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Prevalence of Overweight or Obesity and Associated factors Among Civil Servants Working at Amhara Regional Government Bureaus in Bahir Dar City, Northwest Ethiopia

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BAHIR DAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

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By

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A thesis submitted to school of Public Health College of medicine and health sciences, Bahir Dar University in partial fulfillment of the requirements for the degree of master of public health

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Declaration

I, the undersigned, Master of public health student declare that this thesis is my original work, in the partial fulfillment of the requirement for the Degree of Masters in Public health study.

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Date of submission: _____

This thesis has been submitted for examination with our approval as university advisors

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Abbreviations and Acronyms

AOR	Adjusted Odd Ratio
BDU	Bahir Dar University
BMI	Body Mass Index
COR	Crud Odd Ratio
CVD	Cardiovascular Disease
CMPH	College of Medicine & Public Health
DALYs	Disability Adjusted Life Years
EDHS	Ethiopian Demographic and Health Survey
HCWs	Health Care Workers
Kg	Kilo Gram
Kg/m^2	Kilo Gram per Meter Square
MET	Metabolic Equivalents
NCD	Non-Communicable Diseases
NHANES	National Health and Nutrition Examination Survey
OR	Odds Ratio
SES	Socio Economic Status
SSA	Sub-Saharan Africa
SPSS	Statistical Package for Social Science
WHR	Waist Hip Ratio
WHO	World Health Organization

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Abstracts

Introduction: - Now a days overweight and obesity are an emerging Public health problem affecting women and men in all age groups worldwide. Developing, low and poor countries like Ethiopia are experiencing the burden of none communicable diseases attributed to over nutrition. In Ethiopia data on overweight and obesity in the civil servants population is scarce.

Objective: - The aim of this study was to estimate magnitude of overweight or obesity and to identify associated factors among civil servants working at Amhara regional government bureaus / institutions in Bahir Dar city, Northwest Ethiopia.

Methods: - Institution based cross-sectional study was conducted from February 12 – 22 /2017 on 519 study participants. The study population were selected by simple random sampling techniques. Self-administered semi-structured questionnaire, adapted from World Health Organization STEPwise instrument for chronic disease risk surveillance, was used to gather demographic and behavioral information. Anthropometric measurements of weight and height were taken following standard procedures. The collected data were entered in to Epi info version 3.5.3 statistical software and transported to SPSS version 23 for analysis. Bi variable and Multivariable logistic regression models were used to see the association between the response and predictor variables. P-value less than 0.05 at 95 % confidence level was set as cut off point for statically significance.

Result: The overall prevalence of overweight or obesity was 32.5%. Age (AOR 95% CI: 1.87(1.07-3.29), Marital status (AOR 95% CI: 4.08 (1.68- 9.9), Physical inactivity (AOR 95% CI: 1.9 (1.01- 3.77), family size (AOR 95% CI: 2.18 (1.33 - 3.56), and dietary habits (AOR 95% CI: 2.29 (1.20 - 4.37) were significantly associated with overweight or obesity.

Key words: Over weight / Obesity, prevalence, physical activity, dietary habits, alcohol consumptions, smoking

Conclusion and recommendations

The prevalence of overweight or obesity among civil servants was high. Physical activity and diet diversification should be promoted to prevent overweight or obesity among the civil servants.

1. INTRODUCTION

1.1. Background

Overweight and obesity are defined as abnormal or excessive accumulation of body fat resulting from positive energy in balance over an extended period of time (1).They are expressed by a body mass index (BMI) of 25–29.9 and ≥ 30 kg/m^2 for overweight and obesity respectively (2). They are now considered to be two very serious public health problems contributing to a number of preventable non communicable diseases such as hypertension and diabetes mellitus. They substantially increase the risk of premature mortality and morbidity and are recognized as conditions where excess of body fat accumulates to such degrees that the individual's health remains negatively affected(3)

Globally overweight and obesity have been increasing at an alarming rate in both the developed and the developing countries during the last few decades (3). It is estimated that there are over one billion overweight and close to half a billion obese adults in the World (4). They have been historically a problem of developed countries, but the last few years developing countries are also experiencing increasing rates of overweight and obesity(5).

In developing countries, along with economic development and income growth, number of people with overweight or obesity is increasing(6). The rate of obesity has tripled, which has been attributed primarily to adopting a modern lifestyle with less physical activity and excessive consumption of energy dense foods (7). More than 115 million people suffering from obesity related problems. Obesity rates have increased 3-fold or more since 1980 in Middle East, the Pacific Islands. In Western Africa is estimated to be 10%, among women are three times those found in men. In urban West Africa rates of obesity have more than doubled in the last 15 years (8).

Over the past 30 years mean BMI has been steadily increasing even in low income countries, including those in Sub-Saharan Africa (SSA). The average rate of increase was 0.4 kg/m^2 per decade for men and 0.5 kg/m^2 per decade for women (9, 10).

Overweight and obesity are a major public health problem in most of the developed countries and is emerging as a serious problem in middle and low -income countries, particularly in urban settings. They are creating a global epidemic and currently assumed pandemic proportions globally, contributing to significant morbidity and mortality worldwide (11-14).

Although genetic factor plays significant role in overweight and obesity fast economic growth and development, urbanization, and changes in dietary and lifestyle patterns including the work, household, recreational, transportation, sedentary lifestyle, and physical inactivity also affects overweight and obesity (1, 3, 14). Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million Deaths annually(15)

Prevalence of overweight and obesity increases with age, when age advances; there is a decrease in the degree of physical activity, metabolism in both men and women. Indeed, globally, women have higher rates of overweight /obesity than men(16).

Other risk factors positively associated with overweight and obesity include marriage, ,alcohol use and high socio-economic status (16). Sedentary lifestyles, environmental factors, smoking, improved health facilities, increase in income and availability of food and psychological factors also contribute to overweight and obesity (12, 17).

Though medical risk of overweighs and obesity is related to the location of excess fat in the body, duration and degree of obesity highest risk is associated with abdominal fat (14). The medical costs associated with being overweight and obese are enormous, and involve direct and indirect costs. The direct medical costs usually include preventive, diagnostic, and treatment services related to obesity. The indirect costs are related to morbidity and mortality costs (18).

1.2. Statement of the Problem

The global prevalence of overweight and obesity has been significantly increasing over the past four decades(19). The combined prevalence of overweight and obesity has increased by 27.5 % for adults and 47.1 % for children between 1980 and 2013(19).

Globally 2.8 million people die annually as a result of being overweight and obese, and about 35.8 million disability-adjusted life years are caused by overweight and obesity (10). In addition, 44% of the diabetes burden, 23% of the ischemic heart disease burden, between 7% and 41% of certain cancer burdens are attributable to overweight and obesity (5, 10, 20). Overweight and obesity are now considered to be very serious public health problems.(3, 12). Obesity is the fifth leading risk for global deaths (5). It is estimated that one in 10 premature adult deaths is directly attributable to overweight and obesity(2, 10). Overweight and obesity are linked to more deaths Worldwide than underweight. For example, 65% of the world's population live in countries were overweight and obesity kill more people than underweight this include the high income and most middle-income countries(15).

Middle and Low income countries are now facing a double burden of nutritional problems, while they are continuing to deal with under nutrition and are also experiencing a rapid increasing of non- communicable disease attributed to overweight and obesity (21). Overweight and obesity are now on the rise in low and middle-income Countries, particularly in urban settings (5).

In developing countries, it is estimated that over 775 million people suffer from obesity related problems (22). A number of developing countries typically show high prevalence of under nutrition surprisingly, a significant proportion of the populations in these countries suffer from overweight and obesity (3) In developing countries, along with economic development and income growth, number of people with overweight and obesity is increasing (6). In the past obesity and chronic diseases were almost unknown

In African and researchers and policy makers concentration was on malnutrition and infectious diseases. However, in recent times, a sharp rise in the incidence of obesity and chronic diseases has been observed and recognized as a major public health problem in many African countries (1).

In sub-Saharan Africa (SSA), the global epidemic of overweight and obesity is rapidly becoming a major public health problem because of uncontrolled rapid urbanization and changes in lifestyles (12). Obesity levels are still lower than in high-income countries but certainly higher than they were two decades ago. Overweight and obesity have rapidly become a problem of the poor. For example, the prevalence of overweight and obesity increased in urban areas of Cameroon between 1994 and 2003 from 54% to 82% (10).

In Addis Ababa about 31% of deaths reported from hospitals were attributed to diabetes mellitus and cardiovascular diseases secondary to overweight and obesity. The prevalence of hypertension is near 20% and 15% among healthy working men and women respectively (23).

