

**PATIENTS' KNOWLEDGE ON CARDIOVASCULAR RISK FACTORS AND  
ASSOCIATED LIFE STYLE BEHAVIORS AMONG ADULTS IN SELECTED PUBLIC  
HOSPITALS, A.A, ETHIOPIA, 2021**

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**A RESEARCH THESIS TO BE SUBMITTED TO SCHOOL OF NURSING AND  
MIDWIFERY, COLLEGE OF HEALTH SCIENCE, ADDIS ABABA UNIVERSITY IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTERS OF SCIENCE IN CARDIOVASCULAR NURSING.**

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**COLLEGE OF HEALTH SCIENCES**  
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**POSTGRADUATE PROGRAMME**

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**A RESEARCH THESIS TO BE SUBMITTED TO THE SCHOOL OF NURSING AND MIDWIFARY, COLLEGE OF HEALTH SCIENCE, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTERS OF SCIENCE IN CARDIOVASCULAR NURSING**

**JUNE, 2021**

**ADDISABABA, ETHIOPIA**

## Statement of Declaration

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every serious effort has been made to avoid any plagiarism in the preparation of this thesis. This thesis is submitted in partial fulfillment of the requirement for the degree of master in cardiovascular nursing to AAU. I would like to declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

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As thesis research advisor and co-adviser, we hereby certify that we have read and evaluated this thesis prepared under our guidance by Bezina Damtew entitled Patients’ Knowledge on Cardiovascular Risk Factors and Associated Life Style Behaviors Among Adults in Selected Public Hospitals, A.A, Ethiopia, 2021.

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As members of the Board of Examiners of the MSN thesis open defense examination, we certify that we have read and evaluated the thesis prepared by Bezina Damtew and examined the candidate. We recommend that the thesis be accepted as fulfilling the thesis requirements for the degree of Master of Science in Nursing.

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## **List of Acronyms (Abbreviations)**

ADA	American Diabetes Association
BMI	Body Mass Index
CHD	Chronic Heart Disease
CMHS	College of Medical Health Science
CV	Cardiovascular
CVD	Cardiovascular Disease
CVDs	Cardiovascular Diseases
CVDRFs	Cardiovascular Disease Risk Factors
ESC	European Society of Cardiology
GBD	Global Burden of Disease
NCDs	Non-Communicable Diseases
SSA	Sub Saharan Africa
TIA	Transient Ischemic Attack
WHO	World Health Organization

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## ABSTRACT

**Background:** CVDS are the leading cause of deaths in both developed and developing countries. Ethiopia is in epidemiologic transformation predominantly infectious diseases to chronic diseases. CVD is a major public health challenge in Ethiopia. It is crucial to improve the life style of the community at the same time it is a key for health care policy to give emphasis for prevention by educating the community by different ways.

**Objective:** The objective of the study is to assess knowledge of CVDs risk factor, healthy life style practice and factors associated with it among adult clients visiting public hospital in Addis Ababa, Ethiopia.

**Method:** A facility-based descriptive cross-sectional study design was conducted. 420 Participants who fulfilled the inclusion criteria from April 01, 2021 until June 28, 2021 were selected by systematic random sampling technique. Data was entered and analyzed using statistical software SPSS for windows V 26.0. The ethical clearance was obtained from Addis Ababa University College of health Sciences School of Nursing and Midwifery. Frequency, mean and standard deviations from descriptive statistics and analytic statistics such as bivariate and multivariable logistic regression analysis were computed to determine the effect of various factors on the outcome variable. The level of statistical significance was a P value of less than 0.05. The results were presented using tables.

**Result:** The result showed that most of the study subjects were above age 54. The mean age was  $48.7 \pm 13$  years. 255(62.7%) were females. 300(71.6%) of participants have sufficient knowledge toward CVD risk factors whereas 238(56.7%) of the entire participants have satisfactory behavior (life style) towards CVD risks. Participants with age group 30-39 [AOR=0.2; 95%CI (0.9-0.45)], Male [AOR=0.46; 95%CI (0.3-0.8)], Urban residents [AOR=4.2; 95%CI (1.9-9.5)] and highly educated [AOR=0.18; 95%CI (0.07-0.43)]; were shown to have satisfactory knowledge. ( $p < 0.05$ , 95% C. I).

**Conclusion and recommendation:** The majority of participants had sufficient knowledge regarding cardiovascular risk factors. Meanwhile majority had satisfactory behavior towards CVD associated life style. While maintaining a status of sufficient knowledge, Implementation of innovative interventions and structured, nurse-led lifestyle counseling would be required to effectively guide patients in developing lifestyle modification and sustainable behavior change.

**Keywords:** knowledge, cardiovascular risk factor, lifestyle practice, outpatient service, modifiable risk factor, non-modifiable risk factor.

## CHAPTER 1: INTRODUCTION

### 1.1 Background of the Study

Cardiovascular diseases (CVDs) are group of disorders that involve the heart or blood vessels or both. They include coronary heart disease (CHD), cerebro-vascular disease, peripheral arterial disease, rheumatic heart disease, congenital heart disease, and deep vein thrombosis and pulmonary embolism (1). Based on different epidemiological studies, several non-modifiable and modifiable CVDs risk factors have been identified (2). CVDs are the leading cause of deaths in both developed and developing countries (3). Conventional cardiovascular disease risk factors (CVDRFs) remain a main driver for the growing global burden of non-communicable diseases (NCDs) and premature cardiovascular mortality (4). Cardiovascular disease (CVD) is one of the most preventable causes of death in the world, due to the fact that the majority of its risk factors are preventable or controllable, such as hypertension, dyslipidemia, obesity, smoking, lack of physical activity, stress, unhealthy dietary practices and diabetes (1).

In developing countries, the socio-economic impact and catastrophic health expenditure attributable to the rising burden of CVD may be contributing to a worsening state of poverty in many settings (5). As the pervasive struggle against infectious diseases continue, sub Saharan Africa (SSA) is facing a rapid epidemiological transition characterized by an increasing predominance of chronic diseases particularly those affecting the cardiovascular system (6). From an epidemiologic view on disease prevalence, Ethiopia is in epidemiologic transition from predominantly infectious diseases to chronic diseases and it is a major public health challenge (1). Knowledge about CVD and its modifiable risk factors is a vital pre-requisite to change the individuals' health attitudes, behaviors and lifestyle practices. Knowledge improvement to the recognition of heart attack and stroke symptoms will lead to earlier presentation to medical care that may result in better patients outcomes (3). Having basic knowledge of the causes/risk factors, clinical manifestations, and prevention of CVDs, is key to sustaining prevention practices (5).

According to the health belief model, knowledge regarding health behavior is a strong modifying factor for healthy lifestyle; however it should be combined with other factors such as good perceptions, positive health attitudes and many other conditions such as

socioeconomic factors. Studies also have revealed knowledge of specific risk factors is associated with healthy behavior however; knowledge alone does not motivate behavioral change (1). Perception and motivation were also shown to change behaviors (7). Knowledge of the predisposing risk factors is an important step in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Gaps in knowledge of CVD conditions and their risk factors are important barriers in effective prevention and treatment. Yet, evidence on the awareness and knowledge level of CVD and associated risk factors among populations of SSA is scarce (8). Limited CVD knowledge and lack of concern for CVD may result in poor motivation for changing behaviors known to be a risk factor for CVD.

## **1.2 Statement of the problem**

According to WHO report in 2021 Cardiovascular diseases (CVDs) are the number 1 cause of death globally, taking an estimated 17.9 million lives each year. CVDs are a group of disorders of the heart and blood vessels and include coronary heart disease, cerebrovascular disease, rheumatic heart disease and other conditions. Four out of 5 CVD deaths are due to heart attacks and strokes, and one third of these deaths occur prematurely in people under 70 years of age (7).

Cardiovascular disease (CVD) is a major health problem and a leading cause of mortality, morbidity economic burden (8). Cardiovascular disease is a leading cause of death and reduced quality of life, proven by the latest data of the Global Burden of Disease Study, and is only gaining in prevalence worldwide (9). Over the past few decades, the rate of cardiovascular mortality has declined markedly in many developed countries, likely due to reductions in cardiovascular disease risk factors and improved management of CVD. On the other hand, the incidence of CVD has been increasing in many developing countries, where 80% of the global deaths from CVD are estimated to occur (4). Developing countries are facing a high burden of CVD with little awareness of disease and associated risk factors are limited. Those living in poverty and especially those in low-income countries are significantly more impacted by CVD (1).

Individuals at risk of CVD may demonstrate raised blood pressure, glucose, and lipids as well as overweight and obesity. These can all be easily measured in primary care facilities. Identifying those at highest risk of CVDs and ensuring they receive appropriate treatment can prevent premature deaths. Access to essential non-communicable disease medicines and basic health technologies in all primary health care facilities is essential to ensure that those in need receive treatment and counseling (7).

Even though CVD is preventable, about 31% of all global deaths are attributed to CVD (7), and over 3 million deaths occurred before the age of 60 years. Over 80% of CVD associated deaths were in low-and middle-income countries. According to the global disease burden report 2015, the growth and aging of the population have increased the proportion of deaths resulted from CVD in many poorer regions of the world. The disease has a high rate in

Eastern and Central Sub-Saharan Africa compared to Western and Southern Sub-Saharan Africa (10).

From an epidemiologic view on disease prevalence, Ethiopia is in epidemiologic transformation predominantly infectious diseases to chronic diseases. CVD is a major public health challenge in Ethiopia. The overall prevalence of hypertension among the Ethiopian population is 19.6%, and is higher among the urban population (23.7%). In 2015, ischemic heart disease was the first leading causes of age standardized death rates and fourth leading causes of age standardized disability adjusted life years with rates of 141.9 and 2535.7 per 100,000 population respectively (1).

Limited CVD knowledge and lack of concern for CVD may result in poor motivation for changing behaviors known to be a risk factor for CVD (4). Although several studies addressed the high prevalence of cardiovascular (CV) risk factors in Sub-Saharan Africa (SSA) including Ethiopia, studies investigating relationships between CV risk factors and knowledge of CVD are limited. CVD will continue to be a health threat unless the CV risk factors at population level are identified and actions implemented to reduce their impact (8).

However, research to reduce the existing evidence gap and the increasing burden of CV risk behaviors in developing countries are scarce. Evidence on patients' knowledge of CV risk factors has vital importance for evidence-based health policy and help to design customized interventions (1). Therefore, this study is aiming to assess knowledge of cardiovascular risk factors and associated lifestyle behaviors among patients with CVD.

## CHAPTER 2: LITERATURE REVIEW

This literature review summarizes on the existing information Patients' Knowledge on Cardiovascular Risk Factors and Associated Life Style Behaviors and associated factors globally, regionally and locally. This literature review is organized by knowledge and behavioral risk factors.

### 2.1 Overview of Cardiovascular Disease and Risk Factors

Cardiovascular disease (CVD) continues to be the global leading cause of death (11) and represents a major mortality/morbidity burden in populations around the world. Developing countries are facing a greater challenge of CVD whilst awareness of disease and associated risk factors is limited (12,13). People living in poverty and especially those in low income countries are mostly impacted by CVD (14). Moreover, studies show that the prevalence of CVD is increasing and posing a public health challenge in developing countries (11,15).

CVD presents significant challenges to individuals, households and health systems. The World Health Organization (WHO) estimates that 40 million people die annually due to NCDs (about 70% of global deaths), with 75% of these deaths (28 million) occurring in LMICs (16). Most NCD mortality (87%) is attributed to four major disease clusters: CVDs, cancer, respiratory diseases, and diabetes mellitus, with 45% (19 million deaths) of the NCD burden due to CVD. In addition, the burden of the leading CVDs and the prevalence of their risk factors is predicted to increase in LMICs (17).

Conventional cardiovascular disease risk factors (CVDRFs) remain a main driver for the growing global burden of non communicable diseases (NCDs) and premature cardiovascular mortality (11). In particular, more than 60% of CVD, chronic kidney disease (CKD), and diabetes deaths in the developing world are attributable to preventable cardio-metabolic risk factors, particularly hypertension, dyslipidemia, obesity, and diabetes mellitus, and nearly half occur prematurely in relatively young adults (18,19).

There is minimal research regarding the knowledge of CV risk factors in developing countries (13,20). The majority of adults in Sub-Saharan Africa fail to name even one CV risk factor, [22]. In Nigeria almost 50% have poor knowledge about CV risk factors (13). In Cameroon, this knowledge level is also suboptimal, such that 36% of adults are unaware of

CV risk factors (20). Nevertheless, in South Africa, most adults are aware that cigarette smoking and excessive alcohol consumption are risk factors for CVD (21). The level of education and place of residence have a significant influence on health literacy. It has been reported that higher education levels correlate with a better knowledge of CVD, less number of risk factors and changes in health related behavior (22).

