Factors of overweight and obesity among women of reproductive age 15 – 49 years in Ilala Municipality

Albert Wilson Kapala, B.A (Statistics)

Master of Public Health Dissertation
Muhimbili University of Health and Allied Sciences
October, 2018

Muhimbili University of Health and Allied Sciences

Department of Public Health

FACTORS OF OVERWEIGHT AND OBESITY AMONG WOMEN OF REPRODUCTIVE AGE 15 – 49 YEARS IN ILALA MUNICIPALITY

By

Albert Wilson Kapala

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of Master Public Health of

Muhimbili University of Health and Allied Sciences
November, 2018.

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of disertaion entitled "***Factors of Overweight and Obesity among Women of Reproductive Age 5 – 49 years in Ilala Municipality",*** in fulfillment of the requirements for the degree of Master of Public Health of Muhimbili University of Health and Allied Sciences

_____-

Dr. Germana H. Leyna (MD, PhD)

Supervisor

Date_____

DECLARATION AND COPYRIGHT

I, **Albert Wilson Kapala**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature_____ Date_____

This dissertation is a copyright material protected under the Berne Convention, the Copyright Act 1999 and other international and national enactments, in that behalf, on intellectual property. It may not be reproduced by any means, in full or in part, except for short extracts in fair dealing, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the Directorate of Postgraduate Studies, on behalf of both the author and the Muhimbili University of Health and Allied Sciences.

ACKNOWLEDGEMENT

The successful completion of this study was enabled by various people whose contribution is highly appreciated.

I wish to extend my gratitude to my supervisor Dr. Germana H. Leyna (MD, PhD) for her technical support which led to smooth preparation and implementation of this study. She deserves my heartfelt gratitude for her dedicated and tireless effforts in making this study a success.

I would also direct my thanks to the School of Public Health for accepting this work to be done as part of fulfillment of the Masters of Public Health degree at Muhimbili University of Health and Allied Sciences.

I also recognized the contributions of research assistance who worked very hard all the time during data collection, their efforts are highly recognized. I am even more grateful to the Dar es Salaam Regional Administrative Secretary who provided the permits for the study to be done.

Last but not least, I am appreciating the efforts made by local leaders who helped the research team during listing of households and data collection. Also very important, my sincere appreciation is directed to the respondents for their willingness and patience in providing correct information which enabled the finalization of this dissertation.

DEDICATION

This work is dedicated to my wife, Valenciana V. Gange and our lovely children Moreen A. Kapala and Doreen A. Kapala for their moral support that they provided to me especially when I was clouded with a number of assignments to be done while I have to meet deadline for some works in my office, it was hard time but through their players and patience I managed to accomplish all tasks. I also direct my special dedication to my parents, my mother Joyce A. Mgunda and my father Wilson E. Kapala who built the foundation for my formal education.

I can’t quantify my love to all who mentioned, God Bless You All.

ABSTRACT

Introduction: Non-communicable diseases (NCD) have become among public health problems, which contribute to mortality and morbidity globally. The widespread of NCD in the populations have led to the global increase of cardiovascular diseases such as heart diseases, high blood pressure which also increase health care costs. According to Tanzania Demographic and Health Surveys (2004/05, 2010 and 2015/16) the percentage of overweight and obesity has been increasing and affects more women than men in Tanzania, in all surveys Dar es Salaam region has the highest percentage of overweight and obesity compared to other regions. Despite such increase on overweight and obesity, there is inadequate information on the factors of overweight and obesity.

Objectives. The broad objective of this study was to determine the factors associated with overweight and obesity among women of reproductive age in Ilala Municipality

Methods: A cross sectional study employing a two-stage clusters sampling procedure was conducted. Face-to-face interviews were held using WHO Steps questionnaire after customizing it to suite the study context. Anthropometric measurements - weight, height and waist measurements were made. Bivariate and Multivariate analysis was carried for determining factors of overweight and obesity.

Results: 506 respondents were interviewed, percentage of overweight and obesity was 48.8% (n=245/506). Physical activity, dietary intake and age were factors for overweight and obesity. Respondents with 30-39 years [AOR=2.6; 95% CI: 1.4 - 4.8; P = 0.002] and 40 – 49 years (AOR=2.1; 95% CI: 1.1- 4.5; P=0.034) were more likely to be overweight and obese compared to respondents with age between 15 – 24 years. Additionally, women who had physical activity were less likely to be overweight and obese compared to their counter part who had no physical activity (AOR=0.6; 95% CI: 0.4 – 0.9, P=0.026), also women who had dietary
intake were less likely to be overweight and obese than those who had no dietary intake (AOR=0.3; 95% CI: 0.1 - 0.8, P=0.039).

Conclusions: Age, physical activity and dietary intake are the factors associated with overweight and obesity among WRA in Ilala Municipality.

Key Words: Overweight, Obesity, Women of Reproductive Age

TABLE OF CONTENTS

CERTIFICATION i

DECLARATION AND COPYRIGHT ii

ACKNOWLEDGEMENT iii

DEDICATION iv

ABSTRACT v

LIST OF TABLES ix

LIST OF FIGURES ix

LIST OF ABBREVIATIONS x

OPERATIONAL DEFINITION xi

CHAPTER ONE 13

1. INTRODUCTION 13

1.1 Background 13

1.1.1 Global, Regional Differences in Overweight and Obesity 2

1.1.2 Geographical Distribution of Overweight and Obesity 4

1.1.3 Magnitude of Overweight and Obesity in Tanzania 4

1.2 Problem Statement 5

1.1.1 Discussion on the Conceptual Framework 8

1.3 Rationale of the Study 8

1.4 Research Questions 9

1.4.1 Main Research Question 9

1.4.2 Specific Research Questions 9

1.5 Research Objectives 9

1.5.1 Broad Objective 9

1.5.2 Specific Objectives 9

CHAPTER TWO: 10

2 LITERATURE REVIEW 10

2.1 Knowledge of Overweight, Obesity and the Likelihood of being Overweight and Obese10

2.2 Attitude towards Overweight, Obesity and the Likelihood of being Overweight and Obese 11

2.3 Association between Physical Activity and Overweight and Obesity 11

2.4 Overweight and Obesity n Association with Dietary Intake.....13

2.5 Other Factors Associated to Overweight and Obesity 13

CHAPTER THREE: 15

3 METHODOLOGY 15

3.1 Study Design 15

3.2 Study Area.....15

3.3 Study Population 16

3.3.1 Inclusion Criteria 16

3.3.2 Exclusion Criteria 17

3.4 Sampling Design and Strategy 17

3.4.1 Sample Size Calculation 17

3.4.2 Sampling Frame 18

3.5 Data Collection Tools and Methods.....19

3.6 Pre Testing of Questionnaire.....19

3.7 Anthropometric Measurements.....20

3.8 Study Variables 21

3.8.1 Dependent Variable 21

3.8.2 Independent Variables 21

3.9 Data Processing and Analysis 22

3.10 Ethical Consideration 23

CHAPTER FOUR..... 24

4 RESULTS 24

4.1 Background Characteristics of the Participants 24
4.2 Bivariate Analysis of Factors Associated with Overweight and Obesity 25
4.3 Multivariate Analysis of Factors Associated with Overweight and Obesity 27
CHAPTER FIVE 29
5 DISCUSSION 29
5.1 Study Limitations 30
6 CONCLUSION AND RECOMMENDATIONS 32
6.1 Conclusion....32
6.2 Recommendations 32
7 References 33
8 Appendices 38
8.1 Informed Consent Form – English Version 38
8.2 Fomu ya Ridhaa 39
8.3 Questionnaire English Version....40
8.4 Questionnaire Swahili Version....50
8.5 Listing Form English Version 60
8.6 Fomu ya Kuorodhesha Kaya 61
8.7 Kish Grid 62
8.8 Ethical Approval Letter 63
8.9 Introduction Letter from MUHAS to RAS 64
8.10 Introduction Letter from RAS to Ilala Municipal Director 65
8.11 Introduction Letter Ilala Municipal Director to Ward Executive Officers....66

LIST OF TABLES

Table 1: Sample Size Determination 18

Table 2: Percentage Distribution of Women of Reproductive Age by Demographic Background and Body Mass Index in Ilala Municipality, 2018. 25

Table 3: Percentage Distribution of Overweight and Obesity Status by Demographic Characteristics, Knowledge, Attitude, Physical Ativity and Dietary Intake among Women of Reproductive Age in Ilala Municiplaity, 2018 27

Table 4: Factors of Overweight and Obesity and their Association to Overweight and Obesity among Women of Reproductive Age in Ilala Municipality, 2018 28

LIST OF FIGURES

Figure 1: Causal Pathways for Non-Communicable Diseases.(Source: Prevention of NCD, Policy Brief. NIMR/EPB/002/2016) 2

Figure 2: Conceptual Framework for Factors Associated with Overweight and Obesity among Women of Reproductive Age 7

