minutes)	15	18	7	3	9	7	5	81	10	23	126

Table No. 16. Prevalence of Risk Factors of NCDs According to Total Monthly Family Income

Risk Factors		Occupation							
		>100000	75000-100000	60000-74999	45000-59000	30000-44999	15000-29999	<15000	Total
BMI	Underweight	0	0	0	1	0	4	9	14
	Normal	29	12	7	10	7	20	47	132
	Pre Obese	32	9	1	5	2	12	10	71
	Obese I	6	1	0	1	4	5	2	19
	Obese II	1	0	0	1	1	0	0	3
	Obese III	0	1	0	0	0	0	0	1
Tobacco Smoking	Yes	12	6	5	4	3	10	16	56
	No	56	17	3	14	11	31	52	184
Use of Smokeless Tobacco Products	Users	1	1	0	0	1	2	11	16
	Non-Users	67	22	8	18	13	39	57	224
Passive Smoking	Yes	24	5	5	8	8	11	28	89
	No	44	18	3	10	6	30	40	151
Fruit Intake	Low	23	12	4	8	7	32	58	144
	Normal	45	11	4	10	7	9	10	96

Vegetable Intake	Low	26	10	1	3	5	6	7	58
	Normal	42	13	7	15	9	35	61	182
Physical Activity	Low(<10 Minutes)	32	10	1	5	4	8	2	62
	Adequate (<10 Minutes)	36	13	7	13	10	33	66	178

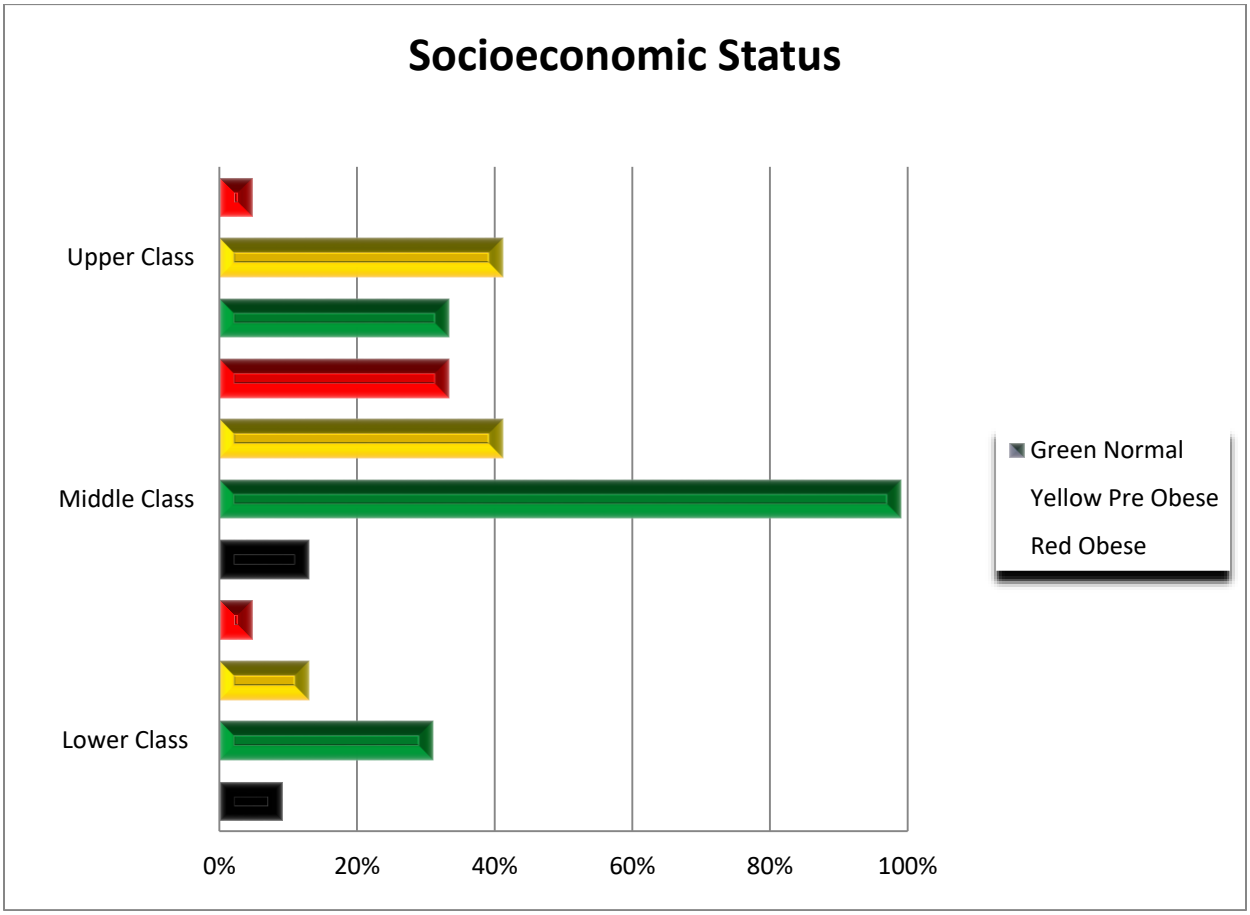


Figure No.7.Prevalence of Obesity among the Respondents according to Socioeconomic.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