In general, CV risk factors include demographic characteristics, family history of CVD, smoking, physical inactivity, abnormal lipids and lipoproteins, obesity, hypertension and diabetes (8). Based on different epidemiological studies, several non modifiable and modifiable CVDs risk factors have been identified. Advanced age, family history, and male gender are non modifiable risk factors. Modifiable risk factors include smoking, hypertension, diabetes, dyslipidemia, obesity, physical inactivity, unhealthy diets, and heavy alcohol intake (2).

## **2.2 Knowledge of CVD Risk Factors**

According to the health belief model, knowledge regarding health behaviour is a strong modifying factor for healthy lifestyle, however it should be combined with other factors such as good perceptions, positive health attitudes and many other conditions such as socioeconomic factors (23). Studies also have revealed knowledge of specific risk factors is associated with healthy behaviour, however, knowledge alone does not motivate behavioural change (8,24).

CVD knowledge describes a familiarity, awareness or understanding of facts, information, or skills, which is acquired through experience or education, by perceiving or theoretically acquired by a person (8). In the context of the study the term CVD knowledge refers to the information that an individual has about CVD, and the possible risk factors contributing to the development of CVD. CV risk factor knowledge are very important for making decisions about health (8).

### **2.2.1 Knowledge of CVD Risk Factors- Global trends**

Several findings are notable from the study by Roth et .al (11). In 2015, 19.9 million CVD deaths occurred (one-third of all global deaths), and 423 million people had prevalent CVD (~1 in 17 of the global population). In contrast to the conventional wisdom that CVD

remains mainly a condition of wealthy nations, Roth et al. (11) found that, adjusted for age, far more cases of CVD are now occurring in countries with the lowest sociodemographic levels than with highest levels; with most CVD at middle sociodemographic levels in men and at middle and low sociodemographic levels in women. These findings confirm that the epidemiological “transition” away from infectious and maternal-child diseases and toward noncommunicable chronic diseases has already occurred globally—a sobering reality as countries around the world consider their priorities for health care, public health prevention, and economic growth.

For instance, estimated age-standardized CVD prevalence was highest in certain African and Middle Eastern nations; and lowest in several high-income Asian, South American, and Western nations. Among CVD subtypes, estimated ischemic heart disease mortality was highest in Central Asia and Eastern Europe, and lowest in high-income Asia Pacific nations (e.g., Japan). Estimated stroke mortality was highest in Oceania and central Sub-Saharan Africa. Between 1990 and 2015, estimated age-standardized CVD mortality remained relatively stable in Sub-Saharan Africa and Southeast Asia, and increased in Bangladesh and the Philippines. In contrast, significant declines occurred in all high- and some middle-income countries. In high-income Western nations, this decline appeared to plateau in more recent years—perhaps a harbinger of the advancing harms of the obesity and diabetes epidemics in these nations (11).

A Cross sectional study conducted in Sweden revealed that risk factors that were most often identified by the patients (by close to 90%) were hypertension, hyperlipidemia and smoking. Atrial fibrillation and diabetes were identified by less than 50% of the patients. The median number of correctly identified stroke/TIA risk factors in this group of patients was 58.7% of the patients could identify 10 or more risk factors (25). Meanwhile another population based cross sectional study from South Dublin, Ireland reported; overall, the knowledge of cardiovascular disease was good, with 85% recognizing that coronary heart disease was a type of cardiovascular disease. The least recognized subtypes included cerebrovascular disease where only 43% considered it a subtype of CVD and DVT where the number was 40%. The knowledge about CVD was significantly greater among females compared to males ( $p= 0.022$ ). The study participants were found to be more knowledgeable about CVD

if they reported attending high education ( $p= 0.036$ ), eating a healthy diet everyday ( $p <0.02$ ) (26).

A study conducted in the US, identified 49% heart disease is the leading cause of death. No association was seen between answering correctly and a history of diabetes mellitus, obesity, myocardial infarction, or percutaneous coronary intervention/coronary bypass grafting. Less than half of the subjects (37%) correctly identified all 7 components of ideal cardiovascular health. The average respondent correctly identified 4.9 components (95% CI 4.7 to 5.0) and 69% recognized 5 components. Recognition was greatest for obesity and hypertension and lowest for exercise, fruit/vegetable consumption, and diabetes. The patients also mistakenly identified other behaviors such as eating fried food (1,239 [72.8%] of 1,702) and having 3 alcoholic drinks/week (796 [46.8%] of 1,702) as increasing risk. Language, age, and gender were not independently associated with full knowledge. In contrast, obese subjects were not more likely to recognize their condition as increasing their risk. Patients at the greatest risk—those with known coronary heart disease and those who had undergone coronary artery bypass grafting or experienced a myocardial infarction— did not have more knowledge than the others (27).

A Canadian institution based cross sectional study reported that, Knowledge of heart disease and stroke among cardiology inpatients and outpatients in a Canadian inner-city urban hospital, Smoking, diet, stress, inactivity or lack of exercise, and genetics were the five most commonly stated cardiovascular risk factors. Only smoking was identified by more than 50% of the patients. Alcohol abuse, hypertension, diabetes, age and sex were the five least commonly stated risk factors. 87% of subjects were able to name at least two risk factors and, therefore, had good knowledge. A total of 50% named at least 4 risk factors and had excellent knowledge. 8% of the participants were unable to identify any risk factors. A household income of \$50,000 or more ( $P=0.017$ ) and the absence of stroke history ( $P=0.006$ ) were significant predictors of good risk factor knowledge (28).

A study conducted in North-East coast Malaysia, reported that knowledge on cardiovascular disease, the mean (SD) knowledge score was 36.8(7.14) [70.7% (13.76)] so the percentage for good knowledge score was 55.6% (249). The item with the highest proportion of correct answer for CVD risks were “smoking” (87.1%) followed by “high blood pressure” (79.3%)

(29). To the contrary, a study conducted in Tangail, Bangladesh, found that 7.1% did not know any CVD risk factor, whereas 19.1% indicated one to four, 28.6% five to seven, and 45.2% identified eight or nine risk factors. The commonest risk factors identified by about two-third of respondents were unhealthy diet, physical inactivity, obesity, and smoking (30).

A population centered cross sectional Lebanese study revealed that, participants were mostly aware of smoking as a CVD risk factor and at least aware of diabetes. Those who were counseled by their pharmacists, had healthcare coverage, were able to seek medical care, were more educated, were employed, had higher income levels, have family history of diabetes, walked more, sat less, and had lower BP and BG measurements had higher awareness score (2).

A descriptive, cross-sectional survey conducted in Kuwait showed that respondents' knowledge regarding the CVD risk factors was better than that for the warning symptoms of heart attack and stroke. The median (IQR) score for knowledge about the nine CVD risk factors was 7.0 (4.0) [moderate knowledge], nearly half of respondents (48.2%) identified eight or nine risk factors. It is possible that this better awareness about CVD risk factors is related to their significant representation in mass media campaigns as opposed to warning symptoms of heart attack and stroke. The commonest risk factors identified by over four-fifths of the study participants were smoking, obesity, unhealthy diet and physical inactivity. Respondents' higher knowledge about these four risk factors may be related to their intensive representation in mass media campaigns as opposed to hypercholesterolemia, hypertension, diabetes, stress, and family history of CVD, which were identified less frequently by the study population. Smoking was identified as the most common risk factor in this study (3).

A cluster of modifiable cardio-metabolic risk factors precede CVD, including obesity, diabetes, high cholesterol and high blood pressure. In turn, modifiable lifestyle risk factors contribute to the development of this cluster of cardio-metabolic conditions (conceptualized in Figure 1) (31). Multiple studies reported that, Patients with severe obesity (BMI  $\geq$  35) had the greatest RR for cardiovascular mortality (RR = 1.88) compared to people with a normal BMI (BMI = 20–24.9) (32); low levels of HDL-cholesterol are associated with increased CVD morbidity and mortality.<sup>59–62</sup> conversely; high HDL cholesterol levels convey

reduced risk (9,33). Hypertension is a major risk factor for CVD. For every 20 mmHg systolic or 10 mmHg diastolic increase in resting blood pressure, there is a twofold increase in mortality from both CHD and stroke (34). Type 2 diabetes mellitus (T2DM) accounts for 90%–95% of diabetes cases and is a major risk factor for CVD related mortality (35). Patients knowledge towards CVD and Metabolic syndrome is affected by presence of history of cardio metabolic risk factors, Specially history of dyslipidemia,  $R^2 = 0.192$ ,  $p < 0.001$  (36).

### **2.2.2 Knowledge of CVD Risk Factors- Sub-Saharan Africa**

Most low-to-middle-income countries (LMICs) are undergoing epidemiological transition. Improvements in healthcare provision and control of infectious diseases—notably HIV/AIDS in some countries in sub-Saharan Africa (SSA)—are increasing life expectancy and the ageing population (11). This may increase the burden of non-communicable diseases (NCDs), as older people are more vulnerable (12). Urbanization and lifestyle changes occurring in SSA are also predisposing young adults to NCDs, particularly cardiovascular diseases (CVDs) (13,14).

Economic growth is also increasing the burden of CVD in SSA through the rising prevalence of risk factors. All other things being equal, income change often leads to lifestyle change, which promotes the consumption of unhealthy processed foods and poses major health risks (37).

However, dietary change towards energy-dense food is also rising in rural and poor urban communities in SSA (17,38). The income-related dietary changes in Africa have been found to be closely associated with major cardiovascular risk factors, hypertension, obesity, and diabetes (39). While obesity exists in low-income communities (40), the nexus between income, obesity, diabetes, and hypertension is pronounced within and between African countries, with a higher prevalence of obesity and other CVD risk factors in higher-income communities (41). CVD risk factors are almost enveloping all demographic groups in SSA, notably young adults and school-going children (8). The increase in risk factor prevalence across socioeconomic and demographic classes will increase the burden of CVD in SSA (8).

Cardiovascular disease (CVD) is considered the primary influencing factor in the life expectancy of peoples in many countries. Economic growth is also increasing the burden of

CVD in SSA through the rising prevalence of risk factors. All other things being equal, income change often leads to lifestyle change, which promotes the consumption of unhealthy processed foods and possess major health risks (42).

Overall knowledge of CVD risk factors stretches in different nations. An institution based cross sectional study in Nigeria revealed 49.4% had knowledge of stroke risk factors. Only education is significantly associated with knowledge and participants with tertiary educational qualification were about fifty times (odds ratio = 48.5; CI = 7.6–309.8;  $P < 0.0001$ ) more likely to be knowledgeable than those with no education (43). Meanwhile a second Nigerian study revealed, 49.3% of participants were able to mention at least one correct stroke risk factor. Hypertension was the most (39.1%) known risk factor (43). In this study, educational level was the only significant ( $P < 0.05$ ) and independent determinant of knowledge of stroke risk factors. Compared to other educational levels, participants with tertiary education were found to be 48 times (odds ratio = 48.5; CI = 7.6–309.8;  $P < 0.0001$ ) more likely to be knowledgeable about stroke risk factors compared to those without any education (43). In Cameroon, this knowledge level is also suboptimal, such that 36% of adults are unaware of CV risk factors (42). In contrast, a Tanzanian cross sectional study reported 79.7% participants had good knowledge 19.2% had moderate knowledge, and 1.1% had low knowledge of CVD risk factors (6).

A South African institution based cross sectional study revealed that, One third of the men in this study had two or more CV risk factors. despite African men having an adverse CV risk profile and a relatively good knowledge of CVD risk factors, no relationship could be indicated. The findings indicated that these participants might know about CVD, nevertheless they may be unaware of their own susceptibility to CVD in relation to their risk factors (8).

A Tanzanian Study revealed, Knowledge and attitude regarding CVD risk factors was Good. 54.9% of participants had never had a general health check-up before, 41.3% had a

perception of being in good health while 34.4% reported to have knowledge of CVD risk factors. The mean CVD knowledge score was 78.2% with a range of 31.8–100%. Total 79.7% participants had good knowledge, 19.2% had moderate knowledge, and 1.1% had low knowledge of CVD risk factors. About 16.3% believed CVD are diseases of rich people and 42.4% were unaware that they are the leading cause of mortality globally. Additionally, 17.4% thought CVD are not preventable, 67.4% believed one may know that they have CVD based on symptoms alone and 56.7% had a perception that CVD are curable. Smoking was recognized by 77% as a CVD risk, physical inactivity by 95.6%, excessive alcohol drinking by 90.1%, overweight by 90.1%, high-salt diet by 85.9%, and elevated cholesterol by 92.9% of participants. Furthermore, while just 38.6% were aware that men have a higher risk of CVD compared to women, 65.6% acknowledged positive CVD family history as a risk, whereas 89.5 and 72.4% knew that hypertension and diabetes respectively are risk factors for CVD (6).

