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KNOWLEDGE ATTITUDE AND PRACTICE ABOUT NON-COMMUNICABLE DISEASES AMONG HIGH SCHOOLS STUDENTS IN ADDIS ABABA

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FACULTY OF CHEMICAL AND FOOD ENGINEERING

MSc THESIS

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BY

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APPLIED HUMAN NUTRITION

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A Thesis Submitted In the Partial Fulfillment of the Requirements for the Degree of Master of Science in Applied Human Nutrition

Advisor: Prof. TeferaBelachew (MD, MSc, PhD)

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Bahir Dar, Ethiopia

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DECLARATION

This is to certify that the thesis entitled “Knowledge Attitude and Practice about non-communicable diseases among high schools students in Addis Ababa”, submitted in partial fulfillment of the requirements for the degree of Master of Science in Applied Human NutritionunderFaculty of Chemical and Food Engineering**,** Bahir Dar Institute of Technology, is a record of original work carried out by me and has never been submitted to this or any other institution to get any other degree or certificates. The assistance and help I received during the course of this investigation have been duly acknowledged.

Ashenafi Hailemariam _____ _____

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Approval of thesis for defense result

I hereby confirm that the changes required by the examiners have been carried out and incorporated in the final thesis.

Name of Student Ashenafi Hailemariam Signature _____ Date 17/11/2013 E.C

As members of the board of examiners, we examined this thesis entitled "Knowledge Attitude and Practice about non-communicable diseases among high schools students in Addis Ababa"byAshenafi Hailemariam. We hereby certify that the thesis is accepted forfulfilling the requirements for the award of the degree of Masters of Science in"Applied Human Nutrition".

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ABSTRACT

Background;- Non-communicable diseases are the leading cause for 41 million of the world's 57 million deaths.Most Non communicable diseases (Cardiovascular diseases and Diabetes are the highest killing diseases that can mostly occur through the four modifiable risk factors which are physical inactivity, unhealthy diet, harmful alcohol use and tobacco use which are the leading cause for the four metabolic factors (raised BP, raised blood glucose, obesity) which in turn lead to non-communicable diseases.the present study helps to develop programs which help to prevent non-communicable diseases.

Objective: -This study assesses knowledge attitude and practice about non communicable diseases and associated factors among high schools students in Addis Ababa.

Methodology*:* - The study has been conducted from November 10-27, 2019 in both selected private and governmental high schools in Addis Ababa and cross sectional study was employed.710 respondents were selected and interviewed from 18 schools from 3 randomly selected sub cities the response rate for the present study was 100%.data was entedred into Epidata version 3.1 and futher multivariate analysis was employed by SPSS version 26.

Result*:* - about61.8% of the study population was females and 38.2 were males. Relating to the age 55.4% of the respondents were lying on the between 15-16 years, which is considered to be the middle adolescents according to the stages of development respectively. This study discovered that only 32.7%, 25.5% and 32.8% of the students have having good knowledge, positive/favorable attitude and practice on non-communicable diseases respectively.

Conclusion and Recommendation*:* - Majority of the students has low knowledge, attitude and practice regarding non-communicable diseases. Thus, immediate actions are suggested with school-based interventions that can improve their knowledge, perception and actions that help them to prevent chronic diseases.**Key words*:*-**attitude, knowledge, practice, Non-communicable diseases, high school students Addis Ababa.

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ABBREVIATIONS

COPD	Chronic Obstructive Pulmonary Diseases
CSA	Central Statistics Agency
CVDs	Cardiovascular Diseases
DM	Diabetes
GBD	Global Burden of Diseases
GDP	Gross Domestic Product
HSTP	Health Sector Transformation Plan
KAP	Knowledge Attitude and Practice
LMICs	Lower and Middle Income Countries
NCDI	Non-communicable Diseases and Injuries
NCDs	Non-Communicable Diseases
OOP	Out-Of-Pocket
T2DM	Type 2 Diabetes Mellitus
SDGs	Sustainable development goals
SSA	Sub-Saharan Africa
USD / US$	United States Dollar
WHO	World Health Organization

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1. INTRODUCTION

1.1.Background

Non-communicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental andbehavioral factors(WHO, 2018b). It's a leading cause for 41 million of the world's 57 million deaths (71%). Fifteen millions of these deaths were premature(WHO, 2018c).

Its impact is high on low and middle income countries (LMIC) as it shows 78% of all NCD deaths,85% of premature adult NCD related deaths occurred (WHO, 2019b) From all non-communicable diseases chronic pulmonary diseases, diabetes and cardiovascular diseases causes for the 57%of deaths globally and 20% in Ethiopia.(WHO, 2018c)

Low and middle income countries are mostly affected by these diseases and it became the double burden to them in addition to communicable diseases. (Boutayeb, 2010)

According to the WHO (2018), non-communicable diseases country profiles every US$1 invested in the proven interventions for NCDs will yield a return of at least US$7 by 2030.

A knowledge attitude and practice (KAP) survey tells us what people know about certain things, how they feel and also how they behave(Du Monde, 2016). The three topics that a KAP study measures are knowledge, attitude and practice the knowledge possessed by the students refers to their understanding of any given topic in this case non-communicable diseases and their relative risk factors. Attitude refers to their feeling towards this subject as well as any preconceived ideas that they may have towards it. Practice refers to the ways in which they demonstrate their knowledge and attitude through their actions. Understanding the levels of knowledge, attitude and practice will enable a more and efficient process of awareness creation as it will allow the programs to be tailored more appropriately to needs of the students.

1.2.Statement of the Problem

Previous studies conduted among high school students regarding knowledge attitude and practice about non communicable diseases very few.However almost all of the

studies revealed that poor knowledge was shown regarding risk factors, early signs and preventive measures(Ade, Chethana, Mane, & Hiremath, 2014; Adhikari, Sapakota, & Adhikari, 2018; Divakaran, Muttapillymyalil, Sreedharan, & Shalini, 2010; George, Sharma, Ramakrishnan, & Gupta, 2014; Shivalli, Gupta, Mohaptra, & Srivastava, 2012).

Behaviourial risk factors such as physical inactivity and inadequate fruit and vegetable consumption was prevalent among high school students (Ade et al., 2014; AL-Daboony, 2016; Divakaran et al., 2010; George et al., 2014).(Goyal et al., 2011)reported low level of physical activity among affluent Adolescents.

Non communicable diseases are the leading causes of 71% deaths globally of which 26% were (under 70 years of age) premature deaths (WHO, 2018b). Even though the situation is difficult, less attention has been given by the low and middle income countries assuming that NCDs are diseases of the rich. As compared to that of high income countries, the budget float for health service for low income and middle income countries are 1% and 2%, respectively(WHO, 2018b).

Due to the ill health-care system available in low and middle income countries, its burden is high and costs too many lives.Since developing countries have been going through unplanned urbanization, there will be too many concerns to lifestyle changes (transportation use, unhealthy diet including fast and calorie rich foods etc.) which in turn resultsfromthe increment of non-communicable diseases(WHO, 2018c).NCDs are also recognized to be significant threats to the national health and economic development of Ethiopia since it causes annual economic losses from NCDs amounted to 31.3 billion birr, about 1.84% of the national gross domestic product(Vladislav Dombrovskiy, Asmamaw Workneh, Fassil Shiferaw, Roy Small, & Banatvala, 2019).

Most NCDs (CVD and DM) are the highest killing diseases that can mostly occur through the four modifiable risk factors which are physical inactivity ,unhealthy diet, harmful alcohol use and tobacco use which are the leading cause for the four metabolic factors(raised BP ,raised blood glucose, obesity) which in turn lead to non-communicable diseases(WHO, 2018c). Mostly NCDs occur due to modifiable behaviors and changing these behaviors will lead a better result for the prevention and

reduction of this situation. To do this, the best target groups are adolescent and youth are excellent agents for the change (WHO, 2017).

In addition to the health impact NCDs also affect the starting from the household to macro level .mostly in low and middle income countries health services especially related to non-communicable diseases require too much pocket money expenditure which result for poverty through losing livelihoods of the households and reducing productivity for the country(WHO, 2018c).

So as to prevent and reduce this situation the World Health Organization suggest to apply the 16 best intervention choices which require strong interlinked involvement of multi-sectorial approach. Ethiopia can save 57 900 lives and shows economic development in 2025 by implementing all of the WHO "best buys" intervention(WHO, 2018c).

Nowadays, the Ethiopian government is giving emphasis on a ways of preventing and controlling NCDs starting from doing step survey in 2015, adopting the global declaration to strengthen global and national responses to prevent and control NCDs and considering them in the health sector transformation Plan (HSTP) of the country as one of the prioritized disease control areas. The country's capability to achieve these targets is questionable considering that only half of the health service facilities are ready to provide general NCD services and minimum government expenditure on the area whereby 68% of NCD services are financed by out-of-pocket (OOP) expenditures from households(WHO, 2018c).

Behaviors established during the adolescence have lifelong consequences to the onset of non-communicable diseases in the later life. Children are considered the best change agents to the family and the community health.(Burrows, 2017)Therefore, it is essential to understand adolescent's knowledge, attitude and practices with the intention of developing preventive programs focusing on this age group which are helpful for both adolescents and adults.

There is scarcity of data on knowledge attitude and practice in non-communicable diseases among school-going adolescents in most of sub-Saharan Africa. As the investigator knowledge there is no any study related to the knowledge, attitude and

practice about non-communicable diseases among high school students in Addis. So, this study will serve as a baseline for the next coming studies to fill the gaps related to non-communicable diseases.

1.3.Rationale of the study

In somehow the present study needs to contribute to the elimination of a gap in the literature related to Knowledge Attitude and Practice about diet related non-communicable diseases among high schools students in Addis Ababa. It will also help the schools to know where their student are lying related to knowledge, attitude and practices about non communicable diseases and creating healthy school programs that will help them to change and provide a productive and healthy future for their students. The results of the study will also serve as an input for policy and program developments and revisions.

1.4.Objectives of the Study

1.4.1. General Objective

✓ To assess knowledge attitude and practice and associated factors about non communicable diseasesamong high schools students in Addis Ababa

1.4.2. Specific Objective

✓ To determine the KnowledgeAttitudeand Practice about non communicable diseases amonghigh school students in Addis Ababa.

✓ To identify factors associated with Knowledge, attitude and practice about non-communicable disease among students in high schools of Addis Ababa.

1.5.Scope of the study

This study focuses on knowledge attitude and practice among high school students in Addis Ababa.

The study was carried out in 18 randomly selected private and governmental high schools (secondary and preparatory schools) in randomly selected sub cities (Lideta, Bole and Gulele): Ethio-Parents, Elshaday Holy Saviour, Imperial, Sumeya School, Enat School, Mieraf Secondary School, Entoto Amba Secondary And Preparatory School, Bole Kalehiwot School, Vision Academy, Macmillan Academy, Safari

Academy, Dibora Academy, Youth Root School, Bright Future School, Ayer Amba Secondary School, ShebuEjersa Secondary School, Bole Preparatory School and Africa union secondary school.

1.6.Significance of the Study

The findings that we get from the present study will add to the literature and be used as the baseline studies for the researchers whom interested to this topic and additionally it will provide all the concerned stakeholders whom are interested in the high school students and community based issues on non-communicable diseases help to develop programs which help to prevent non-communicable diseases.

2. LITERATURE REVIEW

2.1.Knowledge attitude and practice about chronic diseases

Even if the studies on Knowledge attitude and practice about non communicable diseases among high school students are very few almost all of the studies conducted indicated that knowledge, attitude and practice status of the studied were low and extremely low(Gamage, 2018;Lorga, 2013;Senadheera, 2018) .in almost all of the studies the knowledge status of the respondent about non-communicable diseases was measured by respondents knowledge on three main perspectives which are risk factors ,early signs and preventive measures of the diseases.in other ways the practice were measured by the healthy lifestyles that the respondent actions that should have to follow on the four Behavioural risk factor thus are physical inactivity, unhealthy diet, tobacco and alcohol use (Abdela, 2019 ;Gamage, 2018;Lorga, 2013;Senadheera, 2018). However, different measurements have been used to measure the attitude status of the respondent's.In one of the studies that conducted in Gondar on undergraduate students revealed that only one third of the respondents achieved good knowledge (Abdela, 2019).

2.2.Non-Communicable Diseases

2.2.1. Diabetes

Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood glucose), or when the body cannot effectively use the insulin it produces(Lam, Ho, Jiang, & Collaboration, 2016) The global diabetes prevalence in 2019 is estimated to be 9.3% (463 million people), rising to 10.2% (578 million) by 2030 and 10.9% (700 million) by 2045(Saeedi *et al*., 2019)

It is among the top 10 causes of death in adults, and was estimated to have caused four million deaths globally in 2017 and global health expenditure on diabetes was estimated to be USD 727 billion(DeFronzo, Ferrannini, Zimmet, & Alberti, 2015).

It is estimated that 9.3% (463 million people) have diabetes in 2019. Given that half a billion people are living with diabetes, there is an urgent need for developing and implementing multi-sectorial strategies to tackle diabetes. Without urgent and

sufficient actions, it is predicted that 578 million people will have diabetes in 2030 and the number will increase by 51% (700 million) in 2045.with the higher prevalence in urban settings (Abebe, Berhane, Worku, & Assefa, 2014; DeFronzo *et al*., 2015; Saeedi *et al*., 2019)

According to the 2016 World Health Organization Diabetes country profile diabetes the total prevalence in Ethiopia was 3.8% with a little bit difference by gender 4.0%and 3.6% among females and males, respectively. With to this the prevalence of related risks such as Overweight, Obesity and Physical inactivity was 10.1%,1.3%and 12.6% respectively(WHO, 2016).

The increase of diabetic prevalence is now becoming more significant in developing countries than in developed countries, where there are scarce resources for diabetic management, contributing to increased risk of premature morbidity and mortality with major social and economic consequences(Atlas, 2013). In 2015, the estimated prevalence of diabetes was 3.2%, which is projected to be 3.7% in 2040 in African region(IDF, 2015) which comprises most developing countries including Ethiopia.

Diabetes can damage the heart, blood vessels, eyes, kidneys and nerves, leading to disability and premature death .in addition to its health impact diabetes put a higher impact on the economy and lead the households to catastrophic medical expenditure which in turn lead them to the line of poverty(Atlas, 2013)

2.2.2. Cardiovascular Diseases

Cardiovascular diseases (CVDs) are a group of disorders of the heart and blood vessels and they include: coronary heart disease, cerebrovascular disease, peripheral arterial disease, rheumatic heart disease, congenital heart disease and deep vein thrombosis and pulmonary embolism(WHO, 2020).

According to the 2018 WHO country profile Cardiovascular diseases (17.9 million deaths, accounting for 44% of all NCD deaths and 31% of all global deaths); and 16% of NCD deaths occurred in Ethiopia accounted for cardiovascular diseases which makes it the top diseases in the globe and in national level Over three quarters of CVD deaths take place in low- and middle-income countries Most cardiovascular

diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol using population-wide strategies.(WHO, 2020)

2.3.Factors associated with KAP on non-comminicabledeisease

2.3.1. Behavioral Risk Factors

Driving much of the increase in NCDs are high levels of common, preventable risk factors. The four major NCDs (cardiovascular disease, cancer, chronic respiratory disease, and diabetes) are causally linked with four leading Behavioral risk factors: tobacco use, harmful use of alcohol, physical inactivity, and unhealthy diet. In turn, these behaviors lead to four key metabolic/ physiological changes: raised blood pressure, overweight/obesity, raised blood glucose, and raised blood lipids. Environmental air pollution is also a key risk factor. (WHO, 2018c)

The first global target is a 25% relative reduction in overall mortality from the four major NCDs (cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases). Further targets relate to the reduction in NCD risk factors including both behavioral risk factors (the harmful use of alcohol, physical inactivity, salt/sodium intake and tobacco use) and metabolic risk factors (raised blood pressure, raised blood glucose and obesity)(WHO, 2013a) .

2.3.1.1. Physical Inactivity

Regular physical activity is a well-established protective factor for the prevention and treatment of the leading non-communicable diseases (NCDs), namely heart disease, stroke, diabetes and breast and colon cancer(WHO, 2010a). It also contributes to the prevention of other important NCD risk factors such as hypertension, overweight and obesity (Schuch *et al*., 2016), improved quality of life and well-being (Das & Horton, 2012) and it's positively related to cardio-respiratory and metabolic health in children and youth(Janssen & LeBlanc, 2010).