The most significant contributing factors for overweight and obesity are fast economic growth and development, urbanization, changes in dietary and lifestyle patterns including the recreational, transportation, sedentary lifestyle, and physical inactivity (24).

Ethiopia is one of the most drought and under nutrition stricken countries in the world and now it is striving to become one of the middle income countries in the coming few decades and experiencing socioeconomic and population changes in many directions especially in the urban settings. These transitions will contribute to exercise sedentary lifestyle then overweight and obesity and associated diseases will be great challenges in the near future in the country. Still the country has no prudent policy and strategy for the prevention and intervention of overweight and obesity. Therefore, it needs study and well documented evidences for policy makers.

1.3. Significance of the study

In many developing and poor countries like Ethiopia chronic health problems such as diabetes II and cardiovascular diseases have been increasing secondary to overweight and obesity. Although overweight and obesity are not seen as problems in our society now they become a serious public health issues especially among urban dwellers. Few studies have been conducted in some part of the country mainly focused on school children and adolescents. As far as my knowledge is concerned data on magnitude of overweight or obesity and its factors among civil servants in our country is scarce, but it is needed for primary prevention strategy formulation. Therefore, this study will be one of the resources to fill the gaps observed in data scarcity in the country and will be evidences for program designers and policy makers.

1.4. Literature Review

Magnitude of the problem

Globally according to World Health Organization updated report the prevalence of obesity worldwide has increased tremendously since 1980. The report indicates that 39% and 13 % of people 18 years and above were overweight and obese respectively in 2014 (24). The prevalence of obesity ranges from as low as 0.6% in Gambia among males to as high as 80.2% in Nauru. Age-standardized prevalence of overweight ranged from 2.6% in Vietnamese women to 93.6% in Nauru men, and obesity from 0.3% in Vietnamese men to 74.8% in Nauru women (16, 25)

In developed countries like Europe, overweight affects 30% to 80% of adults, in Brazil and Columbia, the figure of overweight is about 40% - comparable with a number of European countries and in all regions (5). In Spain one out of every two individuals is overweight and the prevalence of obesity among Spanish men and women has risen to 20.2% and 25.6%, respectively (5).

In southeast Asia like India, Tamil Nadu the prevalence of obesity is 19.8% in males and 24.4% in females (13, 26). A study in Kerala, among urban women above 20 years of age, 17.17% were overweight while 6.45% had obesity; overall prevalence of overweight and obesity was 23.62% (26). A study among adult Bengalese Hindu Caste Population the overall prevalence of overweight and obesity was documented to be 22.00% and 19.50% respectively (3). In Pakistan 34% men and 49% women were found to be over-weight/obese, while increased waist-hip ratio (WHR) was observed in 41% and 72% of men and women respectively(7).

According to the World Health Organization report, more than one third of women and a quarter of men in Africa are overweight, and these proportions are expected to increase by 41% and 30% respectively over the next ten years (27).

In South Africa 56% of adult women and 29% of adult men were overweight / obese. It is one of the highest prevalence in sub-Saharan African countries (4, 28). Among health Care workers (HCWs) in South Africa, 73% were overweight or obese, and half of them had never tried to lose weight. Females and older HCWs were more obese than men and younger counterparts(1).

In the West African countries such as Ghana and Republic of Benin, obesity is found in 13.6% and 18% respectively among adults. In urban West Africa rates of obesity have More than doubled in the last 15 years (3,20, 22). In Ghana, the crude prevalence of overweight and obesity were 23.4% and 14.1% for females and males, respectively among adults aged 25 years and above. (1). The overall prevalence of overweight/obesity among the HCWs in Ghana was 38.0%. Among females was 42.4% and 32.9% in males. (1).

Study conducted in Sub-Saharan Africa the rates of overweight and obesity are increasing at alarming rates where as much as 20-50% of urban populations are estimated to be overweight or obese (29). In Tanzania the prevalence of overweight and obesity among adults were 24.1% and 19.2% respectively (16).

A study based on Ethiopian Demographic Health Survey (EDHS) data showed that the prevalence of overweight increased by 28 % (from 16.1 % in 2000 to 20.6 % in 2011) among women in Addis Ababa. A study among permanent employees of the Commercial Bank of Ethiopia (CBE) and teachers in government schools of Addis Ababa 24.7% men and 25.7% women were overweight and 2.1 % men and 10.2 women were obese (8, 19, 29).

A study in Amhara region Gondar town revealed that, overweight subjects were 21.3% of the total sample population, whereas obese subjects were 5.9% of the above sample. Among females, 19.6% were overweight and 7.1% were obese, whereas among males, 25.7% were overweight and only 3% were obese(30).

Factors associated with overweight and obesity

Socio- demographic factors

a. Age

According to studies done in India in Kerala among women the prevalence of obesity among age groups 40-49 was 40.49 % and in Bengale individuals belonging to the middle ages (31-45 years) and higher ages (46-60 years) were significantly higher risk factor for being obese than individuals belonging to lower aged group (≤30 years) (3). In India obesity was more commonly seen among women in the age group above 40 when compared to women who were in the age of 18 – 40 years (26).

In Ghana among health workers the prevalence of obesity increases with age with highest prevalence occurring in the age group 40-49 years (40.0%) (1). In Tanzania a study among adults show that obesity prevalence was highest (31.9%) in age group 45 - 54 years (16).

b. Sex

In 2013, the prevalence of overweight and obesity among women in Eastern Sub-Saharan African countries was 23.7 and 8.8 %, respectively. Similarly, a Nigerian study based on demographic and health survey data showed, about 36.4 % of urban women had either overweight or obesity(19). A study in Benin the prevalence of obesity in women was threefold higher than in men(27).

In Ghana a study among health workers the prevalence of overweight/obesity among females was 42.4% and 32.9% in males. In addition the overall prevalence of obesity of HCWs was 12.7% with 15.3% in females and 9.6% in males (1). In Tanzania a study among adults show that prevalence of obesity in females was significantly higher than in males (24.7% and 9.0% respectively) (16).

c. Education status

In India obesity was more commonly seen among literates when compared to women who were illiterates however these associations were not statistically significant (11).

In Nigeria a study conducted in a rural Mission General Hospital in Imo state shows that 51.9% of obese patients had primary education (14). In Tanzania a study among adults show that Prevalence of obesity was significantly higher in participants with no formal education (26.4%) compared to those with primary (19.5%), secondary (14.2%) and postsecondary education (20.9%)(16).

In South Africa among women who enrolled in HIV prevention trials in KwaZulu-Natal, Women who had less than high school education were approximately 50% more likely to be overweight or obese compared to those who had completed high school (28).
In Benin a community-based survey result showed that the level of education was a risk factor for overweight and obesity. People with high school/university levels of education were significantly more at risk of being overweight and obese as compared to illiterate people (27).

d. Marital status

In India Obesity was more commonly seen among women currently living with spouse when compared to single, widowed and separated/divorced women and this association was also found to be statistically significant (11). A cross sectional study in India; Bengalese show that the married individuals were more likely to be overweight / obese than the unmarried ones(3).

In Nigeria a study conducted in a rural Mission General Hospital in Imo state shows that 60.5% of the obese patients were married (14) In Tanzania a study among adults shows that 33.3% of obesity was among respondents who were widowed compared to 8.3% among single respondents(16)**.** In Ghana a cross sectional study among financial institution workers in Accra Metropolis Married participants showed an increased risk of obesity or overweight in comparison to singles (24).

e. Profession

Certain occupations predispose individuals to sedentary lifestyles, in Ghana a study among health workers 25.3% were overweight, 12.7% were obese. The overall prevalence of overweight/obesity among the HCWs was 38.0%, the nonclinical staff (18.3%) were more obese than the clinical staff (9.2%)(1). In Nigeria a study among health service providers 27.3% were obese and 44.7% were overweight (31). A cross sectional study among financial institution workers in Accra Metropolis The prevalence of obesity and overweight among the bank workers was 17.8 % and 37.8 % respectively(24).

Behavioral factors

a. Diet

Obesity is the result of unhealthy eating habits, the lack of fruits and vegetables in the daily intake, consuming soft drinks and fast food combine with a poor physical activity and exercise are major contributors for the problem(32).

In India rapidly changing diets and lifestyles are fueling the global obesity epidemic. Obesity was more commonly seen among women consuming mixed diet when compared to women who were vegetarians(11).

b. Physical activity

A study in Tanzania noted that those who did light intensity activities had highest prevalence of obesity (26.0%) followed by those who did moderate intensity activities (21.4%) while those who did vigorous activities had obesity prevalence of 7.6%. Respondents who did vigorous activities had a 60% reduction of the risk for obesity as compared to those who did light activities(16).