To the contrary, a Nigerian study conducted in Calabar province, on hypertensive patients' knowledge of cardiovascular disease, approximately one-third of respondents (32.1%) had satisfactory knowledge of CVD. A little above half of respondents (51.4%) had satisfactory medical knowledge of cardiovascular diseases. However, most respondents had unsatisfactory knowledge of appropriate diet (79.7%), basic epidemiology (81.6%), risk factors (64.6%), and symptoms of CVD (75.5%). The mean score for knowledge of risk factors was significantly higher among females compared with males ( $p < 0.05$ ) (5).

The study went on to reveal, Mean knowledge was significantly higher among respondents that were 60 years or older compared with those who were younger, as well as among those who had at least secondary compared with primary or lower level of education ( $p < 0.05$ ). Compared with other occupational groups, public servants had a significantly higher mean score for knowledge of appropriate diet and basic epidemiology, while civil servants had higher mean score for knowledge of risk factors of CVD ( $p < 0.05$ ). The mean score of knowledge of appropriate diet was significantly higher among respondents who were in the wards compared with those in the clinic ( $p < 0.05$ ). Public servants had a higher total knowledge score, though this difference was not statistically significant ( $p > 0.05$ ). There was no significant difference in total knowledge score comparing marital status, educational level, and source of recruitment ( $p > 0.05$ ). Compared with non-smokers, smokers had a

significantly higher mean total knowledge score ( $p < 0.05$ ). Respondents that consumed fresh fruits at least once weekly had a higher level of mean total knowledge score. Consumption of alcohol and active physical exercise were not found to be associated with total knowledge score ( $p > 0.05$ ) (5).

A systematic review in Sub Saharan Africa stated that knowledge and awareness regarding cardiovascular diseases, in the study by Akintunde et al, Most people in a low-income peri-urban community in South Africa were familiar with the terminology used to describe CVDs. However, the studies reported generally low knowledge levels of CVDs with most studies reporting less than 50.0% of respondents having good knowledge. Hypertension as a risk factor for CVD ranged from as low as 16.2% in a study among rural community members in Nigeria to 95.7% in a study among health workers in Nigeria. In a low-income peri-urban community in South Africa, none of the respondents cited hypertension as a risk factor of CVD. Knowledge levels of hypertension as risk factor for CVDs, ranging from 16.2% to 34.5%, the knowledge level of diabetes as a risk factor of CVD ranged from 0.3% in a study among urban adult population in Benin to 47.4% in Nigeria (22).

### **2.2.3 Knowledge of CVD Risk Factors- National (Ethiopian) trends**

From an epidemiologic view on disease prevalence, Ethiopia is in epidemiologic transition from predominantly infectious diseases to chronic diseases. CVD is a major public health challenge in Ethiopia. The overall prevalence of hypertension among the Ethiopian population is 19.6%, and is higher among the urban population (23.7%) (44). In 2015, ischemic heart disease was the first leading causes of age standardized death rates and fourth leading causes of age standardized disability adjusted life years with rates of 141.9 and 2535.7 per 100,000 population respectively (45). The increasing prevalence of CVD in developing countries including ours is related to unhealthy lifestyle behaviors. Except few region based studies, evidence on CV risk behaviours is scarce in Ethiopia. Findings from the Southern part of the country show that 10.8% of CV patients smoke cigarettes, 12.1% drink alcohol and 73.9% don't do any physical activity (40). A study performed in the capital of Ethiopia reported 68.6% of hypertensive patients don't exercise, 14.1% smoke cigarette, 25.2% drink alcohol and 30.9% don't adhere to healthy diet (41).

A cross sectional study conducted in Ethiopia reported that, some of the preventable Cardiovascular Disease Risk Factors are known by most of study subjects. For example, questions for which more than 80% of participants provided correct answer includes: Regular physical activity will lower a person's chance of getting heart disease 89.4%, smoking is a risk factor for heart disease 88.7% and eating fatty foods does not affect blood cholesterol levels 83.7% (46).

Another study reported that, Overall 54% had optimal knowledge of risk factors, whereas, the remaining 46% had suboptimal knowledge. The majority of patients demonstrated significant knowledge about facts that age 79.4%, smoking 97.6%, being overweight 91.3% and high blood pressure 81.9% are risk factors for cardiovascular disease. At the same time patients had deficient knowledge about the fact that family history of heart disease 86.8% and diabetes 64.1% are also risk factors. However, most of the study participants 70% failed to know that exercising at a gym during an exercise class is only one of the exercises to reduce the risk of CVDs (46). Almost one fifth 19.2% did not understand that keeping blood pressure under control reduces the risk of developing cardiovascular disease, 18.1% were unable to identify eating fatty food affects blood cholesterol level, and 40.1% assume only exercising at a gym or in an exercise class lower a chance of developing cardiovascular disease (1).

Generally, 32.2% of the participants had good knowledge as they scored more than or equal to 70% for knowledge questions. College of study was significantly associated with knowledge. Accordingly, participants from CMHS were 2.6 times more knowledgeable than participants from colleges other than CMHS ( $P = 0.024$ ) (46).

Actual cumulative risk behavior and knowledge of cardiovascular disease risk factors association we have assessed five CV risk behaviors, i.e. smoking, alcohol drinking, khat chewing, fruit and vegetable intake and physical activity. Almost one-third 30% them had one risk behavior, more than half 51.9% had two risk behaviors, and 18.1% had three or more risk behaviors. Out of the total recruited patients, 70% had multiple risk behaviors (two or more behaviors) (1).

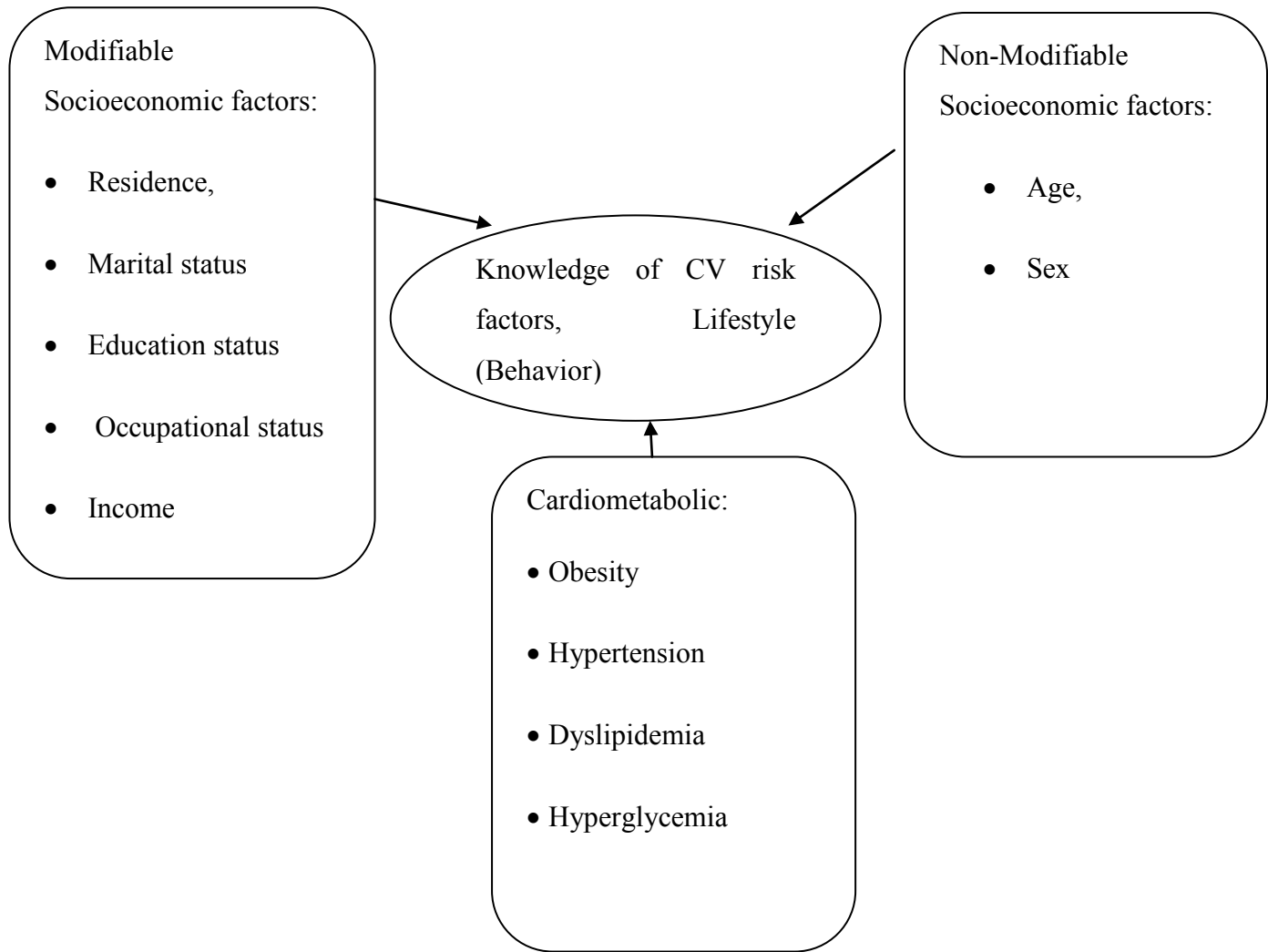
### **2.3 Behavioral risks of CVD's**

The World Health Organization (WHO) recently reported that cigarette smoking (9%) is ranked as the second highest global risk for mortality next to hypertension, and nearly 80% of the world's smokers (more than 1 billion) live in low and middle-income countries (7). Findings reveal that more than 50% of adults in Nigeria have at least one risk behavior and almost one-third have multiple risk behaviours (47). In addition, the prevalence of khat chewing is increasing in east African countries including Ethiopia. Khat is a plant of which fresh leaves are chewed by users. Although this is obviously different from cigarette smoking, regular khat chewing has sustained effects on the cardiovascular system and contributes to high blood pressure, myocardial infarction and other adverse cardiac effects (48). Obesity is increasingly recognized as a main cardiovascular risk factor and is foreseen to take on epidemic proportions in the near future (49). The increasing burden in developing countries is related to poor diet and physical inactivity (50). In 2013, dietary factors (i.e. unhealthy diet) were associated with approximately 25% of all non-communicable disease deaths in Ethiopia (1). It is evident that consuming appropriate amounts of fruit and vegetables (400 g per day) would provide a protective effect against CVD.<sup>15</sup> However, insufficient intake is the most significant dietary risk factor globally (45).

Physical activity (PA) is associated with reduced cumulative cardiovascular risk, and those who engage in PA are less likely to have CVD as compared with those who are physically inactive (51). Currently, physical inactivity (6%) is ranked the fourth leading global risk factor for mortality and prevalence is increasing among adult populations in developing countries, particularly among urban residents and women (52).

### 2.3. Conceptual Framework

This conceptual framework is adapted and modified after reviewing different literatures (1,5,46,53). This shows the effect of independent variables on dependent variable.



**Fig 1:** A conceptual framework for Patient Knowledge on Cardiovascular Risk Factors and Associated Life Style Behavior, In Adult Patients In Selected Health Institutions, Addis Ababa, Ethiopia, 2021.

## **Justification of the Study**

Health literacy on cardiovascular diseases (CVDs) plays an effective role in preventing or delaying the disease onset as well as in impacting the efficacy of their management. Knowledge of cardiovascular risk factors and associated lifestyle behavior is vital for preventing or delaying of the disease onset. There are studies on cardiovascular risk factor but on associated life style behavior there is no sufficient study on this area in adult patients in Addis Ababa.

This study will improve the awareness of the patients on this area which is crucial for the implementation of prevention programs and give evidence on patient's knowledge of CV risk factors; it is a base line data for evidence-based health policy. Therefore, the purpose of this study will be to assess knowledge of cardiovascular risk factors and associated life style behavior among CVD patients.

## **Significance of the Study**

The study will be used to identify and provide clear finding regarding knowledge of cardiovascular risk factor and associated lifestyle behavior on gaps of patients. Secondly, the study will be helpful for patients to give great emphasis on cardiovascular risk factor and associated life style behavior to support them for bringing health seeking behavior. The findings of this study will serve as a base for other researchers who want to study cardiovascular risk factor in advance.

Generally, the investigator of this study is thought to explore overall patients' knowledge on cardiovascular risk factors and associated life style behavior in Addis Ababa city governmental hospitals that could have an impact throughout patient care.

