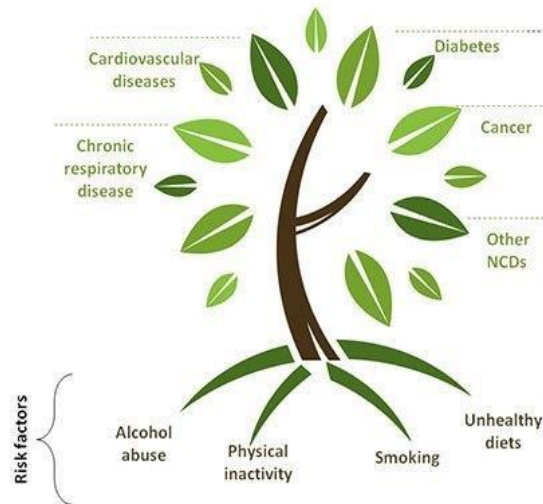


A STUDY ON PREVALENCE OF LIFESTYLE DISEASE AMONG DIFFERENT AGE GROUPS IN MAVELIKARA TALUK



Project Submitted to the University of Kerala in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science

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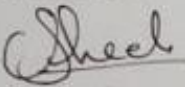

This is to certify that this project entitled **A STUDY ON PREVALENCE OF LIFESTYLE DISEASE AMONG DIFFERENT AGE GROUPS IN MAVELIKARA TALUK** is an authentic record of the work carried out by Mr./Miss...**ARCHANA.S**:..... B.Sc. Zoology (VI Semester) student under my supervision and guidance and that no part of this report has been submitted earlier for any other degree or diploma.


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Examiners

1. 
2. 

DECLARATION

I do hereby declare that this project entitled A STUDY ON PREVALENCE OF LIFESTYLE DISEASE AMONG DIFFERENT AGE GROUPS IN MAVELIKARA TALUK is the bonafide work carried out by me under the supervision and guidance of Dr. Deepthi G.R., Associate Professor, Department of Zoology, Bishop Moore College, Mavelikara for the partial fulfillment of the requirements for the degree of Bachelor of Science and that no part of this project work has been submitted earlier for award by any other degree, diploma or recognition of any university.

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INTRODUCTION

Over the past few decades, India has experienced a significant shift in its health landscape, moving from a disease burden primarily caused by infectious diseases, childhood, and maternal deaths to one dominated by chronic non-communicable diseases (NCDs). These NCDs are accountable for a substantial proportion of deaths in India, with 61.8% of deaths attributed to this group of diseases. Globally, NCDs are responsible for around 70% of all deaths, with approximately 40 million people dying from these diseases each year. NCDs such as cardiovascular diseases (CVD), stroke, diabetes and certain forms of cancer are heavily linked to lifestyle choices, and hence, are often known as lifestyle diseases.

Cardiovascular diseases, including myocardial infarctions and strokes, are the leading cause of death worldwide, accounting for approximately 17.7 million deaths annually. Cancer, responsible for approximately 8.8 million deaths each year, is the second-leading cause of mortality, followed by respiratory diseases and diabetes. Non-communicable diseases have multifactorial etiology, with various risk factors contributing to disease development. The four primary behavioral risk factors underlying NCDs are tobacco use, unhealthy dietary patterns, physical inactivity, and harmful alcohol consumption.

Non-communicable diseases can be attributed to various risk factors, which can be broadly categorized into modifiable behavioral, non-modifiable, and metabolic risk factors. Behavioral risk factors such as excessive alcohol consumption, tobacco use, unhealthy eating habits, physical inactivity, and work-related stress are found to increase the likelihood of NCDs. Non-modifiable risk factors, including age, race, gender, and genetics, cannot be altered by interventions. Metabolic risk factors that lead to changes in the metabolic system, such as high blood pressure, obesity, hyperglycemia, and hyperlipidemia, are major contributors to NCDs.

The following factors affect the health of people:

- Diet and Body Mass Index (BMI): Poor diet and obesity are common health problems in urban societies and can lead to cardiovascular problems. (Mozaffarian *et al.*, 2011)
- Exercise: Regular exercise and a healthy diet increase overall health and may also have a positive effect on mental health and happiness. (Dunn *et al.*, 1998; Farhud *et al.*, 2015)
- Sleep: Sleep is a crucial aspect of a healthy lifestyle and has a significant influence on mental and physical health. (Farhud & Tahavorgar, 2013)
- Sexual behavior: Normal sexual relations are necessary for a healthy life, and dysfunction can have a significant impact on mental and physical health, as well as lead to sex-related illnesses such as AIDS.
- Substance abuse: Addiction to smoking and other substances can lead to various health problems, including cardiovascular disease, cancer, and brain injury. (Ebrat news, 2013; Ebadi *et al.*, 2011)
- Medication abuse: Unhealthy behaviors in using medication, such as self-treatment and disregarding harmful effects, can lead to health problems.
- Application of modern technologies: Misuse of technology, such as using computers and mobile phones excessively, can have negative effects on mental health and sleep patterns. (Thomee *et al.*, 2011)
- Recreation: Ignoring leisure time or engaging in unhealthy leisure activities can endanger health.
- Study: Education and mental stimulation, through activities like studying, may lead to better physical and mental health and lower prevalence of dementia such as Alzheimer's disease.

Lifestyle diseases are conditions that are primarily caused by an unhealthy lifestyle and habits. The most common types of lifestyle diseases are:

1. Heart Disease - Risk factors include smoking, poor diet, high blood pressure, diabetes, obesity, physical inactivity, and stress.
2. Obesity - Risk factors include unhealthy eating habits, reduced physical activity, family history, race, gender, and exposure to obesogens.
3. Type 2 Diabetes - Risk factors include being overweight, excessive consumption of sugar and processed food, following a sedentary lifestyle, genetics, lack of exercise, and stress.
4. Stroke - Risk factors include high blood pressure, diabetes, high cholesterol, smoking, and heart rhythm disturbances.
5. Hypertension - Risk factors include family history, obesity, age, race, physical inactivity, tobacco usage, excessive salt or sodium intake, and chronic conditions like sleep apnea, kidney disease, and diabetes.
6. Chronic Obstructive Pulmonary Diseases (COPD) - Risk factors include passive smoking, working with chemicals, dust, and fumes, history of childhood respiratory infection, and a genetic condition known as Alpha-1 deficiency.
7. Asthma - Risk factors include being overweight, having a blood relative with asthma and smoking, exposure to pollution and occupational triggers, and getting exposed to secondhand smoke.
8. Osteoporosis - Risk factors include vitamin D deficiency, smoking, low calcium diet, race, family history, chronic diseases, lack of exercise, excessive consumption of caffeine and alcohol, and certain hormonal disorders.