Worldwide, 1 in 4 adults, and 3 in 4 adolescents (aged 11–17 years), do not currently meet the global recommendations for physical activity set by WHO(Guthold, Stevens, Riley, & Bull, 2018) economically, levels of inactivity increase In some countries, levels of inactivity can be as high as 70%, due to changing patterns of transportation, increased use of technology and urbanization

According to the 2018 WHO Non-communicable diseases country profiles in Ethiopia 14% adults are physically inactive. As the threat of the issue, WHO plan 15% relative reduction in the global prevalence of physical inactivity in adults and in adolescents by 2030.(WHO, 2018a)

Physical inactivity is estimated to cost the globe INT$ 54 billion per year in direct health care, in 2013, with an additional INT$ 14 billion attributable to lost productivity. Inactivity accounts for 1–3% of national health care costs (Ding et al., 2016) and taking of any actions that support the improvement on physical activity have multiplicative health, social and economic benefits, and will directly contribute to achieving SDG.

2.3.1.2. Unhealthy Diet

Poor dietary quality (in particular, high salt intake, high saturated and trans-fatty acid intake, and low fruit and vegetable consumption) and insufficient physical activity are key risk factors for NCD development (Cecchini et al., 2010) and mortality worldwide(Lim et al., 2012), and are considered priority areas for international action (Beaglehole et al., 2011).

Dietary behavior contributes significantly to the NCD burden in Ethiopia. Intakes of diet low in fruits and vegetables and high in sodium are the leading dietary risks(Melaku et al., 2016) The consumption of fruit and vegetable is extremely low in Ethiopia.In 2010, an estimated of 6.7 million and 4 million deaths worldwide were attributed to inadequate fruit and vegetable consumption and diets high in sodium respectively(Lim et al., 2012).

To minimize the risk of dietary factors and reduce the incidence of T2DM, the WHO has recommended the public for consuming more than 400 g or five portions of combined fruit and vegetables per day to prevent T2DM(WHO, 2003).Low fruit and vegetable consumption increases the risk of coronary heart disease and stroke, type 2 diabetes, hypertension (Ard, Svetkey, La Chance, & Bray, 2000; Li, Fan, Zhang, Hou, & Tang, 2014; Ness & Powles, 1997), and contributing to the rising global burden of chronic diseases(Waxman, 2004).

The mean salt intake in most LMICs exceeds the recommended maximum intake(Brown, Tzoulaki, Candeias, & Elliott, 2009). Reducing salt intake to about 6 g/d could prevent annually about 2.5 million deaths globally (He, Jenner, & MacGregor, 2010; He & MacGregor, 2005, 2009; He, Markandu, & MacGregor, 2005), and a 15% reduction of salt intake over a decade in LMICs could forestall 3.1 million deaths(Asaria, Chisholm, Mathers, Ezzati, & Beaglehole, 2007; He et al., 2010). Fruit and vegetable intake is inadequate(Hall, Moore, Harper, & Lynch, 2009), and this situation contributes to 2.7 million NCD-related deaths per year.Evidence shows that high sodium intake may increase blood pressure and consequently lead to hypertension, a leading risk factor for CVD(Mozaffarian et al., 2014).

WHO's member states agreed to targets of a 30% and 25% reduction in mean population salt intake and relative reduction in raised blood pressure (systolic 140 mmHg and/or diastolic 90 mmHg) respectively, in order to meet a 25% reduction in global premature non-communicable disease (NCD) mortality by 2025(WHO, 2008).

Sub-Saharan Africa (SSA)'s populations on average consume more than the recommended sodium intake of 2 g/day(Brown et al., 2009). Unfortunately, earlier reviews found no national salt reduction initiatives in SSA, with more recent reports finding few existing national-level policies aimed at reducing sodium intake(Oyebode, Oti, Chen, & Lilford, 2016).
Adolescence is frequently associated with a human development period marked by biological and mental transformations that cause concerns and suffering(Lachat et al., 2013). In that sense, food consumption, knowledge and representations about healthy eating during adolescence have required great attention, mainly considering the relations between inappropriate dietary habits and the development of certain chronic diseases that result in adult age.

The WHO guideline for the sodium intake for adults and children provides a global, evidence-informed recommendation on sodium intake for adults (≥16 years of age) for the reduction of blood pressure and risk of cardiovascular disease, stroke and coronary heart disease and children (2–15 years of age) for the control of blood pressure(Silva, Teixeira, & Ferreira, 2014)

2.3.1.3. Tobacco Use

Tobacco use continues to be the leading cause of preventable death in the world and is a major risk factor for many illnesses in children and young adults, including short-term health consequences such as respiratory and atopic diseases and nicotine addiction, and long-term health consequences such as heart diseases, stroke, psychological disorders and cancer (Öberg, Jaakkola, Woodward, Peruga, & Prüss-Ustün, 2011; WHO, 2013b)

According to the WHO (2018), country profile in 2016 around 34% of men and 6% of women 4% with males 8 % and 0% in females aged 15 years and older were current smokers of tobacco globally and in Ethiopia, respectively

It kills nearly 6 million people and causes hundreds of billions of dollars of economic damage worldwide each year. Most of these deaths occur in low- and middle-income countries, and this disparity is expected to widen further over the next several decades. If current trends continue, by 2030 tobacco will kill more than 8 million people worldwide each year, with 80% of these premature deaths among people living in low- and middle-income countries(WHO, 2011)

Tobacco use in Sub-Sahara African (SSA) countries and in Addis Ababa is generally low, but progressively increasing, which provides potential market for international tobacco companies to explore. This is further enlarged with increasing incomes, globalization, urbanization, demographic shifts in populations and low-levels of education in the region(Rudatsikira, Abdo, & Muula, 2007; Townsend, Flisher, Gilreath, & King, 2006).Over the past few decades, the tobacco epidemic has shifted to low- and middle-income countries (LMICs); yet, research investigations to address this public health issue are scarce. As approximately 90% of smokers start smoking during adolescence (General, 2012).

In order to reduce the health threat of tobacco, the global target included in the global NCD Action Plan was a 30% relative reduction in the prevalence of current tobacco use in individuals aged 15 years and older by 2025(WHO, 2013a).The global economic cost of smoking (from health expenditures and productivity losses together) totaled PPP $1852 billion (US$1436 billion) in 2012, equivalent in magnitude to

1.8% of the world's annual gross domestic product (GDP). Almost 40% of this cost occurred in developing countries(Goodchild, Nargis, & d'Espaignet, 2018)

There are several factors that increase the risk of youth smoking. These include tobacco industry advertising and promotion, easy access to tobacco products, and low prices. Peer pressure plays an important role through friends' and siblings' smoking(Mackay, Eriksen, & Eriksen, 2002)The World Health Organization (WHO) reports that six million people across the globe died due to tobacco use, including 600,000 from secondhand exposure(WHO, 2015).

It has been well established that tobacco use and exposure to secondhand smoke can lead to chronic diseases in both youth and adults (General, 2012). According to the 2016, Lancet Global Health published a paper a high percentage of young adolescents in low and middle income countries are exposed to second hand smoke even though it will lead to the chronic diseases(Xi *et al*., 2016).Increase excise taxes and prices on tobacco products, implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages, enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship, Eliminate exposure to second-hand tobacco smoke in all indoor workplaces, public places, and public transport, implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and second-hand smoke(WHO, 2018c).

2.3.1.4. Harmful Alcohol Use

The harmful use of alcohol is a major risk factor for premature deaths and disabilities in the world, and is known to cause heart diseases, cancers, liver diseases, a range of other non-communicable conditions(WHO, 2019a).In 2016, the level of alcohol consumption worldwide was 6.4 liters of pure alcohol per person aged 15 years or older. The 2016 total alcohol per capita consumption of Ethiopia for adults aged 15+ was 3 liters of pure alcohol that shows high consumption rate on males than females 5 and 1 liters of pure alcohol respectively(WHO, 2018c)

Both total consumption of alcohol and drinking patterns, such as heavy episodic drinking, contribute to alcohol-related harm. In 2010, the World Health Assembly endorsed a global strategy to reduce the harmful use of alcohol which highlighted

areas for multi-sectorial action to reduce the alcohol-attributable disease burden(WHO, 2010b).areas for action were also outlined in the Global NCD Action Plan, which set a global NCD target of at least a 10% relative reduction in the harmful use of alcohol as appropriate, within the national context, by 2025(WHO, 2013a).Excise taxes on alcoholic beverages, enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media) and Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale(WHO, 2018c).In 2016 the alcohol-attributable disease burden was highest in low-income and lower middle-income countries when compared to upper-middle-income and high-income countries(WHO, 2018c)

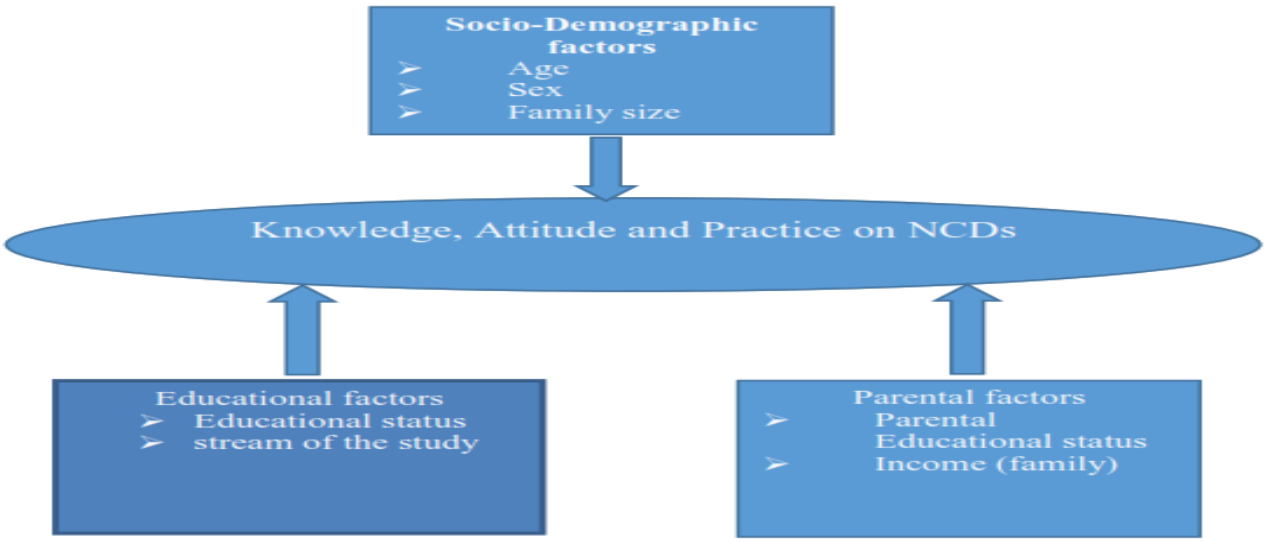


Figure 1Conceptual framework for KAP on non-communicable diseases

Source adopted from Knowledge of non-communicable diseases and practices related to healthy lifestyles among adolescents, in state schools of a selected educational division in Sri Lanka by (A. Gamage & P. Jayawardana, 2018)

3. METHODS AND MATERIALS

3.1.Study Area and period

The study was conducted in November 10-27, 2019 in Addis Ababa which is the capital of Ethiopia. More than 92 embassies and consular representatives cluster in the

city where the organization of African Union and the UN Economic Commission for Africa has their headquarters.

According to the world population reveiew Addis Ababa's 2021 population is now estimated at 5,005,524.(Dynamics, 2017)

The 2019/20 MOE statistics show that 83821 males and 97247 female students were enrolled high school education in 218 high schools from those 146 schools was owned by non governmental organizations.

3.2.Study Design

Institution based cross sectional study design was conducted.

3.3.Source and Study Population

3.3.1. Source Population

All high school students found in Addis Ababa.

3.3.2. Study Population

Randomly Selected high school students

3.4.Sampling and sample size determination

3.4.1. Sample Size Determination

$$n = Z^2 p(1-p) \div W^2$$

$$n = \frac{(1.96)^2 0.43(1-0.43}{(0.05)^2} = 376.63 = 377$$

W = 0.05 Z=1.96 (for 95 % CI)

Design effect=377*1.5=565.5=566

Non response rate =566*15%=84.9=85

Total sample size=651

P1=43% =0.43 Gamage, A., & Jayawardana, P. (2018). Knowledge of non-communicable diseases and practices related to healthy lifestyles among adolescents, in state schools of a selected educational division in Sri Lanka. *BMC public health*, *18*(1), 64.

P2=43% =0.43

P3=31.9%=0.319Yadav, K., & Wagle, R. J. H. P. J. o. P. H. (2012). Knowledge and attitude regarding major risk factors of cardiovascular diseases among 15-19 year old students of Kathmandu District. *11*, 7-10.

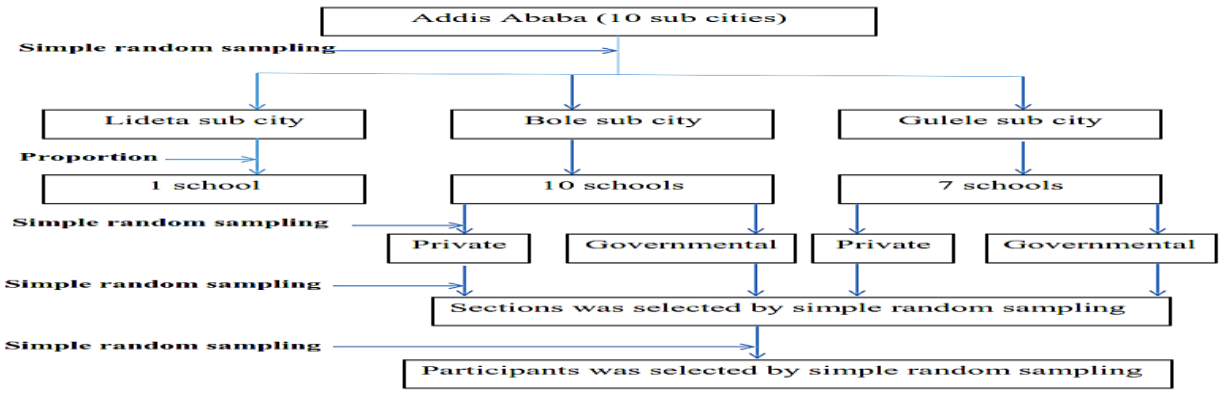
3.4.2. Sampling Techniques and procedures

Multistage sampling method was used to select the study participants. This follows five stages

First stage, 3 sub cities were selected from the all 10 sub cities which found in Addis by lottery method. The second stage was selecting schools based on the proportion of high schools found on the sub cities.18 high schools were selected from 57 high schools found in all three sub cities (Lideta, Gulele and bole) with 1, 7 and 10, respectively

The third stage was based on the proportion of the number of students contain schools were selected were categorized into two categories which are governmental and private. 12 and 6 schools were selected from private and governmental.

The fourth stage after the completed selection of schools sections were selected based on grades and finally the fifth stage respondents were selected from the selected section through using simple random sampling techniques totally 710 students were participated in the present survey from 3 sub cities and 18schools.



3.5.Inclusion and Exclusion criteria

3.5.1. Inclusion Criteria

- Students who were accepted to participate were included in this study.

3.5.2. Exclusion Criteria

- Students who are seriously ill and not able to respond were excluded from the study.

3.6.Study variables

3.6.1. Independent variables

- Sex
- Age
- Educational status/grade
- Study stream
- Fathers Educational status
- Mothers Educational status
- Religion
- Average Monthly income of the household
- Type of school
- Family size

3.6.2. Dependent variables

- Knowledge regarding non-communicable diseases
- Attitude towards prevention and management of non-communicable diseases
- Practice towards prevention of non-communicable diseases

3.7.Operational definition

Knowledge: ‘Knowledge in this study was defined as the students understanding of information regarding non communicable diseases on 59 items which are disease risk factors, early signs and preventive measures that should have to be taken. Each correct answer was given a value of “1” point and incorrectanswer was given a value of “0”. Thevalues were summed to generate knowledge core. The highest knowledge score result 59 points and the lowest point is 0.All the individual scores regarding

knowledge was computed and categorized into good and poor by employing tertial where the higher tertial (>66.6%) was considered as good knowledge and the lower two tertials(<66.6%) where considered as poor knowledge.