## **CHAPTER 3: OBJECTIVES**

### **3.1 General Objective:**

To assess knowledge of CVDs risk factor, healthy lifestyle practice and factors associated among adult clients visiting public hospital in Addis Ababa, Ethiopia, 2021

### **3.2 Specific Objectives:**

1. To assess knowledge of CVDs risk factors among adult clients visiting public hospital in Addis Ababa, Ethiopia, 2021.
2. To identify healthy lifestyle practice among adult clients visiting public hospital in Addis Ababa, Ethiopia, 2021.
3. To determine factors affecting knowledge of CVDs risk factors among adult clients visiting public hospital in Addis Ababa, Ethiopia, 2021.
4. To determine factors associated with a lifestyle practice among adult clients visiting public hospital in Addis Ababa, Ethiopia, 2021.

## **CHAPTER 4: METHODS AND MATERIALS**

### **4.1 Study setting and Period**

The study was conducted in public hospitals providing cardiac outpatient services in Addis Ababa city administration. The city administration of Addis Ababa contains 12 public hospitals, 40 private hospitals, 96 health centers and more than 800 clinics which are providing health services. The two study areas selected are Tikur Anbessa Specialized Hospital and St. Paul's Hospital.

Tikur Anbessa Specialized Hospital (TASH) was established in 1972. TASH is the largest referral hospital located in the center of the city. Tikur Anbessa Specialized hospital and the Cardiac Center Ethiopia are the main areas for patients undergoing cardiac procedures in the country. TASH has a total of 600 beds, 200 doctors, 379 nurses, and 115 other health professionals dedicating to providing health care services according to the report from the statistics office of the hospital. Now it is the main teaching hospital for both clinical and preclinical training of both disciplines.

The St. Paul's Hospital Millennium Medical College in Addis Ababa is the second largest hospital in Ethiopia. The Hospital was built by Emperor Haile Selassie I in 1969 with the help of the German Evangelical Church. It aimed to serve the poor. A medical college was formed in 2007. The hospital has 350 beds sees an annual average of 300,000. It has a catchment population of more than 5 million and the hospital has 1200 clinical and non-clinical staff. The cardiac clinic in the hospitals' were operational since the hospitals inauguration.

The study was conducted from April to June 2021.

## Location Map of Study Area TASH and SPHMMC

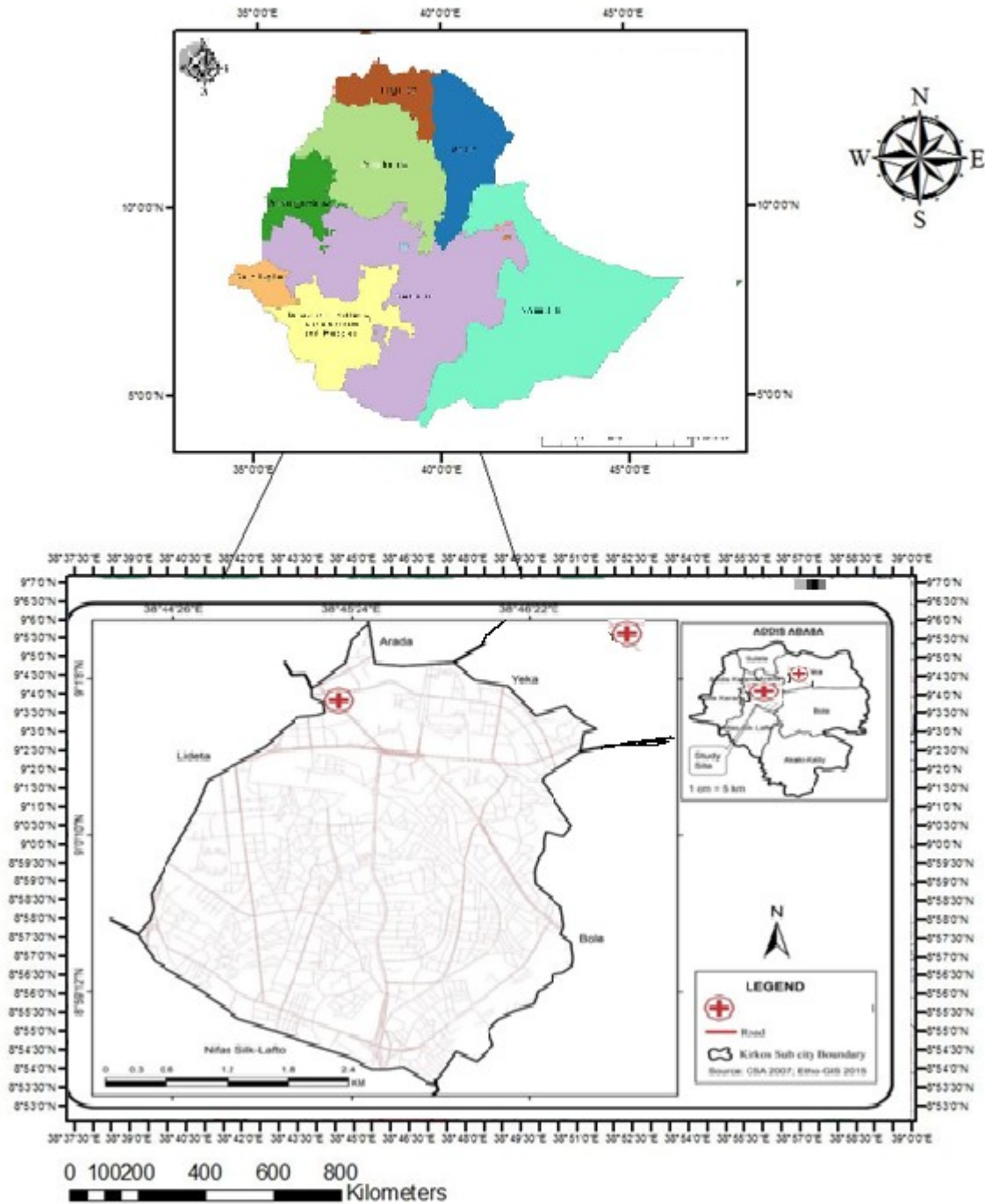


Figure 2: Location Map of the Study Area (Source: Central statistics agency (CSA), 2007, Google Earth 2021)

## 4.2 Study Design

Institution based cross sectional study design was conducted.

## 4.3 Population

### 4.3.1 Source of population

Source Population was all adult patients visiting Tikur Anbessa Specialized Hospital and St Paul Specialized Hospital.

### 4.3.2 Study population

The study population for this study was all randomly selected adult patients on cardiovascular disease followup in the study hospitals in Addis Ababa city and are meeting the inclusion criteria .

## 4.4 Eligibility Criteria

### 4.4.1. Inclusion Criteria

- Cardiovascular patients on followup whose age between 18-64 years

### 4.4.2. Exclusion Criteria

- Severely ill patients because they cannot communicate well.
- Patients on cardiac followup aswell as established psychiatric followup with recent flareup.

## 4.5. Sample Size Determination

Minimum sample size was determined by using single population proportion sample size calculation formula with the assumption of 54% of the overall proportion of cardiovascular knowledge among adult patients on cardiovascular disease risk factors,

$$n = \frac{Z_{\alpha/2}^2 P q}{(d)^2}$$

Where: n = sample size

P = proportion of knowledge among adult patients on cardiovascular disease risk factors, 54% (1).

$$q = 1-p$$

d = Margin of error (5%)

$Z_{\alpha/2}$  = is the standard normal value at the level of confidence desired, usually at 95% confidence level

$$N = (1.96/0.05)^2 (0.54) (0.46) = 382$$

Final Sample size will be **420** after taking 10 % non-response rate.

#### **4.6. Sampling technique and Sampling procedure**

In Addis Ababa there are 12 public hospitals, from which 3 of them were selected for the study by random sampling (lottery method) technique as a representative. Despite that the result of the study was from just two hospitals due to inconvenience. The selected hospitals are Tikur Anbessa Specialized Hospital and St, Paul Referral Hospital. To select the study participants, the total sample size was allocated proportionally based on the number of patients from each selected hospital. Again, proportional allocation was implemented for each selected hospital. Finally, from each hospital, patients were selected using systematic random sampling method to attain the final individuals.

By using the formula for proportional allocation, i.e.,  $n_h = (N_h / N) * n$

Where  $n_h$  is the sample size for stratum  $h$ ,  $N_h$  is the population size for stratum  $h$ ,  $N$  is total population size, and  $n$  is total sample size.

$$\text{TASH} = (10,000/15,000) * 420 = \mathbf{280}$$

$$\text{St. Paul} = (5,000/15,000) * 420 = \mathbf{140}$$

#### **4.7. Variables of the Study**

##### **4.7.1. Dependent Variables**

- Knowledge of CVD risk factors
- Life style behaviours

##### **4.7.2. Independent Variables**

Including Socio-demographic characteristics

- Age
- Sex
- Residence
- Marital status
- Level of education
- Occupational factor
- Income

#### **4.8. Operational Definitions**

- Knowledge is a familiarity, awareness, or understanding of patients to reply knowledge questions about CVD risk factors measured in terms of knowledge scores (1).
- Sufficient knowledge: patient’s knowledge status considered as sufficient if a patient scored above or equal to the mean of knowledge based questions (1).
- Insufficient knowledge: patient’s knowledge status considered as insufficient if a patient scored below the mean (1).
- Life style behavior is actions and mannerisms made by patients in day-to-day life activities (1).
- Satisfactory behavior is considered as good if patient practicing score above or equal to the mean of behavior based questions (1).
- Unsatisfactory behavior is considered as poor if patient practicing score below the mean of behavior based questions (1).

#### **4.9. Data Collection Methods and instrument**

##### **4.9.1. Data Collection Method**

The data extraction tool developed from three validated tools, the World Health Organization (WHO) STEPs instrument, International physical activity questionnaire and the Heart Disease Fact Questions. The WHO STEPs instrument follows a stepwise approach to chronic disease risk factor surveillance in individuals aged 18–64 years (54). Ethiopian

Public Health Institute adapted the WHO STEPs instrument to Ethiopian context by including khat chewing and the use of local alcohol and cigarette products in the risk behavior assessment. Locally adapted version of WHO STEPs instrument was translated and used to assess socio demographic variables and CV risk behaviors including cigarette smoking, alcohol consumption, khat chewing and fruit and vegetable consumption. The international physical activity questionnaire used to assess physical activity (1). The English version of both the international physical activity questionnaire and the HDFQ was translated into Amharic and were back translated into English by language experts to check reliability of the translations. Three nurses who have bachelor qualifications conduct data collection through face-to-face interviews with patients.

Data quality has been control by giving full-day training, for data collectors regarding the study, the questionnaire, and the data collection procedure by the main investigator. The Collected data could be checked every day by principal investigators for its completeness. Problems faced were discussed overnight with data collectors. Data has been kept in the form of a file insecure place where no one can access it except the investigator and confidentiality is ensured by not recording names or any personal identity. Data was check again for its completeness before data entry.

#### **4.9.2 Data Analysis**

Quantitative data obtained through survey questionnaire was edited, coded cleaned and entered in to Epi-data version 3.1 and exported to SPSS Version 25.0 for analysis. To analyze mean, percentage, frequencies and the statistical significance difference among dependent and independent variables, different tests was employed. Descriptive statistics such as percentages and frequency distributions were done to describe and displayed in tables, graphs and charts. Furthermore, all the necessary model diagnosis test include model specification test for the overall model fit (goodness of fit), multi-collinearity problem and test for model specification error test. In this regard, model test carried out before running the logistic regression while model specification error test (linktest) was carried out after running the regression. The explanatory variables were checked for existence of multi-collinearity or association between the dependent variables to identify the factors that influencing dietary diversity status.

To estimate the relationship between dependent and independent factors influencing binary logistic regression model was used. The model helped to estimate the relationship between the dependent and independent variables. Bivariate and Multivariate analysis was done to predict the possible influencing factors. Binomial logistic regressions used to see the crude significant relation of each independent variable with dependent variables. Then independent variables found significant were entered to use multivariate logistic regressions to control the effect of confounding or effect of variables. Finally, significant factors were identified based on AOR include in 95% confidence level at P-value less than 0.05.

#### **4.10. Ethical consideration**

Ethical clearance was obtained from the institutional review board of Addis Ababa University, College of health sciences, department of nursing, and midwifery research committee. Support letter from department of nursing was inscribed to Tikur Anbessa Specialized Hospital, St. Paul's Hospital Millennium Medical College cardiac units. Permission official letter was distributed to hospitals included in the study area. Informed oral consent was obtained from all study participants after the information is provided about the purpose of the study, non-intrusiveness of the data collection procedure, confidentiality of the information and respondents were reassured that they would be unnamed. Then respondents were given the chance to ask anything about the study and were made free to refuse or stop at any moment they want if that is their choice.