Figure 3: Dar es Salaam Map Showing Ilala Municipality 16

LIST OF ABBREVIATIONS

BMI	Body Mass Index
CAPI	Computer Assisted Personal Interview
CSPro	Census and Survey Processing System
DEFT	Design Effect
EA	Enumeration Area
FGD	Focus Group Discussion
NCD	Non Communicable Diseases
NIMR	National Institute for Medical Research
PHC	Population and Housing Census
PPS	Probability Proportional to Size
PSU	Primary Sampling Unit
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
TDHS	Tanzania Demographic and Health Survey
WHO	World Health Organization
WRA	Women of Reproductive Age

OPERATIONAL DEFINITION

SN	Term	Definition
1.	Attitude	Is a familiarity, awareness, or understanding of someone or something, such as facts, information, description, or skills, which is acquired through experience or education by perceiving, discovering, or learning (1).
2.	Body Mass Index	Is a measure of body fat based on your weight in relation to height (Weight/(Height)^2(2)
3.	Enumeration Area (EA)	A section or subdivision oriented by National Bureau of Statistics during the 2012 Tanzania Population and Housing Census (3).
4.	Household	A person or group of persons, related or unrelated, who live together and share a common source of food and livelihood, and recognize one person as a head
5.	Knowledge	Awareness or familiarity gained by experience of a fact or situation(1).
6.	Mortality	Death
7.	Non Communicable Diseases	Is a medical condition or disease that is not caused by infectious agents.
8.	Obesity	Obesity is a condition that is associated with having an excess of body fat, defined by genetic environmental factors that are difficult to control when dieting. In this study obesity will be defined according to WHO BMI thresholds of >29.9 Kg/m^2) (4)
7.	Odds	The probability that an event or outcome, will occur, or more likely to occur than something else.

9.	Odds Ratio (OR)	Is a relative measure of association between an exposure and an outcome
10.	Overweight	A person is considered overweight if the BMI ranges from 25.0 Kg/m^2 to 29.9 Kg/m^2 (4).
11.	Prevalence	Proportion of people who have the disease (outcome of interest) at a specific instance point in time.
12.	Risk Factors	Feature that makes the individuals of a population more likely to develop a given health problem
13.	Sedentary Life Style	Is a type of lifestyle with or no physical activity.
14.	Standard Deviation	Is the variation of individuals in a population calculated as the square root of the statistical variance
15.	Urbanization	The gradual increase in the proportion of people living in urban areas, and the ways in which each society adapts to the change.

CHAPTER ONE

1. INTRODUCTION

This chapter aims at introducing the study by covering background, problem statement, and rationale on conducting the study, research questions and objectives.

1.1 Background

Non-communicable diseases (NCD) are a growing global health problem, including in Africa and other low-income countries like Tanzania (5).The rapid rise of non-communicable diseases represents one of the major health challenges to global development in the coming century (5). The NCD burden constitutes one of the major challenges to socio economic development as it causes a big burden to both the economy and to the health care systems(6)

Cardiovascular Diseases (CVD) are number one cause of death globally; more people die annually from CVDS than from any other cause. An estimated 17.9 million people died from CVDs in 2016, representing 31% of all global deaths. Of these deaths, 85% are due to heart attack and stroke. Out of the 17 million premature deaths (under the age of 70) due to noncommunicable diseases in 2015, 82% are in low- and middle-income countries, and 37% are caused by CVDs (7). In 2008, NCDs accounted for an estimated 36 million death, or 63% of the 57 million deaths that occurred globally, comprising mainly of cardiovascular diseases (48%), cancers (21%), chronic respiratory diseases (12%) and diabetes (3.5) (6)

Rapid urbanization of rural areas and migration from rural to urban area has contributed to the increased burden of non-communicable diseases, as a result of urbanization populations are more exposed to sedentary lifestyles and unhealthy diets (8). These and physical inactivity, smoking, alcohol intake, and subsequent biological risk factors such as raised blood pressure are considered the main modifiable behavioral risk factors for NCD (8).

Figure 1 shows the general pathway for NCD from the risk factor stage to the outcome. The modifiable risk factors are considered behavioral factors as they can be changed by different interventions such as health education, promotions etc. Therefore if a person is exposed to the presented risk factors there is a likelihood of becoming overweight and obese and have a higher possibility of developing heart diseases, diabetes, stroke, cancer and chronic respiratory diseases.

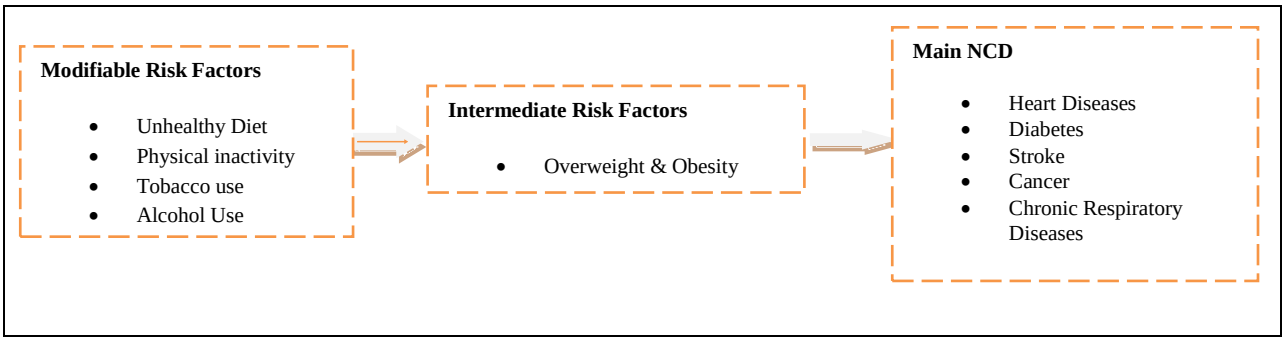


Figure 1: Causal Pathways for Non-Communicable Diseases.(Source: Prevention of NCD, Policy Brief. NIMR/EPB/002/2016)

Overweight and obesity, unhealthy diet, tobacco use, alcohol consumption, high blood pressure, high cholesterol levels, and lack of physical activity have been described as the major factors for non-communicable diseases (8).

1.1.1 Global, Regional Differences in Overweight and Obesity

Overweight and obesity is becoming a public health problems worldwide especially in recent years. For instance, globally, there are more than 1 billion overweight adults, at least 300 million of whom are obese (9). Overweight and obesity are the fifth leading risk for global death(10). At least 2.8 million adults die each year as a result of being overweight or obese (9). Overweight and obesity are defined as abnormal or excess fat accumulation that may impair healt (11)

According to the World Health Organisation (WHO), in 2014, more than 1.9 billion adults (39%), 18 years and older, were overweight. Of these, over 600 million (13%) were obese (Body Mass Index-BMI $\geq$ 30.0 Kg/m^2) (4). The global prevalence of overweight in 2016 was 39% among women and 15% were obese, thus nearly 2 billion adults. Obesity rates are rapidly increasing in the African Region, as in most part of the world. Overweight has been on the increase in all regions since 1990, although the extent of the increase has differed between regions. In 1990, the prevalence of overweight was highest in Northern Africa (7.5) followed by Southern Africa (6.4%), Eastern Africa (4.5%), Middle Africa (3.7%), and Western Africa (2.6%) (12).

Also the prevalence of overweight and obesity in South Africa was 18.1% and 20.5% respectively. Obesity was more prevalent in females (19%) than males (15%) (7).

There has been a staggering increase of overweight in Southern African region since 1990 with average prevalence rate of 21% in 2015 compared to other regions.

Northern African region has also experienced rapid increase in overweight since 1990 with prevalence of 13% in 2015. In other regions, percentage increase in the last 25 years has been ranging from 9% in Eastern Africa to 70% in Western Africa (12). Women in general have higher prevalence of overweight than men in all countries with prevalence rates ranging from 3.7% in Ethiopia to 74% in Seychelles. The top five with the highest prevalence of overweight were Seychelles (73.8%), Lesotho (70.8%), South Africa (68.5%), Mauritania (56.8%), and Mauritius (53.5%). The top five countries with lowest rates include Ethiopia (3.7%), Eritrea (6.3%), Democratic Republic of Congo (15.8%), and Central African Republic and Zambia with 20% (12).

The prevalence of overweight and obesity among women increased in all the 24 countries. Trends were statistically significant in 17 of the 24 countries in case of obesity and 13 of the 24 for overweight. In Ghana, overweight almost doubled while obesity tripled between 1993 and 2014. Egypt has the highest levels of overweight and obesity at 44% and 39% respectively in 2014 and trend showed significant increase from 1995 levels. Also obesity doubled in Kenya, Benini, Niger, Rwanda,ivory Coast and Uganda, while tripled in Zambia, Burkina Faso, Mali, Malawi and Tanzania. Ethiopia and Madagascar had lowest preva;ence of both obesity and overweight, with overweight ranging from 7% to 12% and obesity from 1% to 4% (7).