A cross sectional study among financial institution workers in Accra Metropolis physically active respondents had a 60 % reduced risk of obesity/overweight compared to those who were not physically active (24).

c. Alcohol consumption

A cross sectional study in India; Bengale show that alcohol intake had a significant effect with overweight and (3). In Tanzania Prevalence of obesity was higher among alcohol drinkers (21.9%) compared to those who did not drink alcohol (18.6%) but it was not statistically significant(16). In Ghana a cross sectional study among financial institution workers in Accra Metropolis Participants who take alcohol at least once per week were at a higher risk of becoming obese or overweight (24).

d. Tobacco Smoking

Some controversies exist weather smoking is a protective or risk factor for obesity. For instance a study in South African among adult population the study offers evidence that smokers tend to increase their BMI less than nonsmokers but smoking cessation is an independent risk factor for faster BMI increase among subjects with normal weight, and that obese/overweight subjects who start smoking tend to lose weight (9). In Malawians nationwide population based NCD STEPS survey overweight/obesity was more frequent in non - tobacco smokers than smokers (24.0% vs 10.2%)(12).

e. Insufficient sleep

Insufficient sleep has also been shown to be associated with greater alcohol consumption and excess body weight in adults. Specifically, sleeping less than 6 hours per night in adults is associated with greater alcohol intake, and higher BMI (33)

Socio - economic factors

Income

In middle and low income countries, overweight and obesity has been shown to be mainly prevalent among populations of high socioeconomic position, which are increasingly adopting Western lifestyles and diets. (4, 14).

Among the social classes with higher incomes, a lower risk of obesity is observed. This is directly linked to the amount of income and belonging to the upper classes where a healthy diet is promoted and access to healthy foods is facilitated. (6).

In Tanzania the prevalence of obesity was highest among those with high socio-economic status (29.2%) as compared to those with medium (14.3%) and low socio-economic status (11.3%). Respondents with high SES (Socio economic status) showed significant increase of the risk for obesity than were respondents with low SES(16).

1.5. Conceptual frame work

Conceptual from work adapted from literature review

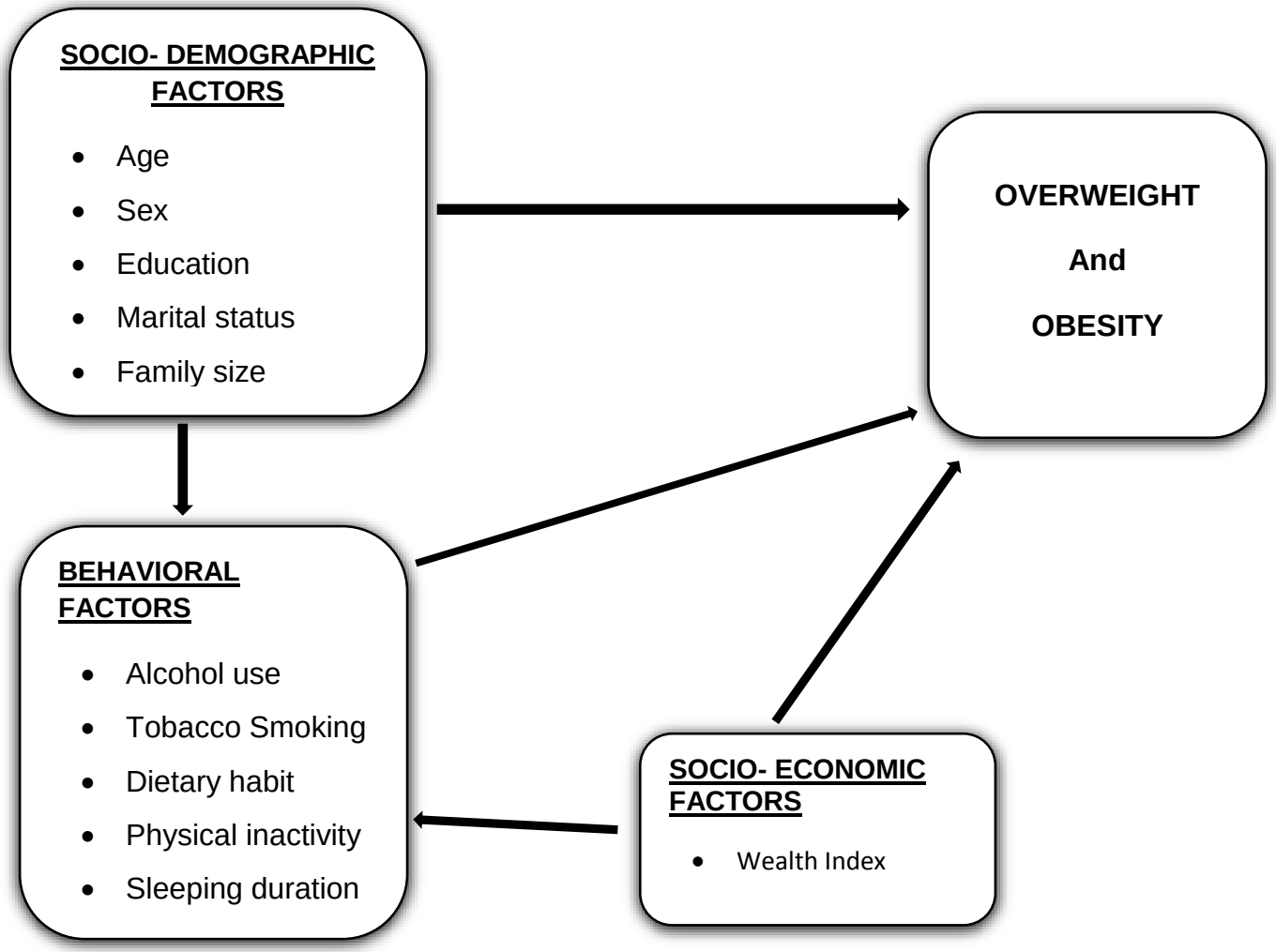

Fig. 1 Conceptual framework showing relationship between overweight and obesity with different socio - demographic, behavioral and socio - economic factors (16, 24)

2. OBJECTIVES

2.1. General Objective

- To assess the prevalence of overweight or obesity and its associated factors among civil servants working at Amhara regional government Bureaus in Bahir Dar city, North West Ethiopia, 2017.

2.2. Specific Objectives

- To determine the prevalence of overweight or obesity
- To identify factors associated with overweight or obesity.

3. METHODS AND MATERIALS

3.1. Study Area

The study was conducted in Bahir Dar City. Bahir Dar is a capital city of Amhara regional state, located 565 kilometers Northwest of Addis Ababa on the highway to Gondar. The city is sub divided in to nine sub cities and encompasses three surrounding peri urban towns and nine rural kebeles. According to the regional civil service bureau 2016 report there were 45 regional government bureaus and equivalent institutions in Bahir Dar city directly accountable to the regional council and there are about 6158 (4052 male and 2106 female) civil servants who are working there(34).

3.2. Study Design and period

Institution based cross sectional study was conducted from February 12-22/2017.

3.3. Source Population

All civil servants working in Amhara regional government bureaus in Bahir Dar city

3.4. Study Population

Civil servants working in selected Amhara regional government bureaus in Bahir Dar city

3.5. Exclusion Criteria

Pregnant women, mothers less than 3 months post-delivery, individuals with deformity on their backs and who cannot stand in erect position and those with chronic edema. All these can affect the measurements and the result of the study.

3.6. Sample Size Determination

For specific objective 1. The sample size determined using single population proportion formula for the overall prevalence of outcome variable, overweight/ obesity 25.7% (23).The following assumptions were taken in to consideration; Margin of error: 5%; Design Effect: 1.5, 95% confidence level and none response rate 10%.

$$n = \frac{z^2_{\alpha/2} p(1-p)}{w^2}$$

Solution

Given = P= 0.257, Z= 1.96, W = 0.05

$= (Z)^2 P*(1-P) / W^2$

$= (1.96)^2 (0.257 * 0.743) / (0.05)$

$= (3.8416) (0.190951) / (0.0025)$

= 293 .4 *1.5 = 440.1 + 44 = 484

For specific objective 2. Sample size calculated for the associated factors based on the following assumptions. A 95% level of confidence, 80% of power to detect real association of exposure variable and exposed to unexposed ratio: 1:1. To determine the sample size frequency of exposure variables sex, age, marital status, alcohol use, physical activity and unhealthy diet were taken from different literatures. Final sample size calculation was taken for sex and physically activity to get high sample size using Epi info version 7 was used to calculate sample size for the associated factors and the final sample size was 543 (Table 1).

Table 1: Sample size calculation for specific objectives.