#### **4.11. Dissemination and Utilization of Result**

The primary objective of this study is for partial fulfillment in the requirements to degree of master in cardiovascular nursing; it will be present and submit to the department of nursing and midwifery, school of health sciences, Addis Ababa University. Also copies of the result will submit to St. Paul Specialized Hospital, to utilize the information for further development of strategic and educational plans for prevention of the diseases by governmental bodies. Presentations at professional, local, national, and international meetings and publications in peer-reviewed national or international journals will be attended.

## CHAPTER 5: RESULTS

### 5.1 Socio-demographic Characteristics

A total of 420 patients diagnosed with CVD who attending the chronic follow up care were included in the study; 280 patients from Tikur Anbessa Specialized Hospital (TASH), and 140 patients from St Paulo's Hospital. All of them responded for the questionnaire, making the response rate of 100%. Regarding sex of respondents, 255 (60.7%) were females. About half, 204 (48.6%) of the respondents were in the age group 54-65, and the mean (+SD) age of respondents was 48.7 (+13), while the minimum and maximum age of respondents was 22 and 62 years respectively. From the total of study participants 374 (89%) were urban residents. Regarding the marital status, 240 (57.1%) was married. Most participants 125 (29.7%) acquire college level of education. Majority 131 (31.2%) of the study participants are enrolled in private sector.

The socio-demographic characteristics of patients are summarized in Table1.

**Table 1:** Socio-Demographic Characteristics of Respondents in Selected Public Hospitals in A.A, Ethiopia, 2021 (N=420).

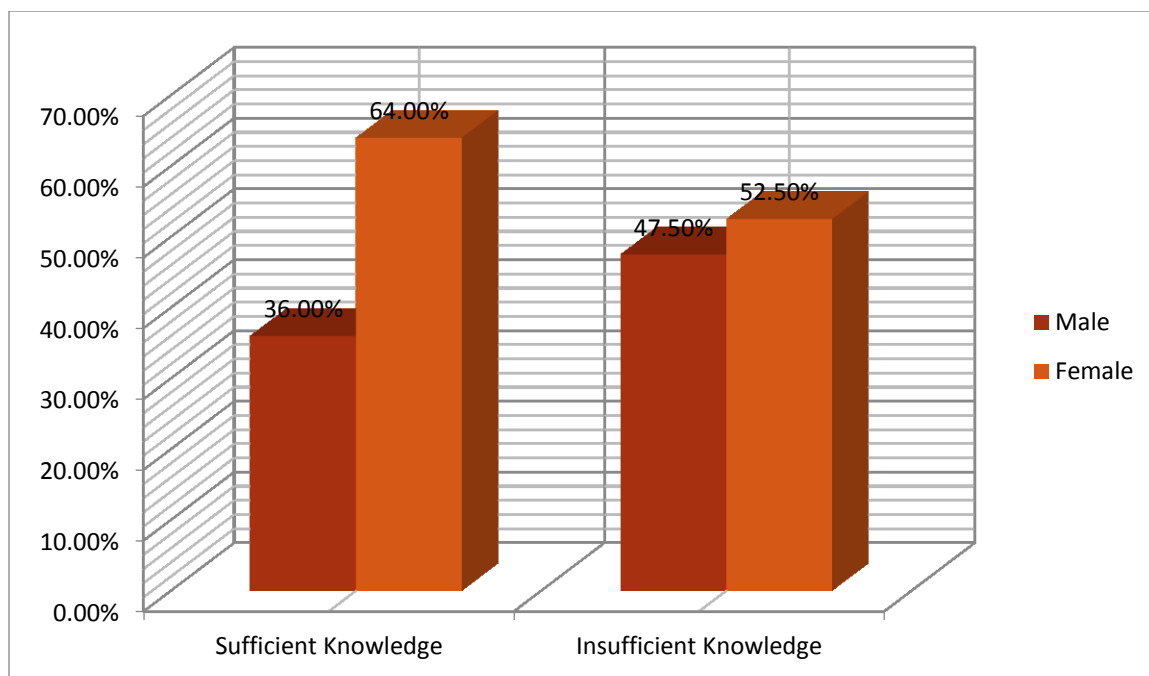
Characteristics		Frequency	Percentage (%)
Age	18-29	53	12.6
	30-41	73	17.4
	42-53	90	21.4
	>=54	204	48.6
Sex	Male	165	39.3
	Female	255	60.7
Residence	Urban	374	89
	Rural	46	11
Marital Status	Single	81	19.3
	Married	240	57.1
	No longer Married	99	23.6
Occupational status	Self employed	131	31.2

Educational Status	Governmental employee	91		21.7		
	Retired	75		17.9		
	Unemployed	123		29.3		
	No formal education	95		22.6		
	Primary	99		23.6		
	Secondary	101		24.0		
	Higher	125		29.7		
<b>Variables</b>		<b>Obs</b>	<b>Mean</b>	<b>SD</b>	<b>Min.</b>	<b>Max.</b>
Age of responders		420	48.7	13.05	22	62
Average Annual income		420	44,901.94	57,017.15	0	360,000
Total cholesterol		420	186.8	27.1	139	256

## 5.2 Knowledge of cardiovascular risk factors

Respondents were asked 29 knowledge based questions to assess their knowledge toward CVD Risk factors and they were categorized in to two groups based on their score (Sufficient knowledge and Insufficient knowledge). Total cumulative knowledge level was determined out of 29 and mean level of knowledge was determined to be 19.9. Hence mean and above (i.e,  $\geq 20$ ) is considered “Sufficient knowledge” while the rest was considered “Insufficient knowledge”. Findings of this study revealed that the majority of patients who participated in this study had sufficient knowledge score, 300 (71.4%).

Patients who answered the heart disease fact questions (Knowledge based questions) correctly depicted in Table 3.



**Figure 3:** Level of participant's Knowledge regarding CVD risk factors in Selected Public Hospitals in A.A, Ethiopia, 2021 (N=420)

**Table 2:** Frequency Distribution of Respondents Knowledge Score towards Cardiovascular Disease Risk Factors of the Selected Public Hospitals in A.A, Ethiopia, 2021 (N=420)

Characteristics		Frequency	Percentage (%)
A person always knows when they have heart disease	Yes	238	56.7
	No	182	43.3
If someone has a family history of heart disease, he/she is at risk for developing heart disease	Yes	185	44.0
	No	235	56.0
The older a person is, the greater their risk of having heart disease	Yes	320	76.2
	No	100	23.8
High blood pressure is a risk factor for heart disease	Yes	364	86.7
	No	56	13.3
Keeping blood pressure under control will reduce a person's risk for developing heart disease	Yes	372	88.6
	No	48	11.4

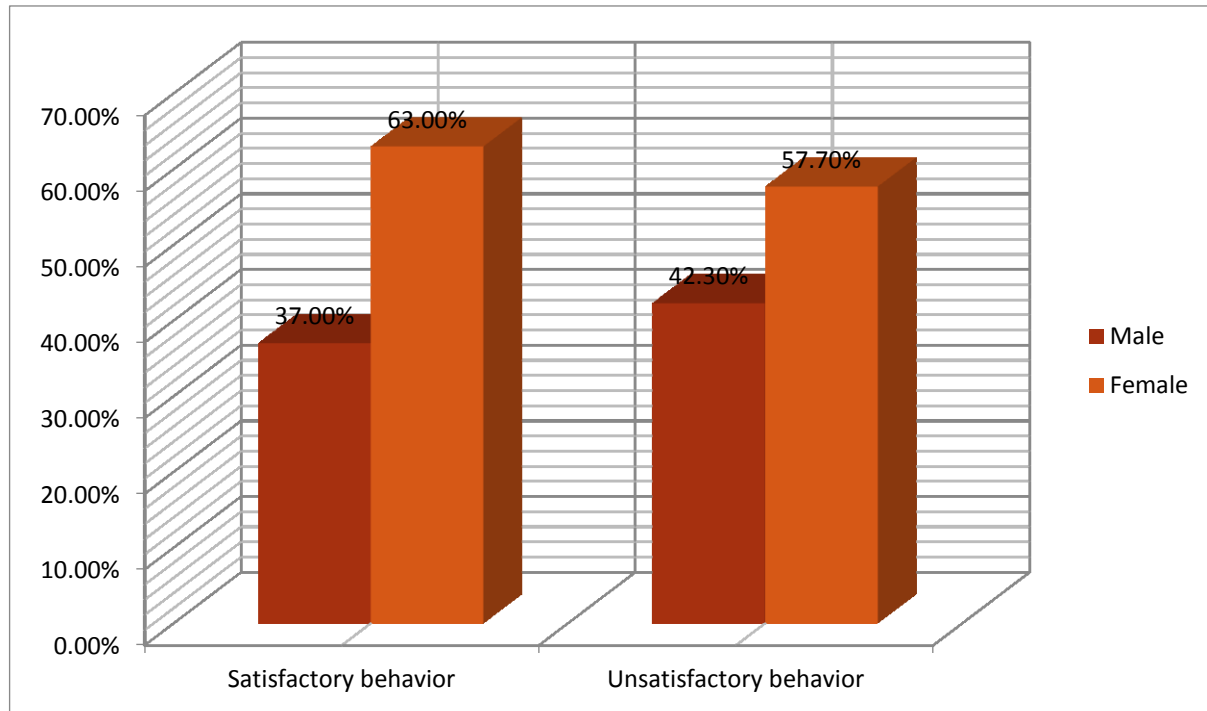
Smoking is a risk factor for heart disease?	Yes	368	87.6
	No	52	12.4
A person who stops smoking will lower their risk of heart disease?	Yes	359	85.5
	No	61	14.5
Chewing khat is a risk factor for heart disease?	Yes	323	76.9
	No	97	23.1
A person who stops chewing khat will lower their risk of heart disease	Yes	321	76.4
	No	99	23.6
Drinking alcohol is a risk factor for heart disease	Yes	348	82.9
	No	72	17.1
A person who stops drinking alcohol will lower their risk of heart disease	Yes	346	82.4
	No	74	17.6
Being overweight increases a person's risk for heart disease	Yes	380	90.5
	No	40	9.5
Regular physical activity will lower a person's chance of getting heart disease	Yes	376	89.5
	No	44	10.5
Only exercising at a gym or in an exercise class will lower a person's chance of developing heart disease	Yes	199	47.4
	No	221	52.6
Walking and gardening are considered exercise that will help lower a person's chance of developing heart disease	Yes	351	83.6
	No	69	16.4
Diabetes is a risk factor for developing heart disease	Yes	355	84.5
	No	65	15.5
High blood sugar puts a strain on the heart	Yes	370	88.1
	No	50	11.9
If someone's blood sugar is high over several months it can cause his/her cholesterol level to go up and increase his/her risk of heart disease	Yes	366	87.1
	No	54	12.9

A person who has diabetes can reduce his/her risk of developing heart disease if he/she keeps his/her blood sugar level under control	Yes	370	88.1
	No	50	11.9
Men with diabetes have a higher risk of heart disease than women with diabetes weight under control	Yes	229	54.5
	No	191	45.5
Cardiovascular disease is the most common cause of death in Ethiopia	Yes	327	77.9
	No	93	22.1
High cholesterol is a risk factor for developing heart disease	Yes	369	87.9
	No	51	12.1
If someone's bad cholesterol (LDL) is high he/she is at risk for heart disease	Yes	370	88.1
	No	50	11.9
A person with heart disease have high cholesterol	Yes	326	77.6
	No	94	22.4
People with heart disease tend to have low good (HDL) cholesterol	Yes	223	53.1
	No	197	46.9
Does eating fatty foods affect blood cholesterol	Yes	288	68.6
	No	132	31.4
Many fruits and vegetables are high in cholesterol	Yes	63	15.0
	No	357	85.0
Does dietary fiber lowers blood cholesterol level	Yes	339	80.7
	No	81	19.3
Do you think eating a high fiber diet increases the risk of getting heart disease	Yes	301	71.7
	No	119	28.3

#### 5.4 Cardiovascular Disease Associated Life Style Behaviors

Regarding patients CVD associated life style behavior (Mean = 4.74, SD = 1.5, range = 0-7). The lowest possible score (unsatisfactory behavior) was 0 whilst the highest possible score (satisfactory behavior) was 7. The level of behavior of patients toward CVD associated life style was dichotomized as satisfactory with behavior score of greater than mean and

unsatisfactory with behavior score of less than or equal to mean. From all of the participants 238 (56.7%) had satisfactory behavior towards CVD associated life style, while 182 (43.3%) had unsatisfactory behavior towards CVD associated life style. Serum total cholesterol was measured to reflect cardio metabolic risk factors, mean serum total cholesterol was 186.8mg/DL, 133(31.7%) of patients were found to have dyslipidemia.