Most of women have been engaged in sexual reproductive health within ages 15 – 49. During this age women has been engaged in deliveries, using family planning, breastfeeding e.t.c which also impact their overweight and obesity status. Studies have shown that maternal obesity can results in negative outcomes in both mothers and fetuses, including gestational diabetes, pre-eclampsia, an increased miscarriage rate (13). Overweight and obesity are associated with decreased contraceptive efficacy and ovulatory disorders in women of reproductive age (WRA), and increasing maternal BMI exerts a progressive adverse effect on vaginal delivery rates for both primigravid and multigravida women (14). Conclusion, Overweight and Obesity are increasing among WRA in urban Africa. There is an urgent need for deliberate policies and interventions to encourage active lifestyles and healthy eating behavior to curb this trend in Africa (7).

Therefore the following are the reasons for focusing WRA;

1. women are at increased risk;
2. Literature states that; pregnancy and breastfeeding are associated with weight gain that may not be lost afterwards; and
3. Some family planning methods have been associated with weight gain.

1.1.2 Geographical Distribution of Overweight and Obesity

Overweight and obesity, particularly in urban settings are major risk factors for type 2 diabetes, high blood pressure, heart attacks and variety of cancers (15). The increasing trend of overweight and obesity in urban centers of the developing countries is attributed to changes in eating behaviors among urban dwellers as a result of enhanced access to refined as well as fast foods that are dense in calorie. The relatively high prevalence of overweight and obesity in urban areas as compared to rural areas in developing countries can be explained in several ways. Firstly is the issue of disparities in eating patterns between urban and rural areas. Secondly, people in urban areas experience dietary changes and consequently are consuming fast foods as well as refined that are high in calorie as compared to those in rural areas. Thirdly, urban individuals are more likely to be of higher socio economic status, a factor also associated with dietary changes and consumption of foods with high glycemic index. Fourth, affluent lifestyle is more common in urban areas as compared to rural areas and this contributes to accumulation of excessive calorie in the body and consequently overweight and obesity (14).

1.1.3 Magnitude of Overweight and Obesity in Tanzania

According to different studies such as the Tanzania Demographic and Health Surveys (TDHS) done in recent years - 2004/5, 2010 and 2015 findings show that the prevalence of overweight is increasing. Data from the 2004-05 and 2015-16 TDHS indicated the increases of overweight by 5% for WRA. In 2004/05 the prevalence of overweight among WRA 15 – 49 years was 13.3% and by 2010, the prevalence had increased to 15.2% (3)(3). Urban women were more likely to be overweight (23%) than rural women (11.8%) (3). The TDHS 2015-16 report also shows that, overweight varies by region, ranging from 9.8% in Mara to 26% in Dar es Salaam (3). Shayo et al in their studies, noted that BMI increased with age, more so in women than men. The highest prevalence of obesity (33.3%), was among respondents who were widowed compared to 8.3 % among single respondents (16). Also another study was conducted in Moshi found that the

prevalence of overweight was 23% and obesity was 17%. The highest prevalence of overweight and obesity was due to physical activities and energy intake which are controllable (17).

1.2 Problem Statement

Tanzania like other developing countries is facing a problem of overweight and obesity as a public health problem among women. The prevalence of overweight and obesity in women has rapidly increased over the past 10 years in Tanzania. Overweight increased from 13.3% in 2004 to 18.4% in 2015 and obesity increased from 4.2% in 2004 to 9.8% in 2015, Dar es salaam experiencing the highest increase in overweight from 23.5% in 2004 to 26.0% in 2015 and obesity from 13.6% in 2004 to 20.8% in 2015 (18). Health consequences of overweight include increased risk of diet related non-communicable diseases (NCD), which are among the leading causes of mortality in the world. A substantial disease burden of NCD, includes heart diseases, stroke, diabetes and cancer, all attributable to lifestyle-related risks (17).

The fundamental cause of overweight and obesity is an energy imbalance between calories consumed and calories expended (19). Recent documented population changes in Tanzanian lifestyles, include migration to urban areas, an increasingly western diet, and a shift away from manual work that are associated with overweight and obesity (20). Few surveys have been conducted in Tanzania to determine association between overweight and obesity with different risk factors (21). The WHO STEPS survey which was carried out in the country in 2012 showed that the levels of risk factors are high - current tobacco users (15.9%), current alcohol drinkers (29.3%), and overweight and obese (34.7%) (22). Other studies have reported the prevalence of obesity was 19.2% among adults in Kinondoni (23), and the prevalence of overweight and obesity among females aged 15 – 49 years was 18% (24). The Tanzania Food and Nutrition Centre (TFNC) conducted Nutrition Surveys in 2005 and 2014 where the prevalence of overweight in Temeke was 21.5% and 27.7% respectively (25). However, in all surveys there are limited information for investigating factors of overweight and obesity and their association to overweight and obesity among women of reproductive age. Furthermore, despite of a number of interventions and the fact that there has been some improvement on nutritional education to prevent overweight and obesity (26), the surveys still show an increase in overweight and obesity. It is thus unclear if the populations have acquired adequate information on the factors of overweight and obesity. Moreover, despite of some information on factors of overweight and

obesity from other countries, differences in level of education, socio-economic status, culture and access to health system may affect the level of knowledge on overweight and obesity in Tanzania.

Therefore, using a cross sectional study we aimed at determining factors associated with overweight and obesity among women of reproductive age 15 – 49 years in Ilala Municipality.

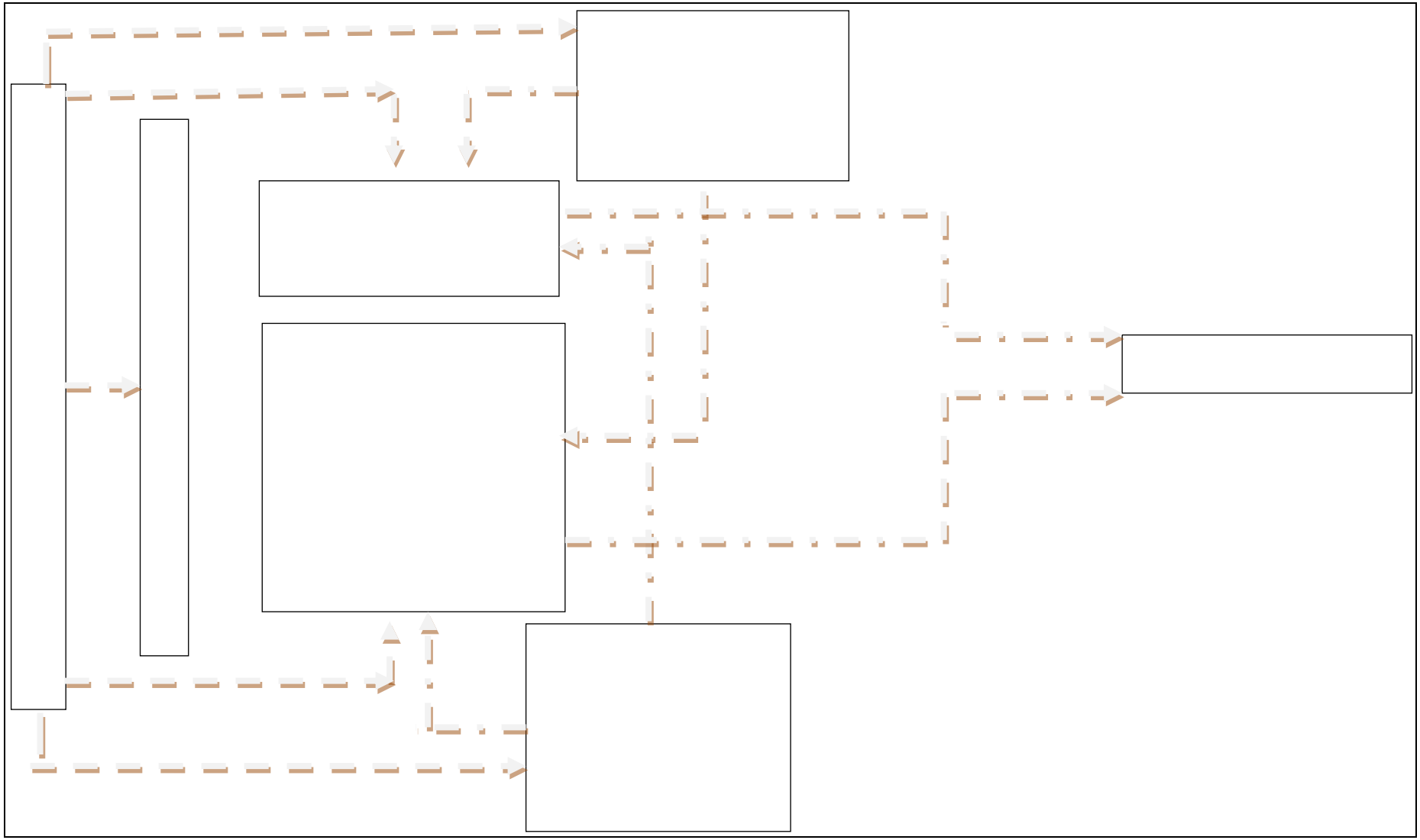


Figure 2: Conceptual Framework for Factors Associated with Overweight and Obesity among Women of Reproductive Age

1.1.1 Discussion on the Conceptual Framework

Basing on the review of the literature presented in this chapter, the possible pathways towards development of overweight and obesity among WRA can be established. Figure 2 indicates the factors that contribute to overweight and obesity among WRA. It is presented that overweight ad obesity is due to unhealthy behavior which includes excessive intake of energy rich food than it is required. Such foods include sugary foods and fatty / oily foods, also alcohol consumption have high contribution on overweight and obesity. Lifestyle factors due to urbanization including sedentary lifestyle and decreased physical activity are also major risk factors of overweight and obesity. It is the fact that if a person does not exercise so as to balance the energy intake and expenditure then there is a possibility of such person to become overweight due to the fact that there is excessive energy in the body. Therefore, unhealthy diet intake, inadequate involvement in physical activites can led to excess of calories in the body, which in turn leads to overweight and obesity. Knowledge on type of food people eat, knowing reasons on why people are overweight and methods for prevention are key factors for preventing weight gain. If a person has negative attitude toward overweight and obesity then the likelihood of taking measures on reducing overweight and obesity is high. Therefore knowledge and attitude are other risk factors which may direct impact on the weight status of the individual.