Variables	Assumptions	Sample size
Prevalence	Population size: 6158, over all prevalence of overweight/Obesity: 25.7 %. Margin of err: 5%, Design effect: 1.5 , 95% confidence interval and none response rate 10%,	484
sex	P= 0.341 .95% confidence interval, 80% power, Odds ratio= 1.83	491
Physical inactivity	P = 0.5, 95% confidence interval, 80% power, Odds ratio= 0.41	543

3.7. Sampling Technique

The sampling technique was a multistage sampling, first list of forty five government bureaus/ institutions were obtained from regional civil servant bureau and study units selected by simple random sampling technique. The final sample size was allocated proportionally to each selected institutions according to their number of civil servants. Then the study population were again selected by simple random sampling technique from the payroll sheet.

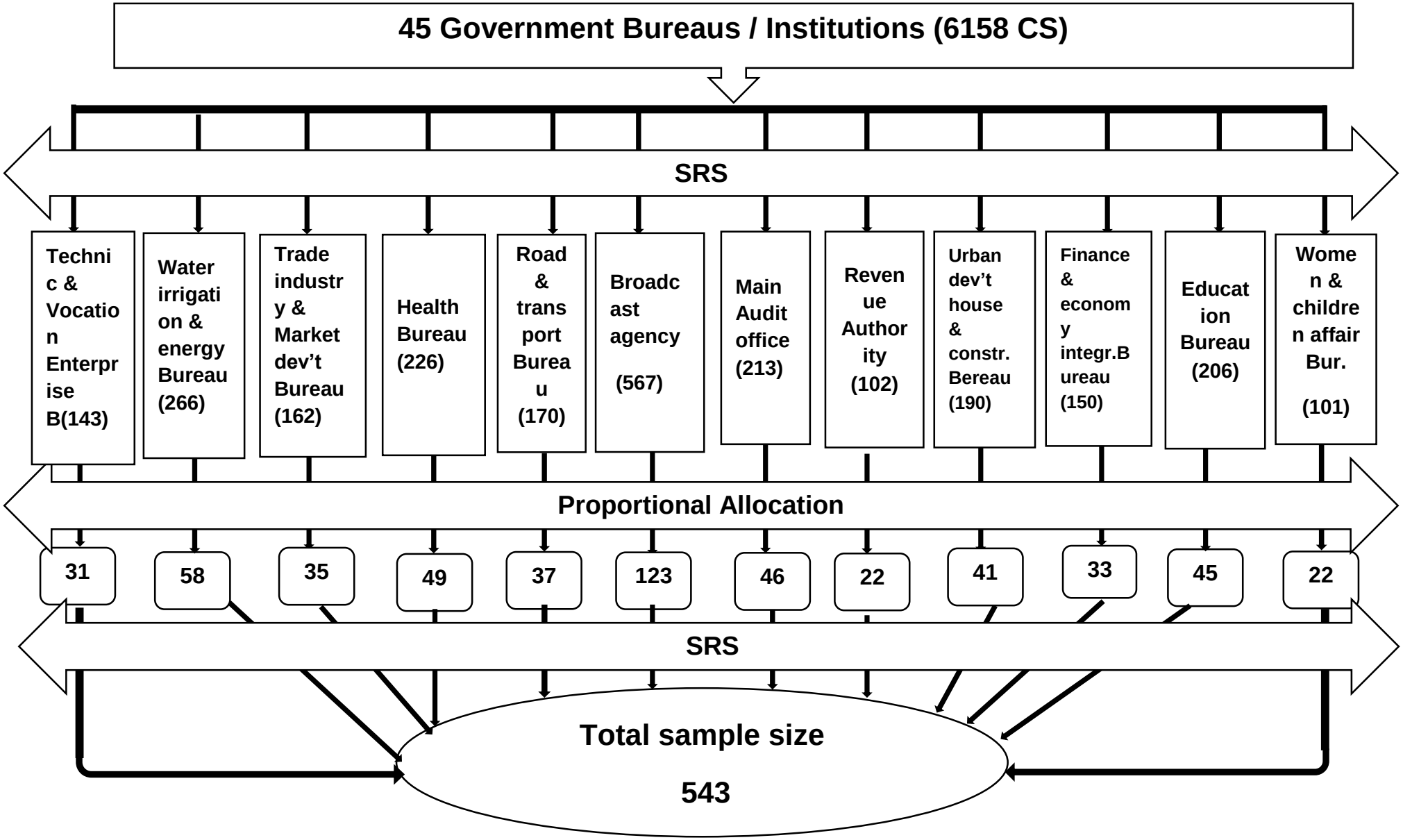

Fig.2. Schematic presentation of sampling techniques among Amhara regional Bureaus civil servants in Bahir Dar city, February, 2017

3.8. Study Variables

3.8.1. Dependent Variables

- Overweight BMI = 25 – 29.9 kg/m^2
- Obesity BMI = >= 30 kg/m^2

3.8.2. Independent Variables

- Demographic factors (age , sex, education, marital status , occupation, residence)
- Behavioral factors (alcohol use, tobacco use, dietary habit , physical inactivity, sleeping)
- Socioeconomic factor (wealth index –Total annual household income)

3.8.3. Operational Definitions

- **Alcohol use** - Individuals who drink Local beer (tela) five or more glasses, Katicala three or more cups, Teje three and more bottles, beer three and more, vine and Whisky three or more cups for three and more occasions throughout the months.
- **Tobacco use** – An individual who smokes manufactured tobacco product either daily or occasionally at the time of the survey.
  - A daily smoker is someone who smokes any tobacco product at least once a day and an occasional smoker is someone who smokes, but not every day.
- **Vigorous Physical activity -** activity that represent a considerable challenges to an individual and results in a significant increase in breathing frequency, heart rate and sweeting (35).
- **Moderate Physical activity -** activity that represent a person experiences some increase in breathing or heart rate.
- **Physical active** - Individuals who do vigorous physical activity for at least 75 minutes or do moderate intensity activates for at least 150 minutes throughout the week

- **Physically inactive** - Individuals who do not engaged in vigorous physical activity for at least 75 minutes or do moderate intensity activates for at least 150 minutes throughout the week (35).

3.9. Data Collection Procedures

Data regarding demographic and behavioral factors were assessed using WHO STEP wise instrument for chronic disease risk surveillance (36). Semi - structured self-administered questionnaires were adopted and administered by 4 (2 male and 2 female) trained Clinical Nurse data collectors. Close supervision during data collection employed by a supervisor and the principal investigator. Filled questionnaires were collected at the same day and Anthropometric measurement taken by data collectors by standard measuring tools.

The weight was measured in kilograms, with subjects standing bare feet in their minimal clothing and with their pockets free of objects that might add to their weights such as mobile phones, wallets, and keys. The weighing scale was checked for zero error after each measurement and validated daily using a known 5 kg weighted mass and measured to the nearest 0.1 kg.

Height was measured using a meter; subject standing erect with the head in the Frankfurt horizontal (ear-eye) position, without shoes, without head-gear or cap. The tapes touches the head, back shoulder, buttock and the heels and recorded to the nearest 0.5cm. Measurements were taken two times, and the averages was recorded. If the variation is large third measurement was taken by another observer and the two observers' measurement averages was recorded. Body mass index (BMI) calculated as the ratio of weight in kilograms to square of height in meters. During data collection time when individuals were not available they were visited again the same day & the next day otherwise the next subject was selected.

3.10. Data quality control

Data collection tool was prepared in English and translated into local language, Amharic and then translated back to English. Data collectors were trained for two days on how to administer the questionnaire, take the anthropometric measurements, and keep

confidentiality of the participant. The data collection tool was pretested on 28 individuals from three sector offices in Bahir Dar zuria district and modification done whenever necessary. During data collection close supervision were done by one supervisor and the principal investigator.

3.11. Data Processing and Analysis

All data obtained from the study participants were cleaned and entered into epi-info version 3.5.3, then exported into SPSS version 23. Descriptive and inferential statistics were done by using SPSS. Bivariate and multivariate Logistic regression analysis was used to observe the association between independent variable and overweight and obesity. Factors that showed statistical significance on bivariate analysis or p-value < 0.2 undergoes to multivariable logistic regression. Hosmer and Lemshow goodness of fit test were used to check whether the predictors adequately explain the response variable. A p-value of < 0.05 was considered as having significant association with dependent variables. Hosmer and Lemshow goodness of fit test was 0.12.

3.12. Dissemination of Findings

The study results will be presented to Bahir Dar University, College of Medicine and Health Science for partial fulfillment of the requirements for the degree of master of public health and Hard copy documents will be disseminated to Amhara regional civil service and health bureau. Efforts will be made to present the results on scientific conferences and workshops. Efforts will be made to access peer reviewed journal publications.