Attitude: 'Attitude in this study was defined as the feeling/belief of the students about NCDs and was measured with 10 items related to non-communicable diseases. Strongly agree and agree accounted for 1 points and 0 for strongly disagree, disagree and neutral responses if the statement is positive and "1" points was provided for strongly disagree, disagree and neutral responses and "0" for strongly agree and agree responses if the statement is negative. The points were summed to generate attitude score.All the individual scores regarding attitude was computed and categorized into good and poor by employing tertial where the higher tertial (>66.6%) was considered as good attitude and the lower two tertials(<66.6%) where considered as poor attitude..

Practice: 'Practice in this study was defined as the pattern and regularity of actions related to the 20 items on non-communicable diseases. Questions related to healthy eating, physical activity, alcohol consumption and tobacco use were included. Each correct answer was given a value of "1" point and incorrect answer was given a value of "0". The values were summed to generate practice score. All the individual scores regarding practice was computed and categorized into good and poor by employing tertial where the higher tertial was considered as good practice and the lower two tertials(<66.6%) where considered as poor practice.

A smoker was defined as one who smokes currently. Those who had previously (but not currently), or never smoked were considered as non-smokers.

A student who was currently consuming alcohol was considered as 'consuming alcohol, 'and those who had previously (but not currently), or never consumed were considered as "not consuming alcohol."

Adequate physical activity referred to time duration of exercise ≥60 min on a daily basis.

A student was considered to have healthy dietary habits if the following criteria were met:

1. ≥2 servings/day of Fruits
2. ≥5 servings/day of vegetables and green leaves
3. Never or less often use
    - salt or a salty sauce such as ketchup to food right before eat it or as you are eating it,
    - salt, salty seasoning or a salty sauce used in cooking or preparing foods in household
    - In a typical week, how often eat cakes, sweets, chocolate or biscuits, In a typical week,
    - Frequency of having soft drinks, such as Coca Cola, Fanta, energy drinks and similar, in a typical week
    - Frequency of using sugar in your tea or coffee, in a typical week,
    - Frequency of consuming: commercially baked goods (cookies, pie crusts, pizza dough, breads like hamburger buns and pastries,
    - Frequency of consuming: commercially packaged snack foods (crackers, popcorn, chips, candy, chocolate, biscuits),
    - Frequency of consuming: commercially consuming solid fats (margarine, vegetable shortening, butter, ghee and fat, fried foods such as chips, pasty/pie, biscuit.

In one of a study conducted by (Darebo, Mesfin, & Gebremedhin, 2019) in Hawassa regarding obesity the average monthly income of the household defined as as low ,middle and high When the average monthly Household income is <45 USD ,45-82 USD and >82 USD respectively.

3.8.Data Collection and Quality assurance

Face to face interview was conducted with the students after obtaining informed consent from their parents and all participants. The face to face interview was conducted in school. Sufficient time was taken to do the interview. A second visit was done to cover those students who were absent in the first session.

To address major areas of bias that can be introduced during data collection process the following actions were considered. Reviewing of the questionnaire was done by the researcher, and comments were included. The questionnaire was translated to the local language Amharic and back translated to English and the consistency was checked by the principal investigator. Then the questionnaire was prepared and pre-tested on 10% of the total sample size, and necessary corrections were taken before the data collection before beginning the actual research. Eight public health officers were assigned as a data collectors and 1 as supervisor were trained on data collection (interview) procedures, securing participant's information and how to deal with the participants and respecting their wishes. Each day discussion was held among the data collectors and the principal investigator on problem or difficulties concerning data collection. Completeness of the data was checked by the principal investigator

3.9.Data Analysis

Data were entered into Epidata version 3.1.and then exported to SPSS for windows version 26.0 for cleaning and analyses. Descriptive statistics was computed for participant's knowledge; attitude and practice regarding diet related non communicable diseases. Moreover, Chi- square test was figured for categorical variables ($p \leq 0.05$).multivariate analysis was employed to determine associated factors.

3.10. Ethical Clearance

consent was directly taken from students whose age was above 18 and parental consent form was sent to the parents of selected study participants whose age was under 18 before one day prior to the actual interview after getting the consent from parents assent was taken and from the students whom interested to participate in the study luckily in this study 100% of were participated in the study. Anonymity ofthe data was maintained by not writing the personal identifiers on the questionnaire. Privacy of the respondent's was also maintained during the interview.

4. RESULTS AND DISCUSSION

4.1. Results

4.1.1. Socio demographic profile of the respondents

As presented in the **Table 1**, 61.8% of the study population was females and 38.2 were males. Regarding age, 55.4% of the respondents were in the age group between

15-16 years, which is considered to be the middle adolescents according to the stages of development, respectively.

In relation to the educational status,80.3% were secondary school students and 5.9% of the respondents were social science stream students and the rest 13.8% were natural science stream students and 33.1% of the Amhara by ethnicity

Table 1Socio demographic profile of high school student's in Addis Ababa in 2019

Socio-demographic Status of Respondents (n =710)		Frequency	Percent
Gender	Male	271	38.2
	Female	439	61.8
Age	10-14 years	60	8.5
	15-16 years	393	55.4
	17-21 years	257	36.2
education	secondary school students	570	80.3
	preparatory student	140	19.7
stream	social science	42	5.9
	natural science	98	13.8
fathers educational status	completed higher education and above	102	14.4
	completed secondary education	336	47.3
	completed primary education	136	19.2
	read and write only	100	14.1
	not read and write	36	5.1
Mothers educational status	completed higher education and above	46	6.5
	completed secondary education	282	39.7
	completed primary education	180	25.4
	read and write only	114	16.1
	not read and write	89	12.5
Average	low monthly income	49	6.9
	middle monthly income	115	16.2

household monthly income	higher monthly income	546	76.9
Type of school	Government	434	61.1
	Private	276	38.9
Family size	less than three	32	4.5
	three-five	390	54.9
	more than five	288	40.6

With regard parental educational status 47.3% and 39.6% of fathers and mothers had completed secondary school;respectively.Regarding religion majority (63% and 27%) of the respondent'swasbelonging to orthodox and Muslim religions, respectively.

According to the survey,the majority 546(76.9%) of the respondents lie in the higher monthly income category and 61.1% of the respondents attending their education at governmental school where as private schools were holding the 38.9% of the study participant students. 54.9% of the study participants lived in the household with members of three to five.

4.1.2. Behaviourial risk factors of Non-Communicable Diseases among high school students in Addis Ababa in 2019

4.1.2.1.Physical Inactivity

Fifty six point six percent (n=402) of the respondents answered that they do not involve in any vigorous or moderate intensity activities and from those the 260(36.7%) of them were doing vigorous or moderate intensity activities for less than 7 days in a typical week.Onehundred seventy four (24.5%) of them spent less than 60 minutes doing vigorous or moderate intensity activities.

Table 2Physical activity level of high school student's in Addis Ababa in 2019

Physical activity level	Response	Frequency	Percent
Does any vigorous or moderate	yes	308	43.4

Frequency of vigorous or moderate physical activities in a typical week	no	402	56.6
	less than 7 days a week	260	36.7
	7 days a week	48	6.8
Minutes spend doing vigorous or moderate physical activities per day	less than 60 minutes	174	24.5
	60 minutes and over	134	18.8

Even though 43.4% of the respondents involve in physical activities only 1.7% of the respondents achieved the recommended physical activity.

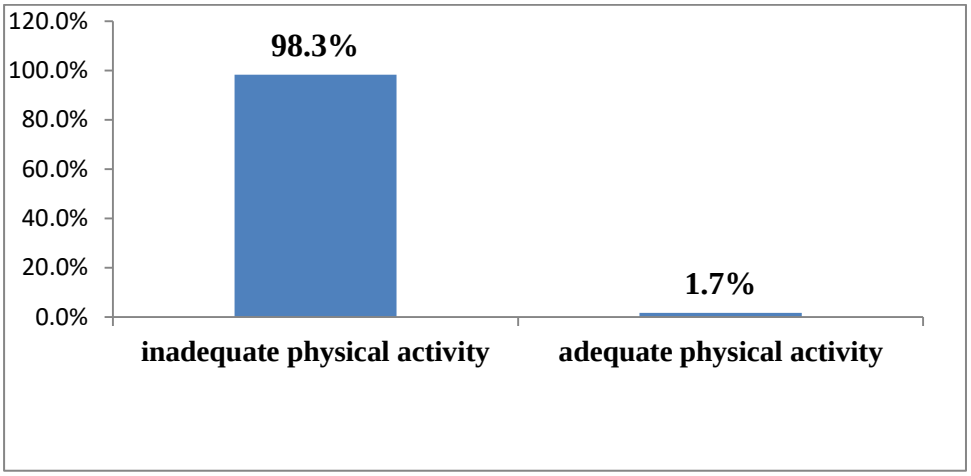


Figure 2Physical activity levels of high school student's in Addis Ababa in 2019

4.1.2.2.Alcohol Consumption

The survey revealed that 5.1% of the respondents consumed alcohol products and from those 47% of them consumed alcohol within the past 30 days with 7.14 % of alcohol user's drinking at least one drink for more than 10 days in the past 30 days.5 (13.7%) of alcohol users usually consumed more than 10 drinks per day.

Table 3Alcohol consumption among high school student's in Addis Ababa in 2019

Alcohol consumption	*Response*	*Frequency*	*Percent*
Ever consumed any alcohol	Yes	76	10.7
	No	634	89.3
Consumed any alcohol within the past 30 days	yes	36	5.1
	No	40	5.6
Number of days did you had at least one drink during the past 30 days	less than 5 days	27	3.8
	5-10 days	6	0.8
	more than 10 days	3	0.4
on the days that you drank alcohol how many drinks did you usually have per day	less than three	17	2.4
	three-five	10	1.4
	six-ten	4	0.6
	above 10	5	0.7

4.1.2.3.Tobacco Use

The survey revealed that 1.8% of the respondents smoked tobacco products of which 84.6% were males in the age between 17-21 years. Almost 50% of the smokers were grade 9 students and more than half of themwere orthodox Christian religion with average family monthly income above 15000ETB and with family member of more than 5.

Table 4Tobacco use among high school student's in Addis Ababa in 2019

Tobacco use	*response*	*Frequency*	*Percent*
Do you currently smoke any tobacco products	yes	13	1.8
	no	697	98.2
How old were you when you first started smoking	10-14 years	1	0.1
	15-16 years	6	0.8
	17-21 years	6	0.8
On average how many tobacco products	1-3 pcs	8	1.1

	4-5 pcs	3	0.4
	more than 5	2	0.3
	less than 5 days	6	0.8
During the last one month on how many days did you smoke tobacco products	5-10 days	1	0.1
	more than 10 days	6	0.8
Do you smoke inside your house	yes	1	0.1
	no	12	1.7
During the past 12 months have you tried to quit smoking tobacco	yes	8	1.1
	no	5	0.7

The mean age of cigarette initiation, was 16.07 year. In average more than 50% of the tobacco users use 1-3 pieces of tobacco products and 72.7% (n=8) of the smokers tried to quit smoking during the past 12 months.

4.1.2.4.Diet

4.1.2.4.1. Fruit and Vegetable Consumption

A total of 13.9 % and 5.5% of the respondents, respectively reported that they never had eaten any fruit and vegetables in a typical week. Similarly, 44.6% and 38% of the respondents eat fruit and vegetables less than three day in atypical week, while 49.2% and 45.9% of the respondents ate less than one serving of fruit and vegetables per week, respectively. The recommended 5 serving of vegetables and ≥2 servings of Fruitswas achieved only by 8(1.1%) and two hundred forty four (34.3%) of the respondents respectively.

Table 5Fruit and vegetable consumption among high school student's in Addis Ababa in 2019

Fruit and vegetable consumption	***Response***	***Frequency***	***Percent***
Days of fruit consumption in	less than 3 days	317	44.6

a typical week	3-5 days	260	36.6
	more than 5 days	34	4.8
	less than one serving	18	2.5
	one serving	349	49.2
Servings of fruit consumed on one of those days	two serving	192	27
	three serving	40	5.6
	more than three serving	12	1.7
Days of vegetables consumption in a typical week	less than 3 days	270	38
	3-5 days	295	41.5
	more than 5 days	106	14.9
Servings of vegetables consumed on one of those days	less than one serving	39	5.5
	one serving	326	45.9
	two serving	230	32.4
	three serving	53	7.5
	more than three serving	23	3.2
Indequate consumption of fruit		698	98.3
Indequate consumption of vegetable		709	99.9

4.1.2.4.2. Consumption of Sugar, Salt and Fat

Some (13.1%) of the respondents were added salt or a salty sauce to their food before they eat it or as they were eating it, several times a day. In addition 45.5 % used salt, salty seasoning or a salty sauce during cooking or preparing foods in their household, several times a day or at least once a day. Almost Two thirds of respondents (65%) used sugar in their tea or coffee several times a day or at least once a day.

Compared to the above mentioned intake of salt and sugar, it first seems that the population does not use other high risk foods so often. Nevertheless, 64.9%, 56.3% and 71.3% of the respondents have declared respectively that they use less often commercially baked good, packaged snack foods and soft drinks. Furthermore, 50.6% less often uses fried foods and another 36.9% have never used solid fats.

Table 6Consumption of sugar, salt and fat among high school student's in Addis Ababa in 2019

Usage of food	several times a day	once a day	several times a week	less often	Never	don't know
Salt or a salty sauce to your food right before you eat it or as you are eating it %	13.10%	3.10%	10.10%	41.70%	28.50%	3.5
Salt, salty seasoning or a salty sauce used in cooking or preparing foods in your household %	34.20%	11.30%	20.70%	22.80%	9.90%	1.1
Cakes, sweets, chocolate or biscuits %	2.10%	4.40%	18.20%	62.30%	12.50%	0.6
Soft drinks, such as Coca Cola, Fanta, energy drinks and similar %	1.10%	3.50%	11.40%	71.30%	12.30%	0.4
Sugar in your tea or coffee %	22.80%	40.60%	20%	11.50%	4.80%	0.3
Commercially baked goods %	0.60%	4.80%	12.80%	64.90%	15.90%	1
Packaged snack foods %	1.40%	7.60%	18.50%	56.30%	15.60%	0.6
Solid fats %	1%	3.90%	9.60%	46.10%	36.90%	2.5
Fried food %	2.70%	10.10%	25.60%	50.60%	10.10%	0.8

As shown the graph below only 34.4% of the respondents fulfilled the recommended healthy dietary practices.

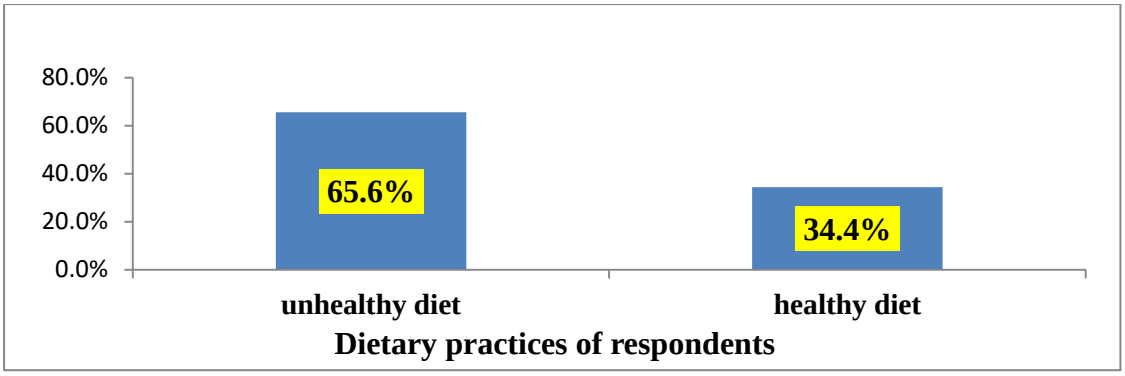


Figure 3Dietary practices of high school student's in Addis Ababa in 2019

4.1.3. Knowledge attitude and practice on non-communicable diseases among the respondents

4.1.3.1., Knowledge on non-communicable diseases among the respondents

The study measured the NCDs knowledge of the respondents through risk factors, signs and preventive measures of diabetes and cardiovascular diseases with 59 items each correct answer was rewarded 1 points and incorrect was 0 and the possible maximum score was 59 with minimum of 0 points.after the score inserted the data was computed in SPSS to generate a good and poor and knowledge status.It was found out that only 32.7% of the students had good knowledge on non-communicable diseases.