At the end a person is faced excess energy in the body, leading to increased storage in the body, and cumulatively energy gain consequently leading to overweight and overweight and hence the final impact of this phenomenon is adverse health effects including high risk of diet related non communicable diseases as well as increased odd of dying. All these factors, especially modified factors can be reversed if people are knowledgeable and have negative attitude towards overweight and therefore exercising weight loss activities.

1.3 Rationale of the Study

The study findings may be used by government’s policy and decision makers in designing overweight and obesity prevention interventions. Researchers may use the results in order to implement large interventions which benefits women by saving their lives hence reducing the prevalence of NCD and reducing the burden of health care costs to the government.

1.4 Research Questions

1.4.1 Main Research Question

What are the factors associated with overweight and obesity among women of reproductive age in Ilala Municipality?

1.4.2 Specific Research Questions

1. What is the level of knowledge on overweight and obesity among women of reproductive age in Ilala Municipality and their likelihood of being overweight and obese?
2. What is the association between Ilala Municipality women's of reproductive age attitude on overweight and obesity and their likelihood of being overweight and obese?
3. Is dietary intake associated with overweight and obesity among women of reproductive age in Ilala Municipality?
4. Is physical activity associated with overweight and obesity among women of reproductive age in Ilala Municipality?

1.5 Research Objectives

1.5.1 Broad Objective

The broad objective of this study was to determine the factors associated with overweight and obesity among women of reproductive age in Ilala Municipality

1.5.2 Specific Objectives

The specific objectives were;

1. To assess the level of knowledge on overweight and obesity among women of reproductive age in Ilala Municipality and their likelihood of being overweight and obese
2. To assess the association between Ilala Municipality women's of reproductive age attitude on overweight and obesity and their likelihood of being overweight and obese
3. To determine the association between dietary intake and overweight and obesity among women of reproductive age in Ilala Municipality; and
4. To determine the association between physical activity and overweight and obesity among women of reproductive age in Ilala Municipality.

CHAPTER TWO:

2 LITERATURE REVIEW

This chapter provides the literature review basing on the objectives of the study. It also reviews other confounding factors such as age, education levels and marital status which may be associated with overweight and obesity.

2.1 Knowledge of Overweight, Obesity and the Likelihood of being Overweight and Obese

Knowledge on overweight and obesity is much associated with the women being either overweight, obese or having normal weight. It is known that if a person is knowledgeable on the factors of overweight and obesity then the likelihood of undertaking positive attitude towards behavior of interest is high (27). However, it has been uncertain whether knowledge on the health consequences of overweight and obesity leads to greater engagement and success in weight loss efforts (28).

The empirical results indicate that changes in dietary knowledge among adults has no significant influence on adults overweight and obesity, a likely result of lacking systematic dietary knowledge and having inadequate guidance on overweight and obesity related behaviors (29). Previous studies have explored the relationship between body mass index (BMI) and nutrition knowledge, showing mixed results (30). Some research done among women (31), has shown a lack of association between BMI and nutrition knowledge, while other studies have reported a positive relationship between overweight and obesity and respective knowledge (32).

Nitert et al showed that increasing women‘s of reproductive age knowledge on the short and long term risks of obesity to their own and their offspring‘s health is likely to be an important first step in preventing overweight and obesity. It has been suggested that the readiness to make behavioral changes is preceded by knowledge about the causes and consequences of a disease (33).

Therefore this study will provide information on knowledge on overweight and obesity and the likelihood of being overweight and obese among women of reproductive age in Ilala Municipality.

2.2 Attitude towards Overweight, Obesity and the Likelihood of being Overweight and Obese

Studies from around the world indicates that there is a widespread negative attitudes towards overweight and obesity among women of reproductive age, which often leads to social stigmatization and lowered self-esteems among the victims. Adding salt to injury, it appears that negative attitudes towards being fat appeared to be on the increase over time (34). Thus, the implications of this reality is that overweight and obese individuals are not only facing higher risk of short term and long term consequences in terms of health, but also a potentially significant societal impact due to discrimination and negative social attitude towards these conditions. Among the concerns shared by health and nutrition experts is that negative attitudes towards overweight and obesity among adults women may lead into elevated depression, general psychiatric symptoms, body image disturbance and lower self-esteem in overweight and obese individuals (35). The contexts and situations on which overweight and obese people are facing discrimination and social stigma are several (36). Studies in Europe have shown that obese people are discriminated against in recruitment and promotion at work (37). In Tanzania, only one third of study participants linked overweight and obesity with beauty, and even fewer associated overweight and obesity with good health (2).

Thefore, the study assessed attitudes towards overweight and obesity among women of reproductive age in Ilala municipality by their background characteristics. The attitude status was compared by their respective weight status in order to draw conculsion on the relationship between attitudes towards overweight and obesity among women of reproductive age.

2.3 Association between Physical Activity and Overweight and Obesity

Physical inactivity is considered to be one of the most important public health problem among WRA. Generally, it is known that physical inactivity is associated with different kinds of chronic diseases such as breast cancer among adults women (38). The beneficial effects of physical activity include the reduction of premenstrual distress too (38). It is known that infertility in obese people is due to the body weight that plays a key role in the development of reproductive function (39).

Physical activity may protect the postmenopausal among WRA because reduced lifetime exposure to endogeneous hormones either direct or indirect by preventing overweight and obesity and abdominal adiposity (40).

Adequate physical activity has been shown to have many health promoting properties and has a direct association in reducing CVDs mortality. Inactivity on the other hand is one of the most important factors that have been associated with overweight and obesity. The amount of physical exercise has been decreasing as a result of the high degree of urbanization. In urban settings, for example, public transport replaces the traditional pattern of walking long distances, and urban employment usually entails far less physical labor than rural employment or other activities of daily living (41). Several reseachers suggest that modernization has contributed to declining physical activity in a number of ways, influx of vehicles has reduced the need for active transportation (42), other contributing factors are the increase in labor saving devices at work, home, transit and play, while leisure time activities increasingly involve passive entertainment (43).

The lack of physical activity is evident in all population segments and the trends are not favorable either (43). Adults do not meet the recommended amount of physical activity to obtain the optimal amount of healthy benefits (43), that is engaging in regular physical activity (150 minutes spread through the week for adults) (19). So there has been a decline in engaging in physical activity which has to proportionally lead to the decreases in energy expenditure. This decline in total energy expenditure, if not accompanied by a reduction in energy intake, may be associated by weight gain and potential overweight and obesity (44).

It is however known that overweight and obesity are largely preventable with changes in life style and avoidance of sedentary habits (45). Sedentary habits includes sitting or lying down while watching television or playing electronic games; sitting while at work or school, sitting while socializing with friends or family, sitting in a car or other form of motorized transport, sitting or lying down to read, working at a desk, and sitting and using a computer or mobile device (46).

2.4 Overweight and Obesity n Association with Dietary Intake

Research findings have shown that many dietary habits are highly associated to overweight and obesity (47), changes in dietary patterns in the past few decades, such as an increase in the consumption of high fat and sugar foods, have been also implicated in the increase in overweight and obesity (34). Lifestyle changes, such as heart-healthy eating (48)(49) and supportive environments and communities are fundamental in shaping people's choices, by making the choice of healthier foods that is the most accessible, available and affordable, and therefore preventing overweight and obesity. Globally, there has been an increased intake energy-dense foods that are high in fat and increase in physical inactivity due to the increasing sedentary nature of many forms of works, changing modes of transportation and increasing urbanization (19), which is associated with overweight and obesity due to weight gain. Therefore, both conveniently available inexpensive energy-dense food and reduced opportunities for energy expenditure have contributed to the increased level of obesity. Body weight is maintained when calories eaten equals the number of calories the body expends, or "burn", when more calories are consumed than burned, energy balance is tipped toward weight gain. For many people, being overweight or obese primarily results from a combination of excess calorie consumption (43). These are among other factors which led to people being overweight and obese.