4. ETHICAL CONSIDERATION

Ethical clearance was obtained from Bahir Dar University College of medicine and School of Public Health ethical review board. Official permission letters were obtained from health bureau. The nature of the study was explained to the participants before obtaining a verbal informed consent and only those who volunteered took part in the study and data collected during the study were kept confidential by omitting name and other identifiers. After the data has been collected, locked in to computer using personal pass-word.

5. RESULT

5.1. Socio – demographic characteristics of the study participants

Out of the total samples 519 (95.6 %) individuals participated in the study. Out of which 51.4 % were men and 48.6 % were women. The median age of participant was 34 years and it ranged from 18 – 60 years. Majority of the participants (92.2 %) were from Amhara and 92.1% were Orthodox in religion. Majority (90.8 %) had attended college /university and above. Forty eight percent (48.4 %) were currently married and 39.7 % were never married (Table 2).

5.2. Behavioral characteristics of the study participants

Individuals who were currently smoking tobacco products were 0.96 %, 46.6 % used alcohol at least one type on one occasion in the past 30 days. Eighty two (82.8 %) consumed animal product protein & fatty foods where as 17.1 % consumed fruits & vegetable in addition to other foods. Twenty five percent (25 %) sleep more than 8 hours in 24 hours. Only 19.6 % participants were physically active (Table 3).

Table 2. Socio - demographic characteristics of the study population, Bahir Dar, North West Ethiopia, 2017 (n = 519)

Socio-demographic characteristics		participants	%
Age groups (Years)	18 -24	51	9.8
	25-34	221	42.6
	35-44	153	29.5
	45-54	78	15
	>=55	16	3
Educational status	- Secondary school complete	15	2.9
	High School complete	33	6.4
	College/University complete	376	72.4
	Post graduate	95	18.3
Ethnicity	Amhara	510	92.2
	Tigre	4	0.7
	Oromo	5	0.9
Religion	Orthodox	478	92.1
	Muslim	23	4.4
	Protestant/ catholic	18	3.5
Marital status	Never Married	206	39.7
	Currently married	251	48.4
	Divorced/ widowed	32	6.2
Family size	1-3	270	52
	4-6	215	41.4
	>= 7	34	6.5
Wealth Index	Low	371	71.4
	Medium	112	21.5
	High	36	6.9

Table 3. Behavioral characteristics of the study population, Bahir Dar, North West Ethiopia, 2017 (n = 519)

Behavior characteristics		Participants	%
Tobacco smoking currently	Yes	5	0.9
	No	514	99
Alcohol drink in the past 30 days	Yes	242	46.6
	No	277	53.4
Khat Chewing in the past 30 days	Yes	14	2.7
	No	505	97.3
Animal product Protein and fatty food intake	Yes	430	82.9
	No	89	17.1
Fruit & Vegetables intake	Yes	89	17.1
	No	430	82.9
Sleeping hours	< 7hrs	389	75
	> 8hrs	130	25
Physical Activity	Yes	102	19.6
	No	417	80.3

5.3. Prevalence of overweight and obesity

The prevalence of overweight in the study population was 28.5% and obesity was 4%. The overall overweight or obesity was 32.5 % [95%CI: 29, 37].

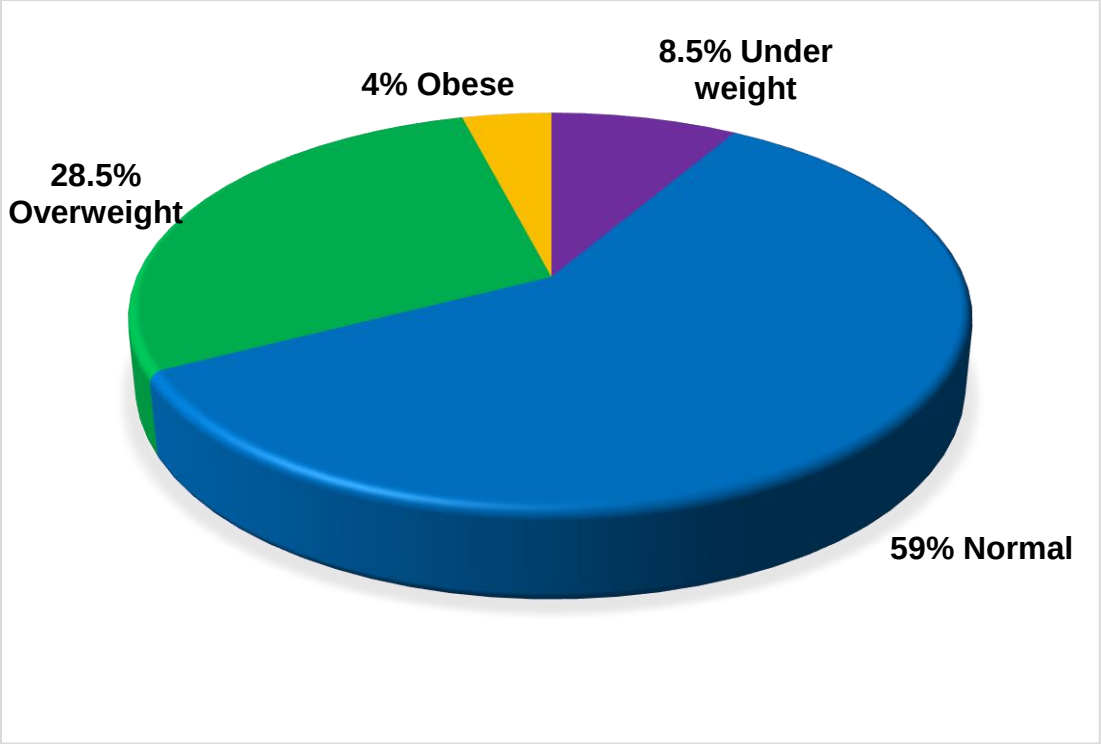

Figure 3. Pie Chart showing the nutritional status of study participants by BMI Bahir dar,North West Ethiopia, 2017

5.4. Factors associated with overweight and obesity

In the bivariate analysis age, education, marital status, family size, alcohol consumption, physical activity, sitting long hours in office, annual income of the household and dietary habit were statistically significant with overweight and obesity. In the multi - variable logistic regression analysis model age, Physical activity, family size , annual income of the household and dietary habit were remained statistically significant.

Age among 31-45 years was 1.87 times more likely to develop overweight and obesity than age groups less than 30 years individuals [AOR: 1.87; 95%CI: 1.07- 3.29]

Physically inactive individuals were 1.9 times more likely to develop overweight and obesity than physically active individuals [AOR: 1.9; 95%CI: 1.01- 3.77]

Widowed and divorced individuals were 4.08 times more likely to develop overweight and obesity than those who are single individuals [AOR: 4.08; 95%CI: 1.68 - 9.9]

Individuals who lived in a family size of 4-6 were 2.18 times more likely to develop overweight and obesity than those lived in a house hold less than three family members [AOR: 2.18; 95%CI: 1.33 - 3.56].

Individuals who consumed protein and fatty food were 2.29 times more likely to develop overweight or obesity than who consumed fruits and vegetables in addition to their diet [AOR: 2.29; 95%CI: 1.20 - 4.37].

Individuals whose annual income were more than 52,801 birr were 2.17 times more likely to develop overweight or obesity than who earned less [AOR: 2.17; 95%CI: 1.35 – 3.5].

Table 4. Bivariate and multivariate analysis of factors associated with overweight or obesity among civil servants in Bahir Dar city, North West Ethiopia (2017)

Socio-Demographic characteristics		Over weight /Obesity		COR (95% CI)	AOR (95% CI)	P-Value
		Yes	No			
Age	<= 30	30	174	1	1	
	31-45	106	135	4.55 (2.86-7.24)	1.87 (1.07 - 3.29)	0.03*
	46-60	33	41	4.66 (2.56-8.50)	1.16 (0.55 - 2.47)	0.7
Marital Status	Never Married	33	173	1	1	
	Widowed/Divorced	18	14	6.74 (3.05 - 14.87)	4.08 (1.68 - 9.9)	0.002**
	Currently Married	118	163	3.79 (2.44-5.90)	1.45 (0.84 - 2.50)	0.18
Physical activity	Active	14	88	1	1	
	Inactive	155	262	3.719(2.05-6.76)	1.9 (1.01 - 3.77)	0.04*
Family size	<= 3	57	213	1	1	
	4- 6	101	114	3.31 (2.23 - 4.92)	2.18 (1.33 - 3.56)	0.002**
	> +7	11	23	1.78 (0.82 - 3.88)	0.99 (0.42-2.33)	0.98
Dietary diversified	Yes	14	75	1	1	
	No	155	275	3.02(1.65-5.52)	2.29(1.20-4.37)	0.012**

*Significant ** Highly Significant

Hosmer and Lemshow goodness of fit test was 0.12

6. DISCUSSION

This study revealed that the prevalence of overweight was 32.5 %. This study result is high as compared to a study conducted among permanent employees of the Commercial Bank of Ethiopia and teachers in Addis Ababa, 24.7% men and 25.7% women were overweight and 2.1 % men and 10.2 women were obese (8, 19, 29). The possible reason partially may be my study population sit long hours than teachers in the office due to their work behavior.