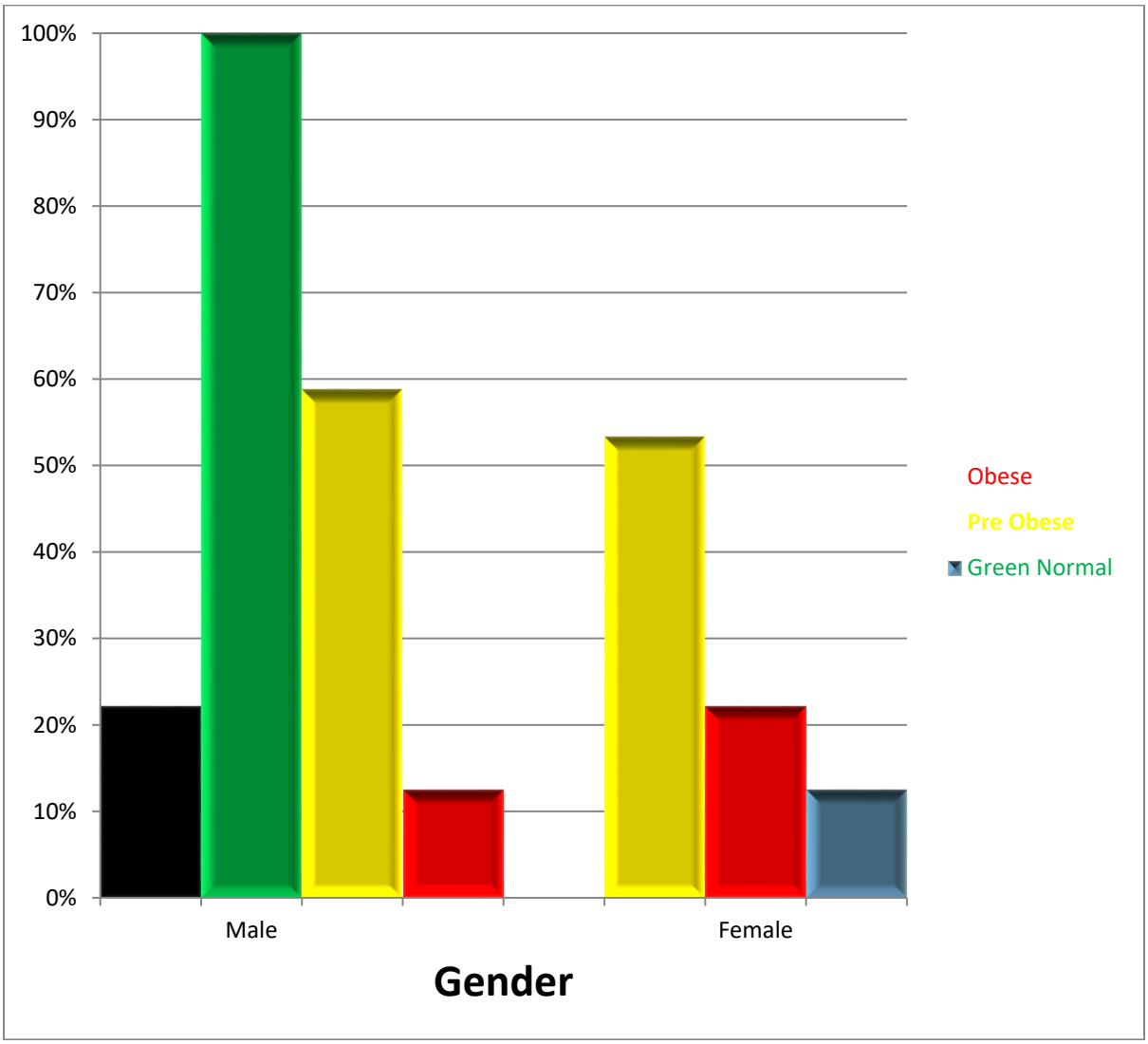


Figure No .8. Gender Wise Prevalence of Obesity among the Respondents

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

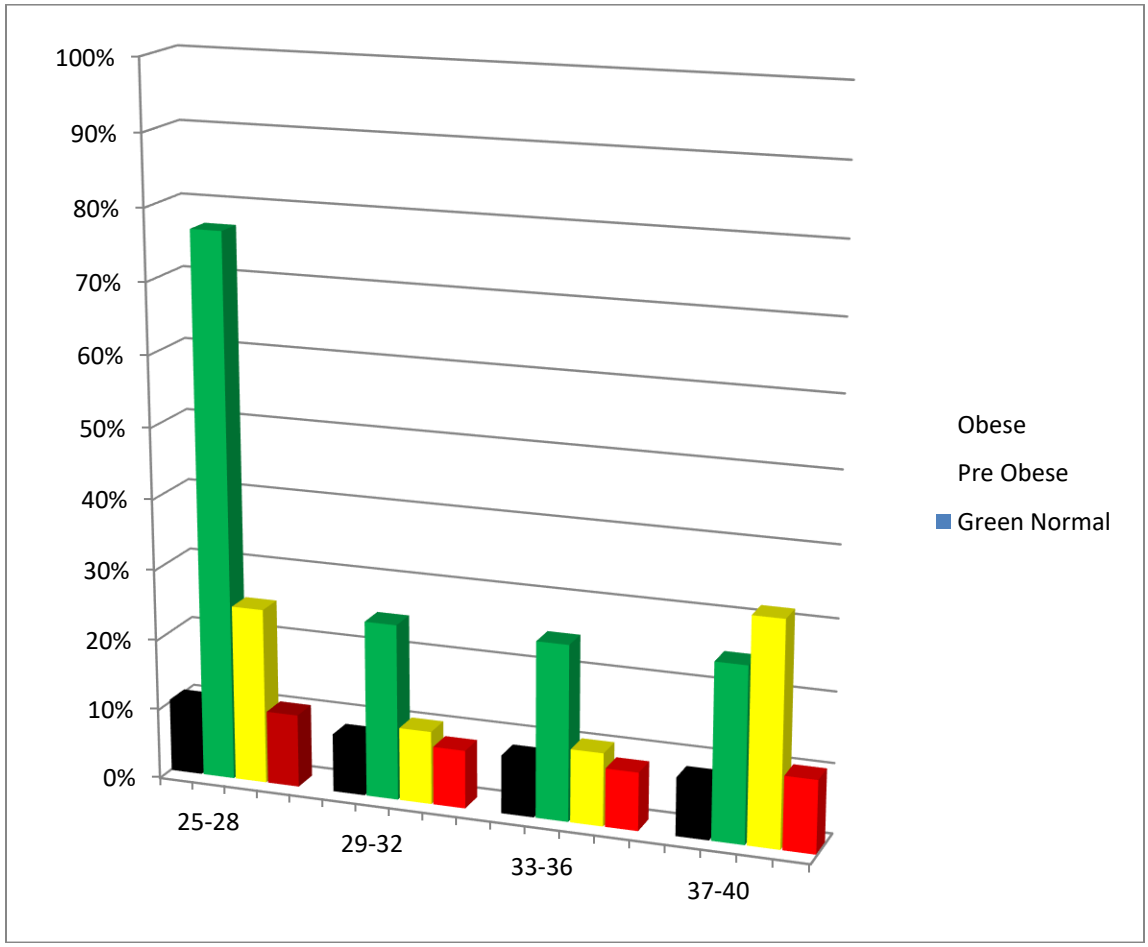
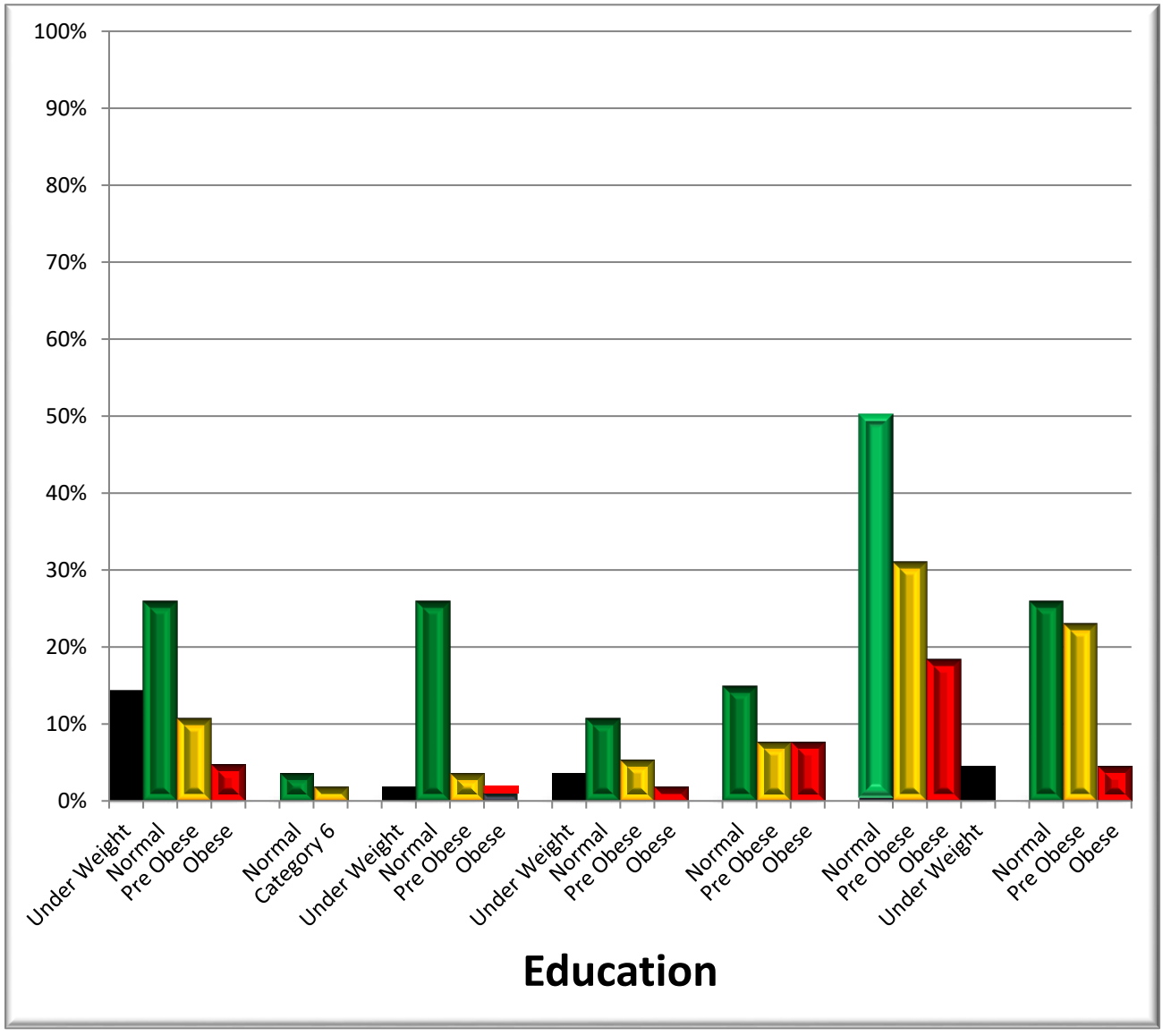


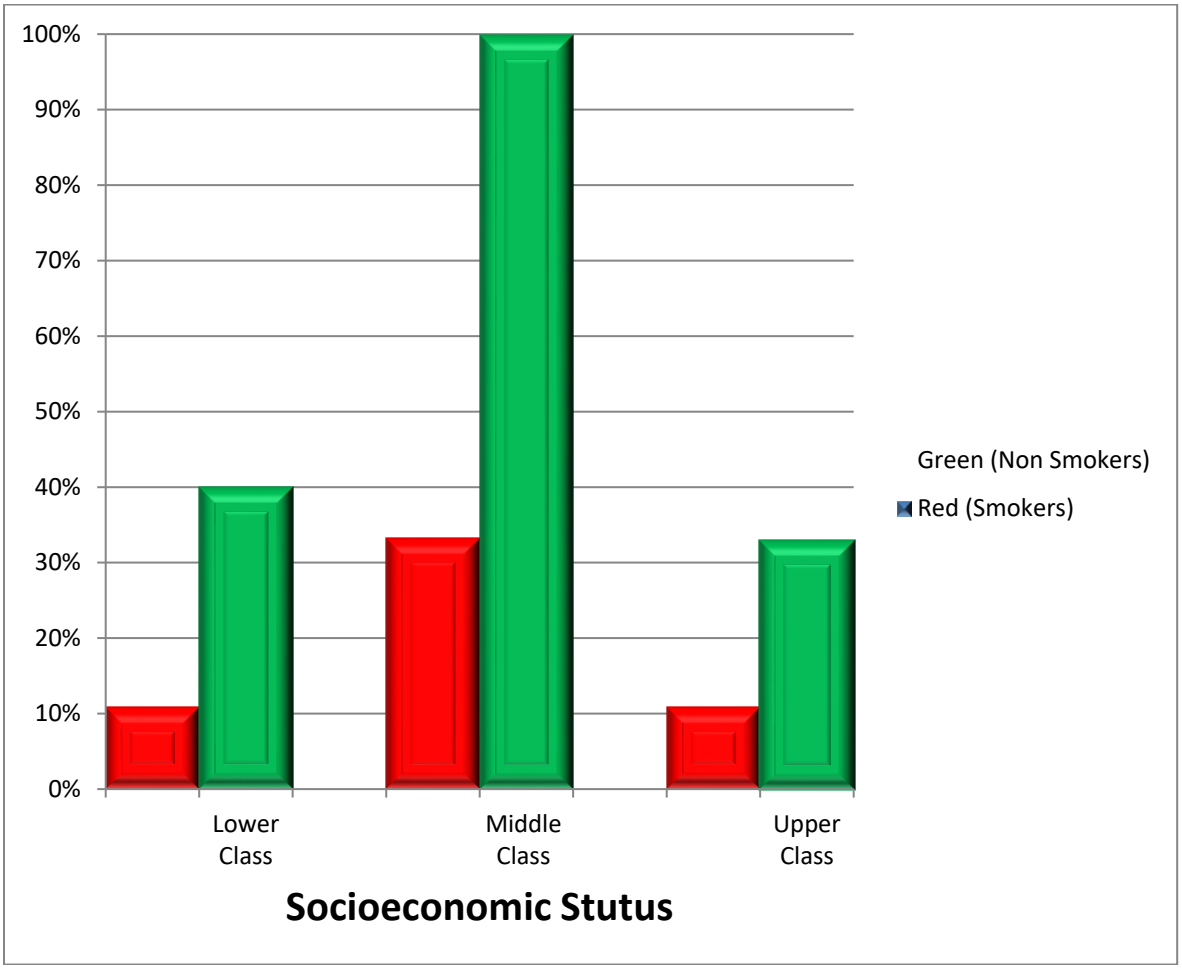
Figure No.9.Age Wise Prevalence of Obesity among the Respondents.