To address the growing burden of NCDs in India, the Government has launched the National Programme for Prevention and Control of Non-Communicable Diseases (NCDs) under the National Health Mission. The program aims to create awareness about cancer prevention, screening, early detection, and referral to appropriate healthcare facilities for treatment. It specifically focuses on three types of cancer: oral, breast, and cervical. To facilitate early diagnosis, a population-level initiative to prevent, control, and

screen for common NCDs such as diabetes, hypertension, and oral, breast, and cervical cancer has been rolled out in over 150 districts of the country under the NHM. This initiative aims to raise awareness about the risk factors associated with these common NCDs and enable timely diagnosis.

Lifestyle diseases, also known as diseases of civilization, are primarily caused by daily habits and environmental factors, and their incidence increases with industrialization and longer lifespans (Lim *et al.*, 2012; Ng *et al.*, 2014). Contributing factors include poor diet, physical inactivity, incorrect posture, and disrupted circadian rhythms. Occupational factors have become a significant contributor to lifestyle diseases, with studies indicating that a high proportion of working women in India suffer from obesity, depression, chronic back pain, diabetes, and hypertension. Sleep disorders are also alarmingly prevalent among corporate employees due to demanding schedules and high stress levels, with 78 percent of employees suffering from sleep disorders. The state of Kerala in India, which boasts impressive development indicators, has also seen a rise in lifestyle diseases (Lim *et al.*, 2012).

The prevalence of lifestyle diseases has been on the rise worldwide, and it has become a major public health concern. Lifestyle diseases are becoming increasingly common worldwide, with estimates suggesting that they account for 60% of all deaths globally (WHO, 2020). According to the Global Burden of Disease Study (GBD) 2019, the leading risk factors for mortality and disability worldwide are high systolic blood pressure, dietary risks, and high body-mass index (Roth *et al.*, 2020). The study also reported that lifestyle diseases accounted for more than 70% of all deaths worldwide. According to WHO, lifestyle diseases are responsible for more than 40 million deaths annually, which is around 70% of all deaths worldwide (WHO, 2021). Cardiovascular diseases are the leading cause of death globally, accounting for 17.9 million deaths annually (WHO, 2021), followed by cancer with 9.6 million deaths, and respiratory diseases with 3.0 million deaths. The prevalence of these diseases is

increasing due to factors such as urbanization, unhealthy diets, physical inactivity, tobacco use, and alcohol consumption.

India is currently facing a significant increase in lifestyle diseases, which has been attributed to changes in lifestyle, diet, and physical activity patterns (Patel *et al.*, 2019). According to the Indian Council of Medical Research (ICMR) report (2018), Non-Communicable Diseases (NCDs) are the leading cause of mortality in India, accounting for 61.8% of all deaths. The prevalence of NCDs is increasing rapidly in both urban and rural areas of India, with a higher prevalence among the elderly population.

The prevalence of diabetes in India has increased from 2.1% in the 1970s to 7.1% in the 2000s (ICMR, 2018). A study by the Indian Journal of Endocrinology and Metabolism found that the prevalence of diabetes in urban areas of India was 13.6% (Shetty *et al.*, 2018). Cardiovascular diseases are also a significant health concern in India, responsible for 28.1% of all deaths in 2016 (Registrar General of India, 2017).

In 2016, NCDs were responsible for 61% of all deaths in India (Patel *et al.*, 2018). Cardiovascular diseases were the leading cause of death, followed by chronic respiratory diseases, cancer, and diabetes. Another study by Anjana *et al.* (2017) reported that the prevalence of diabetes in India has increased from 2.4% in the 1970s to 7.8% in 2017. Lifestyle diseases are responsible for more than 60% of deaths in India, with cardiovascular diseases, diabetes, and cancer being the leading causes of death among lifestyle diseases (ICMR, 2017).

The prevalence of hypertension in India has increased from 5.2% in 2000 to 29.8% in 2020, with the highest prevalence among individuals aged 60 years and above (WHO, 2020). A study by the Indian Journal of Community Medicine found that the prevalence of diabetes in India was 7.3% among individuals aged 20 years and above, with the highest prevalence among individuals aged 60 years and above (Shrivastava *et al.*, 2013). The prevalence of obesity in India

was 20% among individuals aged 15 to 49 years, with the highest prevalence among individuals aged 40 to 49 years (Misra *et al.*, 2011).

According to a joint report by the World Health Organization and the World Economic Forum, India is projected to face an accumulated loss of \$236.6 billion by 2015 due to unhealthy lifestyles and poor dietary habits. NCDs not only affect individuals' economic conditions but also pose a threat to the economy's productivity, particularly in the older and more experienced workforce. These emerging lifestyle diseases require urgent attention to minimize their impact on both human health and the economy.

In Kerala, the prevalence of hypertension was found to be 36.8%, with the highest prevalence among individuals aged 60 years and above (Department of Health and Family Welfare, 2018). A study conducted by the Indian Journal of Community Medicine reported that the prevalence of diabetes in Kerala was 16.7% among individuals aged 20 years and above, with the highest prevalence among individuals aged 60 years and above (Anil *et al.*, 2019). Kerala, a state in southern India, has a high burden of lifestyle diseases compared to other states in India, with cardiovascular diseases, diabetes, and cancer being the major contributors (ICMR, 2018). The prevalence of diabetes in Kerala was reported to be 19.4%, and the prevalence of hypertension was 25.2%, both of which are higher than the national average (ICMR, 2018). The prevalence of overweight and obesity in Kerala was 36.4% and 18.6%, respectively (Anjana *et al.*, 2019).

A study by Thankappan *et al.* (2018) reported that the prevalence of cardiovascular diseases in Kerala was 13.1%, which was higher than the national average, and the prevalence of diabetes was 20.5%, which was also higher than the national average of 7.8%. Alappuzha, a coastal district in Kerala, India, has been experiencing a significant increase in lifestyle diseases over the years, and this study aims to investigate the prevalence of lifestyle

diseases among different age groups in Alappuzha and highlight the various risk factors associated with them.