Therefore this study provided information on the association between dietary intake and overweight and obesity among Women of Reproductive Age in Ilala municipality.

2.5 Other Factors Associated to Overweight and Obesity

Other factors positively associated with obesity include marital status, high educational level (50). Studies shows that, women who were not in a marriage-like relationship or living with a partner are at increased risk of being overweight and obese (35). Findings support some studies (36) that marriage was associated with weight loss and low BMI, but were contradicted by several studies, which found an association between obesity and being and getting married (37).

Parity is also a factor for overweight and obesity however, it is important to establish if there is any association between overweight and obesity and the number of children the women had (51). Education level is considered to influence overweight and obesity-linked health behavior, such as specific dietary habits and physical exercises (52), according to previous studies (57) there is an inverse association between educational level and the prevalence of overweight and obesity.

Also age is another non-modified factor which may influence exposure to factors of overweight and obesity, therefore age is among non-modified factor which affects individuals susceptibility to gain body weight and development of obesity (54).

CHAPTER THREE:

3 METHODOLOGY

This chapter explains how the study was implemented. It comprises of research design, study area, study population, sampling strategy and design, study tools, pre testing of questionnaire, athropometric measurements, data processing and ethical clearance.

3.1 Study Design

Since observations took place at a single point in time, therefore the study was cross sectional one which was quantitatively collected information on the risk factors for overweight and obesity among women of reproductive age.

3.2 Study Area

The study was conducted in Ilala Municipality, which is one of the 5 admnistrative councils of Dar es Salaam city. Ilala has a total population of 1,616,901 of which 789,405 are males and 827,496 are females.

Dar es Salam have economic potentials in industrial production and business transactions, which are mainly centred in Ilala Municipality. This makes Ilala to have all signs of urbanization, which is also a contributing factor for overweight and obesity thus the basis for being selected for the study.

Ilala as the major commercial centre in Tanzania has a number of developed industries. The most significant industries include medium industries which process food, beverage and textiles. Others include small scale industries which dominates wide range of food and textiles. The small scale industries comprises hulling and milling and fruit processing machines which add value to agricultural primary products. Due to availability of these industries and having a nature of urbanization characterized by low physical activity due to the high engagement in sedentary activities, it means more people are exposed to factors of overweight and obesity especially women. This is also a major reason on the selection of the study area.



Figure 3: Dar es Salaam Map Showing Ilala Municipality

3.3 Study Population

All women aged 15-49 residing in Ilala for at least 3 months were eligible for participating in the study. We selected women who have at least lived in Ilala for at least 3 months because such duration may have a measurable influence on the outcome. Therefore, women aged 15 – 49 was the unit of analysis.

3.3.1 Inclusion Criteria

The criteria to be included in the study was as follows,

- Women aged 15-49 years; and
- Has lived in Ilala for at least 3 months.

3.3.2 Exclusion Criteria

The following were the criteria for exclusion in the study;

- Women who gave birth six month ago were excluded because of gestational weight gain also 6 months is enough period for the effects of weight gain during pregnancy to be realized
- Pregnant women;
- Severe sickness;
- Those who did not signed the informed consent; and
- Not accessed after 2 consecutive attempts.

3.4 Sampling Design and Strategy

The study involved a two-stage clusters sampling with selection of units basing on the Probability Proportional to Size (PPS) for drawing the Primary Sampling Units (PSU), in this case Enumeration Areas (EAs) used the National Sampling Frame. Therefore the first stage involved selection of EA basing on the number of household (PPS selection). The EA with more number of household had higher chance of being selected. A sample of households were selected during the second stage for interview from the drawn EAs. A household was the Secondary Sampling Unit (SSU). During the second stage of the household selection, all households with a woman of reproductive age was eligible.

3.4.1 Sample Size Calculation

The net sample size needed for a cluster sampling with same relative standard error was given by:

$$n = \text{Deft}^2 \times \frac{(1/P - 1)}{\alpha^2}$$

Where;

Deft is design effect;

n is the net sample size in individuals;

P is the proportion value of the indicator; and

α is the desired relative standard error (55).

Taking the current value of overweight which is 0.26 (3), design effect of 1.5 and the relative standard error of 0.112, then the net sample size was 511 women at 95% confidence limit.

Then the eligible and competed interview was calculated basing on the facts obtained from the 2015-16 TDHS: there were 1.5 (d = 1.5) women aged 15-49 per household in urban areas and women response rate was 97% (R_i = 0.97) (3). Due to homogeneity in the exposure to the risk factors on overweight among members of household, only one women was interviewed in each household, preferably wife of the head of household or women head of household, now d = 1.

The number of allocated households in the study was obtained by dividing the net sample size by product of the individual response rate and the number of eligible individuals per household and household response rate as follows;

$$n = \text{Deft}^2 \times \frac{(1/P - 1)}{\alpha^2} \Big/ (R_i \times d)$$

Where Ri was the individual response rate = 0.97, d was the number of eligible individuals per household = 1 then the total number of allocated households is 527 households (Table 1).

Table 1: Sample Size Determination

	Allocation			Household		Individuals	
Domain	Individuals	Household	EA	Selected	Completed	Eligible	Completed
Ilala	511	527	23	529	529	529	513

23 households was interviewed in each EA; therefore the number of EA obtained by dividing the allocated number of households by 23 households. Therefore in total the study included 23 EAs in Ilala District.

3.4.2 Sampling Frame

The study used the 2012 Tanzania Population and Housing Census (PHC) as a sampling frame(55). The census frame is a complete list of all census enumeration areas (EA) created for the 2012 population census(3).

Ilala is administratively divided into 26 wards, and each ward is divided into streets and each street is divided into smaller administrative units called Enumeration Areas (EAs). The EA size was an adequate size for being primary sampling unit (PSU) with a sample take of 23 households per EA. The small size of the EAs and the availability of sketch maps and other materials to

delimitate their geographic boundaries make census EAs an ideal unit for use as the frame for the first stage of the selection of the sample.

The PPS selection of PSU (EA) was done from the sampling frame followed by selection of the households (SSU). The PPS selection of PSU was done in order to ensure representativeness. Before selection of household, we listed all households in EAs so as to updated the frame. Listing and selection of household was done simultaneously with data collection in all of the selected EAs. The household listing operation consisted of visiting each of the selected EAs and listing all the households in each EA. The resulting list of households served as sampling frame for the selection of households in the second stage. Only household with WRA was eligible and therefore listed.

In the second stage of selection, a fixed number of 23 households were selected in every EA (3), by an equal probability systematic sampling based on the newly updated household listing. A spread sheet indicating the selected household numbers for each EA was prepared.

3.5 Data Collection Tools and Methods

The study used the WHO STEPS questionnaire for assessing factors for Non-Communicable Diseases (NCD) to collect data on diet intake, alcohol consumption, smoking cigarette and physical activity. Questions on knowledge of overweight and obesity and attitude towards overweight and obesity was developed and included in the questionnaire (customization). The STEPS tool has previously been used in Tanzania among adult population (22).

Data collection was first involved administratively reporting to the Regional Administrative Secretary (RAS) and then to Ilala Municipal Director. Then before entering the EA, the team reported to Ward Executive Officer (WEO) and Mtaa Executive Office (MEO) and agreed on the schedule and other logistics before commencing data collection. After household listing, only selected household were informed on their selection for the study. The purpose of the study were then re introduced again to the selected households and all selected households were requested to participate in the study. Finally face to face interview was conducted.

3.6 Pre Testing of Questionnaire

Before commencing of data collection, the researcher pre tested the questionnaire in order to observe the following;

i. Flow of questions and consistency;
ii. Understandability of questions; and
iii. Time for completion one interview.

A one-day pre test of the data collection tool was done at Tabata ward on the last 2 days of training of research assistants. Tabata ward was randomly selected and was not included in the main study. Findings from the field work were used to improve the study tool.

3.7 Anthropometric Measurements

Anthropometric measurements - height and weight were twicely measured from eligible women in the households in order to minimize errors. The information on height and weight used in calculating Body Mass Index (BMI). BMI is a ratio of individual's weight in kilograms to their height in meters squared (kg/m2) that provides a general indication of the nutritional status of adults. According to the World Health Organization (WHO) cut off points, BMI less than 18.5 describes an individual that is too thin for their height (56), while a BMI of 18.5 to 24.9 is described as the optimal range that signifies an individual has good nutrition status. Cut-off points defining overweight is BMI ranges from 25.0 to 29.9 and Obese for BMI > 30.0 or above, respectively (56). Waist circumference is an important predictor of health risk measured at the top of the iliac crest. The waist circumference of >80cm for women is associated with an increased risk of type 2 diabetes and CVD. If a woman found having a waist circumference of >80cm it means that she is a risk of developing CVD. The waist measurement were taken direct to the skin by tape while the person standing. The anthropomentric measurements were done using Secca scale with digital screen, height board and tape (57).