Of the student who scored good knowledge, majority were females (n = 144; 32.8%), 97(37.7%) students in the age category of 17-21 years scored ≥66.6%.more than fifty percent of (grade 11-12) preparatory students scored ≥66.6% compared to the secondary students. Large proportion (n = 24, 57.1%) of the social science students scored ≥66.6%. Considering parent's education level and "good overall knowledge," 133 (39.6%) student's whose father's had completed secondary education obtained a score of ≥66.6%. Similarly, more than one third of the students (n = 111; 39.5%) who's mothers had completed secondary education obtained a score of ≥66.6%. One hundred ninetyeight (36.3%) students from higher household monthly income category scored ≥66.6% compared to the other income groups. One hundred twenty one(43.8%) of the students whom follow their education at private schools scored ≥66.6% compared to that of governmental school students.Similarly, 98 (34%) of students whom lived in a family member of more than five scored ≥66.6%.

4.1.3.1.1. Knowledge about diabetes and cardiovascular diseases among the students

As shown on **Table 7**, 75.8 % (n=538) and 50.1% (n=356) heard about diabetes. Only 27(3.8%) of the students thought smoking is a risk factor for diabetes and only 19(2.7%) of the students considered skin and genital infections as an early symptoms of diabetes. Two hundred forty one (33.9%) of the students thought that taking exercise/ physical activity as necessary action helps to prevent diabetes.

Table 7scores of knowledge question of diabetes among high school students in Addis Ababa in 2019

Diabetes		***Frequency***	***Percent***
Have you ever heard of diabetes	Yes	538	75.8
risk factors of diabetes		***Frequency***	***Percent***
family history of diabetes	yes	42	5.9
being age over 40	yes	66	9.3
being over weight	yes	120	16.9
eating too much sugar	yes	324	45.6
over eating	yes	29	4.1
eating too much fat	yes	63	8.9
being old age	yes	48	6.8
stress	yes	120	16.9
lack of exercise/physical activity	yes	81	11.4
heredity	yes	83	11.7
smoking	yes	27	3.8
alcohol consumption	yes	38	5.4
symptoms of diabetes		***Frequency***	***Percent***
passing lots of urine	yes	101	14.2
excess thirst	yes	101	14.2
tiredness/lethargy	yes	253	35.6
loss of appetite	yes	66	9.3
weight loss	yes	38	5.4
vision problems	yes	69	9.7
skin and genital infections	yes	19	2.7

measures of action to less likely develop diabetes		*Frequency*	*Percent*
weight control	yes	77	10.8
weight loss	yes	51	7.2
exercise	yes	270	38
healthy eating habit	yes	184	25.9
limit sugar	yes	270	38
limit fatty foods	yes	41	5.8
health check ups	yes	59	8.3
avoid stress	yes	49	6.9

n=45(34.5%) of the respondents have a good knowledge on diabetes with the highest and lowest percentage of knowledge on preventive measures and Risk factors of diabetes which was 39.9% and 24.4%, respectively.

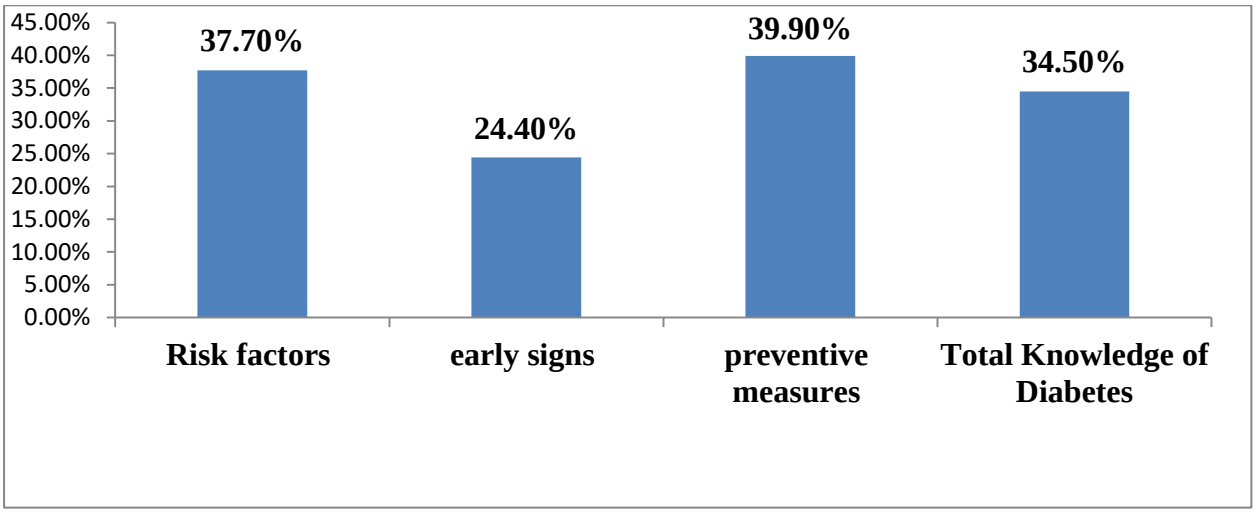


Figure 4Knowledge of diabetes among high school student's in Addis Ababa in 2019

Only 11(1.5%) of the students consider family historyis risk factor for cardiovascular diseases. Getting exhausted easily was considered as a symptom of cardiovascular diseases by (201; 28.3%) of the respondents. Similar to diabetes 241(33.9%) of the students mentioned that taking exercise/ physical activity can an action that will help to prevent cardiovascular diseases.

Table 8scores of knowledge question of cardiovascular diseases among high school students in Addis Ababa in 2019

cardiovascular diseases		***Frequency***	***Percent***
have you ever heard of cardiovascular diseases	yes	356	50.1
risk factors of cardiovascular diseases		***Frequency***	***Percent***
family history	yes	11	1.5
being age over 40	yes	24	3.4
being over weight	yes	54	7.6
eating salty foods	yes	40	5.6
over eating	yes	7	1
eating too much fat	yes	50	7
being old age	yes	42	5.9
stress	yes	106	14.9
lack of exercise	yes	89	12.5
heredity	yes	35	4.9
smoking	yes	72	10.1
alcohol consumption	yes	59	8.3
symptoms of cardiovascular diseases		***Frequency***	***Percent***
lack of breath during physical exercise	yes	133	18.7
chest discomfort	yes	93	13.1
nausea indigestion heart burn or stomach pain	yes	18	2.5
pain that spreads to the arm	yes	6	0.8
feeling of dizziness or light headed	yes	133	18.7
getting exhausted easily	yes	201	28.3
throat or jaw pain	yes	6	0.8
snoring	yes	9	1.3
sweating	yes	42	5.9

a cough that will not last	yes	14	2
swollen legs feet and ankles	yes	17	2.4
irregular heart beat	yes	50	7
actions that have to be done to less likely develop CVDs		***Frequency***	***Percent***
weight control	yes	55	7.7
weight loss	yes	42	5.9
exercise/ physical activity	yes	241	33.9
healthy diet	yes	107	15.1
avoid tobacco use	yes	43	6.1
avoid alcohol consumption	yes	36	5.1
limiting fatty foods	yes	44	6.2
health checks	yes	55	7.7

This study revealed that the overall knowledge of the respondent regarding to cardiovascular diseases was 37.5% which showed slight increment as compared to that of the knowledge on diabetes. Similar to knowledge on diabetes the highest and lowest knowledge were preventive measures and risk factors of cardiovascular disease which resulted 41.4% and 34.5%, respectively.

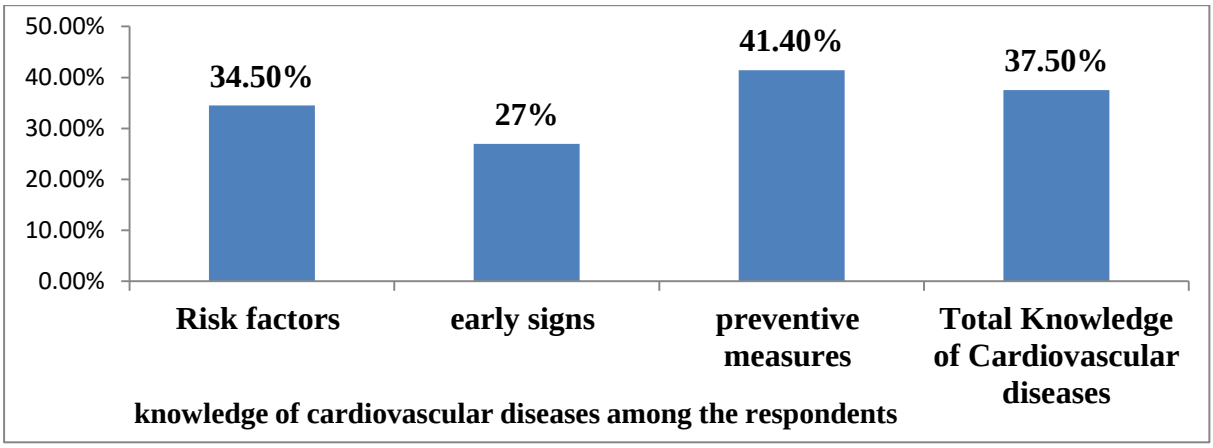


Figure 5Knowledge about cardiovascular diseases among high school student's in Addis Ababa in 2019

4.1.3.1.2. Factor associated with knowledge about non communicable diseases among the students

In the bi-variate analysis as shown in the table, all the independent variables such as sex, age, educational status/grade, study stream, father's educational status, mother's educational status, , average monthly income, owner of the school and family size was assessed for knowledge, attitude and practice.

All the independent variables assessed with knowledge and a significant associations found on age of the respondent (P=0.02) COR (95% CI): 0.674(0.483,0.941)S.E=0.17 educational status of the respondent, (P<0.0001) COR (95% CI): 2.614(1.791,1.791)S.E= 0.193 fathers educational status (P=0.01) COR (95% CI): 1.915(1.166, 3.145) S.E=0.253,mothers educational status(P=0.141) COR (95% CI): 0.54(0.237,1.226)S.E=0.419,average household monthly income (P=0.001) COR (95% CI): 0.439(0.269,0.717)S.E= 0.25 type of school (P=0.000) COR (95% CI): 2.272(1.648,3.131) S.E=0.164.

To further examine the strength of associations, multivariate logistic regression analysis was used to isolate independent predictors of knowledge.

As shown in **Table 11**Multi-variable analysis showed that preparatory students were almost 2 times more likely to have a good knowledge as compared to that their comparative secondary level students AOR (95% CI):,(P= 0.009) 1.987(1.191,3.315).

4.1.3.2.Attitude on non-communicable diseases among the respondents

The study also revealed that majority (n=529, 74.5%) of the students had poor attitude on non-communicable diseases.

Regarding attitude, both males and females didn'tshowsignificant difference 25.8% and 25.3%, respectively.Some(28.8%) of students in the age category of late adolescent scored ≥66.6% as compare to that of their counterparts. Forty six (32.9%) of (grade 11-12) preparatory students scored ≥66.6% compared to the secondary students. Fifteen (35.7%) and 31(31.6%) respondents from social and natural science stream achieved a good attitude,respectively.Considering parent's education level and "good overall attitude," 80(78.4%) of student's whose father's had completed higher education showed poor attitude. Similarly, 33(71.7%) of the students whose mothers had completed higher education scored poor attitude. Twenty six Percent of students

from higher monthly income category scored ≥66.6% compared to the other income groups. Hundred and seven (24.7%) of the students who followed their education at governmental schools scored ≥66.6% compared to that of private school students. Students who live in families with members of more than five had good attitude (26.7%).

4.1.3.2.1. Attitude about diabetes and cardiovascular diseases among the students

Scores of attitude question of diabetes

As shown in the figure below 80.4% of students answered that they should seek treatment if they, and their family members or friends have diabetes.

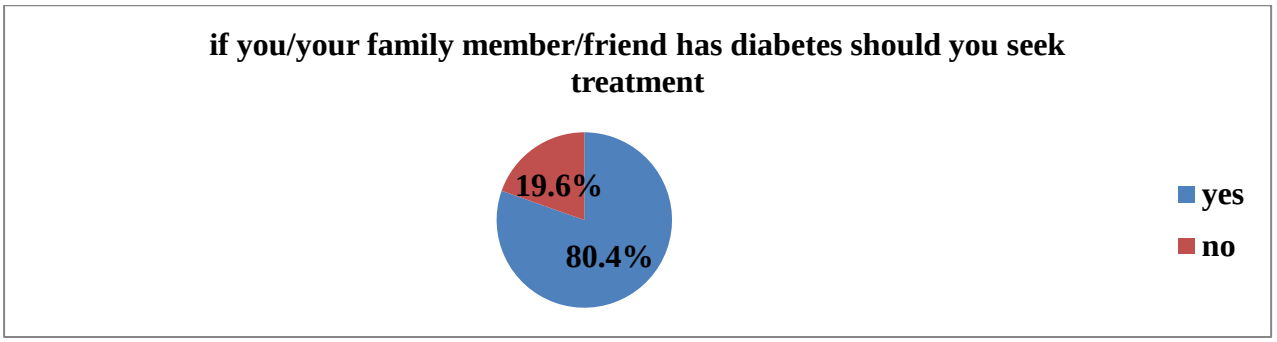


Figure 6Treatment Seeking for diabetes among school children in Addis Ababa

As shown in the **Table 9,** 88.2% of the respondents strongly agreed to have more information about problems associated with diabetes, (n=261, 36.8%) of the respondents preferred to play with computers instead of doing exercise.

Table 9Scores of attitude question of diabetesamonghigh school students in Addis Ababa in 2019

	I would like to have more information about problems associated to diabetes (%)	I prefer to play with computers instead of doing exercise (%)	I should know my blood sugar level (%)	I don't think changing my behaviour will reduce my risk of developing diabetes (%)

strongly agree	626(88.2)	261(36.8)	279(39.3)	279(39.3)
agree	41(5.8)	78(11)	84(11.8)	136(19.2)
neutral	18(2.5)	106(14.9)	133(18.7)	173(24.4)
disagree	9(1.3)	50(7)	52(7.3)	50(7)
strongly disagree	16(2.3)	215(30.3)	162(22.8)	72(10.1)

and only (n=279,39.3%)and(n=133,18.7%) was strongly agreed and agreed to know their blood sugar level respectively and 279(39.3%) and 136(19.2%) of the respondents strongly agreed and agreed for the question "*I don't think changing my behaviour will reduce my risk of developing diabetes*", respectively.

This study revealed that 80% of the respondents belonged to poor attitude.