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018



e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Figure No.10.Prevalence of Obesity among the Respondents according to Education



e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

Figure .No. Prevalence Tobacco Smoking among the Respondents according to Socioeconomic Status.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

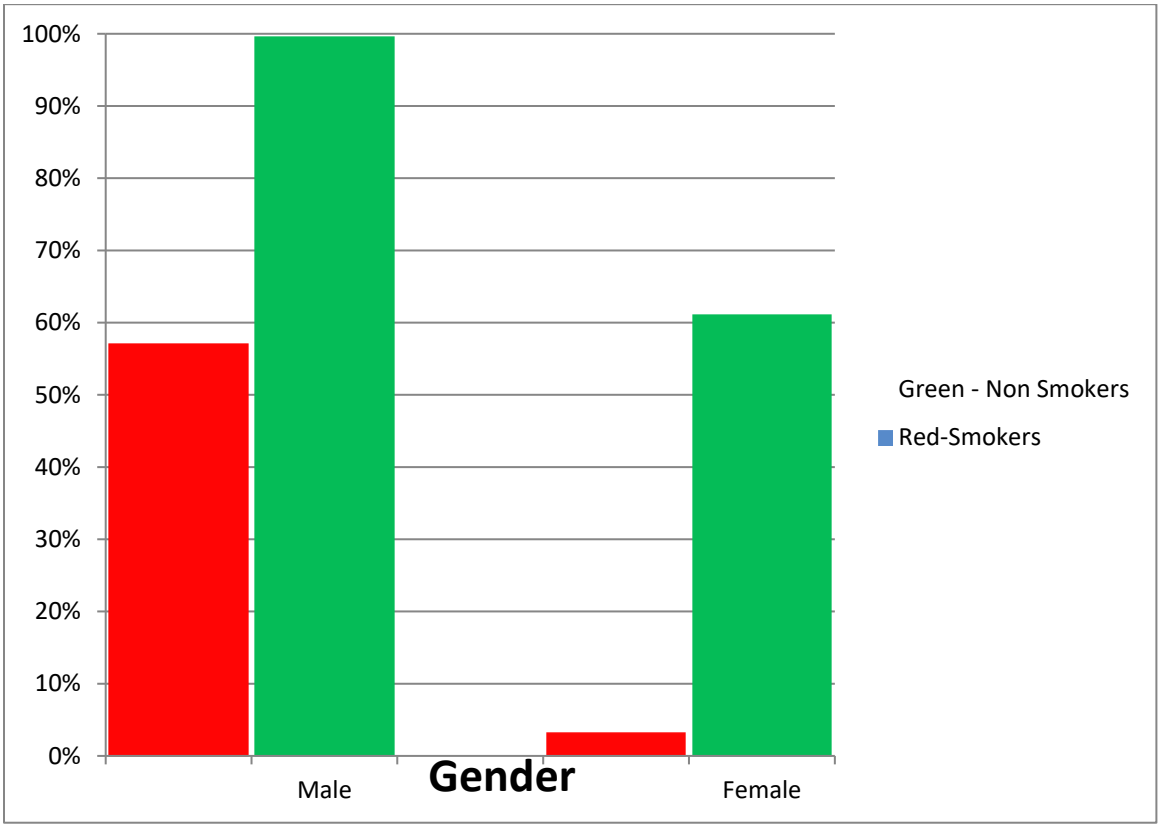
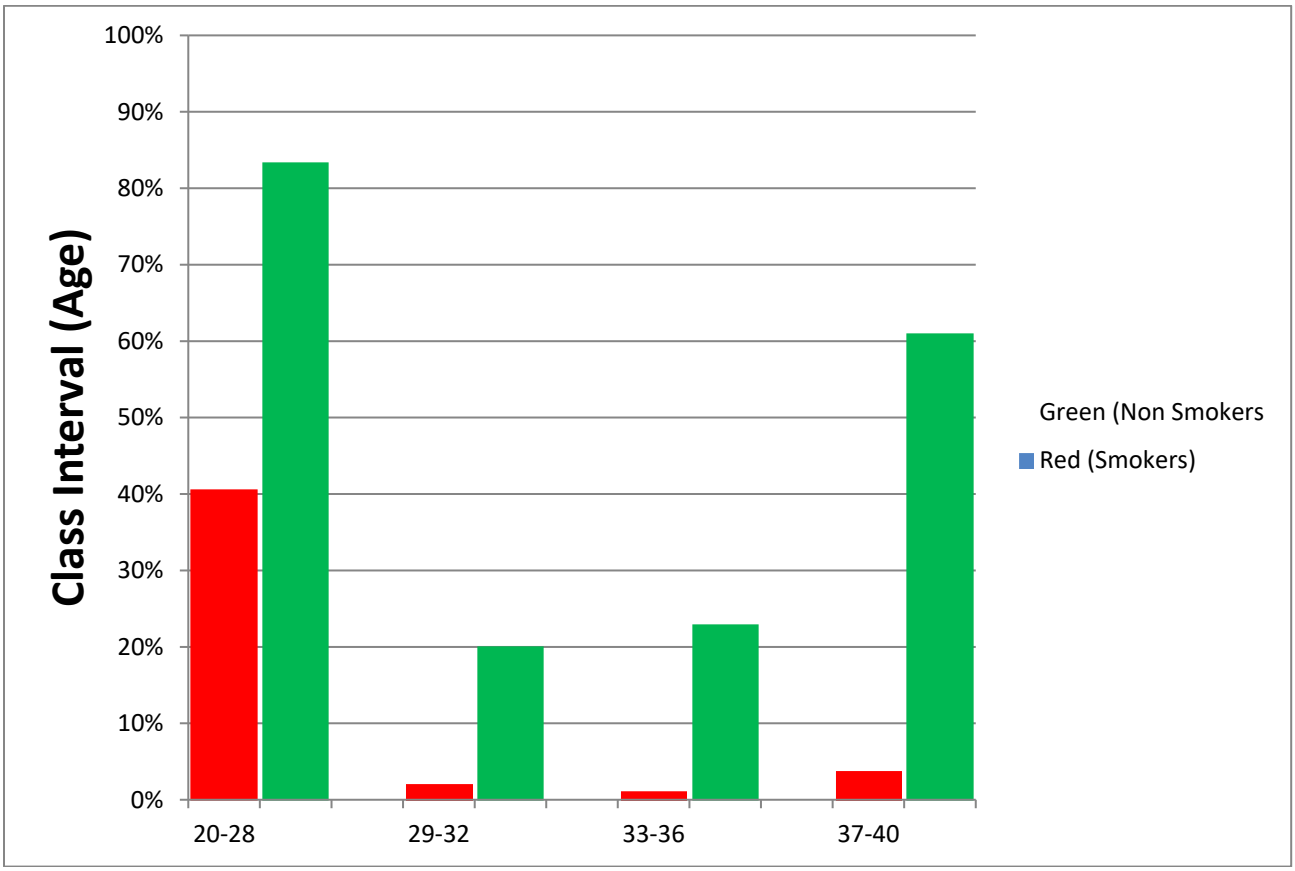


Figure No.14. Gender Wise Prevalence Tobacco Smoking among Respondents.