The procedures for measuring weight includes; prepare the respondents by telling her that you are going to weigh her using a secca digital scale, asking her to remove shoes before steping onto the centre of the scale and stand quietly and recording the weight in question number 87 in a tablet.

Also measuring height involved steps such as plcacing the measuring board on a hard, flat surface against a wall, table or tree, asking respondents to take off her shoes, telling her to stand on the base of the height measuring board and to face forward, reading the measurement to the nearest centimetres and recording the measurement in question 86 in the tablet.

Measuring waist circumference involved finding the top of hip bone and the bottom of respondents' ribs, placing the tape measure midway between these points and wraping it around the waist, reading the measurement to the nearest centimentres and recording the measurement in question 88 in the tablet.

3.8 Study Variables

The study had two main variables which were dependent and independent variables.

3.8.1 Dependent Variable

Overweight and Obesity was a dependent variable of the study measured using BMI. Since BMI was a continuous variable it was converted into categorirical using WHO cut-off points. The WHO cut-off point of overweight and obesity was used to convert the BMI into binary variable.

3.8.2 Independent Variables

Independent variables includes demographic factors (age, education level, occupation and marital status), knowledge, attitude, physical activity and dietary intake.

Knowledge was derived based on the questions asked on causes of overweight and measures for preventing overweight. A person was regarded as having knowledge if got 4 questions correct out of 7 questions. Attitude was measured by asking respondents to provide their opinions on the susceptibility and severity on becoming overweighted, perceived benefits of eating less food and doing physical exercise which could help in knowing those with positive or negative attitude on overweight and obesity. Dietary intake was grouped into three main types of food namely fatty/oil, sugary foods and alcoholic beverages. A composite binary variable for dietary intake was created by combining those who ate fatty/oil foods, sugary foods and alcoholic beverages.

The consumption of food was considered as unhealthy (poor diet in take) if fatty/oil was consumed more than 4 days in a week or sugary foods were consumed more than 3 days in a week or drinking alcohol every day in a week otherwise it was condiered as dietary intake. The level of physical activity was measured using the number of minutes a person is engaged in moderate intensity activities. It is categorized as a minimum of 150 minutes per week. Physical activity as independent variable enabled the researcher to come describe (58).

All the variables were grouped into three groups namely continuous, categorical and binary variables. Age was a continuous variable while education level, occupation and marital status

were categorical variables. Also Knowledge, attitude, physical activity and dietary intake were binary variables.

3.9 Data Processing and Analysis

Data processing and analysis was carried out using a number of softwares as follows;

i. Census and SurveyProcessing Systeam (CSPro) for data collection during field work; and
ii. STATA (Version 15) for data analysis.

There were two types of analysis that were undertaken namely descriptive and inferential analysis.

Descriptive analysis of all categorical variables produced frequency and percentage tables, prevalence of overweightand Obesity. The computed BMI was converted to categorical basing on the WHO cut-off points in order to obtain BMI categories namely underweight,normal weight, overweight and underweight. This analysis provides input for Background Characteristics of the Participants table.

The variables overweight, knowledge, attitude and physical activity was converted to binary variables before analysis. Then inferential analysis was carried for significance testing. Bi-variate analysis was done in order to test the relationship between independent variables such as age, education, occupation, marital status, knowledge, attitude, physical activity and dietary intake and overweight and obesity using Pearson's chi square. All independent variables with P-values of < 0.05 were considered significant and therefore considered for logistic regression. Initially, the bi-variate analysis was carried using logistic regression analysis in order provide the crude odds ratio with 95% confidence interval. Multivariate logistic regression was perfomed in the second stage in order to control confounders such as age, education levels, occupation and marital status in order to obtain adjusted odds ratio. This analysis provided the input for association between overweight and obesity and Demographic Characteristics, Knowledge, Attitude, Physical Ativity and Dietary Intake table. All results were not weighted.

3.10 Ethical Consideration

Ethical clearance was obtained at MUHAS and the introductory letters to the District level was provided by Dar es Salaam Regional Administrative Secretary (RAS) Office and the final letter to the ward level was prepared by Ilala Municipal Council, this letter introduced the team members to the Ward Executive Officer.

The following were the ethical considerations that were adhered for the study;

i. Interview was carried in Swahili for easier communication between researcher and respondent;
ii. Before the starting of interview, the researcher read the consent which contains objectives and methods that was used for the study before signing the form;
iii. Respondent signed the consent form after agreeing to participate in the study;
iv. All collected information was strictly kept confidential; and
v. Privacy was strictly maintained during data interview.

CHAPTER FOUR

4 RESULTS

This chapter provides the results for the factors of overweight and obesity and their association to overweight and obesity among women of reproductive age in Ilala Municipality. The chapter also provides results for the factors by demographic background of respondents such as age, education level, occupation and marital status.

4.1 Background Characteristics of the Participants

Out of 513 women of reproductive age (WRA) , a total of 506 women of reproductive age (WRA) were interviewed which gave a total response rate of 98%, the mean age was 31 years with standard deviation = 8.3. The mean BMI was 27.2kg/m^2 and standard deviation = 25.8, respecitvely. According to Table 2, majority (35.2%; n=178/506) of respondents had age between 30-39 years also 60.2% (n=305/506) of respondents completed primary school. Of 506 respondents who were interviewed 72.7% (n=368/506) were married.

Overall, 34.4% (n= 174/506) of interviewed respondents were overweight while 14.0% (n=71/506) were obese. The remaining 47.0% (n=238/506) had a normal weight and only 4.5% (n=23/506) were underweight. The percentage of overweight and obesity was 48.4%.

Table 2: Percentage Distribution of Women of Reproductive Age by Demographic Background and Body Mass Index in Ilala Municipality, 2018.

Background Characteristics		Number	Percentage
Age (Years)	15-24	125	24.7
	25-29	115	22.7
	30-39	178	35.2
	40-49	88	17.4
Education	Not Completed Primary School	27	5.3
	Completed Primary School	305	60.3
	Sec School and Above	174	34.4
Occupation	Self Employed	208	41.1
	Homemaker	238	47.0
	Others	60	11.9
Marital Status	Married	368	72.7
	Never Married	113	22.3
	Ever Married	25	5.0
BMI	Underweight	23	4.5
	Normal Weight	238	47.1
	Overweight	174	34.4
	Obese	71	14.0
	Overweight and Obese	245	48.4

4.2 Bivariate Analysis of Factors Associated with Overweight and Obesity

Results revealed that Overweight and Obesity increases with age, age showed significant results when associated with overweight and obese at P = 0.001. The highest percentage of overweight and obesity was found to respondents who completed primary school. Self employed respondents were more overweight and obesed compared to other occupactional groups (53.4%). Also 60% of respondents who were ever married were overweight and obesed.

The mean score for knowledge was 80.2 (standard deviation = 53.4). Of 506 interviewed respondents, 92.2% (n=467/506) had knowledge on overweight while the rest 7.8% (39/506) were categorized as having no knowledge. It was also observed that 48.8% of respondents who had knowledge were overweight and obesed while 43.6% of those who had no knowledge were overweight and obese. This difference in overweight and obesity among respondents who had knowledge and those who had no knowledge on overweight and obesity was not significant.

The analysis shows that, 60.7% (n= 307/506) had a negative attitude toward overweight and obesity while 39.3% (n=199/506) had positive attitude. 48.2% (n = 148/307) of respondents who had negative attitude were overweight and obese while 48.7% (n = 97/199) of those who had positive attitude were overweight and obese this difference was not significant.

The mean time for physical activity in this population was 433 minutes (standard deviation = 362) in a week. Majority of the study participants (75.9%; n=290/382) engaged in moderate to vigours physical activity. Results shows that respondents who were engaged in physical activity 47.6% (n=138/290) were overweight and obese while those not engaged in physical activity, 49.5% (n=45/92) were overweight and obese. The difference in physical activity status were significant with P value = 0.045.

Of those who had proper dietary intake (healthly eating), 47.1% (n=8) of them were overweight and obese while 48.5% (n=237) of respondents who had poor dietary intake (unhealthy eating) were overweight and obese. The difference was statistically significance with P value = 0.009.