Lifestyle diseases are prevalent across all age groups, with some diseases being more common in certain age groups than others. According to Kassebaum *et al.* (2016), cardiovascular diseases were the leading cause of death globally in individuals aged 50 years and older. The prevalence of diabetes increases with age, with the highest prevalence among individuals aged 60 years and above (Kaveeshwar & Cornwall, 2014). The National Family Health Survey (NFHS-4) conducted in India in 2015-16 reported that the prevalence of diabetes and hypertension were highest among the elderly population (15.2% and 55.7%, respectively, among those aged 60 years and above) (IIPS & ICF, 2017).

Wasserman (2016) conducted a study on young Europeans and found that alcohol use, smoking, physical inactivity, pathological internet use, and insufficient sleep were major risk factors for health and mental health problems. Tee JYH *et al.* (2018) found that obesity and unhealthy lifestyles were associated with poorer executive function among Malaysian adolescents, and regular dinner intakes, higher physical activity levels, and better sleep quality predicted better executive function. Sharma *et al.* (2018) found that work after school, perceived body weight, physical education class, prenatal support, and healthy dietary behaviors were associated with insufficient physical activity among school adolescents in Peru.

Jia *et al.* (2018) found that among depressed adults, physical inactivity and smoking were strongly associated with lower EQ-5D score, life expectancy, and quality-adjusted life expectancy (QALE), whereas obesity and heavy drinking were only weakly associated with these indices. Simonato & Janosz *et al.* (2018) found that excessive toddlerhood televiewing was prospectively associated with less optimal health and self-invested behavioral dispositions in adolescence. The Indian Council of Medical Research (ICMR) conducted a survey in 12 tribal districts in India from 2015-2018 and found that non-

communicable diseases (NCDs) caused 66% of deaths in these areas, with cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes being the major culprits. The survey also found that 29% of the deceased tribals had a history of high blood pressure, which is a major risk factor for cardiovascular diseases.

The Rural Health Training Centre, Sapthagiri, and Institute of Medical Science and Research Centre Bengaluru conducted a study in May 2017 to assess lifestyle factors and diseases among rural populations. The study found that 61.1% of participants had one or more lifestyle risk factors, and the prevalence of lifestyle diseases was 37.03%, with hypertension being the most common disease. The Nation's Health Report released by CSE in November 2017 showed that over 61% of all deaths in India were attributed to lifestyle or non-communicable diseases, with air pollution, tobacco, alcohol, and diet changes being the primary triggers. JETIR conducted a study in 2019 to assess awareness about lifestyle diseases among school-going adolescents of different government schools in Delhi. The study found that 76.19% of respondents had knowledge about lifestyle diseases after the teaching program, and 98.4% knew about the harmful effects of tobacco construction.

Gupta *et al.*(2019) conducted a study about lifestyle-related risk factors for non-communicable diseases among adults of Etawah District, UP. The study found that diabetes was observed in 12.4% of women and 13.6% of men, and hypertension was observed in 23.% of women and 24.4% of men. A study conducted in Kerala also reported a higher prevalence of NCDs among the elderly population (Ghosh *et al.*, 2019).

Non-communicable diseases (NCDs) are a growing public health concern worldwide, particularly in low- and middle-income countries. In this context, lifestyle diseases have emerged as a major contributor to the global burden of NCDs. The present study aimed to investigate the prevalence of common lifestyle diseases such as diabetes, hypertension, cholesterol, and obesity, as

well as their associated risk factors among adults aged 20-80 years in Mavelikara Taluk. The study employed a mixed-methods approach, including a door-to-door survey, lab reports from a medical lab, and an online survey. The data collection methods were designed with ethical considerations in mind to protect the privacy of participants. The findings of the study suggest that at least one member of each peer group's family suffered from lifestyle diseases, indicating a high burden of NCDs in the study population. The lab reports were found to be a reliable method to analyze NCDs, particularly among older adults who undergo regular health checkups. The study provides valuable insights into the prevalence and risk factors associated with lifestyle diseases in the study population, which can inform targeted interventions and policies to address this growing public health concern.

OBJECTIVES

1. To study about prevalence of common lifestyle diseases.
2. To study causes and risk factors associated with lifestyle diseases.
3. To analyse the impact of lifestyle diseases among different age groups.

MATERIALS AND METHODS

The present study utilized three data collection methods to investigate lifestyle diseases and associated risk factors in adults aged 20-80 years. The first method involved a door-to-door survey in the Mavelikara Taluk near the college, where a questionnaire was administered to 150 individuals from 50 families. The questionnaire consisted of 15 questions focused on common NCDs such as diabetes, hypertension, cholesterol, and obesity, as well as medication use. The second method involved collecting 50 lab reports from a medical lab in Mavelikara Taluk, primarily from individuals above the age of 60. The reports included measurements of blood glucose, blood pressure, and cholesterol levels. The final method involved an online survey using a validated questionnaire with 25 questions, administered to 100 individuals including students, their families, and friends. The questionnaire covered demographic details, food habits, NCDs, alcohol and cigarette use, consumption of junk food, blood cholesterol, and blood pressure levels.

The door-to-door survey and online survey methods were designed with ethical considerations in mind to protect the privacy of participants. The study found that at least one member of each peer group's family suffered from lifestyle diseases. The collection of lab reports was considered a reliable method to analyze NCDs, especially among older adults who undergo regular health checkups. While the door-to-door survey had limitations, such as potential selection bias, the online survey allowed for a wider range of questions and data validation options. Overall, the study provides valuable insights into the prevalence of lifestyle diseases and associated risk factors in the study population.

RESULTS AND DISCUSSION

A cross-sectional survey was conducted via door-to-door sampling among individuals aged 20 to 80 years residing in the Kallumala region near the college to investigate the prevalence of lifestyle diseases. A structured questionnaire was administered to 150 participants from 50 households to collect relevant data. The results revealed a high prevalence of lifestyle diseases among the participants, with 76% reporting at least one lifestyle disease. The most commonly reported lifestyle diseases were diabetes (26%), blood pressure (24%), cholesterol (12%), cardiovascular disease (8%), and obesity (7%). The risk factors associated with lifestyle diseases were found to include age, gender, physical inactivity, smoking, alcohol consumption, and unhealthy diet.