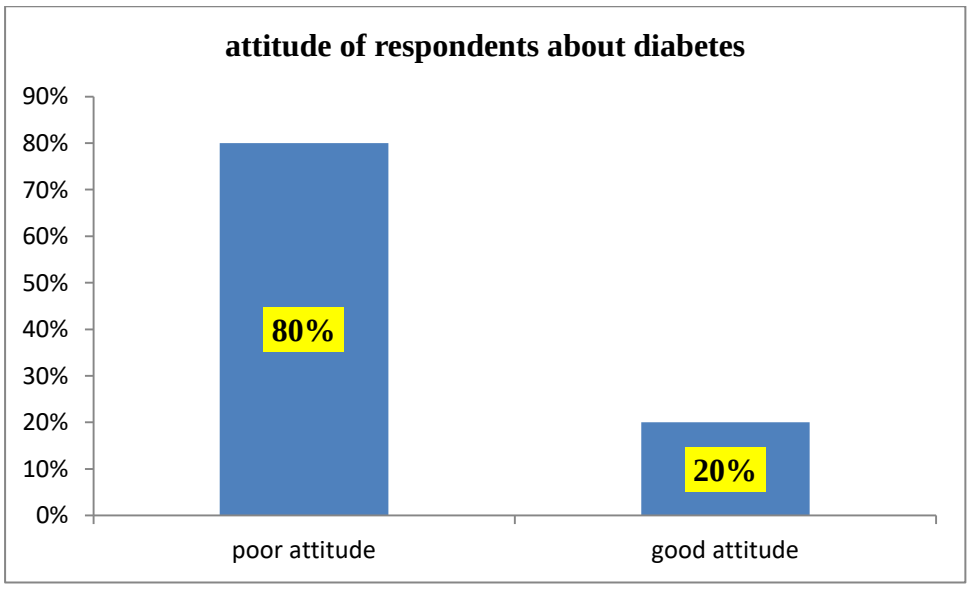


Figure 7diabetes attitudes among high school students in Addis Ababa in 2019

Scores of cardiovascular attitude questions

Eighty three percent of the respondents answered yes to the question "*if you/your family member/friend has diabetes should you seek treatment* "

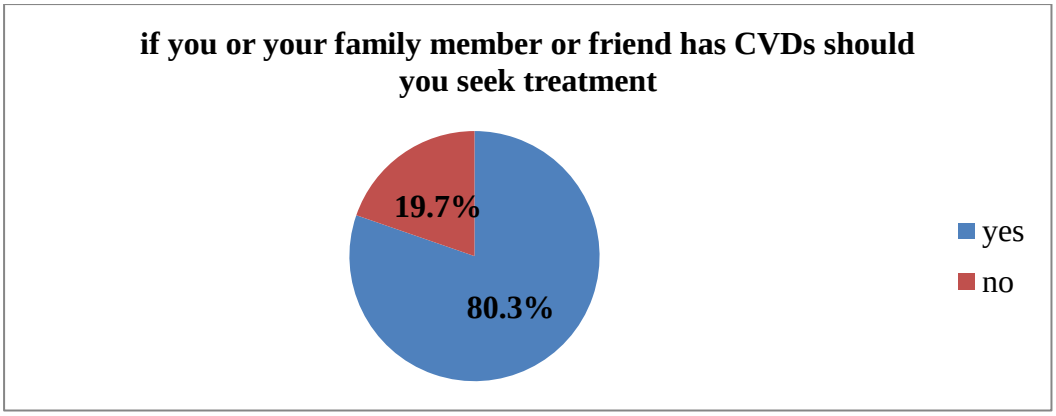


Figure 8seeking treatment for cardiovascular diseases amonghigh school student's in Addis Ababa in 2019

As shown on **Table 10** Eighty three Percent of the respondents strongly agreed to have more information about problems associated with diabetes, (n=268, 37.7%) of the respondents strongly agreed for *"I should be doing exercise to maintain healthy weight"*.

Table 10Scores of cardiovascular attitude questions high school student's in Addis Ababa in 2019

Eighty three Percent of the respondents strongly agreed to have more information about problems associated with diabetes, (n=268, 37.7%) of the respondents strongly agreed for *"I should be doing exercise to maintain healthy weight"*.

	I would like to have more information about problems associated to CVDs. n(%)	I should be doing exercise to maintain healthy weight. n(%)	Repeated measurement blood pressure through time is wasting of time. n(%)	Cardiovascular diseases are less dangerous than infectious diseases. n(%)
strongly agree	589(83)	268(37.7)	269(37.9)	256(36.1)
agree	59(8.3)	91(12.8)	99(13.9)	63(8.9)
neutral	27(3.8)	137(19.3)	138(19.4)	127(17.9)
disagree	23(3.2)	50(7)	47(6.6)	54(7.6)
strongly disagree	12(1.7)	164(23.1)	157(22.1)	210(29.6)

In addition to this onlyone hundred fifty seven (22.1%) of the respondents was strongly disagree and disagree with the statement *"Repeated measurement blood pressure through time is wasting of time* "and 256(36.1%) of the respondents strongly agreed with that cardiovascular diseases are less dangerous than infectious diseases.

The present study revealed that 73.7% of the respondents had poor attitude.

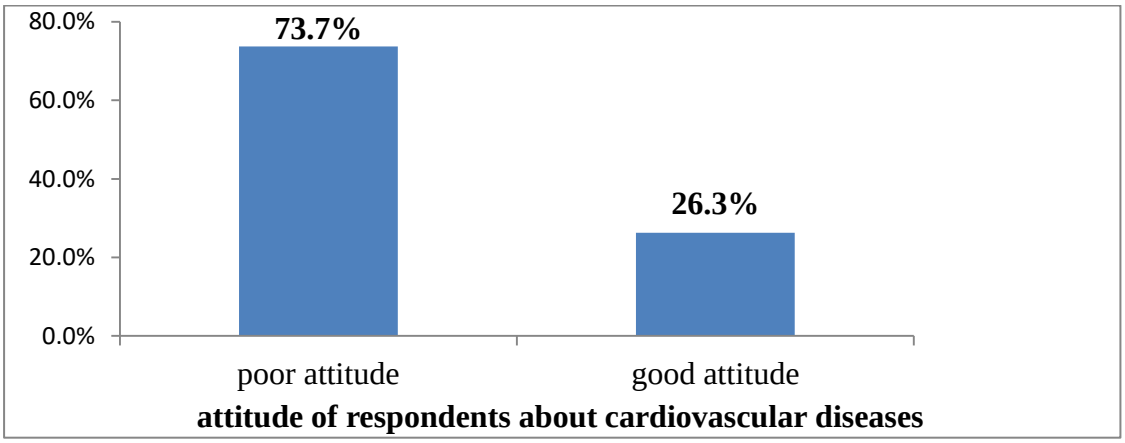


Figure 9Cardiovascular diseases attitudes amonghigh school students in Addis Ababa in 2019

4.1.3.2.2. Factor associated with attitude about non communicable diseases among the students

Similar to the knowledge,amongthe independent variables significantlyassociated variables were: age COR (95% CI):0.38(0.172, 0.84) (P=.404), educational status of the respondent (P= .002) COR (95% CI): 1.813(1.249,2.63),Study Stream(P= .026) COR (95% CI): 2.356(1.108, 5.010), fathers education status(P= .035) COR (95% CI): 1.846(1.045,3.26) and type of school (P= .244) COR (95% CI):1.2(0.883,1.631).To further examine the strength of associations, multivariable logistic regression analysis was used to confirm associations between attitude and the independent variables. As shown in **Table 11**Multi-variable analysis showed that students whom are belongs to the natural stream have2.4 times good attitude as compared to that of social science stream (AOR (95% CI) :,(*p*= 0.021)2.450(1.147, 5.234) and students with fathers education of able to read and write have almost 1.9 times good attitude as compared to that of.theircounterparts in the other groups.

4.1.4. Practice on non-communicable diseases among the respondents

The study shows that only 32.8% of the students have having well practice on non-communicable diseases. Form those whom having a good practice majority were males (n = 108;39.9%), 138(35.1%) students in the age category of 15-16 years scored ≥66.6%.128(36.7%)33.3 % secondary students scored ≥66.6% compared to the students preparatory. Largerproportion (n = 33.7%) of the natural science students scored ≥66.6%. 52(36.6%) of the students who scored >66.6% were Oromo by ethnic group. Considering parent's education level and "good overall knowledge," 35(35%) student's whose father'swas able to read and write only obtained a score of ≥66.6%. Conversely, majority of the students (n =33; 37.1%) whose mothers were not able to read and write only obtained a score of ≥66.6%. Twenty one students (42.9%) in low household monthly income scored ≥66.6% compared to the other income groups,143(32.9%) of the students who followed their education in governmental schools score ≥66.6% compared to that of private school students. One hundred forty (35.9%) students whom lived in a household with size of three to five scored ≥66.6%.

As shown in the Figure 11 regarding measurement on blood pressure and glucose level only 38(5.4%) and 172 (24.2%) of the respondents ever measured their blood glucose level and blood pressure respectively.

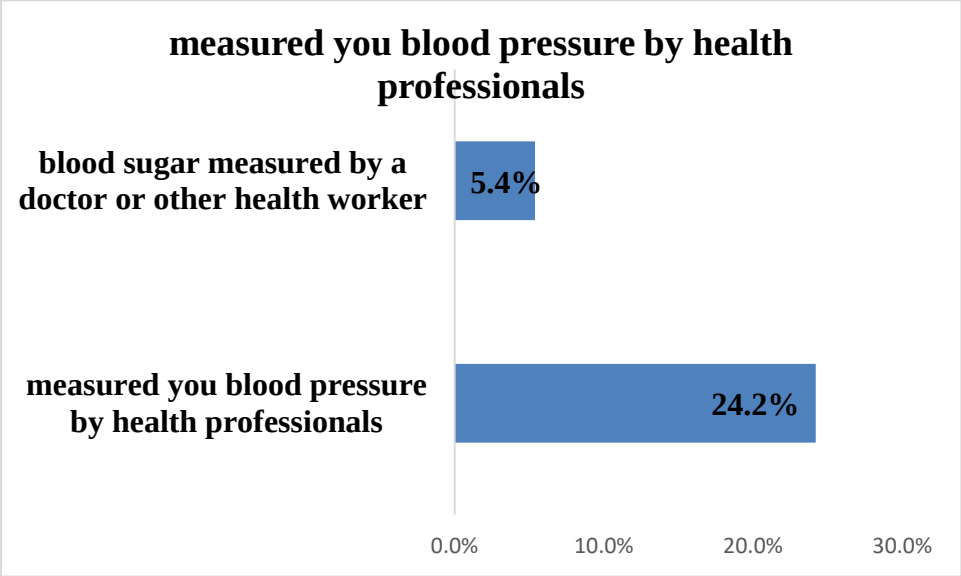


Figure 10high school student's in Addis Ababa in 2019ever measured their blood pressure and sugar level

4.1.4.1.Factor associated with practice about non communicable diseases among the students

Similar to knowledge and attitude bivariate analysis was employed to practice among the independent variables significantly associated variables were: gender (P= .002) COR (95% CI): 0.601(0.436,0.827),age (P=.208)COR(95%CI):1.242(0.887,1.74),stream (P=.249)COR(95%CI):0.616(0.27,1.404),fathers education(P=.068)COR(95%CI):0.601(0.348,1.038),mothers education (P=.208)COR(95%CI):0.649(0.331,1.273),average household income (P=.119)COR(95%CI) :1.603(0.886,2.903)and family size(P=.081)COR(95%CI):1.337(.964,1.855).and finally multivariate analysis was conducted and the only that associated with practice was gender and females had .6 times lower practice as compared to that of their male counterparts (P=0.003) COR (95% CI):0.613(0.445, 0.844) S.E=0.164.

Table 11Factors associated with knowledge attitude and practice on non-communicable diseases among adolescents in multivariate among high school students in Addis Ababa, Ethiopia 2019.

variables		poor knowledge	good knowledge	COR 95%CI, p-value	AOR 95%CI, p-value	poor attitude	good attitude	COR 95%CI,	AOR 95%CI, p-value	poor practice	good practice	COR 95% CI,	AOR 95%CI, p-value
Gender	female	295 67.20%	144 32.80%	0.985(0.713,1.361)	–	260 59.20%	179 40.80%	1.039(0.763,1.415)		314 71.50%	125 28.50%	0.601 (0.436,0.827)***	0.6(0.433,0.831)***
Educational Status of the Respondent	preparatory student	69 49.30%	71 50.70%	2.614 (1.791 3.816)***	2(1.2,3.36)***	67 47.90%	73 52.10%	1.813(1.249,2.63)**	–	97 69.30%	43 30.70%	0.887 (0.595,1.321)	-
Stream	natural science	51 52.00%	47 48.00%	–	–	53 54.10%	45 45.90%	2.356(1.108,5.01)*	2.450(1.147,5.234)**	65 66.30%	33 33.70%		–
Fathers Educational Status	read and write only	68 68.00%	32 32.00%	1.376 (0.746 2.537)	1.468(0.78,2.762)	52 52.00%	48 48.00%	1.846(1.045,3.26)**	1.894(1.063,3.374)**	65 65.00%	35 35.00%	0.835 (0.471,1.478)	–

****<0.001 ***<0.01 **<0.05 *<0.25

Values adjusted for age, educational status, father's educational status, fathers educational status, average household moonthly income and type of school, family size.

4.1.5. Communication channels

The two most prevailing communication channels for obtaining information about healthcare in general, and about health services in their areas specifically, were television and Family, friends, neighbours. Internet seems to be another important communication channel, as well as Radio.

Table 12Current and preferred channels of communication about health issues

Channels of communication	Current %	Preferred %	Differential (current minus preferred) %
Your doctor or nurse	21.4	49.3	27.9
TV	74.9	55.1	-19.8
Radio	24.9	26.5	1.6
Newspaper	9.7	17.9	8.2
Internet	33.9	40.8	6.9
Family, friends, neighbors	35.1	23.1	-12
Leaflets	3.7	14.6	10.9
Posters/Billboards	4.8	9.9	5.1
SMS	3.2	9.4	6.2
Others			
None	1.3	1	-0.3

Respondents feel that they should be getting information about health issues from their doctors or nurses much more than they do now, a little less from television and their family, friends and neighbors, and a little more through the Internet.

4.2. Discussion

Regarding awareness on non-communicable diseases the present study revealed that 75.8% and 50.1% of the students heard about diabetes and cardiovascular diseases respectively which was higher as compared to that of a study conducted by (Ade et al., 2014) ,(Shivalli et al., 2012),(Divakaran et al., 2010) and(AL-Daboony, 2016) this might be due toaccessfor information since the previous studies are conducted in rural sites unlike to that of the present one it's the capital of the country.

Knowledge about non communicable diseases among the students was 32.7% % which was lower as compared to that of a study conducted by (Islam, Rahman, & Moly, 2019).the present study showed that Knowledge on diabetes among respondents were 34.5% which was lower in comparison with a study conducted in Debrebirhan by (Shiferaw et al., 2020). and India by (Goel & Singh, 2007).37.7% of the respondents were have a good knowledge on the risk factors of diabetes with the top answer provided on eating too much sugar ,being overweight and stress with prevalence of 45.6%,16.9% and 16.9% which was extremely low as compared to that of a study conducted by (Shivalli et al., 2012), (Lorga, Aung, Naunboonruang, Junlapeeya, & Payaprom, 2013),(Shiferaw et al., 2020).students have extremely lower knowledge regarding risk factors of diabetes such as smoking, alcohol consumption and physical inactivity which was 3.8%,5.4% 11.4% respectively.

Knowledge concerning cardiovascular diseases was 37.5% with 34.5% and 41.4% on the risk factors and preventive measures respectively. However the knowledge on the risk factors of Cardiovascular diseases was higher as compared to that of a study conducted in Lekhnath by (Adhikari et al., 2018)and Delhi by (George et al., 2014)respectively.

This study showed poor attitudes similar with previous study (Herath, Weerasinghe, Dias, & Weerarathna, 2017) have reported 88% poor attitudes, but these studies reported poor knowledge too (M Deepa et al., 2014; Mohan Deepa et al., 2005; Islam et al., 2019; Saleh, Mumu, Ara, Begum, & Ali, 2012). Most studies show that the attitude goes in hand in hand with the knowledge. Even though it is difficult to find out the reasons for the gap between these two domains with a quantitative research the respondents had poor attitude compared to study conducted by (Yadav&Wagle, 2012)more than three fourth of the respondents stated that they will seek some form

of treatment if they or their family members are found to have DM which was similar to that of a study conducted in srilanka(Herath et al., 2017)

Even Evidences shows that Physical activity helps in preventing non communicable diseases (Adamu, Sani, & Abdu, 2006) Only less than half of the respondents (43.4%) of the respondent's in this study was physically active which shows higher as compared to that of studies conducted By (Ade et al., 2014; AL-Daboony, 2016; Kedar, Gupta, & Health, 2019). Even (43.4%) respondents were involved in vigorous or moderate physical activities at least for 10 minutes per day only 1.7% of the respondents fulfil the recommended physical activity referred to time duration of exercise ≥60 min on a daily basis which is extremely lower as compared to the studies conducted among high school students in Delhi, India by (George et al., 2014)(43.8%). (Goyal et al., 2011)reported low level of physical activity among affluent Adolescents.However it is good that Ethiopia recently initiated periodic car free and mass sport days in Addis Ababa and other cities this might create a good chance to improve the awareness and behaviors of the respondents on physical activity.