**Figure 4:** Level of participant's lifestyle behavior regarding CVD risk in Selected Public Hospitals in A.A, Ethiopia, 2021 (N=420)

**Table 3:** Frequency Distribution of Respondents Behavior Score Towards CVD associated life style of the Selected Public Hospitals in A.A, Ethiopia, 2021 (N=420)

<b>Characteristics</b>		<b>Frequency</b>	<b>Percentage (%)</b>
Have you ever had checked your cholesterol level	Yes	293	68.9
	No	127	30.2
Dyslipidemia	Yes	133	31.7
	No	287	68.3
<i>Do you smoke cigarette</i>	Yes	50	11.9
	No	370	88.1
Do you chew khat	Yes	38	9.0
	No	382	91.0
Do you drink alcohol	Yes	121	28.8
	No	299	71.2
Have you a plan to maintain normal body weight	Yes	243	57.9
	No	177	42.1
Do you make any physical exercise	Yes	210	50.0
	No	210	50.0
Does your daily diet contain fruit and vegetables	Yes	195	46.4
	No	225	53.6

## **5.5 Association between Knowledge and Behavior of Patients towards Cardiovascular Disease Risk factors and Independent Variables**

### **I. Logistic regression analysis of patients Knowledge toward cardiovascular disease with related variables**

Bivariate and multivariable logistic regression analysis used to identify the factors that are associated with patient's knowledge toward cardiovascular disease was done. On binary logistic regression analysis most socio-demographic variables (Sex, Age, Place of residence, Educational status) were all significantly associated with knowledge toward CVD risk factors at p-value <0.05 with 95% C.I. The variable that was found not to be statistically

significantly related with Sufficient Knowledge was marital status and occupational status. Patients that are in the age range of (30-41) [COR=0.4; 95%CI (0.22-0.71)], male patients [COR=0.62; 95%CI (0.4-6.95)], Patients who are urban dwellers [COR=7.4; 95%CI (3.7-14.5)] and Patients with higher education [COR=0.28; 95%CI (0.2-0.5)] were found to have significant association with knowledge of responders.

After Bivariate analysis, only those variables, which were significantly, associated (p- value < 0.2) with knowledge entered for further multivariable analysis (55). By adjusting potential confounders in multivariate logistic regression analysis, patients that are in the age range of (30-41) [AOR=0.2; 95%CI (0.09-0.45)], male patients [AOR=0.46; 95%CI (0.3-0.8)], Patients who are urban dwellers [AOR=4.2; 95%CI (1.9-9.5)] and Patients with formal education factors [AOR=0.18; 95%CI (0.07-0.43)] were all found to have significant relationship with knowledge of patients towards CVD risk factors. Results are summarized in Table 5.

**Table 4:** Association Between Socio-Demographic Factors With Knowledge Of patients Towards CVD risk factors At Public Hospitals Of A.A, Ethiopia, 2021 (n=420)

Variable	Mean knowledge CVD risk factors		Odds Ratio at (95% CI)			
	Insufficient	Sufficient Knowledge	COR (95%CI)	P-Value	AOR (95%CI)	P-Value
<b>Age in years</b>						
18-29	18	35	0.55(0.28-1.06)	0.075	0.37(0.13-1.01)	0.054
30-41	30	43	<b>0.4(0.22-0.71)*</b>	0.002	<b>0.20(0.9-0.45)**</b>	0.00
42-53	27	63	0.66(0.37-1.15)	0.146	<b>0.34(0.16-0.71)*</b>	0.04
>=54	45	159	1		1	
<b>Sex</b>						
Male	57	108	<b>0.62(0.4-0.95)*</b>	0.03	<b>0.46(0.3-0.8)**</b>	0.009
Female	63	192	1			
<b>Residence</b>						
Urban	88	286	<b>7.4(3.7-14.5)**</b>	0.00	<b>4.2(1.9-9.5)**</b>	0.00
Rural	32	14	1			
<b>Marital Status</b>						
Single	30	51	0.7(0.42-1.2)	0.2		
Married	19	80	1.7(0.99-3.1)	0.051		
No longer Married	71	169	1			
<b>Occupational Status</b>						
Self employed	47	84	0.7(0.4-1.2)	0.21		
Government employee	21	70	1.3(0.7-2.47)	0.37		

Retired	17	58	1.35(0.69-2.6)	0.37		
Unemployed	35	88	1			
<b>Educational Status</b>						
No formal education	46	49	<b>0.28(0.2-0.5)**</b>	0.00	<b>0.18(0.07-0.43)**</b>	0.00
Primary	25	74	0.77(0.4-1.4)	0.43	0.49(0.23-1.05)	0.069
Secondary	23	78	0.89(0.5-1.68)	0.72	0.75(0.36-1.53)	0.43
Higher	24	99	1		1	

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1-Reference, variables with P-value <0.2 included in multivariate linear regression

## II. Logistic regression analysis of patients Behavior toward cardiovascular disease with related variables

Bivariate and multivariable logistic regression analysis used to identify the factors that are associated with patient's behavior toward cardiovascular disease was done. On binary logistic regression analysis most socio-demographic variables such as age range 30-41 [COR=2.4; 95%CI (1.18-4.73)], Urban place of residence [COR=2.5; 95%CI (1.3-0.4.6)], Married marital status [COR=0.46; 95%CI (0.27-0.7)] and Participants that complete secondary education [COR=1.8; 95%CI (1.1-3.17)] were all significantly associated with behavior toward CVD risk factors at p-value <0.05 with 95% C.I.

After Bivariate analysis, only those variables, which were significantly, associated (p-value < 0.2) with behavior entered for further multivariable analysis (55). By adjusting potential confounders in multivariable logistic regression analysis, married patients were found to be 53% more likely to have satisfactory behavior [AOR=0.47; 95%CI (0.23-0.92)]. Results are summarized in Table 6.

**Table 5:** Association Between Socio-Demographic Factors With Behavior Of patients Towards CVD risk factors At Public Hospitals Of A.A, Ethiopia, 2021 (n=420)

Variable	Mean Behavior CVD risk factors		Odds Ratio at (95% CI)			
	Unsatisfactory Behavior	Satisfactory behavior	COR (95%CI)	P-Value	AOR (95%CI)	P-Value
<b>Age in years</b>						
18-29	30	23	1.9(0.96-4.06)	0.06	0.76(0.32-1.7)	0.52
30-41	29	44	<b>2.4(1.18-4.73)*</b>	0.015	1.1 (0.57-2.16)	0.76
42-53	32	58	1.6(0.88-2.9)	0.121	1.2(0.66-2.2)	0.54
>=54	91	113	1		1	
<b>Sex</b>						
Male	77	88	0.80(0.54-1.18)	0.27		
Female	105	150	1			
<b>Residence</b>						
Urban	153	221	<b>2.5(1.3-4.64)**</b>	0.005		
Rural	29	17	1			
<b>Marital Status</b>						
Single	46	35	<b>0.46(0.27-0.7)*</b>	0.003	<b>0.47(0.23-0.92)*</b>	0.027
Married	46	53	0.69(0.4-3.1.11)	0.127	0.66(0.89-3.9)	0.129
No longer Married	90	150	1		1	
<b>Occupational Status</b>						
Self employed	54	77	1.1(0.68-1.83)	0.66		
Government employee	41	50	0.95(0.55-1.6)	0.87		
Retired	33	42	0.99(0.56-1.77)	0.99		

Unemployed	54	69	1		
<b>Educational Status</b>					
No formal education	52	43	0.67(0.39-1.15)	0.14	
Primary	43	56	1.06(0.62-1.79)	0.83	
Secondary	31	70	<b>1.8(1.1-3.17)*</b>	0.03	
Higher	46	69	1		

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1-Reference, variables with P-value <0.2 included in multivariate linear regression

### 5.6 Association between the dependent variables

Bivariate logistic regression and Multinomial logistic regression analysis was conducted on the two dependent variables (Knowledge, Behavior). For this purpose knowledge of participants towards CVD risk factors was analyzed against the other variable. The odds of those patients with satisfactory behavior was found to be roughly twice more than those patients with unsatisfactory behavior with [COR=1.5; 95%CI (0.9-2.3)].

On multivariate logistic regression, statistically significant association wasn't found

Results are summarized in Table 7.

**Table 6:** Association among Dependant variables of participants towards CVD risk factors at public hospitals of A.A, Ethiopia, 2021 G.C. (n=420)

Variable	Mean Knowledge		Odds Ratio at (95% CI)			
	Insuffi cient Knowl edge	Suffici ent Knowl edge	COR (95%CI)	P- Val ue	AOR (95%CI)	P- Val ue
<b>Behavior of participants</b>						
Unsatisfactory			<b>1.53(0.99- 2.34)</b>	0.0 5	1.15(0.71- 1.8)	0.55
Satisfactory			1			

1-Reference, variables with P-value <0.2 included in multivariate linear regression

## CHAPTER 6: DISCUSSION

In this paper we have explored and described the level of knowledge of cardiovascular risk factors and associated life style among known cardiovascular patients who were attending chronic follow up care at two public referral hospitals in Addis Ababa Ethiopia.

The study revealed that about three quarter (71.4%) of CVD patients have satisfactory knowledge regarding CV risk factors. The remaining one fourth of the patients has unsatisfactory knowledge. the studies conducted in south east Asian countries of Bangladesh (30), Malaysia (29) and Republic of Korea (56) reported mean knowledge towards CVD risk factors among their respective participants to be 38.9%, 55.6% and 41% respectively. Their report is significantly lower than ours. This discrepancy might be due to lack of health awareness trainings on area of CVD which is a routine procedure among CVD patients in our study setting, socio-demographic differences, study time gap and study setting difference.

Meanwhile studies from different corner of Africa reported mean knowledge of patients towards CVD risk factors to be 32.1%, 49.4% while a systematic review from Sub Saharan Africa conducted in 2017 revealed a mean knowledge levels ranging from 4.4%-68.1% (5,22,43). All those studies reported values are significantly lower than our study. These differences can be due to different measurement tools, difference in socioeconomic background, lack of awareness creation events, poor patient counseling, lack of effective communication with physicians and absence of independent CVD units equipped to deal with sustainable Cardiovascular patient care in the former studies.

In contrast the studies from Eastern Ethiopia and Northern Ethiopia reported relative Knowledge of 54% and 32.2% Respectively (1,46). Apart from study design difference and difference in socio economic status, considering the urban nature of our study, these can be due to better health literacy among our study participants. Better health literacy could be due to the fact that our participants are largely urban dwellers located in the capital city compared with the formers.

With about three quarter of the study participants having an overall sufficient knowledge regarding CVD risk factors, this present study revealed an acceptable level of health literacy in an urban setting of Addis Ababa. Our rates of CVD risk factors literacy echoes findings of

previous studies from Tanzania (6), South Africa (8) and Iran (57) that reported findings of 80%, 75% and 78.7% respectively. This observed similarity in literacy rates between cited studies could be explained by the education-level similarities among study participants and similarity of tools used for knowledge assessment, similarity of study setting and patient care practices.

A wide variation of knowledge rates regarding individual risk factors is observed in the literature. For instance, smoking (8,58,59) has been revealed as a CVD risk by 36.2–93.2% of participants, alcohol intake in excess by 40.7% (60)- 65% (2), unhealthy diet (1,2,58,59,61) by 2.8–88%, physical inactivity (2,8,58,59) by 1.2– 96%, excess body weight (2,58,59) by 1.6–100%, hypertension (2,58,59) by 6.2–94% and diabetes (2,8,58) by 5.3–92.4%. Meanwhile our study revealed, Smoking 11.9%, Excess alcohol intake 9%, unhealthy diet 46.4%, Physical inactivity 50% and excess body weight 57.9% as an individual behavioral risk factors for CVD.

In unison to our findings, studies by Negesa et al.(1) (80%), Abdela et al.(46) (68%), and Shafiq et al.28 (60%) revealed similar rates of recognition of regular physical activity will lower a person chance of getting heart disease, smoking and eating fatty foods does not affect blood cholesterol levels. Another study in eastern part of Ethiopia revealed majority of patents demonstrated significant knowledge i.e about age (79.4%) smoking (97.6%) being overweight (91.3%) and high pressure (81.9%) are risk factors for cardiovascular disease. The current study had significant knowledge on being overweight (90.1%), regular physical activity (89.1%), keeping blood pressure (88.8%) and smoking (87.7%). At the same time patients had deficient knowledge about eating a high fiber diet (29%), only exercising at gym (46.5%) and family history (44.1%).