Table 1: Prevalence of Lifestyle Diseases (Door to Door Survey Method)

Lifestyle Diseases	Prevalence (%)
Diabetes	26
Blood pressure	24
Cholesterol	12
Cardiovascular disease	8
Obesity	7

Type 2 diabetes was found to be the most common disease in individuals over 60 years of age. Unfortunately, lifestyle diseases such as type 2 diabetes cannot be completely cured and are lifelong conditions that require control measures. Once medication is initiated, it cannot be stopped. Our study also identified a relationship between lifestyle diseases and certain chronic conditions such as kidney disease, oral problems, eye problems leading to vision loss, nerve problems, and poor wound healing.

In addition, we found that hormonal imbalances in women, such as polycystic ovary syndrome (PCOS), were prevalent among individuals between the ages of 20 and 35 years due to high blood glucose levels, leading to infertility in women. Thyroid problems were also reported among women.

Individuals with heart problems, stroke, and heart attacks were found to have high cholesterol and blood pressure levels. Fatty liver was associated with high cholesterol levels. Furthermore, the prevalence of obesity (defined as a body mass index (BMI) greater than 25 kg/m²) was high among individuals between the ages of 20 and 40 years. Obesity was found to play a major role in increasing the risk for many health problems such as type 2 diabetes, high blood pressure, heart disease, stroke, joint problems, liver disease, gallstones, and some types of cancer. Finally, some individuals who consumed tobacco reported tuberculosis, frequent cough, lung problems, and cancers. Overall, these findings suggest that lifestyle interventions are critical in reducing the prevalence of lifestyle diseases and their associated chronic conditions.

A survey was conducted online, with 100 individuals participating, to study the prevalence of lifestyle diseases and associated risk factors. The participants were divided into three age groups: 20-39 years (74%), 40-59 years (14%), and 60-80 years (12%). The majority of the participants belonged to the 20-39 age group (74%).

Table 2: Percentage of Lifestyle Diseases among Different Age groups(online survey method)

Age Group	Prevalence of Disease (%)	Cholesterol (%)	Diabetes (%)	Hyper tension (%)	Obesity (%)	Liver Disease (%)	Tuberculosis (%)	Cancer (%)
20-39	13.3	5	22	59	14			
40-59	67	69	31	46	2	15	2	
60-80	94	36	82	46	18	27	6	7

**Fig. 1: Prevalence of Common Lifestyle Diseases
(Door to door Survey Method)**

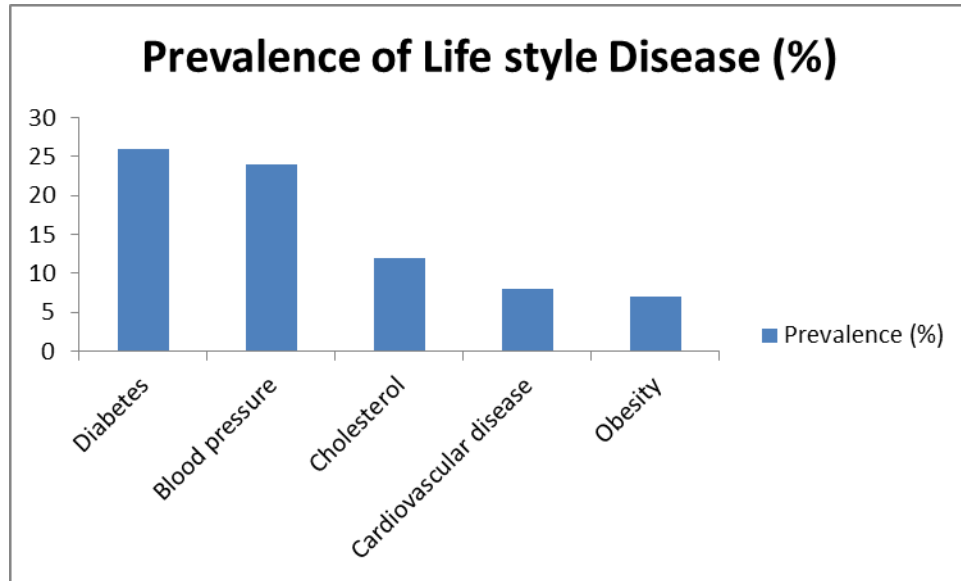
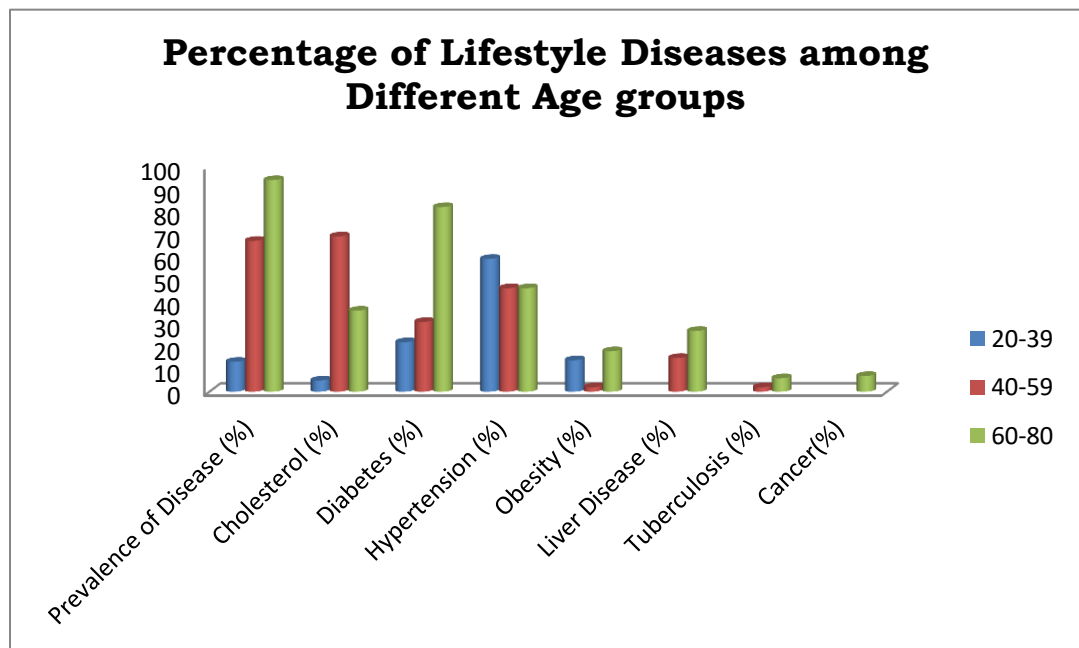