International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018



International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

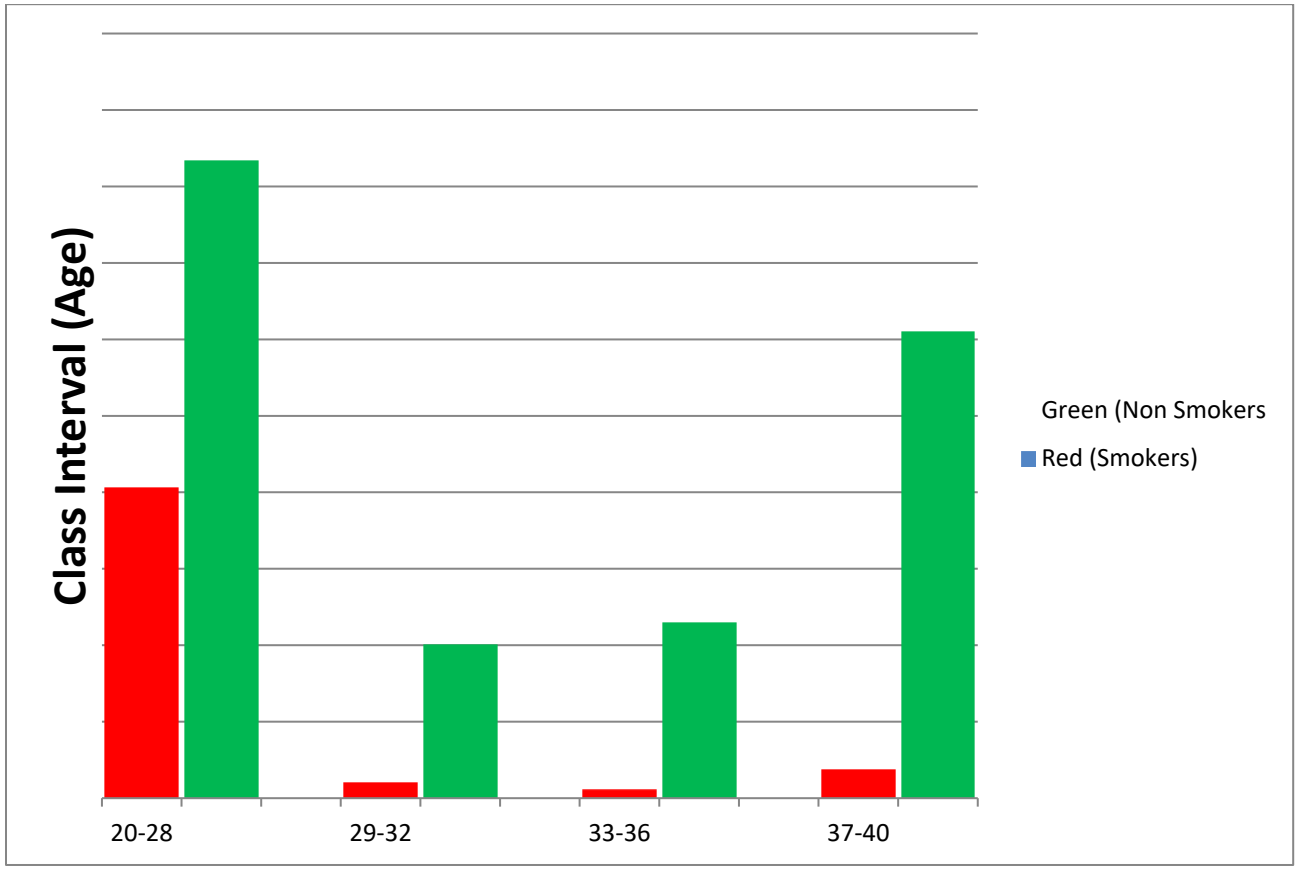
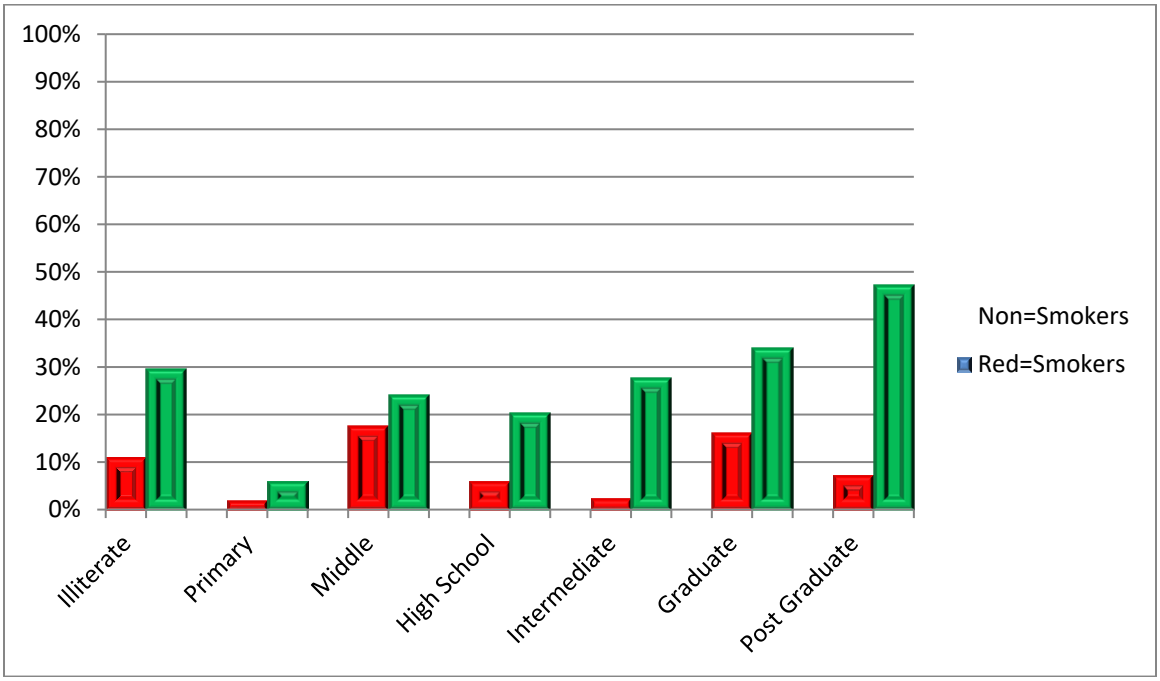


Figure .No15. Age Wise Prevalence of Tobacco Smoking among Respondents.

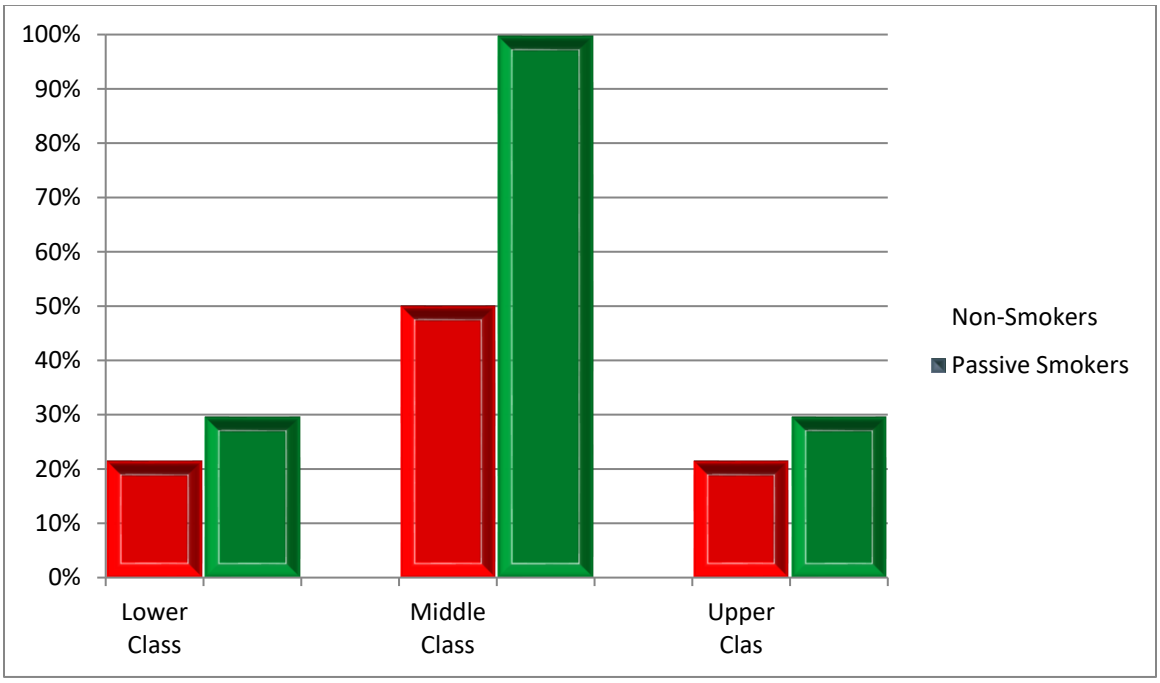
International Journal of Research
Available at https://pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018



Education:

Figure No.16. Prevalence of Tobacco Smoking among Respondents According to Educational Class.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018



Socioeconomice Status

Figure No.19. Prevalence of Passive Smoking among Respondents According to Socioeconomice Status.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