In our study four independent variables (Age, Sex, place of residence and Educational status) were found to have significant statistical correlation with Knowledge towards risk factors of CVD. Patients that are in the age range of (30-41) were found to be 80% more likely to have sufficient knowledge [AOR=0.2; 95%CI (0.9-0.45)]. In addition, male patients were 54% more likely to have sufficient knowledge [AOR=0.46; 95%CI (0.3-0.8)]. Patients who are urban dwellers were found to be four times more likely to have sufficient knowledge compared with their rural counterparts [AOR=4.2; 95%CI (1.9-9.5)]. Finally,

Patients with no formal education were found to be 82% more likely to have insufficient knowledge towards CVD risk factors [AOR=0.18; 95%CI (0.07-0.43)]. Meanwhile after adjusting cofounders married patients were found to be 53% more likely to have satisfactory behavior [AOR=0.47; 95%CI (0.23-0.92)].

Residence, education level and marital status were associated with knowledge of cardiovascular risk factors, which manifests that social, cultural and economic factors are major determinants of awareness and health behavior change (1). In comparison with the finding of our study, multiple studies (1,5,59) have revealed higher education is associated with better health literacy. A review conducted in Sub-Saharan Africa reported that place of residence is associated with improved knowledge of CV risk factors (42). In Ethiopia, rural residents attain lower educational level and have poor access to health information as compared to urban residents who relatively have better health literacy. Thus, low knowledge of CV risk factors in rural residents could be due to their lower education attainment.

Moreover, the current study shows that those who were never married have unsatisfactory levels of behavior regarding CV risk factors compared to those who were married. Consistent with this, Negesa et al. reported that being married is associated with, lower risk factors, better knowledge and better CV health status (1). Education is key in attaining knowledge, However, about quarter of the patients in the current study had no formal education, thus, improving literacy in developing countries is vital in tackling the emerging burden of chronic diseases, in particular, CVD and its associated lifestyle behaviors, as demonstrated previously (46).

The prevalence of alcohol drinking, inadequate fruit and vegetable consumption and physical inactivity in the current study is comparable to findings from Eastern Ethiopia (1), Addis Ababa (41), Kenya (62) and Nigeria (43). However, the rate of smoking in this study is lower compared to findings from Addis Ababa (41) and Kenya (62) and this could be due to differences in socio-cultural characteristics of participants.

## **CHAPTER 7: STRENGTH AND LIMITATIONS**

### **7.1. Strength**

Numerous diverse variables were well-thought-out as if they could be associated factors of knowledge of CV risk factors and its associated life style behavior. Numerous diverse independent variables were evaluated and analyzed to demonstrate their relative influence. Standard and effective tool used in supplementary studies was used in this study too. Pretest conducted formerly to authentic running of the prepared questionnaire at actual study participants.

### **7.2. Limitation**

The study participants might not give precise evidence because of some cultural reasons. In addition some questions resulted in patient's ability to perfectly recall the answers resulting in recall bias despite taking measures to minimize them. Attempt to mitigate for recall bias using recall cues was not found to produce intended responses. Use of cross-sectional study design does not establish causal relationships. Nevertheless, the study area stated governmental hospitals in Addis Ababa the outcome may not signify knowledge of CV risk factors and associated life style behavior in Addis other than TASH and SPHMMC.

## **CHAPTER 8: CONCLUSION**

The study revealed that about three quarter of the study participants has sufficient knowledge regarding cardiovascular risk factors. Meanwhile a little shy of two third of the study participants has satisfactory behavior towards CVD associated life style. Middle Age, being Male, Urban residence and Acquiring higher education were associated with knowledge of cardiovascular risk factors. Meanwhile, Middle age, urban residence, being married and acquiring better education were shown to be associated with lifestyle and behavior towards CVD. There was no association between the dependent variables.

## CHAPTER 9: RECOMMENDATION

**For Policy makers:** Health promotion programs should focus on providing health information and education that initiate primary prevention. Further research is needed to determine whether the results of the current study can be generalized to other population samples and to explore the impact of age, residence and marital status on CVD knowledge.

**For The community and Health Practitioners:** Nurses are responsible for the counseling of patients in primary healthcare clinics about behavior changes, namely smoking, chewing, harmful drinking, physical activity and unhealthy diet. By giving patients the correct information on the prevention of CV risk factors and health behavior counseling, much can be done to prevent and control NCDs. Implementation of innovative interventions and structured, nurse-led lifestyle counseling would be required to effectively guide patients in developing lifestyle modification and sustainable behavior change

**For Researchers:** Future research develops and validates a standardized CVD knowledge instrument better suited to the Ethiopian population. This information can assist in the design of effective health intervention programs. It can also serve as education material to address individuals' specific gaps in CVRF knowledge. The relationship between CV risk factors knowledge, and life style practice also needs further investigation.

## CHAPTER 10: REFERENCE

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## ANNEXES

### Annex A: Information Sheet

Information sheet Hello Dear!! Dear respondent my name is Bezina Damtew I am here to collect data for a study entitled Patients' Knowledge on Cardiovascular Risk Factors and Associated Life Style Behaviors among Adults in Selected Public Hospitals, A.A, Ethiopia, 2021. The study is being conducted by Bezina Damtew who is MSC cardiovascular nursing student at Addis Ababa University, College of health sciences, school of nursing & midwifery. For this study, you are selected as a participant, and before getting your consent or permission of your participation, you need to know all the necessary information related to the study. Thus, this information will be detailed as; The objective of this study is to assess Patient knowledge on cardiovascular risk factors and associated life style behavior in Addis Ababa, Ethiopia. You are being asked to take part in this study and to respond genuinely. You are selected to be involved by chance. This questionnaire focuses on assessing your knowledge, towards cardiovascular risk factor and life style practice. This questionnaire may take 10 to 20 minutes to complete. There is no possible risk associated with participating in this study except the time spent on completing the questionnaire. Your name will not be written in this form and all information given by you will be kept strictly confidential. Your participation is voluntary and if you feel discomfort with any of the questions, it is your right to drop it any time you want. If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator. Address of the principal investigator:

Sr Bezina Damtew Mobile phone- +251-9-10-10-74-78 E-mail-damtewbezina234@gmail.com. Are you willing to participate in the study? If yes please proceed to the consent form on the next page.



## Annex B: Consent Form

In signing this document, I am giving my consent to participate in the study. I have been informed that the objective of this study is to assess Patient knowledge on cardiovascular risk factors and associated life style behavior in Addis Ababa, Ethiopia I have understood that participation in this study is entirely voluntary. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I understood that participation in this study does not involve risks except the time spent on completing the questionnaire. I understood that Sr Bezina Damtew is the contact person if I have questions about the study or my rights as a study participant. The following is her contact address. Address of principal investigator: Sr Bezina Damtew Mobile phone-+251-9-10-10-74-78 E-mail-damtewbezina234@gmail.com Participant's signature: \_\_\_\_\_ date: \_\_\_\_\_ Thank You for your willingness to participate!!!

## Annex C: English Version Questionnaire

### SECTION 1: SOCIODEMOGRAPHIC QUESTIONS

S.NO	Socio-Demographic Questions	Response	Remark
1	Age	_____	
2	Gender	1, Male 2, Female	
3	Residence	1, Urban 2, Rural	
4	Marital Status	1, Never married 2, No longer married 3, Currently married	
5	Education Level	1, No formal education 2, Primary school completed 3, Secondary school completed 4, College or university graduate or post graduate	
6	Occupational status	1, Self employed 2, Governmental employee 3, Retired 4, Un employed	
7	Yearly income	Please state the amount ----- -----	

SECTION 2: HDFQ and Health Care Behaviors questionnaires for patients who attend cardiac out patient service in selected public hospitals.

Please circle on the number you select that best answers the question. Kindly make only one Selection unless otherwise instructed.

S.No.	HDFQ and Health Care Behavior	Response	Remark
1.	A person always knows when they have heart disease	1, Yes 2, No	
2.	If someone has a family history of heart disease, he/she is at risk for developing heart disease	1, Yes 2, No	
3.	The older a person is, the greater their risk of having heart disease	1, Yes 2, No	
4.	High blood pressure is a risk factor for heart disease	1, Yes 2, No	
5.	Keeping blood pressure under control will reduce a person's risk for developing heart disease	1, Yes 2, No	
6.	Smoking is a risk factor for heart disease?	1, Yes 2, No	
7.	A person who stops smoking will lower their risk of heart disease?	1, Yes 2, No	
8.	Chewing khat is a risk factor for heart disease?	1, Yes 2, No	
9.	A person who stops chewing khat will lower their risk of heart disease	1, Yes 2, No	
10.	Drinking alcohol is a risk factor for heart	1, Yes 2, No	

	disease		
11.	A person who stops drinking alcohol will lower their risk of heart disease	1, Yes 2, No	
12.	Being overweight increases a person's risk for heart disease	1, Yes 2, No	
13.	Regular physical activity will lower a person's chance of getting heart disease	1, Yes 2, No	
14.	Only exercising at a gym or in an exercise class will lower a person's chance of developing heart disease	1, Yes 2, No	
15.	Walking and gardening are considered exercise that will help lower a person's chance of developing heart disease	1, Yes 2, No	
16.	Diabetes is a risk factor for developing heart disease	1, Yes 2, No	
17.	High blood sugar puts a strain on the heart	1, Yes 2, No	
18.	If someone's blood sugar is high over several months it can cause his/her cholesterol level to go up and increase his/her risk of heart disease	1, Yes 2, No	
19.	A person who has diabetes can reduce his/her risk of developing heart disease if he/she keeps his/her blood sugar level under	1, Yes 2, No	

	control		
20.	Men with diabetes have a higher risk of heart disease than women with diabetes weight under control	1, Yes 2, No	
21.	Cardiovascular disease is the most common cause of death in Ethiopia	1, Yes 2, No	
22.	High cholesterol is a risk factor for developing heart disease	1, Yes 2, No	
23.	A person with heart disease have high cholesterol	1, Yes 2, No	
24.	People with heart disease tend to have low good (HDL) cholesterol	1, Yes 2, No	
25.	Does eating fatty foods affect blood cholesterol	1, Yes 2, No	
26.	Many fruits and vegetables are high in cholesterol	1, Yes 2, No	
27.	Does dietary fiber lowers blood cholesterol level	1, Yes 2, No	
28.	Do you think eating a high fiber diet increases the risk of getting heart disease	1, Yes 2, No	
29.	Have you ever had checked your cholesterol level	1, Yes 2, No	If no go to Q 31

30.	If yes for question No 29, what is the latest Value for Total cholesterol in mg/dL  _____ mg/dL		
31.	<i>Do you smoke cigarette</i>	1, Yes 2, No	
32.	Do you chew khat	1, Yes 2, No	
33.	Do you drink alcohol	1, Yes 2, No	
34.	Have you a plan to maintain normal body weight	1, Yes 2, No	
35.	Do you make any physical exercise	1, Yes 2, No	
36.	Does your daily diet contains fruit and vegetables	1, Yes 2, No	

## Annex D: Amharic Version Questionnaire

### የጥናቱ ተሳታፊዎች የመረጃ ቅጽ

በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የነርስ እና ሚድዋይሬሪ ት/ቤት

እኔ ከዚህ በታች ስሜ የተጠቀሰው በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ፣ የነርስ እና ሚድዋይሬሪ ት/ቤት፣ በነርስ እና ሚድዋይሬሪ ት/ት ክፍል በ “የታማሚዎች እውቀት ስለ ልብና ስለ ልብ ሀይል በሽታ ተጋላጭ የሚያደርጉ ሁኔታዎች እና የአኗኗር ዘይቤ እና ተያያዥ ጉዳዮች, 2013 ” በሚል ርዕስ በጥቁር አንበሳ ሆስፒታል ጥናት እያካሄድኩ እገኛለሁ ። ለዚህም ጥናት እርስዎ እንዲሳተፉ ተመርጠዋል። በጥናቱ ላይ ለመሳተፍ ፍቃደኛነትዎን ከመግለፅዎ በፊት ከጥናቱ ጋር በተገናኘ የሚያስፈልጉትን መረጃ ከስር እንደሚከለው ተገልጧል።

**የጥናቱ አላማ፡-** በጥቁር አንበሳ ሆስፒታል በ የልብ እና የደም ሀይል በሽታ ተጋላጭ የሚያደርጉ ሁኔታዎች እና የአኗኗር ዘይቤ እና ተያያዥ ጉዳዮች, ለማጥናት ሲሆን፣ የጥናቱ ጠቀሜታ ይህ ጥናት በሽታዎች በልብ እና የደም ሀይል በሽታ ተጋላጭነታቸውን ላይ ያለውን እኩዳናዊ ቅይረ-ዳል። እንዲሁም ይህ ጥናት ሌሎች አጥኚዎች በዚህ ርዕስ ዙሪያ ጥናታቸውን እንዲያካሄዱ እንደ ማጣቀሻ ሊጠቀሙበት ይችላሉ።