Table 3: Percentage Distribution of Overweight and Obesity Status by Demographic Characteristics, Knowledge, Attitude, Physical Ativity and Dietary Intake among Women of Reproductive Age in Ilala Municiplaity, 2018

Demographic Characteristics		Total	Overweight and Obesity		P Value
			Yes	No	
			n (%)	n (%)	
Age (Years)	15-24	125	39(31.2)	86(68.8)	
	25-29	115	48(41.7)	67(58.3)	
	30-39	178	104(58.4)	74(41.6)	
	40-49	88	54(61.4)	34(38.6)	0.001
Education	Not Completed PS	27	14(51.9)	13(48.1)	
	Completed PS	305	156(51.1)	149(48.9)	
	Sec School and above	174	75(43.1)	99(56.9)	0.124
Occupation	Self Employed	208	111(53.4)	97(46.6)	
	Homemaker	238	106(44.5)	132(55.5)	
	Others	60	28(46.7)	32(53.3)	0.077
Marital Status	Married	368	183(49.7)	185(50.3)	
	Never Married	113	47(41.6)	66(58.4)	
	Ever Married	25	15(60.0)	10(40.0)	0.762
Knowledge	No	39	17(43.6)	22(56.4)	
	Yes	467	228(48.8)	239(51.2)	0.531
Attitude	Negative	307	148(48.2)	159(51.8)	
	Positive	199	97(48.7)	102(51.3)	0.907
Physical Activity	No	216	107(49.5)	109(50.5)	
	Yes	290	138(47.6)	152(52.4)	0.045
Diet Intake	No	489	237(48.5)	252(51.5)	
	Yes	17	8(47.1)	9(52.9)	0.009
Total		506	245(48.4)	261(51.6)	

4.3 Multivariate Analysis of Factors Associated with Overweight and Obesity

The main factors for overweight and obesity among women of reproductive age were physical activity, dietary intake and age. After adjusting for potential confounders namely age, education level, occupation and marital status, we found that respondents with 30-39 years were more likely to be overweight and obese (AOR=2.6; 95% CI: 1.4 - 4.8; P = 0.002) compared to respondents with age between 15 – 24 years. Also respondents whose age ranging between 40-49 years were significantly more likely (AOR= 2.1; 95% CI: 1.1 - 4.5; P=0.034) to be overweight and obese than respondents with age between 15 – 24 years. This is to conclude that, respondents with age between 30 – 39 years have 2.6 fold risk of being overweight and obese compared to respondents whose age is between 15 – 24 years. Also the risk being overweight and obese is 2.1

higher to the respondents with age ranging from 40 – 49 years compared to their counter group with age 15 – 24 years.

Additionally, women who had physical activity were less likely to be overweight and obese compared to their counter part who had no physical activity (AOR=0.6; 95% CI: 0.4 – 0.9, P=0.026). The wider ranges of confidence interval for age between 30 – 39 years and 40 – 49 years is due to the smaller number of observations within these age groups as shown in Table 3. In addition to that, women who reported proper dietary intake were less likely to be overweight and obese than those who had poor dietary intake (AOR=0.3; 95% CI: 0.1 - 0.8, P=0.039).

Table 4: Factors of Overweight and Obesity and their Association to Overweight and Obesity among Women of Reproductive Age in Ilala Municipality, 2018

Demographic Characteristics		Total	Odds Ratio					
			COR		95% CI	AOR	P Values	95% CI
Age (Years)	15-24	125	1.0			1.0		
	25-29	115	1.6		[0.9 , 2.7]	1.5	0.183	[0.8 , 2.8]
	30-39	178	3.1	***	[1.9 , 5.0]	2.6 ***	0.002	[1.4 , 4.8]
	40-49	88	3.5	***	[2.0 , 6.2]	2.1 ***	0.034	[1.1 , 4.5]
Education	Not Completed PS	27	1.0			1.0		
	Completed PS	305	1.0		[0.4 , 2.5]	1.0	0.982	[0.4 , 2.7]
	Sec School and above	174	0.8		[0.3,1.8]	0.7	0.563	[0.3 , 2.1]
Occupation	Self Employed	208	1.0			1.0		
	Homemaker	238	0.7		[0.5 , 1.0]	0.7	0.138	[0.4 , 1.1]
	Others	60	0.8		[0.4 , 1.4]	1.1	0.88	[0.5 , 2.1]
Marital Status	Married	368	1.0			1.0		
	Never Married	113	0.7		[0.5 , 1.1]	0.7	0.262	[0.4 , 1.2]
	Ever Married	25	1.5		[0.7 , 3.5]	1.0	0.986	[0.3 , 2.9]
Knowledge	No	39	1.0			1.0		
	Yes	467	1.2		[0.6 , 2.4]	1.1	0.886	[0.5 , 2.4]
Attitude	Negative	307	1.0			1.0		
	Positive	199	1.0		[0.7 , 1.5]	0.8	0.334	[0.5 , 1.3]
Physical Activity	No	216	1.0			1.0		
	Yes	290	0.9	***	[0.5 , 1.4]	0.6 ***	0.026	[0.4 ,0.9]
Diet Intake	No	489	1.0			1.0		
	Yes	17	0.9	***	[0.4 , 2.5]	0.3 ***	0.039	[0.1 ,0.8]

*** p<0.05 COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio, CI = Confidence Interval and PS = Primary School

CHAPTER FIVE

5 DISCUSSION

We aimed at determining factors associated with overweight and obesity among women of reproductive age 15 – 49 years in Ilala Municipality. We have found that overweight and obesity is associated with age, physical activity and dietary intake.

The results revealed that the mean BMI was 25.5kg/m^2, this result is almost similar to the one from TDHS 2015/16 which was 25.65kg/m^2 for Dar es Salaam region (18). The different may be due to the reporting domain and weighting, where by in TDHS the results were weighted at region level while this study covered only one municipality in Dar es Salaam with unweighted findings. Also Tanzania STEPS survey report showed a BMI of 24.35kg/m^2 for female in Tanzania (22). The percentage of specific BMI level was established, the results shows that total overweight and obesity accounts for 48.4%. This study found that, overweight have increased compared to TDHS 2015/16 where 26.0% of women in Dar es Salaam were overweight while 20.8% were obese. The results have shown that the prevalence of overweight and obesity is unacceptably high among WRA in Ilala Municipality. The upwards trend of overweight and obesity prevalence is contrast to the target of the Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013 – 2020.

However, we found that age, physical activity and dietary intake were significant determinants for overweight and obesity in the study population. The results indicated the higher prevalence of overweight and obesity during the older age compared to adolecents ages group, this led a call that more interventions should target the older ages group as most of them are not physically active. We observed a 2.6 fold increase in the odds of being categorized as overweight and obese for respondents with age between 30 – 39 years and 2.1 fold increase in the odds of being categorized as overweight and obese for respondents with age between 40 – 49 years compared to their counterpart with age 15 – 24 years. The more weight gain at older ages may be due to different factors such as higher parity, the use of family planning, also elders reported to not participate in any physical activity. e.t.c. Higher parity has been implicated as a risk factor for obesity of women. Parity may contribute to obesity due to postpartum weight retention. The results on age are consistency with other studies although there is different in magnitude.

Physical activity is one among essential components of a health life which leads to preventions of a number of chronic diseases such as coronary heart diseases, diabetes, hypertension, breast cancer e.t.c. which if not preventable they may cause death. Therefore physical activity contributes to the lowering health care costs by serving individuals from being affected by mentioned diseases. Regular physical activity plays an important role in weight loss and maintenance (60), Observational studies have shown that people who do comparatively more physical activity have a lower BMI than less active people (45). In public health implication, physical inactivity increase the risk of dying early, risk of heart diseases, risks of: stroke, type 2 diabetes, depression and some cancers. Estimates show that about 3.2 million global annual deaths are caused by insufficient physical activity (28).

Health risks related to unhealthy eating include over-consumption, lack of fruit and vegetables, and saturated fat intake (28) which may also led to excessive deposition of fats and sugar in the body hence overweight and obesity and therefore risks of NCD. WRA who have unhealthy eating behavour are at risk of being affected by NCD if such behavior will not be controlled and changed.

The Sustainable Development Goals (SDG) aimed at reducing reducing by one third premature mortality from non-communicable diseases through prevention and treatment and promotes mental health and well-being by 2030. This target can only be realized if implementable policies and interventions to curb factors of overweight and obese will be in place. However, we have seen that, most of youths and adults are at risk of overweight and obesity then the government have to insist physical exercise and sports from primary school to secondary school in order to avoid overweight and obesity and hence NCD in future. Also people have to change and having physical exercising culture so as to avoid having risks of overweight and hence NCD.

5.1 Study Limitations

i. The study may be affected by the inherent weakness of a cross sectional design this occurs when it cannot be determined that exposure (physical activity, dietary intake and age) preceded outcome (overweight and obesity), since both are ascertained at the same time.

ii. Recall bias. Reference period for dietary and physical activity was 7 days, therefore it might happen that the respondents sometims provided incorrect information due to failure

in recalling hence introduced biased in the findings. The research asistants were trained on probing technique so as to minimize such bias.

iii. Measurement errors. The study involved anthropometric measurements to respondents. It might happen that height and weight measurements were not taken correctly then introduced measurement error . This error was controlled by training research assistants on the appropriate procedures for undertaking anthropometric measurements. Also calibration of errors was done during measuments process. The research assistants were closely supervised in order to maintain quality of collected information and therefore reducing measurement errors.

iv. Weighting. Results of this study were not weighted.

v. Pregnancy status was self reported. This has been included as a limitation as women with early pregnancy may not know of their status or may not feel comfortbale reporting it

CHAPTER SIX

6 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

We have found that the percentage of overweight and obesity is 48.4% among WRA in Ilala while age, physical activity and dietary intake are significant factors of overweight and obesity among women of reproductive age in Ilala Municipality.