Fig. 2: Prevalence of Lifestyle Diseases among Different Age groups (%)



Graphs showing different responses in online survey (Fig.3- Fig. 12)

Figure- 3

How old are you
100 responses

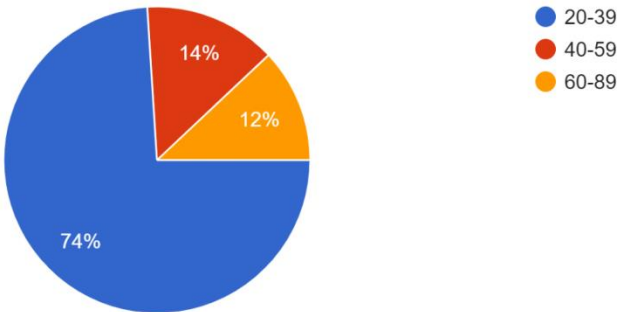


Figure- 4

How would you describe your body and physical condition?
100 responses

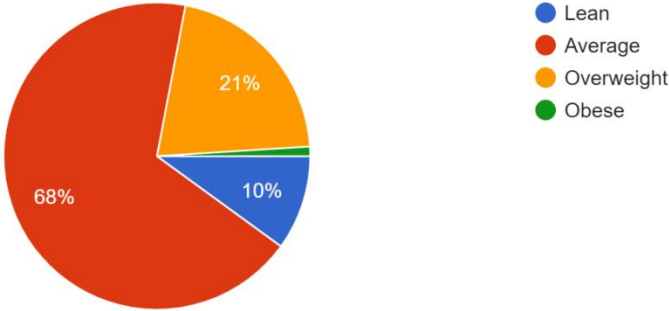


Figure- 5

In general, which type of food do you like to eat?
100 responses

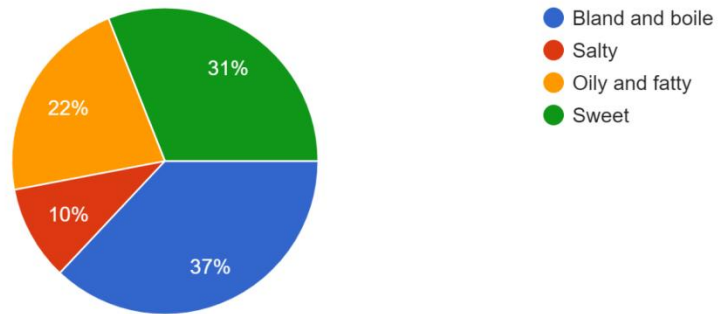


Figure- 6

How often do you consume junk food and fast food?
100 responses

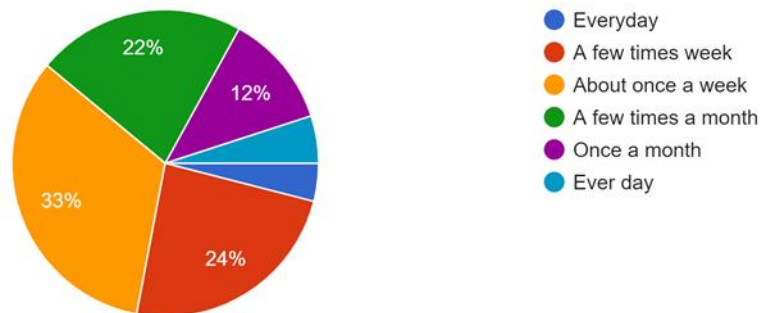


Figure- 7

Have you checked your blood cholesterol recently?
100 responses

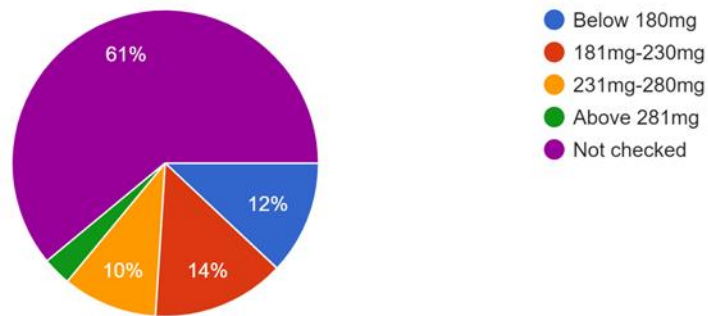


Figure- 8

Have you checked your blood pressure recently? Systolic blood pressure in mm/Hg
100 responses

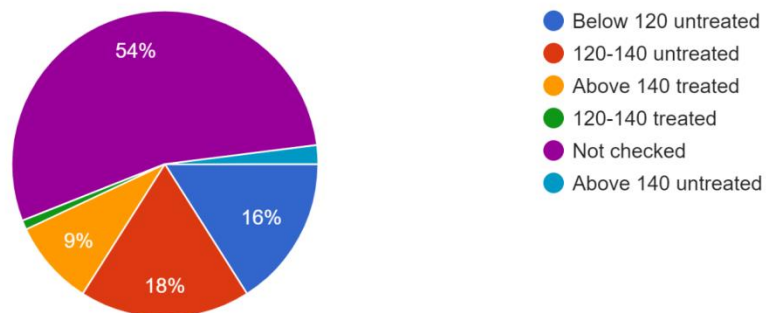


Figure- 9

Do you smoke or have you used tobacco related products in pasts?