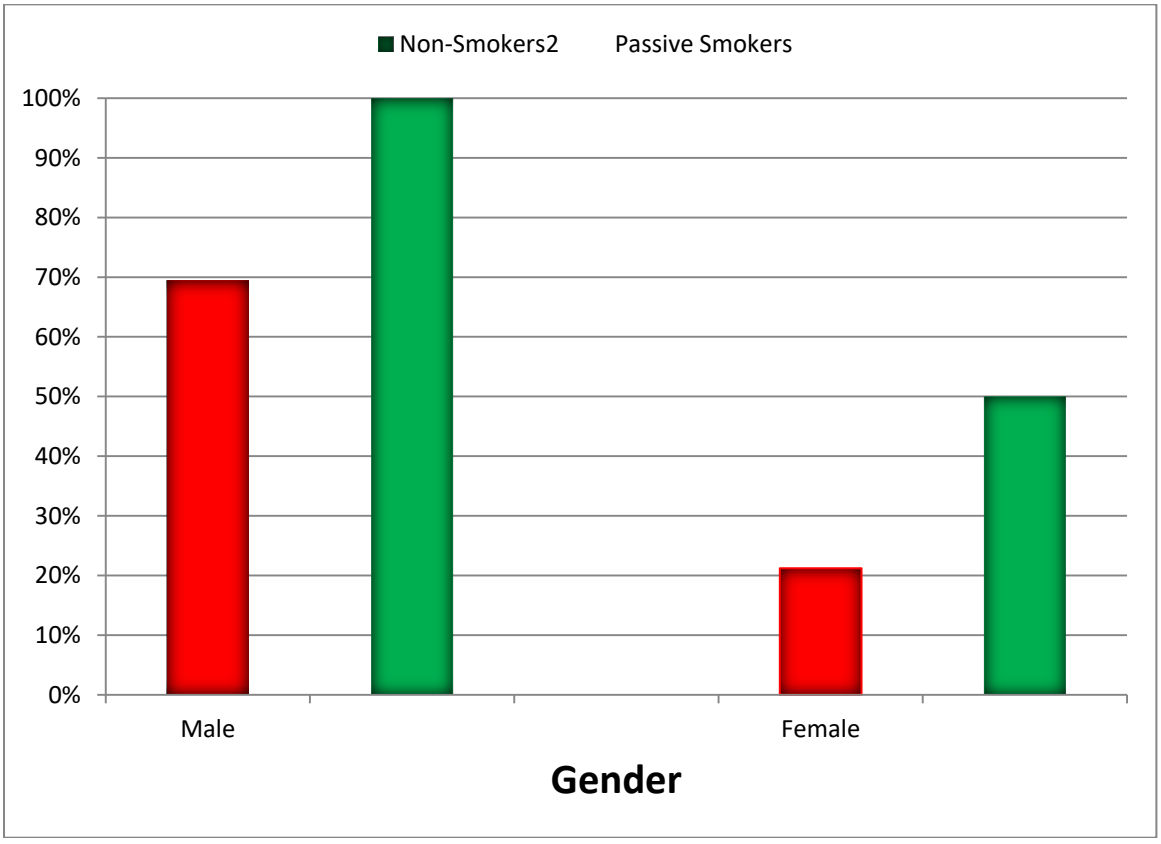


Figure No.20. Gender Wise Prevalence of Passive Smoking among Respondents.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

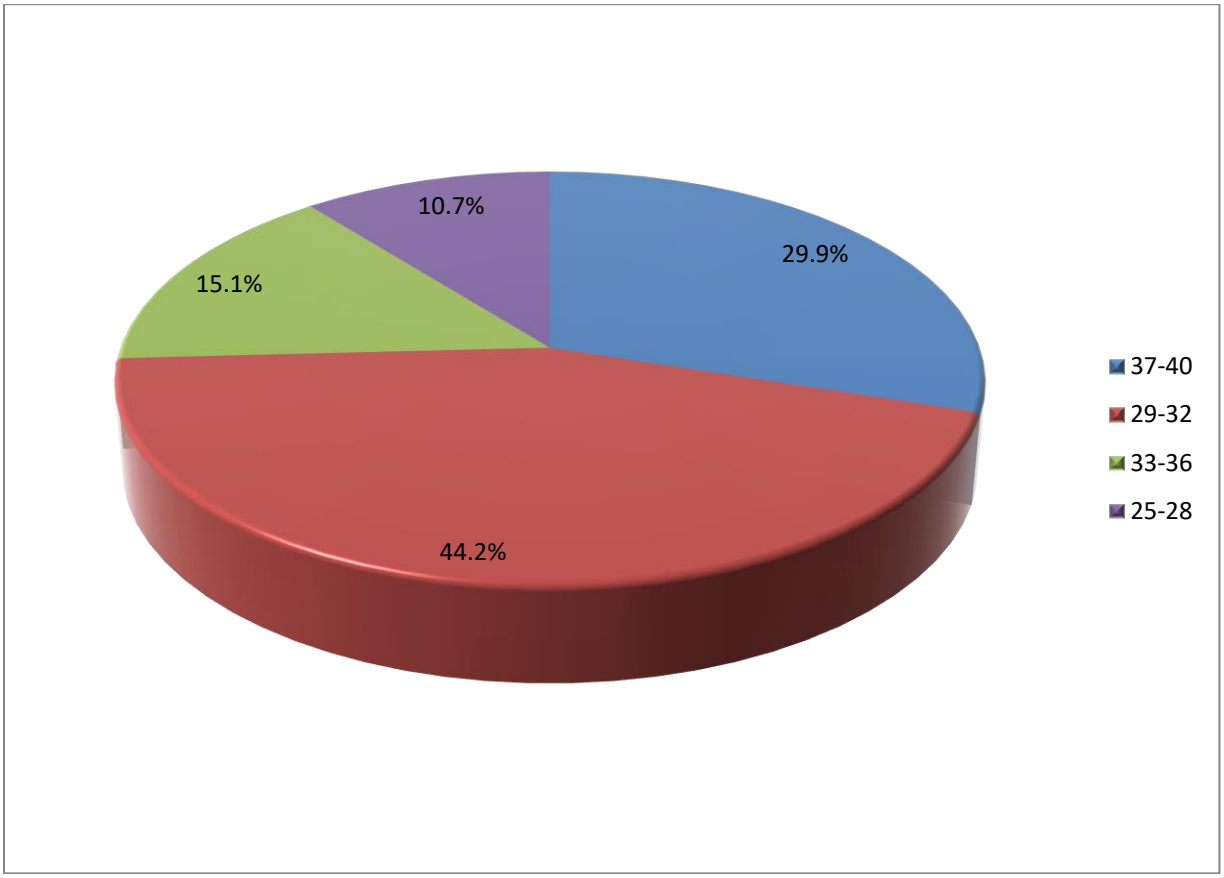


Figure No.21. Age Wise Prevalence of Passive Smoking among Respondents.

DISCUSSION

The WHO fact sheets (updated in January, 2015) recapitulate non-communicable diseases as a leading threat to human health and human development in today's world. NCDs are related to the interaction of various genetic, environmental and lifestyle factors, including smoking, unhealthy diets, physical inactivity and obesity. They often prevail disproportionately in disadvantaged socio-economic populations and represent a major obstacle to the economic development of many countries.

Our study revealed that the overall prevalence of smoking in the respondents was 23.3%; of which 22.5% were males and 0.8% females. Majority (11.3%) of the smokers belonged to the middle socio-economic class and (15%) were from the youngest age group under study i.e. 25-28 years. The highest proportion (8.3%) of individuals appearing as tobacco users were from the Labor Class and (6.67%) earned a monthly family income of less than Rs. 15000. This is in collaboration with a similar study conducted at Kabul, Afghanistan in 2009. According to which, majority (37.25%) of the males were smokers and only a slight proportion (0.17%) of the females was involved in smoking. The middle socio-economic class earned the highest prevalence (17.23%) of tobacco users. Tobacco smoking was found most prevalent (5.76%) in the respondents with a monthly family income of less than Rs. 15000.99 It, therefore, becomes the need of the hour to devise a comprehensive approach to reduce the risks associated with tobacco abuse, as well as promote the interventions to prevent and control it with special reference and concern to the adolescent population.[100]

According to our study, none of the female subjects was found to use smokeless tobacco products while 6.7% of the males were reported to consume them. A majority (3.33%) of these males belonged to the lower socio-economic class and (2.92%) came up from the youngest age group under study i.e. 25-28 years. Nearly half (3.33%) of all the smokeless tobacco users were Illiterate and most of them (5.42%) were Laborers; (4.58%) had a monthly family income of less than Rs. 15000. These results

are in consistence with those of a study conducted by WHO in Karnataka, India in 2005.101 The report then stated that the prevalence of use of smokeless tobacco products was almost negligible in the female population. Most (6.35%) of the users of such products belonged to the lower socio-economic class, while a huge majority (6.32%) of users who were Laborers by profession. In accordance with our study, the prevalence of passive smoking in all the respondents was 37.1%; of which 26.9% were males and 7.52% were females. The middle socio-economic class constituted most (19.6%) of the passive smokers and the risk factor yielded high prevalence in the youngest age group of the study 25-28 years and in Graduates (10.4%). Laborers were remarkably exposed to the second hand smoke constituting 11.7% of the total passive smokers followed by Businessmen (5.8%). This is in significance with a study conducted in Brasilia, Brazil in 2015.1°2 According to it, more males (28.2%) as compared to females (3.5%) were passive smokers. Most of the passive smokers came up from the middle socio-economic class. On the contrary, a study held in Mogadishu, in 2011103 showed that passive smoking had been a high prevailing factor among Students (12.3%) followed by Laborers (5.1%); while our study relates the increased prevalence with the Laborer class (11.7%).

Our study revealed that, out of 60% of the respondents with a low dietary intake of fruits; 50% were males and 10% were females and a majority of them belonged to the middle socio-economic class. Most (32.1%) of the study sample to have a low dietary intake of fruits ranged in ages between 25-28 years. Highest percentage (15%) among all the participants was of Illiterate followed by Graduates (10.8%) in the same order. About 27.9% of the respondents with low fruit consumption were reported to be Laborers. Respondents with a monthly family income of less than Rs. 15000 constituted a vast majority (24.2%) of population with an inadequate dietary intake of fruits. Mass education to increase production and consumption of healthy selections would cause huge benefit to the society.iO4 The aforementioned results of our study are consistent with a study conducted in Kathmandu, Nepal in 2011.10' According to which, majority (52.3%) of the respondents with low fruit intake were males. The risk factor prevailed

high in the youngest age group, in Laborers (213%) and in respondents with a total family income of less than Rs. 15000. A study conducted in Maharashtra, India in 2011106 showed that most of the respondents with low dietary fruit intake came up from the low socio-economic class, whereas, our study revealed that inadequate dietary intake of fruits prevailed in the middle socio-economic class.