Both of alcohol consumption and tobacco use was extremely low as compare to that of similar studies with studies conducted in Spain (Zarallo, 2019) ,Madagascar(Veeranki, 2015) ,china(Wang, 2016) and America(Wang, 2018) among high school adolescent students with the higher prevalence on male and alcohol consumption was 5.1% which is low compare to that of the national data(EDHS, 2016) and a study conducted among high school students in India (Mini, 2017) and Ethiopia (Reda, 2012)which is 22.2% with higher prevalence on males conducted. A studies conducted in the largest cities such as Dhaka (Bangladesh) by (Islam et al., 2019)and Delhi (India) (George et al., 2014)shows higher prevalence of tobacco use among high school students as compare to that of the present study. A systematic review and meta-analysis conducted by (Ali & Worku, 2020)on current alcohol consumption and associated factors among school adolescents and youths in Ethiopia revealed that the prevalence of alcohol consumption among high school students was 23% which was extremely higher as compared to that of the present study.

The present study findings showed that 86% and 95.5% of the respondents eats fruit and vegetables and only 4..8% and 14.9% of the respondents consumed fruits and

vegetables more than 5 days a week and the recommended fruit and vegetable consumption was not achivedby more than 98% of the respondents which was very low as compared to that previous studies(Ade et al., 2014; Kedar et al., 2019) it might be due to knowledge gap ,availability and access might be the reason to and a study conducted in indiaby (Ade et al., 2014) reported higher fruit and vegetablesconsumption was seen among respondents whom have cultivate. a study conducted in srilanka among high school students showed that 43% of the respondents consumed a healthy diet which was higher as compared to that of the present study(34.4%)(A. Gamage & P. J. B. p. h. Jayawardana, 2018) and (Mirmiran, 2007) reported healthy diet was followed only by less than 25% of the respondents on Tehranian adolescents.

Ninety five and seventy six percent's of the respondents have never been measured their blood glucose and blood pressure level by a doctor or a nurse respectively which was extremely lower when we compared it with a findings reported in srilanka (38%) by (Herath et al., 2017).The present study showed that respondents practice was higher as compared to that of the findings on knowledge and attitude regarding non communicable diseases it might be due to students applying those good practices without having awareness and a good perception on them and their health benefit but for just for enjoyment, or it might be due to the several pressures that push them towards those practices without their willingness such as family food choice, peer pressure. Knowledge increases Proportional to increment on grade of the respondent and attitude was associated with both being preparatory students and a good practice was associated with being male.

Non communicable diseases may impact education in one or other ways. students might miss school to take care of a family members that have chronic diseases .in addition to this the high cost to the medical care of this diseases push the family to poverty preventing some children to gone.

Students (adolescents) are change agents beyond of themselves they could help the health sector by addressing knowledge to NCDs.in the current study population many may get into the next level of education and the rest may out from the road of education so it became the worst and challenging situations to overcome to aware those whom out of the education but investing here without additional may change the

all bad future related to non-communicable diseases. Good knowledge and positive attitude can make it easy to change in practices.

Behaviors that start at adolescent age will continue to adulthood and beyond so providing knowledge, creating a good attitude in students perspective help us to achieve productive future generation. Invest in adolescents is invest in country there is one say by the famous former Ethiopian children TV program host **Ababa Tesfaye** «todays flowers tomorrow's fruits».

4.3. Limitations of the study

There was a very limited access to literature concerning the KAP level by high school students. Nevertheless, the study has successfully revealed some KAP gaps of students on NCDs that can be used in the planning of school based educational interventions that are aimed at improving their awareness, perception and actions regarding recommended preventive approach for NCDs.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The overall knowledge attitude and practice regarding non communicable diseases among high school students in Addis Ababa were very low which may result high prevalence of non-communicable diseases in the incoming future make their life unproductive and unhealthy.inerventions that improve knowledge attitude and practice should have to be implemented.

5.2. Recommendation

- Adolescent centred activities that can raise knowledge and develop positive attitude and practices towards non-communicable diseases.
- Health education is needed for children as knowledge regarding risk factors of CVDs and DM, including other NCDs and their prevention.
- High school teachers should be oriented about NCDs and their risk factors so that they can educate to the students.
- Organizing events and campaigns that can create awareness and improve practice regarding about non communicable diseases.
- Initiate and appreciate students to follow healthy lifestyle.
- Strengthen studies related to high school students that associated to healthy behaviours non-communicable diseases.

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ANNEXES

Annex IQuestionnaire

Parental consent form: -Invitation to Participate:

Dear Parent,

My name is AshenafiHailemariamMamo and I am student in Faculty of Chemical and Food Engineering at Bahir Dar University. I am conducting a research study to to Assess of knowledge attitude and practice about non communicable diseases among high school students in Addis Ababa. The purpose of this study is to Assess of knowledge attitude and practice about non communicable diseases (selected) among high school students Addis Ababa. Your child will be asked to about risk factors and knowledge attitude and practice questions related to non-communicable diseases. We expect that your child will be in this research study for 10-15 minutes after class. There is no risk and harm on your child and may benefited on getting answer for health questions he/she raised after the completion of the interview.

If you agree to participate, your child will be one of 710 participants who will be participating in this research and she or he will expected to participate in face to face interviews for about 10-15 minutes. Your child's information and responses will be kept confidential and it only be used for educational purpose. The results of this study may be used in reports, presentations, or publications but your child's name will not be used and completely deleted after the completion the study.

Your child's participation in this study is voluntary. Your child may terminate participation at any time. You may also withdraw your child from the study at any time; there will be no penalty

Contact Information:

If you have questions about the study, please call me at +251922432549

By signing below, you are giving consent for your child to participate in the study.

☐ I give permission for my child to be interviewed. ☐ I do not give permission for my child to be interviewed.Child's name: ________Parent's name: _____
Signature: _____Date: _____

Child Assent Form

My name is AshenafiHailemariamMamo and I am student in Faculty of Chemical and Food Engineering at Bahir Dar University. I am inviting you to participate in a research study about knowledge attitude and practice on non-communicable diseases (selected) among high school students Addis Ababa. Your parent(s) know we are talking with you about the study.

The following is a short summary of this study to help you decide whether you want to be a part of this study. Information that is more detailed is listed later on in this form.

The purpose of this study is to Assess of knowledge attitude and practice about non communicable diseases (selected) among high school students Addis Ababa. You will be asked about risk factors and knowledge attitude and practice questions related to non-communicable diseases we expect that you will be in this research study for 10-15 minutes after class. There is no risk and harm on you and may benefited on getting answer for health questions you raised after the completion of the interview.

If you agree to participate, you will be one of 710 participants who will be participating in this research and you will expected to participate in face to face interviews for about 10-15 minutes. Your information and responses will be kept confidential and it only be used for educational purpose. The results of this study may be used in reports, presentations, or publications but your name will not be used and completely deleted after the completion the study.

Your participation in this study is voluntary. You may decline participation at any time; there will be no penalty.

Contact Information:

If you have questions about the study, please call me at +251922432549

By signing below, you are giving consent for your child to participate in the above study.

☐ I give permission to be interviewed. ☐ I do not give permission to be interviewed

Your name: _____ Signature: _____Date: _____

Hello! I'm _____ and I am here to collect information related to non-communicable diseases for Mr. AshenafiHailemariamMamo whom conducting his MSc thesis research with the title, "Assessment of knowledge attitude and practice about non communicable diseases (selected) among high school students Addis Ababa". . I appreciate if you could respond to this questionnaire. It will take approximately 10 up to 15 minutes of your time. It is entirely up to you whether you participate or not but your responses would be valuable for my research thesis. I assure you that all the information gathered will be kept confidential and solely used for educational purpose. I thank you for your cooperation.

I'm willing to participate ☐ I'm not willing to participate ☐

No	Question	Response	Code
1.	Sex	1. .Male 2. Female	D1
2.	How old are you?	⌊__⌋⌊__⌋	D2
3.	What is your highest level of completed education/grade?	1. grade 9 2. grade 10 3. grade 11 4. grade 12	D3
4.	study stream	1. social science 2. natural science	D4
5.	education level of father	1. higher education 2. primary education 3. read and write only 4. not read and write	D5
6.	education level of mother	1. higher education 2. primary education 3. read and write only 4. not read and write	D6
7.	what is your religion	1. orthodox 2. protestant 3. Muslim	D7

		4. catholic 5. others specify——— _____	
8.	How much your family earn in one month on average?	_____Birr	D8
9.	Whom do own the school	Government Private	D9
10.	Family size	_____	D10
Section 2 Knowledge, Attitudes, Practices and Behavior			
tobacco Use			
	Now I am going to ask you some questions about tobacco use.		
	Question	**Response**	**Code**
11.	Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes?	1. Yes 2. No SKIP TO S1	A1
12.	How old were you when you first started smoking?	1. Age (years) └__┘__┘ 2. Don't know	A2
13.	On average, how many tobacco products do you smoke each day , including cigarettes, hand-rolled cigarettes, pipes, cigars, etc.?	Tobacco products └__┘__┘__┘	A3
14.	During the last one month, on how many days did you smoke tobacco products?	Days └__┘__┘	A4
15.	Do you smoke inside your house?	1. Yes 2. No	A5

16.	During the past 12 months, have you tried to quit smoking tobacco?	1. Yes 2. No	A6
Alcohol Consumption			
	The next questions ask about the consumption of alcohol.		
	Question	**Response**	**Code**
17.	Have you ever consumed any alcohol such as beer, wine?	1. Yes 2. No SKIP TO H1	S1
18.	Have you consumed any alcohol within the past 30 days?	1. Yes 2. No SKIP TO H1	S2
19.	During the past 30 days, on how many days did you have at least one alcoholic drink?	1. Number ⌊_⌋⌊_⌋ 2. Don't know	S3
20.	During the past 30 days, on the days that you drank alcohol, how many drinks did you usually have per day?	1. Number ⌊_⌋⌊_⌋ 2. Don't know	S4
Diet			
	The next questions ask about the fruits and vegetables that you usually eat. As you answer these questions please think of a typical week in the last year		
21.	In a typical week, on how many days do you eat fruit?	1. Number of days ⌊_⌋⌊_⌋ 2. Don't Know	H1
22.	How many servings of fruit do you eat on one of those days? one serving is equal to one medium size piece of banana, apple, etc.	1. Number of servings 2. Don't Know	H2
23.	In a typical week, on how many days do you eatvegetables?	1. Number of days ⌊_⌋⌊_⌋ 2. Don't Know	H3

24.	How many servings of vegetables do you eat on one of those days? One serving is equal to one cup of spinach/salad or half cup of tomatoes, carrots, cabbage, onions, etc.	1. Number of servings ⌊__⌋⌊__⌋ 2. Don't Know	H4
Salt and sugar			
	With the next questions, I would like to learn more about salt, sugar and fat in your diet.		
	Question	**Response**	**Code**
25.	How often do you use salt or a salty sauce such as ketchup to your food right before you eat it or as you are eating it?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	E1
26.	How often is salt, salty seasoning or a salty sauce used in cooking or preparing foods in your household?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	E2
27.	In a typical week, how often do you eat cakes, sweets, chocolate or biscuits?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	E3
28.	In a typical week, how often do you have soft drinks, such as Coca Cola, Fanta, energy drinks and similar?	1. Several times a day 2. Once a day 3. Several times a	E4

		week 4. Less often 5. Never 6. Don't know	
29.	In a typical week, how often do you use sugar in your tea or coffee?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	E5
30.	In a typical week, how often do you eat each of the following: Commercially baked goods (cookies, pie crusts, pizza dough, breads like hamburger buns and pastries)?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 5 6. Don't know	E6
31.	Packaged snack foods (crackers, popcorn, chips, candy, chocolate, biscuits)?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	E7
32.	Solid fats (margarine, vegetable shortening, butter, ghee and fat)?	1. Several times a day 2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	E8
33.	Fried foods such as chips, pasty/pie,	1. Several times a day	E9

	biscuit?	2. Once a day 3. Several times a week 4. Less often 5. Never 6. Don't know	
Physical Activity			
Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. In answering the following questions ' vigorous and moderate intensity activities ' are activities that require hard to moderate physical effort and cause large to moderate increases in breathing or heart rate, '			
	Question	**Response**	**Code**
34.	Do you do any vigorous and moderate intensity activities like [running or football, brisk walking, cycling, swimming, volleyball] for at least 10 ominutes per day?	1. Yes 2. No SKIP TO I1	N1
35.	In a typical week, on how many days do you do vigorous and moderate intensity activities s?	Number of days ⌊__⌋	N2
36.	How many minutes do you spend doing vigorous and moderate intensity activities on a typical day?	⌊__⌋⌊__⌋ min	N3
Diabetes			
37.	Have you ever heard of diabetes?	1. Yes 2. No SKIP TO I5	I1
38.	Do you know the factors that may lead to type diabetes	1. Yes 2. No	I2
39.	Do you think Family history of diabetes lead to a person developing type 2 diabetes	1. Yes 2. No	I2a

40.	Do you think Age over 40 lead to a person developing type 2 diabetes	1. Yes 2. No	I2b
41.	Do you think Overweight lead to a person developing type 2 diabetes	1. Yes 2. No	I2c
42.	Do you think Eating too much sugar lead to a person developing type 2 diabetes	1. Yes 2. No	I2d
43.	Do you think Overeating lead to a person developing type 2 diabetes	1. Yes 2. No	I2e
44.	Do you think Eating too much fat lead to a person developing type 2 diabetes	1. Yes 2. No	I2f
45.	Do you think Old age lead to a person developing type 2 diabetes	1. Yes 2. No	I2g
46.	Do you think Stresslead to a person developing type 2 diabetes	1. Yes 2. No	I2h
47.	Do you think Lack of exercise lead to a person developing type 2 diabetes	1. Yes 2. No	I2i
48.	Do you think heredity lead to a person developing type 2 diabetes	1. Yes 2. No	I2j
49.	Do you think Smoking lead to a person developing type 2 diabetes	1. Yes 2. No	I2k
50.	Do you think Alcohol lead to a person developing type 2 diabetes	1. Yes 2. No	I2l
51.	Do you think any Other factors that lead to type 2 diabetes, specify	1. Yes 2. No	I2m
52.	Do you know the early symptoms of type 2 diabetes	1. Yes 2. No	I3
53.	Do you think passing lots of urine can be early symptoms of diabetes?	1. Yes 2. No	I3a
54.	Do you think Excess thirst can be early symptoms of diabetes?	1. Yes 2. No	I3b
55.	Do you think Tiredness/lethargy can be early symptoms of diabetes?	1. Yes 2. No	I3c
56.	Do you think Loss of appetite can be early	1. Yes	I3d

	symptoms of diabetes?	2. No	
57.	Do you think Weight loss can be early symptoms of diabetes?	1. Yes 2. No	I3e
58.	Do you think Vision problems can be early symptoms of diabetes?	1. Yes 2. No	I3f
59.	Do you think Skin and genital infections can be early symptoms of diabetes?	1. Yes 2. No	I3g
60.	Do you think Other that can be early symptoms of diabetes?, specify	1. Yes 2. No	I3h
61.	do you know an actions to prevent developing diabetes in the future	1. Yes 2. No	I4
62.	Do you think there is no action to be taken needed as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4a
63.	Do you think Weight control as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4b
64.	Do you think Weight loss as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4c
65.	Do you think Exercise as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4d
66.	Do you think following Healthy diet/ eating habits as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4e
67.	Do you think Limiting sugar as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4f
68.	Do you think Limiting fatty foods as the preventive actions that can be taken to	1. Yes 2. No	I4g

	prevent developing diabetes in the future		
69.	Do you think Health checks/ screening as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4h
70.	Do you think Avoid ing stress as the preventive actions that can be taken to prevent developing diabetes in the future	1. Yes 2. No	I4i
71.	Do you know any Other mechanism, as the preventive actions that can be taken to prevent developing diabetes in the future specify	1. Yes 2. No	I4j
72.	When you or your family member or friend has diabetes, should they seek medical treatment?	1. Yes 2. No	I5
73.	Have you ever had your blood sugar measured by a doctor or other health worker?	1. Yes 2. No	I6
74.	I would like to have more information about problems associated to diabetes.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	I7
75.	I prefer to play with computers instead of doing exercise.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	I8
76.	I should know my blood sugar level.	1. Strongly agree 2. agree 3. neutral	I9