100 responses

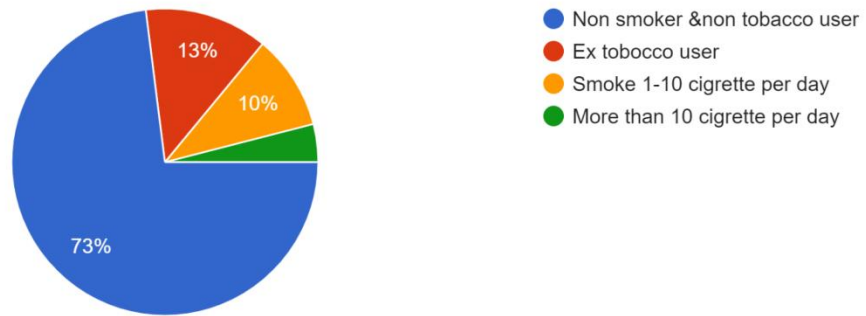


Figure- 10

How often do you consume alcohol

100 responses

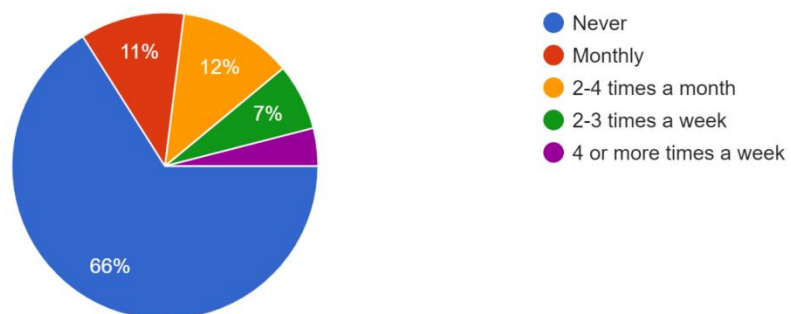


Figure- 11

Any of your family members have NCDs?

100 responses

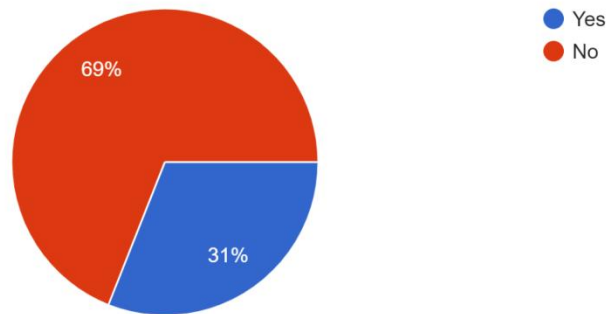
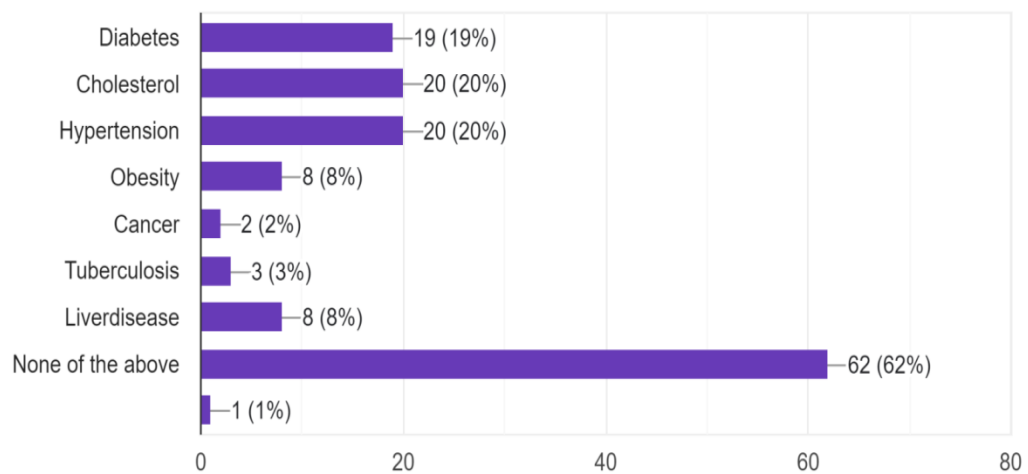


Figure- 12

Do you suffer from any of the following disease?

100 responses



Out of these, 13.3% of individuals reported having lifestyle diseases, with the most common being hypertension (59%), diabetes (22%), obesity (14%), and cholesterol (5%). The lifestyle of individuals was found to be greatly influenced by their health conditions, with a high percentage of people consuming salty, boiled, oily and fatty, and sweet foods. Most of the individuals consumed junk food daily or a few times a week. About 57% of the participants reported having family members with life style diseases. Regular checks for cholesterol and blood pressure were not common among the participants. The results of the survey indicate that while most individuals do not suffer from chronic diseases, a few have hypertension, diabetes, cholesterol, and obesity. It is essential to manage these conditions properly to prevent severe consequences on an individual's health. The frequency of junk food and fast food consumption was generally limited, which is recommended due to their high fat, sugar, and salt content. However, one individual reported consuming these types of foods daily, which could have negative effects on their health. Preferences for sweet, bland, and boiled foods were prevalent, but a balanced diet including a variety of foods from different food groups is essential for proper nutrition. Regular check-ups for blood pressure and cholesterol are crucial, as only a few individuals reported getting these checked. While most individuals do not smoke or use tobacco products, smoking and tobacco use have been linked to several health problems. Alcohol consumption was limited, with most individuals reporting never or rarely consuming it, which is recommended as excessive intake can lead to various health problems.

In the 40-59 age group, 67% of individuals reported having lifestyle diseases, with cholesterol (69%), diabetes (31%), hypertension (46%), obesity (2%), liver disease (15%), and tuberculosis (2%) being the most prominent. Salty, oily, and fatty foods were consumed by most of them. According to this study, the prevalence of lifestyle diseases is quite high among individuals aged 40-59, with 67% of the participants reporting the presence of at least one such

condition. The most common lifestyle diseases reported were cholesterol (69%), hypertension (46%), and diabetes (31%). Additionally, liver disease was reported by 15% of the participants, while obesity and tuberculosis were less common, reported by only 2% of the population each. These lifestyle diseases can have a significant impact on an individual's health and wellbeing, leading to complications such as heart disease, stroke, and kidney disease. Therefore, it is crucial to adopt healthy lifestyle choices such as regular physical activity, a balanced diet, and avoiding smoking and excessive alcohol consumption to reduce the risk of developing these conditions.