In our study, the dietary intake of vegetables was reported to be low among 24.2% of all respondents. Out of which 15.4°A were males and 8.8% were females. Majority (12.5%) of these respondents belonged to the middle socio-economic class. Age wise distribution of low dietary intake of vegetables showed that it was most prevalent (10.8%) in the youngest age group 25-28 years; followed by Graduates (1.9%). Out of 24.2% respondents with low dietary intake; 5% were Professionals; 3.3% Businessmen; 2.9% Students and 3.3% Laborers. A good majority (10.8%) of the study sample with low vegetable intake had a family income of greater than Rs. 100,000; followed by those with an income ranging between Rs. 75000-100,000 (4.2%). This is in collaboration with a study conducted in Hyderabad, India in 2014.107 According to it, there was a higher percentage of males (17.3%) as compared to females (6.2%) with low vegetable intake. Majority of them belonged to the upper socio-economic class. Age wise distribution showed that low dietary intake of vegetables was most prevalent in the youngest age group. Out of all the respondents with such low intake, (7.2%) were Professionals. Majority of the individuals with a family income greater than Rs. 100,000 consumed inadequate vegetables.

Our study disclosed that 25.8% of all the respondents possess low physical activity, of which 12.9% were males and 12.9% were females. Most (18.33%) of them belonged to the middle socio-economic class. The risk factor prevailed high (10%) in the youngest age group 25-28 years; and similarly (10%) in the oldest age group 37-40 years. Education wise distribution of low physical activity recorded Post Graduates to be least active (8.75%) followed by Graduates (7.9%). These results are in collaboration with a study from Central India, which showed that majority (36.3%) of the respondents with low physical activity were

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

males and (14.2%) were females; most of all belonged to the middle socio-economic class.

Regarding BMI, more than half (55%) of all the respondents were categorized as normal, 5.8% underweight; 29.6% pre -obese and 9.6% crossed the borderline for obesity. Majority (7.5%) of the obese respondents came up from the middle socio-economic class and more than half (5.42%) of them were females. Obesity was found to be most prevalent (4.2%) in the oldest age group under study (37-40 years) followed by (3.8%) of the youngest age group 25-28 years. Homemakers constituted about half (2.92%) of all obese respondents followed by Students. Majority (2.92%) of these had a monthly family income of greater than Rs. 100,000. An overlap between low physical activity and obesity among educated people is

-

suggestive of their sedentary lifestyle.108 '09 This calls for a sound public health approach to promote the need for compulsory sports hours in curriculum of educational institutes. The results of our study are consistent with a research conducted by University of Kabul in 2010. According to which, among all the respondents, 4.8% were normal; 10.25% were underweight; 30.6% pre-obese; 10.6% obese. Majority (6.4%) of the obese were females. A research conducted in North America in 2014, showed that majority of the obese arose from the upper socio-economic class (7.5%). The risk factor of obesity was found prevailing more in the youngest age groups.

CONCLUSION

A high burden of the risk factors of NCDs was observed with almost all of them being most prevalent in the middle socioeconomic class and the youngest age group under study (25-28 years). Out of the entire study sample, risk of tobacco smoking and use of smokeless tobacco products was exclusively prevalent in males and was found negligible in females, indicating that females continued to follow the socio-cultural norms.

A very large proportion of study population was exposed to risk factor of low dietary intake of fruits possibly due to illiteracy and poverty. The population was found unaware of the benefits of eating fruits to their health. An overlap between low physical activity and obesity among educated population is

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 05 Issue 19
August 2018

suggestive of the sedentary life style and rapid urbanization.

RECOMMENDATIONS

- Promotion of quality healthcare practices via mass education and sound public health approach to introduce and develop health seeking behaviour among individuals is a high recommendation.

- Clear cut proclamation of the adverse health effects of certain lifestyle habits including direct tobacco use and second hand smoke and imparting knowledge about the health benefits of its cessation.

- Making the healthy selections more accessible by increasing the production, importation and utilization of fruits and vegetables across all age groups as specific targets.

- Instigation of strategies that support and promote weight reduction through modification of the diet and adoption of adequate physical activity.

- Identification and dealing with preventable causes of illnesses by prioritizing primary prevention programs with least cost and higher benefits in national and provincial resource allocation.

- Reversion of focus of policy and planning to become health oriented rather than disease oriented with enhanced improvement in primary care and health promotion.

- Intentional designing and strengthening of environment to improve individual behaviour, personal choices and personal responsibilities, together with metabolic and physiological risk factors.Full-flagged and group specific screening programs for adolescent population are to be endorsed in order to respond to the growing threat posed by NCDs.

REFERENCES

1) Jafar T, Haaland B. Ralnnan A, Razzak J, Bilger Nil; Naj-iavi M et al. Non-Communicable Diseases and Injuries in Pakistan: Strate,gic Priorities. The Lancet. 2013;381(9885):2281-2290,
2) Non-Communicable Diseases (NCDs) in Developing- Countries. A Symposium
    a. Report. The Public Health. Aspects of Chronic Diseases, EURO 111.1, p.9 WHO. Copenhagen. 2014;10(1).
3) Aiwa A, MacLean D, Riley L, d'Espaignet E, Mathers C, Stevens G et al. 1\ilonitorin.g and Surveillance of Chronic Non-Communicable Diseases: Progress and Capacity in High-Burden Countries. The Lancet. 2010;376(9755):1861-1868.
4) Branch C. Communicable Diseases R.eport, NSW November and Dec,ember 2010.
    a. NSW Public Health Bull. 2011;22(2):35.
5) Idowu A, Fatusi A, Olajide F. Clustering of Behavioural Risk Factors for Non-Communicable Diseases (NCDs) Among Rural-Based Adolescents in South-West Nigeria. International Journal of Adolescent Medicine and Health. 2016.
6) Slone D, Shapiro S, Rosenberg L, Kaufman D, Hartz S, Rossi A et al. Relation of Cigarette Smoking to Myocardial Infarction in Young Women. New England Journal of Medicine. 2008;298(23):1273-1276.
7) Shaper A, Pocock S, Walker M, Cohen N., Wale C, Thomson A. British Regional Heart Study:

cardiovascular Risk Factors_ in Middle-Aged Men in 24 towns.-131\4J. 2011;283(6285):179-186.

8) Ezzati M. Lopez A, Rodgers A. Vander Hoorn S, Murray C. Selected Majorkisk Factors and Global And Regional Burden of Disease. The Lancet. 2012;360(9343):1347-1360.

9) Karelina Z, Fritschel H. Tackling Non-Communicable Diseases: Report on a Seminar Leading Up to the UN High-level Meeting on Non-Communicable Diseases. Public Health. 2011;14(12):2268-2269.

10) World Health Organization (WHO)/International Society of Hypertension (ISH) Statement on Management of Hypertension., 4gurnal of Hypertension. 2013;21(10:1983-1992.

11) Ulijaszek S. Obesity: Preventing and Managing the Global Epidemic. Report of a WHO Consultation. WHO Technical Report Series 894. Pp. 252. (World Health Organization, Geneva, 2000.) Journal of Biosocial Sciences. 2013;35(4):624-625.

12) Stevens G, Mascarenhas M, Mathers C. Global Health Risks: Progress and Challenges. Bulletin of the World Health Organization. 2009;87(9):646-646.

13) Zhang P, Zhang X, Brown J, Vistisen D, Sicree R, Shaw J et al. Global Healthc.ar(Expenditure on Diabetes for 2010 and 2030. Diabetes Research and Clinical Practice. 2010;87(3):293-301.

14) Tagurum Y Okoh E, Inalegwu E, Ozoilo J, Banat M, Zoakah A. Non-Communicable Diseases: Prevalence and Risk Factors among Adults in a Rural Community in Plateau State,

Nigeria. International Journal of Biomedical Research. 2015;6(4):228.

15) Robles S, Adrion E, Anderson G. Premature Adult Mortality From Non-Communicable Diseases (NCD) in Three Middle-Income Countries: Do NCD Programmes Matter?. Health Policy and Planning. 2011;27(6):487-498.

16) Global Health Observatory. Choice Reviews Online. 2014;51(10:51-6210-51-6210.

17) Mutangadura G. World Health Report 2002: Reducing Risks, Promoting Healthy Life World Health Organization, Geneva, 2002. Agricultural Economics, 2014;30(2):170-172

18) British Hypertension Society Guidelines for Hypertension Management 2014 (BHS-IV): Summary. British Medical Journal. 2014;328(7445):926-926.

19) Global Recommendations on Physical Activity for Health. Geneva, World Health Organization, 2010.

20) Shafey 0, Fernandez E Thun M, et al. Cigarette Advertising And Female. Smoking Prevalence in Spain, 1982-1997: Case Studies in International Tobacco Surveillance.Cancer. 2014;100(8): 1744-1749.

21) Voigt King N. Disability Weights in the Global Burden of Disease 2010 Study: Two Steps Forward, One Step Back?. Bulletin of the World Health Organization. 2014;92(3):226-228.

22) Ness A. Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series 916. Report of a Joint WHO/ESA Expert

Consultation. International Journal of Epidemiology. 2014;33(4):914-915.

23) Bazzano L, Serdula M, Liu S. Dietary Intake of Fruits and Vegetables and Risk of Cardiovascular Disease. Current Atherosclerosis Report. 2013;5(6):492-499.