This study result is low when compared to a study conducted among HCP in Ghana and in South Africa. The overall prevalence of overweight and obesity was 38.0% and 73% respectively (22). A study in Nigeria among health service providers 44.7% were overweight while 27.3% were obese (31). The possible reasons may be experiencing European culture and the preference of fried and fatty food than the traditional food previously consumed.

In this study positive association was observed with increasing in Age. Adults' age 31 to 45 years were 1.87 times more likely to develop overweight or obesity as compared to 18 to 30 years. This result is different from a study conducted in India age group 31-45 were 2.45 more likely to develop overweight (3).

In this study physically inactive individuals were 1.9 times more likely to develop overweight or obesity than physically active individuals. A study conducted in Dare Selam Tanzania 36 % of physically inactive individuals were more prevalent for overweight or obesity than those were physically active this supports our study result. (1).

In this study 35 % of widowed and divorced individuals were overweight or obese than those who were single individuals. In Tanzania a study among adults shows that 33.3%

of obesity was among respondents who were widowed compared to single respondents (16). Almost similar findings observed in a study conducted in Canada, 38% divorced and widowed subjects had increased odds for being overweight compared to unmarried ones (37).

In this study individuals with high income were 2.17 time more likely to develop overweight or obesity. A study in Bengal Hindu Caste Population the results indicated that those individuals belonging to the higher monthly income per month were 2.07 more likely to develop over weight obesity than lower income (3).

In this study individuals who consumed undiversified food means those who consumed more animal product protein and fat than fruit & vegetables were 2.29 time more likely to develop overweight and obesity. In India rapidly changing diets and lifestyles are fueling the global obesity epidemic. Obesity was more commonly seen among women consuming mixed diet when compared to women who were vegetarians (38). The socio-demographic determinants of obesity among adults in the Nigerian population were poor dietary habits. Studies have shown that the prevalence of obesity is greatest in those who eat more fats (22)

Limitation of the study

- There could be respondents' recall biases during data collection when they were asked about their life style, past behavior and they could not told us the truth when they were asked about their income.

7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

This study revealed that the prevalence of overweight or obesity among civil servants was high. Age, Marital status, Physical inactivity, family size, and dietary habits were significantly associated with overweight or obesity.

7.1. Recommendations

For programmers and for health bureau

Prevention strategies should be formulated to increase physical activity level and to improve dietary habits

For civil servants

Civil servants should participate regular physical activity and monitor their body mass index regularly

For researcher – Community based researches should be conducted to assess awareness, magnitude and risk factors of overweight or obesity and their consequences on health.

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Annexes

Annex 1: English Version of Participant's Information Sheet

Bahir Dar University College of Medicine and Health Sciences School of Public Health

Questionnaire to assess the prevalence and its associated factors of overweight and obesity among civil servants working in Amhara regional government bureaus, Northwest Ethiopia

Hello! My name is _____and I am here on behalf of Amare Alene, a post graduate student from BDU, school of public health. I am here to collect information on the current status of the magnitude and associated factors of overweight and obesity. I am requesting you to participate in this study which would require your response to an interview on some related issues, measuring weight, height and blood pressure. The study findings would also be used to design and implement prevention strategies in the study area in the future.

Your name will not be written in this form and will never be used in connection with any information you tell us. All information given by you will be kept strictly confidential. Your participation is purely voluntary and you are not obligate to answer any question you do not wish to answer. If you feel discomfort with the interview, you can withdraw any time after you get involved in the study. This interview will take about 30 minutes.

Thank you!

Annex 2: English Version of Participant's Consent form

Are you voluntary to participant in this study?

Yes ☐ No ☐

1. If yes, continue the interview.
2. If no, skip to the next participant by writing his/her reasons for refusal.

For any questions you have, you can contact the Principal Investigator by:

09 32 93 04 52 /0960783239

Interviewer: Code_____

Name_____ signature_____ Date _____

Time Started _____ Time completed_____

Result of interview: 1. Completed

2. Respondent not available

3. Refused

4. Partially completed

Supervisor: Name _____ Signature_____ Date _____

Annex 3: English Version of the Questionnaire

Part I: Socio-Demographic Questions

Name of the Bureaus _____

Identification number _____

Date of data collection ____/ _____/ _____

Socio Demographic Information			
S.no	**Questions**	**Responses**	**Code**
1	Sex	Male 1 Female 2	SD1
2	Age	Years _____	SD2
3	What is the highest level of education you completed?	No formal schooling 1 Less than primary school 2 Primary school completed 3 Secondary school completed 4 High school completed 5 College /university completed 6 Post graduate degree 7 Refused 88	SD3
4	What is your ethnicity?	Amhara 1 Tigre 2 Oromo 3 Other(specify) _____	SD4
5	What is your religion?	Orthodox 1 Muslim 2 Catholic 3	SD5

		Protestant 4 Other(specify) _____	
6	What is your marital status?	Never married 1 Currently married 2 Separated 3 Divorced 4 Widowed 5 Refused 88	SD6
7	How many children do you have?	Number of children _____	SD7
Households income related questions			
8	Monthly income	In Birr _____	W1
9	Any other income of the household (house rent, remittance, any other business income including spouse)	In Birr_____	W2
10	Total annual income of the household	In Birr_____	W3
Behavioral measurements			
Tobacco use			
11	Have you ever smoke any tobacco products?	Yes 1 No 2 ***If No, go to question 21***	T1
12	How old were you when you first started smoking daily?	Age(year) _____ Do not know77	T2

13	Do you currently smoke tobacco products daily?	Yes 1 No 2 ***If No ,go to question 15***	T3
14	How many cigarettes do you smoke per day	Number_____	T4
Alcohol consumption			
15	Have you ever consumed an alcoholic drink such as beer, wine, whisky, gin, tella, areki etc?	Yes 1 No 2 ***If No, go to question 21***	A1
16	Have you consumed an alcoholic drink within the past 12 months?	Yes 1 No 2 ***If No, go to question 21***	A2
17	During the past 12 months, how frequently have you had at least one alcoholic drink?	Daily 1 5-6 days per week 2 1-4 days per week 3 1-3 days per month 4 Less than once a month 5	A3
18	Have you consumed alcohol drink with in the past 30 days?	Yes 1 No 2 ***If No, go to question 21***	A4
19	During the past 30 days, on how many occasions did you have at least one alcoholic drink?	Number _____ Don't know 77	A5
20	During the past 30 days, when you drank alcohol, on average, how many bottle alcohol drinks did you have during one drinking occasion?	Number _____ Don't know 77 Type of alcohol _____ Type of measurement_____	A6

Diet-Now I would like to ask you about the types of foods that you ate yesterday during the day and at night (24 hour recall)			
21	Any bread, rice noodles, biscuits, or any other foods made from millet, sorghum, maize, rice, wheat,	Yes 1 No 2	D1
22	Any potatoes, yams, manioc, cassava or any other foods made from roots or tubers?	Yes 1 No 2	D2
23	Any vegetables?	Yes 1 No 2	D3
24	Any fruits?	Yes 1 No 2	D4
25	Any beef, pork, lamb, goat, chicken, liver, kidney, heart, or other organ meats?	Yes 1 No 2	D5
26	Any eggs?	Yes 1 No 2	D6
27	Any fresh or dried fish or shellfish?	Yes 1 No 2	D7
28	Any foods made from beans, peas, lentils, or nuts?	Yes 1 No 2	D8
29	Any cheese, yogurt, milk or other milk products?	Yes 1 No 2	D9
30	Any foods made with oil, fat, or butter?	Yes 1 No 2	D10
31	Any sugar or honey?	Yes 1	

		No 2	D11
32	Any other foods, such as soft drinks, coffee, tea?	Yes 1 No 2	D12
Physical Activity			
33	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like *[carrying or lifting heavy loads, digging or construction work]* for at least 10 minutes continuously?	Yes 1 No 2 ***If No, go to question 36***	P1
34	In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days _____	P2
35	How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours/minutes_____/____	P3
36	Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking *[or carrying light loads]* for at least 10 minutes continuously?	Yes 1 No 2 ***If No, go to question 39***	P4
37	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days _____	P5
38	How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours/minutes _____/___	P6