In the 60-80 age groups, Hypertension (46%), diabetes (82%), cholesterol (36%), liver disease (27%), tuberculosis (6%), obesity (18%), and cancer (7%) were the most common lifestyle diseases. As per this study, lifestyle diseases such as hypertension, diabetes, cholesterol, liver disease, tuberculosis, obesity, and cancer are becoming increasingly common in the 60-80 age group. The study showed that hypertension affected 46% of individuals in this age group, making it one of the most prevalent lifestyle diseases. Diabetes, with a staggering 82% prevalence rate, was found to be the most common lifestyle disease in this group. Cholesterol affected 36% of individuals, and liver disease was found in 27% of the population studied. Tuberculosis, which is usually associated with younger age groups, affected 6% of individuals. Obesity, which is known to be a significant risk factor for many of these diseases, was present in 18% of individuals, and cancer was found in 7% of the population studied. These findings emphasize the need for individuals in this age group to adopt healthy lifestyle habits, such as regular exercise, healthy diet, and stress management, to prevent and manage these lifestyle diseases. Additionally, health policymakers should focus on developing targeted prevention and management strategies to address the growing burden of lifestyle diseases in the elderly population.

In terms of tobacco consumption, 73% of the participants were non-smokers, 13% were ex-smokers, 10% consumed 1-10 cigarettes per day, and only 4%

consumed more than 10 cigarettes per day. Regarding alcohol consumption, 66% of people never used alcohol, 12% used alcohol 2-4 times a month, and 7% used alcohol 2-3 times a week, with 4% using alcohol more than 4 times a week.

The laboratory report of individuals over 50 years of age indicates that serum glucose levels tend to increase with age. Fasting glucose reference ranges in the elderly are wider, ranging from 3.9 to 6.7 mmol/L. The increase in serum insulin levels points to insulin resistance, which can lead to impaired glucose tolerance in up to 25% of patients over 75 years old. Total cholesterol levels tend to increase by up to 1 mmol/L in individuals aged 60 years and above. Moreover, triglyceride levels increase by 30% and 50% in males and females, respectively, between 50 and 70 years of age. HDL-levels tend to increase slightly in aged men, but decrease in aged women. As individuals age between 60 and 80 years, there is a decrease in the number of functioning nephrons by 30 to 45%, which is accompanied by a reduction in glomerular filtration rate. This reduction is mainly due to the elderly taking multiple medications. Furthermore, 30% of individuals aged 60 years and above have untreated isolated systolic hypertension, compared to only 6% of adults aged 50 years.

In addition to age-related changes, elderly patients may also have other risk factors such as obesity, smoking/alcohol consumption, and poor (unhealthy) diet. These factors can further exacerbate the effects of aging on the body, leading to various health complications. Therefore, it is important to manage these risk factors to promote healthy aging and prevent age-related diseases.

The prevalence of lifestyle diseases is increasing, as indicated by the results of our study, which varied from previous studies. Our online survey revealed that 13.3% of individuals between the ages of 20-39 have various types of non-communicable diseases (NCDs), compared to 8% reported by Jepson *et al.* (2010). Similarly, the most common NCDs among this age group in our study were blood pressure, diabetes, obesity, hypertension, and cholesterol, whereas

Sinha *et al.* (2021) found obesity, diabetes, hypertension, anxiety, heart disease, and infertility. Tobacco consumption was found to be much higher in our study, with 73% being non-smokers and 13% being ex-smokers, compared to the Centers for Disease Control and Prevention's (2022) report of 4.5% among young adults. Alcohol consumption was also found to be equal, with 66% never using alcohol and 44% using it, which is higher than the National Survey on Drug Use and Health's (NSDUH) report (2021) of 5.9 million youths aged 12 to 20 drinking alcohol beyond a few sips. Our study found that the most common NCDs among individuals between the ages of 40-59 were cholesterol, diabetes, blood pressure, hypertension, obesity, liver disease, and tuberculosis, while the World Health Organization (WHO) reported cancers, chronic respiratory diseases, and diabetes as common in this age group. Tobacco and alcohol consumption were found to be higher in our study than in previous reports. Finally, our study found that blood pressure; diabetes, cholesterol, hypertension, liver disease, tuberculosis, obesity, and cancer were the most common NCDs among individuals between the ages of 60-80, while other studies reported a higher frequency of obesity, diabetes, gastritis, and insomnia. Tobacco and alcohol use were lower in this age group compare Non-communicable diseases (NCDs) have become a major public health concern in India, especially in the tribal districts. A survey conducted by the Indian Council of Medical Research (ICMR) in 12 tribal districts between 2015- 2018 revealed that NCDs were responsible for 66% of the deaths in these areas. The most common NCDs observed were hypertension, chronic respiratory diseases, stroke, heart disease, cancer, and diabetes. Lifestyle risk factors such as tobacco and cigarette use, unhealthy diet, overweight, and obesity were significantly associated with the prevalence of life style diseases in the population.

Further studies conducted by various medical institutions in India indicate that unhealthy behavior and lifestyle choices, including smoking, excessive eating, and lack of physical activity, are the primary triggers for NCDs. A study

by JSS Medical College, Mysore, showed a significant association between high cholesterol and moderate-intensity work with blood pressure and waist-hip ratio with cardiovascular disease.

A study by KMCT Medical College, Kerala, found that most of the people affected by NCDs were below 40 years of age, and the prevalence of NCDs was higher in men than women. The survey conducted by the Indian Express in 2019 reported a higher incidence of diabetes and hypertension in Kerala as compared to the national average.

There is corroborative evidence from a research paper published in the Lancet that diet and lifestyle play a significant role in predisposition to various diseases, including cancer. Changes in diet and lifestyle, such as increased consumption of meat, dairy products, and alcoholic beverages, and decreased consumption of starchy staple foods, coupled with reduced physical activity and a higher prevalence of obesity, are associated with higher rates of cancer in many countries.

To sum up, the prevalence of NCDs in India is a cause for concern, and lifestyle modifications, including healthier dietary choices and increased physical activity, are necessary to reduce the burden of NCDs in the population to younger individuals but still notable.

CONCLUSION

In conclusion, lifestyle diseases have become a significant public health concern globally, with increasing prevalence rates attributed to unhealthy diets, physical inactivity, tobacco use, and alcohol consumption. India and Kerala, in particular, have a high burden of lifestyle diseases, with a higher prevalence among the elderly population. The prevention and management of these diseases require a multi-sectoral approach, including lifestyle modifications, early detection, and treatment. Thus, it is crucial to raise awareness among the general population and implement effective prevention and management strategies to reduce their burden.