24) Profile of Country-Clusters According to Globe Dimensions of Culture, Pakistan. Organization and Management. 2013 ;2(20): 155.

25) British Journal of General Practice, June 2010.

26) Beaglehole R, Bortita R, Ezzati M, Alleyne G, Dain K, Kishore S et al. NCD Countdown 2025: Accountability tbr the 25 x 25 NCD Mortality Reduction Target. The Lancet. 2014;384(9938):105-107.

27) Evans DEtienne C. Health systems financing and the path to universal coverage. Bulletin of the World Health Organization. 2010;88(6):402-402.

28) Hyder A, Rottlant G, Morrow R. Measuring the burden of disease : healthy life-years. Am J Public Health. 2008;88(2):196-202.

29) Curbing the Epidemic. The World Bank, Washington D.C. The Lancet. 2009;367(9522): 1549.

30) A quote by Thomas A. Edison [Internet]. 2016 [cited 14 July 2016]. Available from: https://www.brainyquote.com/quotes/authors/t/thomas_a_edison.%20html

31) Bonita R. Strengthening NCD preVention through risk factor surveillance. Global Health Action. 2010;3(0).

32) Sandhu S, Chauhan R, Mazta S. Prevalence of Risk Factors for Non-Communicable Diseases in Working,

Population. MANIC Journal of Medical Sciences: 2015;1(2):101.

33) Pham L, Au T, Blizzard L, T'ruong N, Schmidt M, Granger R et al. Prevalence of Risk Factors for. Non-Communicable Diseases in the Mekong Delta, Vietnam: Results from a STEPS Survey. BMC Public Health 2009;9(1).

34) Kinra S, Bowen L, Lyritzdoli T, Prabhakaran D, Reddy K, Ramakrishnan L et al. Sociodemographic Patterning of Non-Communicable Disease Risk Factors in Rural India: A Cross Sectional Study. BM.T. 2010;341(1):4974.

35) Laskar A, Sharma N, Bhagat N. Lifestyle Disease Risk Factors in a North Indian Community in Delhi. Indian Journal of Community Medicine. 2010;35(3):426.

36) Devi D, Kumar D, Sreedhar D. Indian Journal of Basic and Applied Medical Research. 2014;4(1):487-493.

37) Sochaliya KIM, Pannar DV, Yadav SB. A Study of Prevalence of Lifestyle Diseases and its Risk Factors in Urban Area of Jamnagar City. National Journal of Community Medicine 2012;3(4):595-600.

38) Acharya T, Kaur P, Murhekar MV. Prevalence of Behavioral Risk Factors, Overweight and Hypertension in the Urban Slums of North 24 Parganas District, West Bengal, India. Indian Journal of Public Health 2014;58:195-198.

39) Thanappan K, Shah B, Mathur P, Sharma P Srinivas G, Mini G et al. Risk factors Profile for Chronic Non-Communicable Diseases: Results of a Community-Based Study in

Kerala, India. Indian Journal of Medicine and Research. 2010;131(1):53-63.

40) 39. Basu 0, Biswas S; Chatterjee C. Behavioral Risk Factors of Non-Communicable Diseases: Experience from a Village of Hoogley District, West Bengal. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2013;4(3):19-24.

41) Muyambi G, Kabayambi J, Muwanga F, Kawanguzi E, Mulamba M, David K et al. Center for Disease Control And Prevention (CDC).. CEHURD Social Justice in Health. 2014.

42) Asiki G, Murphy G, Nakiyingi-Miiro J, Seeley J, Nsubuga R, Karabarinde A et al. The General Population Cohort in Rural South-Western Uganda: A Platform for Communicable and Non-Communicable Disease Studies. London School of Hygiene and Tropical Medicine. 2013 ;42(1): 129-141.

43) The Global Economic Burden of Chronic Non-Communicable Disease: The Burden in Asian INDEPTH Health and Demographic Surveillance Sites. Global Health Action. 20092(0).

44) Ministry of Health: Non-Communicable Diseases [Internet]. Ministry of Health [cited 25 May 2016]. Available from: http://heath.go.ug/mohweb/enlindex.html

45) Mondo C, Otim NI, Akol G, Musoke R, Orem J. The Prevalence and Distribution of Non-Communicable Diseases and Their Risk Factors in Kasese District, Uganda:

Cardiovascular Journal of Africa. 2013;24(3):52-57.

46) Uganda Bureau of Statistics (UBOS) and ICF International Inc. (2012): Results from the Demographic and Health Survey. Studies in Non-Communicable Diseases. 2011;40(2):161-166.

47) Tracy L. Kolbe, Alexander E, Jaco C, Estelle V, C. Kolbe-Alexander et al. BMC Public Health 2013, Licensee BioNfled Central Ltd. 2013.

48) Hill RK, Thompson JW, Shaw JL, Pinidiya SD, Card-Higginson P: Se fReported Health RiSks. Linked to Health Plan Cost and .Age Group. American JOUrnal of Preventive Medicine. 2009;36:468-474.

49) Prince S, Adamo K, Hamel NI, Hardt J, :Connor Gorber S, Tremblay M. A Comparison of Direct Versus Self-Report Measures for Assessing Physical Activity in Adults A Systematic Review. International Journal of Behaviour and Nutrition. 2008;5(0:56.

50) Aryal K, Mehata S, Neupane S, Vaidya A, Dhimal M, Dhaka'. P et al. The Burden and Determinants of Non Communicable Diseases Risk Factors in Nepal: Findings from a Nationwide STEPS Survey. PLOS ONE 2015;10(8):e0134834:

51) A Global Status Report on Non-comMuniCable Diseases by the World Health Organization; Geneva, Switzerland, ww) Press. 20 1 1; 6 1(4):4217421.

52) Annual Report Department of Health Services. In: Services DoH, Editor. Kathmandu: Ministry of Health and Population, Department of Health Services. DoHS, 2013.

53) Karki KB, Dahal BR, Regmi A, Poudel A, Gurung Y. WHO STEPS Surveillance: Non Communicable Diseases Risk Factors Survey. Ministry of Health and Population, GoN, Society for Local Integrated Development Nepal (SOLID Nepal) and WHO. 2015;1(2):101-104.

54) Laskar. A, Sharma N, Bhagat N. Lifestyle Disease Risk Factors in a Mirth Indian CoMmunity in Delhi. Indian Jorn.al of Community Medicine. 2010;35(3):4267428.

55) Sharrna.U, Kishdre J, Garg A, Ariand T, Chakraborty M, Lali P. Dyslipidemia and Associated Risk Factors in a Resettlement Colony of Delhi. Journal of Clinical Lipidology. 2013;7(6):653-660.

56) STEP' ise Approach to Non-Communicable DiSease Risk Factor Surveillance (STEPS) [Internet]. World Health Organization. 2013 [cited 4 June 2016]. Available from: http://www.who.intichp/steps/riskfactorlenlindex.html

57) Anandl% chakrabdrty Garg A, Ingle G, KiShore J, Ray P et al. Prevalence of RiSk Factors for, Chronic .NOn-Communicable Diseases Using Who Steps Approach in an Adult Population in Delhi. Journal of Family MedicMe PriMary. care. 2014;3(2):112:

58) World Health Organization Surveillance of Non-Communicable Diseases: Report of a WHO Meeting [Internet]. World Health Organization. 2009 [cited 9 July 2016]. Available from: http://www.who.int/nmhievents/2009/meetin<.ireport_20090822.pdf

59) Srinath• Reddy K; Shah B, Varghese C, R.4inadoss A. Responding to the

..Threat of Chronic Piseases to India. The Lancet 2015;366(9498):1744-1749.

60) Misra A, Chowbey P, Makkar BM, Vikram NK, Wasir JS, Chadha D, et al. Consensus Statement for Diagnosis of Obesity, Abdominal Obesity and The Metabolic Syndrome for Asian Indians and Recommendations for Physical Activity, Medical and Surgical Management. Journal of Associated Physicians India. 2009;57:163-70.

61) American Diabetes Association. Standards of Medical Care in Diabetes [Internet]. American Diabetic Association 2013. [cited 9 July 2016]. Available from: http://www.care.diabetesjournals.org icontent/36/Supplement 1/S 11full

62) National Heart, Lung and Blood Institute. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood

a. Pressure [Internet]. U.S. Department of Health and Human services. 2014. [cited 10July2016].Availablefrom: http://www.nhIbi.nih.pxv/guidelines/hypertension/jnc7full.pdf.

63) Witter T, Poudevigne M, Lambrick D, Faulkner J, Lucero A, Page R et al. A Conceptual Framework for Heart Disease; Lifestyle; Health Gap; Culture; Disparity; Nutrition in Fiji: Perspectives in Public Health. 2013;135(2):75-84.

64) Wilson P, D'Agostino R, Sullivan L, Parise H, Kannel W. Overweight and Obesity as Determinants of Cardiovascular Risk: The

Framingham Experience, Archives of Internal Medicine 2012,162(16):1867-1872.

65) Balkau B, Deanfield J, Despres J, Bassand J, Fox K, Smith S et al. International Day for the Evaluation of Abdominal Obesity (IDEA): A Study of Waist Circumference, Cardiovascular Disease and Diabetes Mellitus in 168,000 Primary Care Patients in 63 Countries. Circulation 2007;116(17):1942-1951.

66) Franco O, Peeters A, Bonneux L, de Laet C. Blood Pressure in Adulthood and Life Expectancy With Cardiovascular Disease in Men and Women: Life Course Analysis, Hypertension. 2005;46(2):280-286.