Travel to and from place			
39	Do you walk or use a bicycle *(pedal cycle)* for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 ***If No, go to question 42***	T1
40	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days_____	T2
41	How much time do you spend walking or bicycling for travel on a typical day?	Hours/minutes_____/____	T3
Recreational activities			
42	Do you do any vigorous-intensity sports, fitness or recreational *(leisure)* activities that cause large increases in breathing or heart rate like *[running or football]* for at least 10 minutes continuously?	Yes 1 No 2 ***If No, go to question 45***	R1
43	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational *(leisure)* activities?	Number of days _____	R2
44	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours/minutes_____/____	R3
45	Do you do any moderate-intensity sports, fitness or recreational *(leisure)* activities that cause a small increase in breathing or heart rate such as brisk walking*, [cycling,*	Yes 1 No 2 ***If No, go to question 48***	R4

	swimming, and volleyball] for at least 10 minutes continuously?		
46	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational *(leisure)* activities?	Number of days _____	R5
47	How much time do you spend doing moderate-intensity sports, fitness or recreational *(leisure)* activities on a typical day?	Hours/minutes _____	R6
Sedentary behavior			
48	How much time do you usually spend sitting or reclining on a typical day?	Hours/minutes ____/_____	S1
49	Do you have a habit of eating while you watch television, video or internet?	Yes 1 No 2	S2
50	On average per day how much time do you spend watch television, video or internet?	Hours/minutes____/_____	S3
51	On average how much time do you sleep per day including night?	Hours _____	S4
Physical Measurements			
52	Height	Meter _____	M1
53	Weight	Kilogram _____	M2

Thank you!

Annex 4: Amharic Version of Participant's Information Sheet

ባህር ዳር ዩኒቨርስቲ ጤና ሳይንስ ኮላጅ የህብረተሰብ ጤና አጠባበቅ ትምህርት ክፍል

<u>የጥናቱ መግለጫ ቅፅ</u>

ጤና ይስጥልኝ !

ስሜ----------ይባላል ። እዚህ የመጣሁት በባህር ዳር ዩኒቨርሲቲ በህ/ሰብ ጤና የት/ት መስክ የድህረ ምረቃ ተማሪ የሆነውን አማረ አለነን ወክዬ ሲሆን ከመጠን ያለፈ ክብደትና ወፍረት መኖርኑና ተያያዥ መንስኤዎችን በመንግስት ሰራተኞች ለማጥናት ነው።።

በቃለመጠይቁ እንዲሳተፉ እጠይቃለሁ ።። በዚህ መጠይቅ ስለማህበራዊ ና ዳሞግራፉያዊ ፤ ሰለአካሊዊ እንቅስቃሴ፤ ስለ አመጋገብ ፤ ስለ አልኮል አጠቃቀምና ስለ ሲጋራ እና በመቀመጥ ስለምታሳልፈው ጊዜ እጠይቅሃለሁ/ሻለሁ ።። ከዚህ በተጨማሪ የአንተን/አንችን ክብደት፤ ቁመት እና የደም ግፊት እለካለሁ።። ከአንተ/ች የማገኘዉን መረጃ በምስጢር እጠብቃለሁ። ከአንተ/ች የምንሰበስበዉ መረጃ ከአንተ/ች ስም ጋር አይያያዝም ። በዚህ ጥናት ዉሰጥ ለመሳተፍ በቅድሚያ የተሳታፉዉን ፈቃ□ኝነት እንጠይቃለን። መልስ መስጠት የማትፈልግበት/የማትፈሊግበት ጥያቄ ካለ አትገደድም/አትገደጅም ።ይህ ቃለ መጠየቅ 30 ደቂቃዎችን ያህል ይወስዳል ።።

አመሰግናለሁ !

Annex 5: Amharic Version of Participant's consent form

የፈቃደኝነት መግለጫ ቅፅ

በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነህ/ሽ ?

1. አዎ ☐ 2. አይደለሁም☐

መልሱ 2 ከሆነ አመስግነው መጠይቁን ያቋርጡ ። ለጥናቱ ፈቃደኛ ያሌሆኑበትን ምክንያት በመጠየቅ ና በማስታወሻዎ ላይ በመያዝ ለጥናቱ ተቆጣጣሪሪ]ፖርት ያድርጉ።

ማንኛውም አይነት ጥያቄ ቢኖረዎት ዋና አጥኚውን ማነጋገር ይችላሉ ::

ሞባይል፡ 0932930452 /0960783293

የተጀመረበት ሰዓት ---------- ያለቀበት ሰዓት ----------

የመረጃ ሰብሳቢው ስም---------- ፊርማ----------ቀን፡----------

የተቆጣጣሪ ስም---------- ፊርማ----------ቀን፡----------

Annex 6: Amharic Version of Participant's questioner's sheet

መረጃው የተሰበሰበበት ቀን_____/_____/_____ (ቀን/ወር/ዓ.ም)			
ተ.	ጥያቄ	መልስ	ኮድ
ማሕበራዊና ስነ-ህዝባዊ መረጃ			
1	ጸታ	ወንድ 1 ሴት 2	SD1
2	ዕድሜ	ዓመት _____	SD2
3	አሁን የደረሱበት የትምህርት ደረጃ?	ማንበብ መጻፍ የማይችሉ 1 ማንበብ መጻፍ የሚችሉ 2 የመጀመሪያ ደረጃ 1-4 ያጠናቀቀ 3 ከ5-8 ክፍል ያጠናቀቀ 4 ከ9-10 ክፍልያጠናቀቀ 5 ከ11-12 ክፍልያጠናቀቀ 6 ኮሌጅ/ዩኒቨርስቲ ያጠናቀቀ 7 ሁለተኛ ዲግሪ ያጠናቀቀ 8	SD3
4	ብሄር	አማራ 1 ትግሬ 2 ኦሮሞ 3 ሌላ(ይጥቀሱ) _____	SD4
5	ሀይማኖት	ኦርተዶክስ 1 እስልምና 2 ካቶሊክ 3 ወንጌላዊያን አማኞች 4	SD5

		ሌላ/ይገላጥ ----------	
6	የጋብቻ ሁኔታ?	ያላገባ/ች 1 ያገባ/ች /አብረው የሚኖሩ 2 ተለያይትው የሚኖሩ 3 የፈታ/ች 4 የሞተበት/ባት 5	SD6
7	ስንት ልጆች አለዎት?	የልጆች ብዛት_____	SD7
ከገቢ ጋር የተያዙ ጥያቄዎች			
8	የወር ገቢ መጠን	በብር _____	W1
9	የቤተሰቡ ሌላ የገቢ ምንጭ (ከቤት ኪራይ፣ ከዘመድ የሚገኝ ድጋፍ፣ ከንግድ፣ የትዳር ጓደኛ ገቢ)	በብር _____	W2
10	አጠቃላይ የቤተሰቡ የዓመት ገቢ	በብር _____	W3
ከስነ ባህሪያት ጋር የተያያዙ ጥያቄዎች			
ትንባሆ መጠቀም			
11	ትምባሆ አጭሰው ያውቃሉ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 15 ይለፉ***	T1
12	ለመጀመሪያ ጊዜ ትምባሆ ማጨስ ሲጀምሩ ዕድሜዎ ስንት ነበር?	ዕድሜ(በዓመት) _____ አላውቀውም 77	T2

13	በአሁኑ ሰዓት የትምባሆ ያጨሳሉ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 16 ይለፉ***	T3
14	በአማካኝ በቀን ምን ያህል ሲጃራ ያጨሳሉ?	በቁጥር _____	T4
	የአልኮሆል መጠጥ መጠቀም		
15	እንደ ቢራ ፣ወይን፣ ውስኪ ፣ጂን ፣ጠላ፣ አረቄ የመሳሰሉትን የአልኮሆል መጠጦች ተጠቅመው ያውቃሉ ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 21 ይለፉ***	A1
16	ባለፉት 12 ወራት የአልኮሆል መጠጦችን ተጠቅመዋል?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 26 ይለፉ***	A2
17	ባለፉት 12 ወራት ለምን ያህል ግዜ ቢያንስ አንድ የአልኮሆል መጠጥ ተጠቅመዋል?	በየቀኑ 1 ከ5-6 ቀን በሳምንት 2 ከ1-4 ቀን በሳምንት 3 ከ1-3 ቀን በወር 4 በወር ከአንድ ጊዜ በታች 5 ***መልሶ አላውቅም ከሆነ*** ***ወደ ጥያቄ ቁጥር 21 ይለፉ***	A3
18	ባለፉት 30 ቀናት የአልኮሆል መጠጥ ተጠቅመዋል?	አዎ 1 የለም 2	A4
19	ባለፉት 30 ቀናት ስንት ጊዜ ቢያንስ አንድ የአልኮሆል መጠጥ ተጠቅመዋል	ቁጥር _____	A5