		4. disagree 5. Strongly disagree	
77.	I don't think changing my behaviour will reduce my risk of developing Diabetes.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	I10
Cardiovascular diseases			
78.	Have you ever heard of cardiovascular diseases?	1. Yes 2. No SKIP TO C5	C1
79.	Do you know the factors that may lead to cardiovascular diseases?	1. Yes 2. No	C2
80.	Do you think Family history of cardiovascular diseases lead a person to developing cardiovascular diseases?	1. Yes 2. No	C2a
81.	Do you think being Age over 40 lead a person to developing cardiovascular diseases?	1. Yes 2. No	C2b
82.	Do you think being Overweight lead a person todeveloping cardiovascular disease?	1. Yes 2. No	C2c
83.	Do you think Salty food lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2d
84.	Do you think Overeating lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2e
85.	Do you think eating too much fat lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2f
86.	Do you think being Old age lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2g
87.	Do you think stress lead to a person	1. Yes	C2h

	developing cardiovascular diseases?	2. No	
88.	Do you think lack of exercise lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2i
89.	Do you think heredity lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2j
90.	Do you think Smoking lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2k
91.	Do you thinkharmful alcohol alcohol use lead to a person developing cardiovascular diseases?	1. Yes 2. No	C2l
92.	Do you know any other factors that lead to a person developing cardiovascular diseases? Specify	1. Yes 2. No	C2m
93.	Do you know the early symptoms of cardiovascular diseases?	1. Yes 2. No	C3
94.	Do you think Lack of breath during physical exercise can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3a
95.	Do you think Chest Discomfort can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3b
96.	Do you think Nausea, Indigestion, Heartburn, or Stomach Pain can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3c
97.	Do you think Pain that spreads to the Arm can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3d
98.	Do you think Feeling Dizzy or Lightheaded can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3e
99.	Do you think getting exhausted easily can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3f

100.	Do you think Throat or Jaw Pain can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3g
101.	Do you think Snoring can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3h
102.	Do you think Sweating can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3i
103.	Do you think A cough that won't quit can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3j
104.	Do you think swollen Legs, feet and ankles can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3k
105.	Do you think Irregular heart beat can be early symptoms of cardiovascular diseases?	1. Yes 2. No	C3l
106.	Do you know any other early symptoms of cardiovascular diseases? specify	1. Yes 2. No	C3m
107.	do you know an actions to prevent developing cardiovascular diseasesin the future	1. Yes 2. No	C4
108.	Do you think there is no action to be taken needed as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4a
109.	Do you think Weight control as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4b
110.	Do you think Weight loss as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4c

111.	Do you think Exercise as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4d
112.	Do you think following Healthy diet/ eating habits as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4e
113.	Do you think avoiding smoking as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4f
114.	Do you think avoiding alcohol as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4g
115.	Do you think Limiting fatty foods as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4h
116.	Do you think Health checks/ screening as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future	1. Yes 2. No	C4i
117.	Do you know any Other mechanism, as the preventive actions that can be taken to prevent developing cardiovascular diseases in the future specify	1. Yes 2. No	C4j
118.	Have you ever been measured your blood pressure level by a doctor or any other health professional	1. Yes 2. No	C5
119.	When you or your family member or friend has cardiovascular diseases, should they	1. Yes 2. No	C6

	seek medical treatment?		
120.	I would like to have more information about problems associated to diabetes.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	C7
121.	I should be doing exercise to maintain healthy weight.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	C8
122.	Repeated measurement blood pressure through time is wasting of time.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	C9
123.	Cardiovascular diseases are less dangerous than infectious diseases.	1. Strongly agree 2. agree 3. neutral 4. disagree 5. Strongly disagree	C10
Communication			
	Now I would like you to think about the information you receive about healthcare in general and health services in your area.		
124.	Current channels of communication for getting information about health issues	1. Your doctor or nurse 2. TV 3. Radio 4. Newspaper	Z1

		5. Internet	
		6. Family, friends, neighbors	
		7. Leaflets	
		8. Posters/Billboards	
		9. SMS	
		10. Others	
		11. None	
125.	preferred channels of communication for getting information about health issues	1. Your doctor or nurse	Z2
		2. TV	
		3. Radio	
		4. Newspaper	
		5. Internet	
		6. Family, friends, neighbors	
		7. Public meeting in the neighborhood/village	
		8. Leaflets	
		9. Posters/Billboards	
		10. SMS	
		11. Others	
		None	

Annex II Amharic Translated Questionnaires

የወላጆችፍቃድመጠየቂያቅጽ

ውድወላጆች

ሰላም-

አሸናፊኃ/ማርያምማሞእባላለሁበባህርዳርዩኒቨርስቲየባህርዳርኬሚካልናምግብምህንድስናኢንስቲቲዩ ትበአፕላይድሂዩማንኒውትሬሽንየሁለተኛዲግሪተማሪስሆን "በአዲስአበባየሚገኙየከፍተኛደረጃትምህርትተማሪዎችተላላፊባልሆኑበሽታዎችላይያላቸውዕውቀት(ግንዛቤ)፣አመለካከትናተግባርእንዲሁምተያያዥየሆኑጉዳዮች"በሚልርዕስላይየመመረቂያጥናቴንበመ ስራትላይእገኛለሁ፡፡

የዚህጥናትዋነኛዓላማበአዲስአበባየሚገኙየከፍተኛደረጃትምህርትተማሪዎችተላላፊባልሆኑበሽታዎችላ ይያላቸውዕውቀት(ግንዛቤ)፣አመለካከትናተግባርእንዲሁምተያያዥየሆኑጉዳዮችላይትኩረትያደርጋል፡ ፡ስለዚህምልጅዎተላላፊያልሆኑበሽታዎችጋርተያይዞያለውንዕውቀት፣አመለካከትናተግባርንለማወቅየ ሚረዱጥያቄዎችይቀርቡለታል/ላታል፡፡ልጅዎከትምህርትሰዓትውጪከ10-
15ደቂቃላልበለጠጊዜቆይታእንዲያደርግየምንጠብቅሲሆንበዚህጥናትላይበመሳተፉ/ፏለምንምአይነት ጉዳትየማይጋለጥናከዚህይልቅግንከቃለምልልሱማብቃትበኃላለሚያነሳቸውማንኛውምአይነትየጤናጥ ያቄዎችመልስበማግኘትተጠቃሚሊሆንይችላል፡፡

ልጅዎበጥናቱእንዲሳተፍቃድዎንከሰጡንልጅዎበጥናቱከሚሳተፉትከ710
መላሾችመካከልአንዱበመሆንከ10-15
ደቂቃላልበለጠጊዜቆይታበሚደረገውየቃለምልልስተሳታፊይሆናል፡፡ከልጅዎየምናገኘውማንኛውንም መረጃሚስጥራዊነቱየተጠበቀናከትምህርትነትውጪለሌላአገልግሎትጥቅምላይአይውልም፡፡

የልጅዎበጥናቱላይመሳተፍናአለመሳተፍበፈቃደኝነትላይየተመሰረተሲሆንበማንኛውምጊዜልጅዎበራ ሱፍቃድወይምደግሞበእርሶፍላጎትከጥናቱመውጣት/ማቋረጥየሚችሉሲሆንለዚህምምንምአይነትቅጣ ትአያስከትልም፡፡ልጅች ለመጠይቆቹየሚሰጡኝምላሾችለጥናቱበጣምከፍተኛዋጋአላቸው፡፡

አድራሻ

ስለጥናቱምንምአይነትጥያቄካለዎትእንዲሁምግልጽእንዲሆንልዎየሚፈልጉትማንኛውምጉዳይካለበስ ልክቁጥር [+251922432549ቢ.ያደርሱኝአፋጣኝምላሽለመስጠትዝግጁነኝ፡፡

ከታችበሚገኘውየፊርማቦታፊርማዎትንበማስቀመጥልጅዎበጥናቱላይእንዲሳተፉ/ድትሳተፍፍቃድዎ ንመስጠትይችላሉ፡፡

□ልጄበቃለመጠይቁእንዲሳተፍ/ድትሳተፍፍቃደኛነኝ፡፡□ልጄበቃለመጠይቁእንዲሳተፍ/ድትሳተፍ ፍቃደኛአይደለሁም፡፡

የልጅዎስም :_____የወላጅስም: _____ፊርማ: _____ቀን: _____

የተሳታፊዎችፍቃድመጠየቂያፎርም

ሰላም-

አሸናፊኃ/ማርያምማሞእባላለሁበባህርዳርዩኒቨርስቲየባህርዳርኬሚካልናምግብምህንድስናኢንስቲቲዩ ትበአፕላይድሂዩማንኒውትሬሽንየሁለተኛዲግሪተማሪስሆን

"በአዲስአበባየሚገኙየከፍተኛደረጃትምህርትተማሪዎችተላላፊባልሆኑበሽታዎችላይያላቸውዕውቀት(ግንዛቤ)፣አመለካከትናተግባርእንዲሁምተያያዥየሆኑጉዳዮች"በሚልርዕስላይየመመረቂያጥናቴንበመ ስራትላይእገኛለሁ፡፡ቤተሰቦችህ/ሽከአንተ/ቺጋርእየተነጋገርንእንደሆነያውቃሉ፡፡

የዚህጥናትዋነኛዓላማበአዲስአበባየሚገኙየከፍተኛደረጃትምህርትተማሪዎችተላላፊባልሆኑበሽታዎችላ ይያላቸውዕውቀት(ግንዛቤ)፣አመለካከትናተግባርእንዲሁምተያያዥየሆኑጉዳዮችላይትኩረትያደርጋል፡ ፡ስለዚህምተላላፊ

ካልሆኑበሽታዎችጋርተያይዞያለውንዕውቀት፣አመለካከትናተግባርንለማወቅየሚረዱጥያቄዎችይቀርብ ልዎታል፡፡ከትምህርትሰዓትውጪከ10-

15ደቂቃላልበለጠጊዜቆይታእንዲያደርጉየምንጠብቅሲሆንበዚህጥናትላይበመሳተፍዎለምንምአይነት ጉዳትየማይጋለጡናከዚህይልቅግንከቃለምልልሱማብቃትበኃላለሚያነሷቸውማንኛውምአይነትየጤና ጥያቄዎችመልስበማግኘትተጠቃሚሊሆኑይችላል፡፡

በጥናቱእንዲሳተፍፍቃድዎንከሰጡንበጥናቱከሚሳተፉት ከ710 መላሾችመካከልአንዱ በመሆንከ10-15

ደቂቃላልበለጠጊዜቆይታበሚደረገውየቃለምልልስተሳታፊይሆናሉ፡፡ከእርስዎየምናገኘውማንኛውን ምመረጃሚስጥራዊነቱየተጠበቀናከትምህርትነትውጪለሌላአገልግሎትጥቅምላይአይውልም፡፡

የእርስዎበጥናቱላይመሳተፍናአለመሳተፍበፈቃደኝነትላይየተመሰረተሲሆንበማንኛውምጊዜከጥናቱ መውጣት/ማቋረጥየሚችሉሲሆንለዚህምምንምአይነትቅጣትአያስከትልም፡፡እርስዎለመጠይቆቹየሚሰ ጡኝምላሾችለጥናቱበጣምከፍተኛዋጋአላቸው፡፡

አድራሻ

ስለጥናቱምንምአይነትጥያቄካለዎትእንዲሁምግልጽእንዲሆንልዎየሚፈልጉትማንኛውምጉዳይካለበስ ልክቁጥር [+251922432549ቢ.ያደርሱኝአፋጣኝምላሽለመስጠትዝግጁነኝ፡፡

ከታችበሚገኘውየፊርማቦታፊርማዎትንበማስቀመጥበጥናቱላይእንዲሳተፉፈቃድዎንመስጠትይችላሉ ፡፡

□በቃለመጠይቁለመሳተፍፈቃደኛነኝ፡፡

□በቃለመጠይቁለመሳተፍፈቃደኛአይደለሁም፡፡

ስም : _____ ፊርማ: _____ቀን: _____

አባሪ4 የአማርኛመጠይቅ

ሰላም-

አሸናፊኃ/ማርያምማሞእባላለሁበባህርዳርዩኒቨርስቲየባህርዳርኬሚካልናምግብምህንድስናኢንስቲቲዩ ትበአፕላይድሂዩማንኒውትሬሽንየሁለተኛዲግሪተማሪስሆን

"በአዲስአበባየሚገኙየከፍተኛደረጃትምህርትተማሪዎችተላላፊባልሆኑበሽታዎችላይያላቸውዕውቀት(ግንዛቤ)፣አመለካከትናተግባርእንዲሁምተያያዥየሆኑጉዳዮች"በሚልርዕስላይየመመረቂያጥናቴንበመ ስራትላይእገኛለሁ፡፡ሰላም————————————-

እባላለሁበባህርዳርዩኒቨርስቲየባህርዳርኬሚካልናምግብምህንድስናኢንስቲቲዩትበአፕላይድሂዩማንኒ ውትሬሽንየሁለተኛዲግሪተማሪስለሆነውአሸናፊኃ/ማርያምማሞ

"በአዲስአበባየሚገኙየከፍተኛደረጃትምህርትተማሪዎችተላላፊባልሆኑበሽታዎችላይያላቸውዕውቀት(ግንዛቤ)፣አመለካከትናተግባርእንዲሁምተያያዥየሆኑጉዳዮች"በሚልርዕስላይለሚሰሩትየመመረቂያጥ ናትመረጃበመሰብሰብየምገኝሲሆንለዚህመጠይቅምላሽበመስጠትእንዲተባበሩኝስጠይቅበታላቅትህት ናነው፡፡መጠይቁከ10-

15ደቂቃያልበለጠጊዜየሚወስድይሆናል፡፡ለሚሰጡኝጊዜእያመሰገንኩበጥናቴላይመሳተፍናአለመሳተ ፍየእርሶመብትቢሆንምእርስዎለመጠይቆቹየሚሰጡኝምላሾችለጥናቴበጣምከፍተኛዋጋአላቸው፡፡ከእ ርስዎየሚሰበሰበውመረጃሚስጥራዊነቱየተጠበቀናከትምህርትነትውጪለሌላአገልግሎትጥቅምላይእንደ ማይውልበማረጋገጥለሚያደርጉልኝትብብርከልቤአመሰግናለሁ፡፡

በጥናቴላይለመሳተፍእስማማለሁአልፈ☐ም ☐

በጥናቴላይለመሳተፍመስማማቴንበፊርማዬአረጋግጣለሁ፡፡ፊርማ————————————

ክፍል1፡- ማህበራዊናኢኮኖሚያዊሁኔታ			
ተ.ቁ			ኮድ
1.	ጸታ	1. ወንድ 2. ሴት	D1
2.	ዕድሜ		D2
3.	የትምህርትደረጃ	1.9ኛ 2. 10ኛ 3. 11ኛ 4. 12ኛ	D3
4.	የትምህርትዘርፍ	1. ማህበራዊሳይንስ 2. የተፈጥሮሳይንስ	D4
	የወላጅአባትየትምህርትደረጃ	1. ሁለተኛደረጃትምህርትያጠናቀቀ 2. አንደኛደረጃትምህርትያጠናቀቀ 3. ማንበብናመጻፍየሚችል 4. ማንበብናመጻፍየማይችል	D6
5.	የወላጅእናትየትምህርትደረጃ	1. ሁለተኛደረጃትምህርትያጠናቀቀች	D7

		2. አንደኛደረጃትምህርትያጠናቀቀች 3. ማንበብናመጻፍየምትችል 4. ማንበብናመጻፍየማትችል	
5.	የቤተሰብዎወርሃዊአማካይየገቢመጠንምን ያህልነው	———————— ብር	D8
6.	ተቋሙ/ትምህርትቤቱየሚተዳደረውበየትኛ ውአካልነው?	1. በመንግስት 2. በግል	D9
7.	በቤተሰባችሁውስጥአንቺን/ተንጨምሮምን ያህልሰውይኖራል?	————————	D10
ክፍል 2 እውቀት/ግንዛቤ፣አመለካከትናተግባር			
2.1. የትምባሆአጠቃቀም			
አሁንሰለትምባሆአጠቃቀምጥቂትጥያቄዎችንእጠይቅዎታለው፡፡			
8.	በአሁንወቅትማንኛውንምአይነትየትምባሆ ምርቶችንትጠቀማለህ/ሚያለሽለምሳሌሲጃ ራ	1. አዎ 2. አይወደ S1 ተሻገር	A1
9.	የትምባሆምርቶችንመጠቀምበጀመርክበት ወቅትዕድሜህስንትነበር	1. ዕድሜ(አመት)———————— 2. አላውቅም	A2
10.	በአማካይበእያንዳንዱቀንምንያህልየትምባ ሆምርቶችንትጠቀማለህ/ሚያለሽሲጃራንእ ናሌሎችየተለያዩትምባሆምርቶችንጨምሮ	የትምባሆምርቶች————————	A3
11.	ባለፈውአንድወርውስጥምንያህልቀናትየት ምባሆምርቶችንተጠቅመሃል/ሻል	ቀናት————————————	A4
12.	ትምባሆንመኖሪያቤትህውስጥትጠቀማለህ/ ሚያለሽ	1. አዎ 2. አይ	A5
13.	ባለፉት 12 ወራትውስጥትምባሆመጠቀምለማቆምሞክ ረህ/ሽታውቃለህ/ቂያለሽ	1. አዎ 2. አይ	A6
2.2. አልኮልአጠቃቀም			
ቀጣዮቹጥያቄዎችየአልኮልአጠቃቀምንይመለከታሉ፡፡			
14.	የትኛውንምአይነትየአልኮልመጠጥተጠቅ መህ/ሽታውቃለህ/ቂያለሽለምሳሌቢራ፣ወይ ንወዘተ	1. አዎ 2. አይወደ H1 ተሻገር	S1
15.	ባለፉት 30 ቀናትውስጥማንኛውንምአይነትየአልኮልመ ጠጥተጠቅመህ/ሽ ታውቃለህ/ቂያለሽ	1. አዎ 2. አይወደ H1 ተሻገር	S2