Lifestyle diseases are chronic conditions that are caused by unhealthy lifestyle choices such as physical inactivity, unhealthy diet, smoking, and alcohol consumption. These conditions include diabetes, high blood pressure, high cholesterol, cardiovascular disease, obesity, and some types of cancer.

Three surveys were conducted to investigate the prevalence of lifestyle diseases and their associated risk factors. The first survey was conducted via door-to-door sampling among individuals aged 20 to 80 years residing in the Kallumala region near the college. The results revealed a high prevalence of lifestyle diseases among the participants, with 76% reporting at least one lifestyle disease. The most commonly reported lifestyle diseases were diabetes (26%), blood pressure (24%), cholesterol (12%), cardiovascular disease (8%), and obesity (7%). The risk factors associated with lifestyle diseases were found to include age, gender, physical inactivity, smoking, alcohol consumption, and unhealthy diet.

The second survey was conducted online, with 100 individuals participating, divided into three age groups: 20-39 years (74%), 40-59 years (14%), and 60-80 years (12%). In the 20-39 age group, 13.3% of individuals reported having lifestyle diseases, with the most common being blood pressure (45%), diabetes

(22%), obesity (14%), hypertension (14%), and cholesterol (5%). In the 40-59 age group, 67% of individuals reported having lifestyle diseases, with cholesterol (69%), diabetes (31%), hypertension (46%), obesity (2%), liver disease (15%), and tuberculosis (2%) being the most prominent. In the 60-80 age groups, hypertension (46%), diabetes (82%), cholesterol (36%), liver disease (27%), tuberculosis (6%), obesity (18%), and cancer (7%) were the most common lifestyle diseases.

The findings of the third survey, presented in the lab report, suggest that aging is linked to alterations in serum glucose, insulin, cholesterol, triglyceride, and blood pressure levels, along with a decline in renal function. These changes can increase the risk of insulin resistance, impaired glucose tolerance, and hypertension in elderly individuals.

In brief, lifestyle diseases are a significant public health concern worldwide, with increasing prevalence rates, especially among the elderly population. The burden of these diseases can be prevented and managed through a multi-sectoral approach that includes lifestyle modifications, early detection, and treatment. The adoption of healthy behaviors, such as a wholesome diet, regular physical activity, and avoiding tobacco and alcohol consumption, can significantly reduce the risk of developing lifestyle diseases. Additionally, monitoring body weight, reducing excess consumption of salt, oil, and sugar, and opting for periodic health check-ups can help in early detection and management of these diseases. The prevention and management of lifestyle diseases require the involvement of policymakers, healthcare professionals, and the general public to create effective prevention and management strategies. Therefore, it is essential to raise awareness and promote healthy behaviors to prevent and reduce the burden of lifestyle diseases, leading to improved health outcomes and a better quality of life.

RECOMMENDATIONS

Here are some scientific recommendations for the society about the prevalence of lifestyle diseases among different age groups:

- Encourage regular physical activity: Regular physical activity can help prevent and manage lifestyle diseases like obesity, type 2 diabetes, and cardiovascular disease. Encourage people of all ages to engage in at least 150 minutes of moderate-intensity aerobic activity per week.
- Promote healthy eating habits: Eating a balanced and healthy diet is essential for preventing and managing lifestyle diseases. Encourage people to eat a variety of fruits, vegetables, whole grains, lean proteins, and healthy fats.
- Educate about the dangers of smoking and alcohol consumption: Smoking and excessive alcohol consumption are major risk factors for several lifestyle diseases, including lung cancer, liver disease, and cardiovascular disease. Educate people about the dangers of these habits and encourage them to quit smoking and limit their alcohol intake.
- Encourage regular health check-ups: Regular health check-ups can help detect lifestyle diseases early and prevent them from progressing. Encourage people of all ages to get regular check-ups and screenings for conditions like high blood pressure, high cholesterol, and diabetes.
- Create supportive environments for healthy behaviors: Society can create supportive environments for healthy behaviors by implementing policies that promote physical activity and healthy eating, such as building bike lanes and promoting farmer's markets. Additionally, workplaces can encourage healthy behaviors by providing healthy food options and opportunities for physical activity.
- By implementing these recommendations, society can help reduce the prevalences of lifestyle diseases among different age groups and promote overall health and well-being.

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QUESTIONNAIRE

1. What is your age?
 - 20-39
 - 40-59
 - 60-80
2. How do you describe your health condition?
 - In good physical health (No illness or disabilities).
 - Mildly physically impaired. (Minor illness or disabilities)
 - Moderately physically impaired. (Requires substantial treatment)
 - Severely physically impaired. (Requires extensive treatment)
 - Totally physically impaired. (Confined to bed)
3. Do you suffer from any NCD's?
 - Yes •No
 - (Diabetes, cholesterol, blood pressure, obesity, cardiovascular diseases, Tuberculosis)
4. Taking treatment or not?
 - Yes •No
5. How many of your family members have NCDs?
 - No one
 - 1
 - more than 2
6. Do you experience any type of side effects from any medications you take?
 - Yes •No (if yes mention about the side effects)
7. Are you a smoker/ex-smoker?
 - Non tobacco user
 - Ex tobacco user
 - smoke 1-10 cigarette
8. Do you have cough more than 2 weeks?
 - Yes •No (Especially cough lasting for more than 2 weeks)
9. How often do you consume alcohol?
 - Never

- monthly
- 2 to 4 times a month
- 2 to 3 times a week

10 .Do you engage in any kind of physical activity for at least 2.30 hours a week?

- Yes •No

11. How often do you consume junk and fast food

- Everyday (1 meal)
- alternate days
- twice a week
- once a month

12. How often do you get a health checkup?

- Once in 3 months
- Once in 6 months
- Once a year
- Only when needed
- Never get it done

13. Have you checked your blood pressure recently? Systolic blood pressure in mm /Hg

- Below 120 untreated
- 120-140 untreated
- Above 140 untreated
- 120-140 treated
- Above 140 treated
- Not checked

14. Have you checked your blood cholesterol recently?

- Below 180mg
- 181mg-230mg
- 231mg-280mg
- Above 281mg
- Not checked