		አላቀውም 77	
20	በለፉት 30 ቀናት የአልኮሆል መጠጥ ሲጠጡ በአማካኝ ስንት ጠርሙስ አልኮሆል በአንድ ጊዜ ይጠቀማሉ	ቁጥር _____ አላውቀውም 77 የአልኮሆሉ ዓይነት የመስፈሪያ/መለኪ አይነት _____	A5
አመጋገብ **-** አሁን ደግሞ ትላንትና ቀንና ማታ ስለተመገቡት የምግብ ዓይነት ልጠይቀዎት ነው			
21	ዳቦ፣ ብስኩት ፣ ወይም ከሩዝ፣ ከስነዴ ፣ ከአጃ ፣ ከበቆሎ ፣ የተዘጋጀ ምግብ ተመግበሃል/ሻል?	አዎ 1 የለም 2	D1
22	ድንች ወይም ስራስርነት ያለው ምግብ ተመግበሃል/ሻል?	አዎ 1 የለም 2	D2
23	ማንኛውም ዓይነት ቅጠላቅጠል ተመግበሃል/ሻል?	አዎ 1 የለም 2	D3
24	ማንኛውም ዓይነት ፍራፍሬ ተመግበሃል/ሻል?	አዎ 1 የለም 2	D4
25	የበግ ፣የፍየል ፣የበሬ ፣የደሮ ሥጋ ፣ ጉበት፣ኩላሊት፣ ልብ ተመግበሃል/ሻል ?	አዎ 1 የለም 2	D5
26	እንቁላል ተመግበሃል/ሻል?	አዎ 1 የለም 2	D6
27	ማንኛውም ትኩስ አሳ ወይም የ አሳ ቋንጣ ተመግበሃል/ሻል ?	አዎ 1 የለም 2	D7
28	ማንኛውም ዓይነት ከባቄላ ፣ ከአተር፣ ከምስር ፣ ከሽንብራ የተዘጋጀ ምግብ ተመግበሃል/ሻል ?	አዎ 1 የለም 2	D8
29	ማንኛውም ዓይነት ወተትና የወተት ዘር አይብ ፣ እርጎ፣ አጓት ተመግበሃል/ሻል ?	አዎ 1 የለም 2	D9
30	ማንኛውም ዓይነት በዘይት፣ በቅቤ ፣ በቅባት የተዘጋጀ ምግብ ተመግበሃል/ሻል	አዎ 1	D10

	?	የለም 2	
31	ማነኛውም ዓይነት ስኳር ወይም ማር ተመግበሃል/ሻል ?	አዎ 1 የለም 2	D11
32	ማነኛውም ዓይነት ቡና ፣ ሻይ ፣ ለስላሳ ተመግበሃል/ሻል ?	አዎ 1 የለም 2	D12
የአካል እንቀሰቃሴ			
ሥራ			
33	የአተነፋፈስ ስረአቶን እና የልብ ምቶን በከፍተኛ ሁኔታ የሚጨምሩ ከባድ ጫና ያላቸው ሥራዎች ለምሳሌ ከባድ ዕቃ ማንሳት ወይም መሸከም መቆፈር ወይም የግንባታ ሥራዎች ላይ ቢያንስ ለ10 ተከታታይ ደቂቃዎች ይሰራሉ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 36 ይለፉ***	P1
34	በሳምንት ውስጥ ለስንት ቀናት ከባድ ጫና ያለው ሥራ ይሰራሉ?	የቀን ብዛት _____	P2
35	በቀን ወስጥ ለምን ያህል ግዜ ከባድ ጫና ያለው ሥራ እየሰሩ ይቆያሉ?	ሰዓት /ደቂቃ _____/____	P3
36	ሥራዎት የአተነፋፈስ እና የልብ ምት ፍጥነትዎን በመካከለኛ ጫና የሚጨምሩ ለምሳሌ ቀላል የእግር ጉዞ ወይም ቀላል ክብደት ማንሳት የመሳሰሉትን ቢያንስ ለ 10 ደቂቃ የካትታል ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 39 ይለፉ***	P4
37	በሳምንት ወስጥ ለስንት ቀን መካከለኛ ጫና ያለው እንቅስቃሴ በስራዎት ወስጥ ያካትታሉ?	የቀን ብዛት _____	P5
38	በቀን ምን ያህል ግዜ መካከለኛ ጫና ያለው እንቅስቃሴ በስራዎት ወስጥ ያካትታሉ?	ሰዓት/ደቂቃ _____/____	P6
ከቦታ ቦታ መንቀሳቀስ			
39	ከቦታ ወደ ቦታ ለመንቀሳቀስ ቢያንስ ለ10 ደቂቃ በተከታይ በእግሮት	አዎ 1 የለም 2	P7

	ይጓዛሉ ወይም ብስክሌት ይጠመቀማሉ?	***መልሶ 2 ከሆነ ወደ ጥያቄ ቁጥር 42 ይለፉ***	
40	በየሳምንቱ ቢያንስ ለ10 ደቂቃ በተከታይ ከቦታ ወደ ቦታ ለመንቀሳቀስ ለስንት ቀናት በእግሮት ይጓዛሉ ወይም ብስክለት ይጠመቀማሉ?	የቀን በዛት _____	P8
41	በቀን ለምን የህል ጊዜ በእግሮት ይጓዛሉ ወይም ብስክለት ይጠመቀማሉ?	ሰዓተ/ደቂቃ _____/_____	P9
የመዝናኛ እንቅስቃሴዎች			
42	የአተነፋፈስ ስረአቶን እና የልብ ምቶን በከፍተኛ ሁኔታ የሚጨምሩ የስፖርት ፣የአካል ብቃት አና የመዝናኛ እንቅስቃሴዎች ለምሳሌ ሩጫ ወይም አግር ኳስ ቢያንስ ለ10 ደቀቃ በተከታታይ ያደርጋሉ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 48 ይለፉ***	R1
43	በየሳምንቱ ከባድ ጫና ያላቸው የስፖርት ፣የአካል ብቃት አና የመዝናኛ እንቀስቀሴዎች ለምን ያህል ጊዜ የሰራሉ?	የቀን ብዛት _____	R2
44	በቀን ከባድ ጫና ያላቸው የስፖርት የአካል በቃት አና የመዝናኛ አነቀስቀሴዎች ለምን ያህል ገዜ የሰራሉ?	ሰዓት/ደቂቃ _____/_____	R3
45	የአተነፋፈስ ስረአቶን እና የልብ ምቶን በመካከለኛ ሁኔታ የሚጨምሩ የስፖርት፣ የአካል ብቃት አና የመዝናኛ እንቅስቃሴዎች ለምሳሌ ቀላል የእግር ጉዞ፣ ብስክሌት መንዳት የውሃ ዋና እና የመረብ ኳስ ቢያንስ ለ10 ደቀቃ በተከታታይ ያደርጋሉ?	አዎ 1 የለም 2 ***መልሶ 2 ከሆነ*** ***ወደ ጥያቄ ቁጥር 48 ይለፉ***	R4
46	በሳምንት ምን ያህል ገዜ መካከለኛ ጫና የለው ስፖርት፣ የአካል ብቃት የመዝናኛ እንቅስቃሴ ያደርለ?	የቀን ብዘት _____	R5

47	በቀን ምን ያህል ጊዜ መካከለኛ ጫና የለው ስፖርት የአካል ብቃት የመዝናኛ እንቅስቃሴ በማደረጋ ያሳልፋሉ ?	ሰዓት/ደቂቃ _____/____	R6
ለረጅም ሰዓት መቀመጥ			
48	በቀን ለምን ያህል ጊዜ ቁጭ ብለው ወይም ጋደም ብለው ያሳልፋሉ?	ሰዓት/ደቂቃ _____/____	S1
49	ምግብ ሲመገቡ ቴሌቪዥን ፣ቪዲዮ ፣ ኮምፒዩተር አዘውተረው ይመለከታሉ	አዎ 1 የለም 2	S2
50	በአምካኝ በቀን ለምን ያህል ጊዜ ቴሌቪዥን ፣ቪዲዮ፣ ኮምፒዩተር ይመለከታሉ	ሰዓት/ደቂቃ ____/_____	S3
51	በአማካኝ ሌሊትን ጨምሮ በቀን ለስንት ሰዓት ይተኛሉ ?	ሰዓት _____	S4
የአካል ልኬት			
52	ቁመት	በሜትር _____	M1
53	ክብደት	በኪሎ ግራም _____	M2

አመሰግናለሁ !