16.	ባለፉት 30 ቀናትውስጥምንያህልቀናትቢያንስአንድየአልኮልመጠጥተጠቅመሃል/ሻል	1. ቀናት ——————————— 2. አላውቅም	S3
17.	ባለፉትየአልኮልመጠጥበተጠቀምክባቸው/ ሽባቸው 30 ቀናትበቀንምንያህልየአልኮልመጠጥተጠቅመሃል/ሻል	1. ብዛት/ቁጥር ——————————— 2. አላውቅም	S4
2.3. አመጋገብ			
የሚከተሉትጥያቄዎችአብዛኛውንጊዜስለምትመገበው/ቢውየፍራፍሬናየአትክልትአመጋገብንይመለከታል፡፡መልስበ ምትሰጥበት/ሯበትጊዜያለፈውን አመትየነበሩትንሳምንታትበማሰብይሆናል፡፡			
18.	በተለምዶበሳምንትውስጥምንያህልቀናትፍራፍሬትመገባለህ/ቢያለሽ	1. ———————————ቀናት 2. አላውቅም	H1
19.	ምንያህልመጠን/ክፍልፍራፍሬበአንድቀንውስጥትመገባለህ/ቢያለሽ **ማሳሰቢያ፡-** አንድክፍልማለትከአንድመካከለኛመጠንካለውሙዝእናፖምእኩልነው፡፡	1. መጠን/ክፍል ——————————— 2. አላውቅም	H2
20.	በተለምዶበሳምንትውስጥምንያህልቀናትአትክልቶችንትመገባለህ/ቢያለሽ	1. ———————————ቀናት 2. አላውቅም	H3
21.	ምንያህልመጠን/ክፍልአትክቶችንበአንድቀንውስጥትመገባለህ/ቢያለሽ **ማሳሰቢያ፡-** አንድክፍልማለትከአንድስኒሳመን/ሰላጣወይምግማሽስኒቲማቲም፣ካሮት፣ጎመንሽንኩርትጋርእኩልነው፡፡	1. ——————— መጠን/ክፍል 2. አላውቅም	H4
2..3.1. የጨውናየስኳርአጠቃቀም			
በቀጣዮቹጥያቄዎችበስርዓተምግብውስጥየምትጠቀመውንየጨውናየስኳርአጠቃቀምእናያለን			
22.	ምግብህንሽንከመመገብህ/ሽ በፊትናበምትመገብበት/ቢበትወቅትጨውናጨዋማማጣፈጫዎችምንያህልጊዜያትትጠቀማለህ/ ሚያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E1
23.	በቤትህ/ሽ ምግብበሚዘጋጅበትወቅትምንያህልጊዜያት	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ	E2

	ጨው፣ጨዋማቅመማቅመሞችወይምማጣፈ ጫዎችትጠቀማለህ/ሚያለሽ	3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	
24.	በሳምንትውስጥምንያህልጊዜያትኬክ፣ጣፋ ጭ፣ቸኮሌት፣ብስኩትትመገባለህ/ቢያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E3
25.	በሳምንትውስጥምንያህልጊዜያትለስላሳመ ጠጦችለምሳሌኮካ፣ፋንታ፣ሀይልሰጪመጠጦ ችትጠቀማለህ/ሚያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E4
26.	በሳምንትውስጥምንያህልጊዜያትስኳርንበቡ ናእናበሻይትጠቀማለህ/ሚያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E5
27.	በሳምንትውስጥምንያህልጊዜያት (ከቤትውጪየተዘጋጁ/የተጋገሩምርቶች(ኩ ኪስ፣ሳንቡሳ፣ቂጣ/ፒዛ፣ዳቦ፣ሃምበርገር፣ኬክ) ትጠቀማለህ/ሚያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E6
28.	በሳምንትውስጥምንያህልጊዜያትየታሸጉም ግቦችፈንዲሻ፣ድንችጥብስ(ቺፕስ)፣ከረሜላ፣ ቸኮሌት፣ ብስኩትትጠቀማለህ/ሚያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E7
29.	በሳምንትውስጥምንያህልጊዜያትጥጥርቅባ ቶች (የዳቦቅቤ/ማርጋሪን፣ከአትክልትየተሰራጠጣ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ	E8

	ርቅቤ፣ቅቤእናጮማ)ትጠቀማለህ/ሚያለሽ	4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	
30.	በሳምንትውስጥምንያህልጊዜያትየተጠበሱ ምግቦችለምሳሌድንችጥብስ(ቺፕስ)፣ሳንቡሳ ፣ብስኩትትጠቀማለህ/ሚያለሽ	1. በቀንውስጥብዙጊዜ 2. በቀንአንዴ 3. በሳምንትውስጥብዙጊዜ 4. አልፎአልፎ 5. በፍፁም 6. አላውቅም	E9
2.4 የአካልብቃትእንቅስቃሴ			
ከዚህበመቀጠልበሳምንትውስጥለተለያዩየአካልብቃትእንቅስቃሴዎችየምትጠቀመውን/ሚውንጊዜ/ሰዓትእጠይቅሃለሁ/ሽለሁ፡፡እባክዎየሚከተሉትንበአካልብቃትውጤታማ፣ብርቱ፣ንቁባይሆኑምበአግባቡይመልሱ፡፡ለጥያቄዎቹምላሽበሚሰጡበትወቅትከባድእንቅስቃሴዎችማለትየአካልብቃትእንቅስቃሴአይነትሆነውእንቅስቃሴዎቹንበምንሰራበትሰዓት/ጊዜከፍተኛአካላዊጉልበትየሚፈልጉናበአተነፋፈስስርዓታችንበልብምታችንከፍተኛመጨመርየሚያሳዩእንቅስቃሴዎችናቸው፡፡መካከለኛእንቅስቃሴዎችማለትመካከለኛአካላዊጉልበትወይምጥረትየሚፈልጉናበአተነፋፈስስርዓታችንናበልብምታችንአነስተኛመጨመርየሚያሳዩእቅስቃሴዎችናቸው፡፡			
31.	የአተነፋፈስእናየልብምትንበከፍተኛናመካከለኛሁኔታየሚጨምሩማንኛውንምአይነት ከባድስፖርት፣የአካልብቃትእንቅስቃሴወይምየትርፍሰዓትእንቅስቃሴለምሳሌሩጫወይምእግርኳስፈጠንያለየእግርጉዞማድረግ፣ብስክሌትመንዳት፣ቮሊቦልመጫወት	1. አዎ 2. አይወደ I1 ተሻገር	N1
32.	በሳምንትውስጥምንያህልቀናትከባድናመካከለኛጉልበትየሚጠይቁስፖርቶች፣የአካልብቃትእንቅስቃሴወይምየትርፍሰዓትእንቅስቃሴዎችያደርጋሉ	1. ————————————ቀናት 2. አላውቅም	N2
33.	በቀንምንያህልደቂቃዎችንለከባድስፖርት፣ለአካልብቃትእንቅስቃሴወይምለትርፍሰዓትእንቅስቃሴዎችይጠቀማሉ	———————————— ደቂቃ	N3
2.5. የስኳርበሽታ			
34.	ስለስኳርበሽታሰምተውያውቃሉ	1. አዎ 2. አይወደ I5 ተሻገር	I1
35.	አንድንሰውለስኳርበሽታሊያጋልጡየሚችሉ ምክንያቶችንመጥቀስይችላሉ	1. የቤተሰብየስኳርህመምታሪክ 2. ዕድሜከ40 ዓመትበላይመሆን 3. ከመጠንያለፈውፍረት	I2

		4. ከመጠንያለፈስኳርንመመገብ 5. ከመጠንያለፈምግብመመገብ 6. ከመጠንያለፈስብንመመገብ 7. እርጅና 8. ሞጁንቀት 9. የአካልብቃትእንቅስቃሴአለማድረግ 10. ዘር 11. ትምባሆመጠቀም 12. አልኮልመጠቀም 13. ሌላካለይገለጽ——————————— 14. አላውቅም	
36.	የስኳርበሽታቅድመምልክቶችምንምንናቸው	1. ብዙሽንትመሸናት 2. ከመጠንያለፈጥማት 3. ድካም/መልፈስፈስ 4. የምግብፍላጎትመቀነስ 5. ክብደትመቀነስ 6. የዕይታችግር 7. የቆዳናየአባላዘርኢንፌክሽን 8. ሌላካለይገለጽ——————————— 9. አላውቅም	I3
37.	በስኳርበሽታላለመጠቃትምንመደረግአለበትብለውያስባሉ?	1. ምንም 2. ክብደትንመቆጣጠር 3. ክብደትመቀነስ 4. የአካልብቃትእንቅስቃሴማድረግ 5. ጤናማየአመጋገብስርዓትመከተል 6. የስኳርመጠንንመቀነስ 7. የስብመጠንንመቀነስ 8. የጤናምርመራማድረግ 9. ሞጁንቀትንማስወገድ 10. ሌላካለይገለጽ——————————— 11. አላውቅም	I4
38.	እርስዎ፣የቤተሰብዎአባልወይምጓደኛዎበስኳርበሽታቢያዙየህክምናእርዳታይጠይቃሉ	1. አዎ 2. አይ	I5
39.	በደምዎትውስጥየሚገኘውንየስኳርመጠንበሀኪምወይምበጤናባለሙያተለክተውያውቃሉ	0. አዎ 1. አይ	I6
40.	ከስኳርበሽታጋርተያይዞስለሚከሰቱችግሮች	1. በጣምእስማማለሁ	I7

	መረጃማግኘትእፈልጋለሁ፡፡	2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	
2.6. የልብናአሸንዳ/የልብህመም			
41.	ስለልብናአሸንዳህመምሰምተውያውቃሉ	1. አዎ 2. አይ C5	C1
42.	አንድንሰውለልብናአሸንዳህመሞችሊያጋል ጡየሚችሉምክንያቶችንመጥቀስይችላሉ	1. የቤተሰብየልብናአሸንዳታሪክ 2. ዕድሜከ40 ዓመትበላይመሆን 3. ከመጠንያለፈውፍረት 4. ጨዋማምግቦችንመመገብ 5. ከመጠንያለፈምግብመመገብ 6. ከመጠንያለፈስብንመመገብ 7. እርጅና 8. ሞንቀት 9. የአካልብቃትእንቅስቃሴአለማድረግ 10. ዘር 11. ትምባሆመጠቀም 12. አልኮልመጠቀም 13. ሌላካለይገለጽ—————— 14. አላውቅም	C2
43.	የልብናአሸንዳህመሞችቅድመምልክቶችምን ምንናቸው	1. የአካልብቃትእንቅስቃሴበምናደርግበትጊ ዜየትንፋሽማጠር 2. የደረትህመም/ምቾትመንሳት 3. ማቅለሽለሽ፣የምግብአለመፈጨት፣ቃር፣የ ሆድህመም 4. ወደክንድየሚዛመትህመም 5. የማዞርስሜት 6. የድካምስሜት 7. የጎሮሮናየመንገሞኮላህመም 8. ማንኮራፋት 9. ማላብ 10. የማያቆም(ረጅም) ሳል 11. የባት፣እግርናቁርሞኮምሞሚትማበጥ 12. ከተለመደውወጣያለየልብትርታ 13. ሌላካለይገለጽ——————	C3

		14. አላውቅም	
44.	በልብናአሸንዳህመሞችላለመጠቃትምንመደረግአለበትብለውያስባሉ·	1. ምንም 2. ክብደትንመቆጣጠር 3. ክብደትመቀነስ 4. የአካልብቃትእንቅስቃሴማድረግ 5. ጤናማየአመጋገብስርዓትመከተል 6. ትምባሆአለመጠቀም 7. አልኮልአለመጠቀም 8. ቅባትነክምግቦችንመቀነስ 9. የጤናምርመራማድረግ 10. ሌላካለይገለጽ———————— 11. አላውቅም	C4
45.	እርስዎ፣የቤተሰብዎአባልወይምጓደኛዎበልብናአሸንዳህመሞችቢ.ያዙየህክምናእርዳታይጠይቃሉ·	1. አዎ 2. አይ	C5
46.	የደምፍፊትዎንበሀኪምወይምበጤናባለሙያተለክተውያውቃሉ·	1. አዎ 2. አይ	C6
47.	ከልብበሽታጋርተያይዞስለሚከሰቱችግሮች መረጃማግኘትእፈልጋለሁ፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C7
48.	የአካልብቃትእንቅስቃሴከማድረግከኮምፒውተርናስልክጋርመጫወትንእመርጣለሁ፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C8
49.	የሰውነትክብደቴንለማስተካከልየአካልብቃትእንቅስቃሴማድረግአለብኝ፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C9
50.	በየወቅቱተደጋጋሚየሆነየደምግፊትልኬትማድረግጊዜንማባከንነው፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C10

51.	በደሜውስጥየሚገኘውንየስኳርመጠንማወቅ አለብኝ፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C11
52.	ተላላፊያልሆኑበሽታዎች-ተላላፊከሆኑበሽታ ዎችጋርሲነጻጸሩየሚያስከትሉትያነሰጉዳትን ነው፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C12
53.	ባህሪዬንማስተካከሌተላላፊባልሆኑበሽታዎች የመጠቃትእድሌንአይቀንሰውም፡፡	1. በጣምእስማማለሁ 2. እስማማለሁ 3. ሀሳብየለኝም 4. አልስማማም 5. በጣምአልስማማም	C13
	3. ተግባቦት		
አሁንከዚህበመቀጠልባለበትአካባቢከጤናአጠባበቅእናከጤናአገልግሎቶችጋርተያይዞየሚደርስዎትንመረጃዎችያስቡ			
54.	በአሁኑወቅትከጤናጋርተያያዥርስለሆኑጉዳዮ ችመረጃዎችንበምንመንገድያገኛሉ	0. ሀኪምዎወይምነርስ 1. ቴሌቪዥን 2. ራዲዮ 3. ጋዜጣ 4. ኢንተርኔት 5. ቤተሰብ፣ጓደኛ፣ጎረቤት 6. በራሪጽሁፍ 7. ፖስተር፣የማስታወቂያሰሌዳ 8. ኤሌክትሮኒክስመልዕክት(sms) 9. ሌላካለይገለጽ———————— 10. የለም	Z1
55.	ከጤናጋርተያያዥርስለሆኑጉዳዮችመረጃዎች ንበምንአይነትመንገድቢያገኙይመርጣሉ	0. ሀኪምዎወይምነርስ 1. ቴሌቪዥን 2. ራዲዮ 3. ጋዜጣ 4. ኢንተርኔት 5. ቤተሰብ፣ጓደኛ፣ጎረቤት 6. ህዝብበተሰበሰበበትቦታ 7. በራሪጽሁፍ 8. ፖስተር፣የማስታወቂያሰሌዳ	Z2

		9. ኤሌክትሮኒክመልዕክት 10. ሌላካለይገለጽ—————— 11. የለም	

በጥናቱላይበመሳተፍምናለጥያቄዎቼምላሽስለሰጡኝከልብአመሰግናለሁ፡፡

መልካምየትምህርትጊዜይሁንልዎ!