መጠይቁ ከ10 -20 ደቂቃ ሊፈጅ ይችላል። በጥናቱ ላይ የእርስዎ ስምና አድራሻ አይጠቀስም። የሚሰጡትም መረጃ ከዚህ ጥናት አላማ ውጭ ለሌላ አካል ተላልፎ አይሰጥም ሚስጥራዊነቱም የተጠበቀ ይሆናል። በዚህ ጥናት ላይ በመሳተፍዎ የሚደርስበት ጉዳት ወይም የተለየ ጥቅም አይኖርም። በዚህ ጥናት መሳተፍ ፈቃደኛ ካልሆኑ ወይም በመሀል ማቋረጥ ከፈለጉ የማቁዋረጥ ሙሉ መብት እንዳሉት ልገልጽሎት እወዳለሁ። በጥናቱ ላይ ለመሳተፍ የእርስዎ ትብብር እና ፈቃደኛነት እጅግ ጠቃሚ ነው።

የጥናት አድራጊወ. ስም፡-በዝና ዳምጠወ

ቀን -----

ፊርማ----

- ስ.ቁ-+251910107478,

ኢ.ሜይል:damtewbezina234@gmail.com

**ከፍል አንድ ማህበራዊ እና ከኑሮ ሁኔታ ጋር ግንኙነት ያላቸው ጥያቄዎች**

1. እድሜዎ ስንት ነው -----

\_\_\_\_\_

2. ጾታ 1, ወንድ 2, ሴት

3. የመኖሪያ ሁኔታ 1, ከተማ 2, ገጠር

5. የጋብቻ ሁኔታ 1, ያላገባ 2, ያገባ ግን አብሮ የማይኖር 3, ያገባ አብሮ የሚኖር

6. የትምህርት ሁኔታ 1, ት/ቤት ገብቶ ያልተማረ 2, አንደኛ ደረጃን የጨረሰ

3, ሁለተኛ ደረጃን የጨረሰ 4, ኮሌጅ የጨረሰና ከዛ በላይ

7. የስራ ሁኔታ 1, የግል ስራ 2, የመንግስት እና የግል ተቀጣሪ 3, ጡረታ 4, ስራ አጥ

8. አመታዊ የገቢ መጠን -----

**ከፍል 2, የታማሚዎች እውቀት ስለ ልብና ስለ ልብ ባንባ በሽታ ተገላጭ የሚያደርጉ ሁኔታዎች እና የአኗኗር ዘይቤ**

1. አንድ ሰው የልብ በሽታ ታማሚ ሲሆን ሁልጊዜ ያወቃል?

- 1. አዎ
- 2. አይደለም

2. በቤተሰብዎ የልብ ህመም ታማሚ መኖር ለሌሎች የቤተሰብ አባላት ተገላጭ አያደርግም?

- 1. አዎ
- 2. አይደለም

3. የእድሜ መጨመር ለልብ በሽታ ተጠቂ የመሆን እድልን ይጨምራል ?

- 1. አዎ
- 2. አይደለም

4. ከፍተኛ የደም ግፊት መኖር ለልብ በሽታ ያጋልጣል ?

- 1. አዎ
- 2. አይደለም

5. የደም ግፊት መጠንን ማስተካከል (መቆጣጠር) ለልብ በሽታ ተጠቂ የመሆን ዕድልን ይቀንሳል ?

- 1. አዎ
- 2. አይደለም

6. ሲጋራ ማጨስ ለልብ በሽታ ያጋልጣል ?

- 1. አዎ
- 2. አይደለም

7. ሲጋራ ማጨስ ማቆም ለልብ በሽታ ተጠቂ የመሆን ዕድልን ይቀንሳል ?

- 1. አዎ
- 2. አይደለም

8. ጫት መቃም ለልብ ህመም ተጋላጭ ያደርጋል ?

- 1. አዎ
- 2. አይደለም

9. ጫት መቃም ማቆም ለልብ በሽታ ተጠቂ የመሆን ዕድልን ይቀንሳል ?

- 1. አዎ
- 2. አይደለም

10. አልኮል መጠጣት ለልብ በሽታ ያጋልጣል?

- 1. አዎ
- 2. አይደለም

11. አልኮል መጠጣት ማቆም ለልብ በሽታ ተጠቂ የመሆን ዕድልን ይቀንሳል ?

- 1. አዎ
- 2. አይደለም

12. ከመጠን ያለፈ የሰውነት ክብደት ለልብ በሽታ ተጋላጭ ያደርጋል ?

- 1. አዎ
- 2. አይደለም

13. ካሚ የሆነ የሰውነት እንቅስቃሴ ማድረግ የልብ ህመም ተጠቂ የመሆን ዕድልን ይቀንሳል ?

- 1. አዎ
- 2. አይደለም

14. የአካል ብቃት እንቅስቃሴ ማድረጊያ ክፍል ውስጥ ወይም የአካል ብቃት እንቅስቃሴ ማዘውተሪያ ቦታ የአካል ብቃት እንቅስቃሴ ማድረግ ብቻ የአንድን ሰው የልብ በሽታ የመያዝ እድልን ዝቅ ያደርገዋል ?

- 1. አዎ
- 2. አይደለም

15. በእግር መሄድ እና አትክልት መንከባከብ የአንድ ሰው የልብ በሽታ የመያዝ እድልን ዝቅ ለማድረግ እንደሚረዱ የአካል ብቃት እንቅስቃሴ ተደርጎ ይወሰናል ?

- 1. አዎ
- 2. አይደለም

16. የስኳር ህመም ለልብ ህመም ይዳርጋል?

- 1. አዎ
- 2. አይደለም

17. ከፍተኛ የስኳር መጠን በደም ውስጥ መኖር በልብ ላይ ጫና ይፈጥራል ?

- 1. አዎ
- 2. አይደለም

18. ከፍተኛ የስኳር መጠን በደም ውስጥ ለበርካታ ወራቶች ከፍ ካለ የኮሌስትሮል መጠኑ ከፍ እንዲል እና ለልብ ህመም ተጋላጭ የመሆን ዕድልን ከፍ ያደርጋል ?

- 1. አዎ
- 2. አይደለም

19. የልብ በሽታ ታማሚ የሆነ ሰው በደም ውስጥ ያለውን የስኳር መጠን ከተቆጣጠረ ለልብ በሽ የመጠቃት ሁኔታን ሊቀንስ ይችላል?

- 1. አዎ
- 2. አይደለም

20. የስኳር ታማሚ ወንዶች ከስኳር ታማሚ ሴቶች ምንም እንኳን ከብደታቸውን ቢቆጣጠሩ ለልብ በሽታ በይበልጥ ተጋላጭ ይሆናሉ?

- 1. አዎ
- 2. አይደለም

21. የልብና የልብ የደም ባንባ በሽታ በኢትዮጵያ ውስጥ በጣም የተለመደ የሞት ምክንያት ነው ?

- 1. አዎ
- 2. አይደለም

22. ከፍተኛ የመጥፎ ኮሌስትሮል መጠን በደም ውስጥ መኖር ለልብ በሽታ ተጋላጭ ያደርጋል ?

- 1. አዎ
- 2. አይደለም

23. የልብ በሽታ ታማሚ የሆነ ሰው በደም ውስጥ የሚኖረው የኮሌስትሮን መጠን ከፍተኛ ነው ?

- 1. አዎ
- 2. አይደለም

24. የልብ በሽታ ታማሚ የሆኑ ሰዎች በደማቸው የሚገኘው የጥሩ ኮሌስትሮን መጠን ዝቅተኛ ነው?

- 1. አዎ
- 2. አይደለም

25. ከፍተኛ የቅባት መጠን ያላቸው ምግቦች በደማችን ውስጥ የሚኖረውን የኮሌስትሮል መጠን ምንም አይደርገውም?

- 1. አዎ
- 2. አይደለም

26. አብዛኞቹ ፍራፍሬዎች እና አትክልቶች የኮሌስትሮል መጠናቸው ከፍተኛ ይመስሉታል ?

- 1. አዎ                      2. አይደለም

27. በምግብ ውስጥ የሚገኝ ፋይበር በደም ውስጥ የሚገኘውን የኮሌስትሮል መጠን ይቀንሳል ?

- 1. አዎ                      2. አይደለም

28. ከፍተኛ የፋይበር መጠን ያለውን ምግብ መመገብ ለልብ ህመም የመጋለጥ ሁኔታን ይጨምራል ?

- 1. አዎ                      2. አይደለም

29. የኮሌስትሮል መጠንን ለማወቅ ምርመራ አድርጎ ያውቃሉ ? አላውቅም ካሉ ወደ ጥያቄ 31 ያምሩ

- 1. አዎ                      2. አይደለም

30. ለጥያቄ ቁጥር 29 "አዎ" ካሉ በቅርብ ጊዜ የተለካው የኮሌስትሮል መጠን ምን ያህል ነው? በሚግ/ዴሊ

ሚግ/ዴሊ

31. ሲጋራ ያጨሳሉ ?

- 1. አዎ                      2. አይደለም

32. ጫት ይቅማሉ ?

- 1. አዎ                      2. አይደለም

33. አልኮል ይጠጣሉ ?

- 1. አዎ                      2. አይደለም

34. መጠነኛ ሰውነት ከብደት እንዲኖርዎት አቅደዋል ?

- 1. አዎ                      2. አይደለም

35. ማንኛውንም አይነት የሰውነት እንቅስቃሴ ያደርጋሉ ?

- 1. አዎ                      2. አይደለም

36. ዕለታዊ ገበታዎት አትክልትና ፍራፍሬ ይኖርዋል ?

- 1. አዎ                      2. አይደለም

## Annex E: Binomial Regression Analysis

Binomial Regression Analysis Showing Association Between Knowledge and lifestyle behavior towards CVD Risk factors

. corr Agecatt Gender  
(obs=420)

		Correlations							
		Behav iorCat	Knowle dgeCat	Categorized age of responders	Sex	Reside nce	Marital Status	Educatio nal Status	Occupational Status
BehaviorCat	Pearson Correlation	1							
KnowledgeCat	Pearson Correlation	.096*	1						
Categorized age of responders	Pearson Correlation	.039	.138**	1					
Sex	Pearson Correlation	.054	.106*	-.087	1				
Residence	Pearson Correlation	-.139**	-.318**	.009	-.124*	1			
Marital Status	Pearson Correlation	.152**	.030	.419**	-.034	.083	1		
Educational Status	Pearson Correlation	.074	.184**	-.240**	-.250**	-.263**	-.153**	1	
Occupational Status	Pearson Correlation	-.019	.062	.164**	.164**	-.144**	-.080	-.217**	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Logistic regression**

		<b>Variables in the Equation</b>							
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
	Agecat			16.332	3	.001			
	Agecat(1)	-.964	.511	3.556	1	.059	.381	.140	1.039
	Agecat(2)	-1.576	.402	15.340	1	.000	.207	.094	.455
	Agecat(3)	-1.081	.379	8.139	1	.004	.339	.161	.713
	SD2(1)	-.759	.294	6.678	1	.010	.468	.263	.833
	SD3(1)	1.446	.409	12.479	1	.000	4.246	1.904	9.472
	SD4			2.076	2	.354			
	SD4(1)	-.511	.382	1.794	1	.180	.600	.284	1.267
	SD4(2)	.094	.333	.080	1	.777	1.099	.573	2.108
	SD5			17.524	4	.002			
Step 1 <sup>a</sup>	SD5(1)	-1.662	.434	14.633	1	.000	.190	.081	.445
	SD5(2)	-.680	.396	2.947	1	.086	.507	.233	1.101
	SD5(3)	-.262	.371	.499	1	.480	.770	.372	1.591
	SD5(4)	.438	1.120	.153	1	.696	1.549	.172	13.927
	SD6			1.119	3	.772			
	SD6(1)	.043	.331	.017	1	.897	1.044	.546	1.996
	SD6(2)	.252	.412	.373	1	.541	1.286	.574	2.885
	SD6(3)	-.263	.437	.363	1	.547	.769	.327	1.809
	Bspe	0.054	0.233	0.054	1	0.816	0.947	0.600	1.496
	Constant	1.343	.622	4.664	1	.031	3.832		

a. Variable(s) entered on step 1: Agecat, SD2, SD3, SD4, SD5, SD6.

## Goodness of Fit test for Knowledge towards CVD risk factors

### Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	8.200	8	.414