67) Chobanian A, Bakris G, Black H, Cushman W, Green L, Izzo J et al. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, Hypertension. 2003;42(6):1206-1252.

68) Jones P. Low-Density Lipoprotein, Cholesterol Reduction and Cardiovascular Disease Prevention: The Search for Superior Treatment. The American Journal of Medicine. 2004;116(6):175-255.

69) Teramoto T, Nakaya N, Yokoyama S, Ohashi Y, Mizuno K, Nakamura H. Association between Lowering Low-Density Lipoprotein Cholesterol with Pravastatin and Primary Prevention of Cardiovascular Disease in Mild to Moderate Hypercholesterolemic Japanese. Journal of Atherosclerosis and Thrombosis. 2010;17(8):879-887.

70) Lloyd-Jones D, Adams R, Brown T, Carnethon M, Dai S, De Simone G et

al. Executive Summary: Heart Disease and Stroke Statistics-2010 Update: A Report From the American Heart Association Circulation. 2010;121(7):948-954.

71) Ward Black L. State and Regional Prevalence of Diagnosed Multiple Chronic Conditions among Adults Aged >18 Years- United States, 2014. Morbidity and Mortality Weekly Report (MMWR). 2016;65(29):735-738.

72) He F, Nowson C, Lucas M, MacGregor G. Increased Consumption of Fruit and Vegetables Related to a Reduced Risk of Coronary Heart Disease: Meta-Analysis of Cohort Studies. Journal of Human Hypertenstion. 2007;21(9):717-728.

73) Ronksley P, Brien S, Turner B. Mukamal K, Ghali W. Association of Alcohol Consumption with Selected Cardiovascular Disease Outcomes: A Systematic Review and Meta-analysis. British Medical Journal. 2011;342(1):671.

74) Corrao G, Rubbiati L, Bagnardi V, Zambon A, Poikolainen K. Alcohol and Coronary Heart Disease: A Meta-Analysis. Addiction. 2010;95(10):1505-1523.

75) Willett W, Green A, Stampfer M, Speizer F, Colditz G, Rosner B et al. Relative and Absolute Excess Risks of Coronary Heart Disease among Women Who Smoke Cigarettes. The New England Journal of Medicine. 2007;317(21):1303-1309.

76) Mamun A, Peeters A, Barendregt J, Willekens F, Nusselder W, Bonneux L. Smoking Decreases The Duration of Life Lived With and Without Cardiovascular Disease: A Life

Course Analysis of the Framingham Heart Study. European Heart Journal. 2014;25(5):409-415.

77) Conen D, Everett B, Kurth T, Creager M, Buring J, Ridker P et al. Smoking, Smoking Status and Risk for Symptomatic Peripheral Artery Disease in Women. A Cohort Shady. Annals of International Medicine. 2011;154(11):719-726.

78) Saeed K, Rasooly M, Brown N. Prevalence and Predictors of Adult Hypertension in Kabul, Afghanistan. BMC Public Health. 2014;14(1)2166-2203.

79) Ramachandran A. Urban India: Breeding Group for Diabetes. Diabetics Voice. 2012;47(1):18-20

80) Nelson F, Nyarko K, Binka F. Prevalence of Risk Factors for Non-Communicable Diseases for New Patients Reporting tQlcorle7puyeaching Hospital. qban#Medicaj Journal. 2015;49(1):12.

81) Biritwum RB, Gyapong J, Mensah G. The Epidemiology of Obesity in Ghana. Ghana Medical Journal. 2015;39(3): 1 .

82) Brent A, Burket. Blood Pressure survey in two communities in the Volta Region, Ghana, West Africa. Ethnicity and Disease. 2009;16.

83) Ghana Health Survey. Ghana STEPS Survey, GreaVef Aecra Region,aria.ltat Public Health. 2014;14(1),

84) World Health Organization. Report on the Global Tobacco Epidemic. Gambia STEPS Survey; 2011. Tobacco Surveys of Adult Tobacco Use in WHO Member States

a. Globally.2011;55(3);169,

85) Van Tol A, Hendriks H. Moderate Alcohol Consumption: Effects on Lipids and Cardiovascular Disease Risk. Current Opinion in Lipidology. 2011;12(1):19-23.

86) World Health Organization. Non-Communicable Diseases and Mental health: Global Status Report on Non-Communicable Diseases, Their Risk Factors and Determinants. 2010

87) Schuit A, Van Loon A, Tijhuis M. Ocke M. dlustering ofLifesty is Factors in a

a. General Adult Population. Preventive Medicine. 2012;35(3):219-224.

88) Bhagyalaxmi A, Atul T, Shikha J. Prevalence of Risk Factors of Non-communicable Diseases in a District of Gujarat, India. Journal of Population Health. 2013;31(1)75-78.

89) Chadha SL, Gapinath N, Shekhawat S. Urban-Rural Differences in Prevalence of Coronary Heart Disease and Its Risk Factors in Delhi: World Health Organization. 2007;75:31-38

90) Muleneh A, Hailemlak A, Tesseriia F, Aletnsegeolde-Michael`al. Ethiopian Journal of Health Sciences. 2012;22:

91) Swai A, McLarty D, Kitange H, Kilima P, Tatalla S, Keen N et al. Low Prevalence of Risk Factors for Coronary Heart Disease in Rural Tanzania. International Journal of Epidemiology. 2013;22(4):651-659.

92) Norris S, Kansagara D, Bougatsos C, Rongwei F. Screening Adults for Type 2 Diabetes: A Review of the Evidence for the U.S. Preventive Services Task Force. Annals of

Internal Medicine. 2008;148(11):855-868.

93) Gandhi H, Viashali K, Prem V, Kumar V, Adikari P, Unnikrishnan B. National Journal of Community Medicine. 2012;3(1)50-72.

94) Ng N, Stelund H, Bonita R, Hakimi M, Wall S, Weinehall L. Preventable Risk Factors for Non-Communicable Diseases in Rural Indonesia: Prevalence Study Using WHO STEPS Approach. Bulletin of the World Health Organization. 2006;84:305- 313 .

95) Ramachandran A, Mary S, Yamuna A, Murugesan N, Snehalatha C. High Prevalence of Diabetes and Cardiovascular Risk Factors Associated With Urbanization in India. Diabetes Care. 2008;31(5):893-898.

96) A quote by Brian Carter [Internet]. 2016 [cited 14 July 2016]. Available from: http://www.brainyquote.com/quotes/ authors/b/brian carter.html

97) Koritz.ky G, Dieterle C, Rice C, Jordan K, Bechara A. Deeision-Making, Sensitivity to Reward and Attrition in Weight Management. Obesity. 2014;22(8):1904-1909.

98) Ornstein Ni. Report on 'Striving Towards the High Reliability Organisation': Fourth Annual Simulation Conference; Homerton University Hospital NHS Foundation Trust, 11 Dec,cmber 2014. JSS. 2014;1:22-24.

99) Clare P, Bradford D, Courtney R. Martine K, Mattick R. The Relationship between Socioeconomic Status and 'Hardcore' Smoking Over Time - Greater

Accumulation of Hardened Smokers in Low-SES than High-SES Smokers. Tobacco Control. 2014;23(e2):e133-e138.

100) Lee E, Lei M, Holcomb E. American Mock World Health Oreanization.

a. (AMWHO): Introducing Global Health Policy through a Model WHO Conference. The Lancet Global Health. 2016;4:44.

101) Dutta D, Gupta P, Anand P. Prevalence of Risk Factors for Non-

a. Communicable Diseases and their Association with Age, Education and Occupation in Adults of Karnataka, State of India. Journal of Scientific Research. 2010;2(8):121¬126.

102) Bolotova E, Samorodskaya I, KOilliSSarOVa I. Gender and Age Specifics of Prevalence of Passive Smoking in Brasilia. Kardiovask Ter Profil. 2015;14(0:47-50.

103) Tucker M. Ncds Among The Bottom Billion. Internal Medicine News. 2011;44(5):50.

104) 104. Shin H, Varghese C. WHO Western Pacific Regional Action Plan for the Prevention and Control of NCDs (2014-2020). Epidemiological Health. 2014 ; e2014007.

a. Davies A. Blake C, Dhavan P. Social DeterminaritS and Risk Fattors for Non-

105) Cominunicable Diseases (NCDs) in Kathmandu, Nepal. Community Medicine Journal. 2011;8(4):461-473.

106) Bachani D, Srivastava R. Burden of NCDs. Policies and Programme for Prevention and Control of NCDs in India. Indian Journal Community Medicine. 2011;36(5):7.

107) Lobstein T, Brinsden H. Symposium Report: The Prev-ention of Obesity and NCDs: Challenges and Opportunities for. Indian Government. Indian Medical Journal. 2014;15(8): 630-639.

108) Beaglehole R. NCDs: Time for Fewer Proposals mid More Action. The Lancet. 2014;383(9916):504.

109) Oo W, Khaing Vvr, Mya K, Moll M. Health Literacy - Is It Useful in Prevention of Behavioral Risk Factors of NCDs? International Journal of Research in Medical Sciences. 2015;2331-2336.

110) Ewart-Pierce E, Mejia Ruiz M, Gittelsohn J. "Whole-of-Community" Obesity PreVention: A Review of Challenges and Opportunities in Multilevel, Multi-component Interventions. Current Obesity Report. 2016;5(3):361-374.

111) Stronks K. The Complex Interrelationship between Ethnic and Socio¬economic Inequalities in Healt

112) h. American Journal of Public Health. 2009;31(3):324- 325.