6.2 Recommendations

Avoidance of overweight and obesity is considerably more worth than the treatment of the condition once it is built up. Necessary measures for preventing overweight and obesity should begin early in life before the adverse effects are realized. Therefore more attention should focus on the strategies aimed at preventing weight gain as this approach is more likely to be cost effective and efficiency on the long term control of the body weight.

Based on the study findings, the following are the recommendations;

1. To create awareness to community on the importance of physically exercises in reducing overweight and obesity through sports clubs for adults and youth, jogging clubs and discourage sedentary behaviours. Ministry of Information, Youth, Culture and Sports and Ministry of Lands and Settleemnt have to coordinate the process by making sure that there are adequate open space for sporting. Jogging clubs should also be established and registered.
2. To promote health eating behavior using local available food and reduce the usage of fats,oil or sugarly refined food products and ecourage use of fibres food products. The Ministry of Health, Community Development, Gender, Elderly and Children through Tanzania Food and Nutrition Centre (TFNC) have to coordinate this strategy.

.

7 References

1. Jones J. The Theory of Attitude Formation and Change and Its Application to Social Group Work. United Coll J [Internet]. 1970;1(October 1963):509–16.
2. Keding GB, Msuya JM, Maass BL, Krawinkel B. Obesity as a public health problem among adult women in rural Tanzania. 2013;1(3):359–71.
3. NBS. Tanzania Demographic and Health Survey. 2015;230–49.
4. WHO. Obesity and overweight Fact sheet. 2014; N°311. WHO Media centre. http://www.who.int/mediacentre/factsheets/fs311/en/.
5. WHO. Global strategy for the prevention and control of noncommunicable diseases Report by the Director-General. 2000;(March).
6. Alwan A. Monitoring and surveillance of chronic non-communicable diseases: progress and capacity in high-burden countries. 2010;1(1):5–6.
7. WHO. Obesity and overweight [Internet]. 2016 [cited 2018 Oct 13].
8. WHO. Preventing Chronic Diseases a Vital Investment. World Health Organisation, Geneva. 2005.
9. Lewis M. Uneke, C.J., Iyare, F.E. and Sunday-Adeoye Ajayi, J.A. (2007) An Assessment of the Impact of Placental Plasmodium Malaria and Perinatal Outcome in Nigeria. Internet Journal of Parasitic Diseases, 3. Cent Glob Dev. 2012;
10. Dandekar HC. Stevens GA, Singh GM, Lu Y, Danaei G, Lin JK, Finucane MM, et al. National, regional, and global trends in adult overweight and obesity prevalences. Popul Health Metr. 2012;10:22.
11. WHO. Media centre Obesity and overweight. 2016;1–5.
12. Charles A. Obesity in Sub-Saharan Africa. 2015;(January).
13. Leddy MA, Power ML, Schulkin J. The impact of maternal obesity on maternal and fetal health. Rev Obstet Gynecol [Internet]. 2008;1(4):170–8.
14. Wang Y BM. The obesity epidemic in the United States – gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. 2007;2(298):228–37.
15. Pereko KK, Setorglo J, Owusu WB, Tiweh JM, Achampong EK. Overnutrition and associated factors among adults aged 20 years and above in fishing communities in the urban Cape Coast Metropolis, Ghana. Public Health Nutr [Internet]. 2013;16(04):591–5.

16. Shayo GA, Mugusi FM. Prevalence of obesity and associated risk factors among adults in Kinondoni municipal district, Dar es Salaam Tanzania. BMC Public Health [Internet]. BioMed Central Ltd; 2011;11(1):365.
17. Chivaghula TJ, Muhimbula HS, Krawinkel M, Kinabo J, Sciences C. Overweight and Obesity among Adults in Same District, Tanzania. 2016;15(2):81–92.
18. NBS. Tanzania Demographic and Health Survey and Malaria Survey. 2015. 230-249 p.
19. WHO. Obesity and overweight. WHO [Internet]. World Health Organization; 2017 [cited 2017 Oct 5]; Available from: http://www.who.int/mediacentre/factsheets/fs311/en/
20. Bonadonna RC, Groop L, Kraemer N, Ferrannini E, Del Prato S, DeFronzo RA. Obesity and insulin resistance in humans: a dose-response study. Metab Clin Exp. 1990; 39(5):452–459. [PubMed: 2186255].
21. National Bureau of Statistics [Tanzania] Om: Tanzania Demographic and Health Survey 2004-2005. 2005, Chapter 11:201[http://www.measuredhs. com/pubs/pdf/FR173/FR173-TZ04-05.pdf], Accessed on 13th December, 2006. (November).
22. MoHCDGEC. Strategic and Action Plan for the Prevention and Control of Non Communicable Diseases in Tanzania 2016 – 2020. 2016;
23. Shayo GA, Mugusi FM. Prevalence of obesity and associated risk factors among adults in Kinondoni municipal district, Dar es Salaam Tanzania. BMC Public Health [Internet]. BioMed Central Ltd; 2011;11(1):365.
24. National Bureau of Statistics [Tanzania] Om: Tanzania Demographic and Health Survey 2004-2005. 2005, Chapter 11:201[http://www.measuredhs. com/pubs/pdf/FR173/FR173-TZ04-05.pdf], Accessed on 13th December, 2006.
25. TFNC. TMNS_2005_REPORT_2006_03_July. 2005. p. 10–27.
26. TFNC. Ministry of Health and Social Welfare Tanzania National Nutrition Survey. 2014;1(1):10–20.
27. Winstona GJ. Knowledge of the Health Consequences of Obesity among Overweight/Obese Black and Hispanic Adults. 2014;94(1):123–7.
28. Ginger J. Winstona, b, Erica Caesar-Phillipsa, b, Janey C. Petersona MTW, Johanna Martineza, b, Xi Chena, Carla Boutin-Fostera, b and MC aDivision. Knowledge of the Health Consequences of Obesity among Overweight/Obese Black and Hispanic Adults Ginger. 2014;94(1):123–7.

29. Caradas AA, Lambert EV, Charlton KE. An ethnic comparison of eating attitudes and associated body image concerns in adolescent South African schoolgirls. J Hum Nutr Diet (2001) 14(2):111–20. doi:10.1046/j.1365-277X. 2001.00280.x. 2011;(M):2203108.
30. Zhou L, Zeng Q, Jin S, Cheng G. The impact of changes in dietary knowledge on adult overweight and obesity in China. 2017;1–11.
31. Tineke DV, Christophe M, Wim V, Ilse P SD. Determinants of nutrition knowledge in young and middle-aged Belgian women and the association with their dietary behavior. Appetite. 2009; 52(3): 788±792. https://doi.org/10.1016/j.appet.2009.02.014 PMI. :1–470.
32. Tabassum HL, Mahbubur R, Pohlmeier AM, Abbey B. Level of nutrition knowledge and its association with weight loss behaviors among low-income reproductive-age women. Journal of Community Health. 2015; 40(3): 542±548. https://doi.org/10.1007/s10900-014-9969.
33. Nitert M.D., Foxcroft K.F., Lust K., Fagermo N., Lawlor D.A., O'Callaghan M. M, L.K. HD and C. Overweight and obesity knowledge prior to pregnancy: a survey study. BMC Pregnancy and Childbirth. 2011;(1):11–96.
34. "WHO: diet, nutrition and the prevention of chronic diseases," Tech. Rep. Series 916, Geneva, Switzerland, 2003.
35. Sunfarming. Brown, A.; Siahpush, M. Risk factors for overweight and obesity: results from the 2001 National Health Survey. Public Health 2007, 121, 603-613.
36. Sarlio-Lahteenkorva, S.; Lissau, I.; Lahelma, E. The social patterning of relative body weight and obesity in Denmark and Finland. Eur. J. Public Health 2005, 16, 36-40. 2017;
37. Sobal, J.; Raushenbach, B.S.; Frongillo, E.A., Jr. Marital status, fatness and obesity. Soc. Sci. Med. 1992, 35, 915-923. Heal Promot … [Internet]. 1996;11(3).
38. Ajayi Yewande Pat. Knowledge of Risk Factors and Health Implications of Obesity among Women of Reproductive Age in Ibadan South-West Local. 2014;10–6.
39. O.E. O, Y. A. Knowledge of diets as a modifiable risk factor of obesity among women of reproductive age in Ibadan, Nigeria. African J Biomed Res [Internet]. 2018;21(1 PG-37-42):37–42.
40. Mugo A. Obesity Among Women in Rural Kenya: Knowledge, Beliefs, and Perceptions. 2016;184.

41. Jamison, D.T., Feachem, R.G., Makgoba, M.W., Bos, E.R., Baingana, E.K., Hofman, K.J. and Rogo, K.O. (2006). Disease and mortality in Sub-Saharan Africa. A world Bank Publication. Retrieved on July 10th 2009, from http://publications.worldbank.org/ecommerc. 2009;
42. Misra P, Upadhyay R, Misra A, Anand K. Review of the epidemiology of diabetes in rural India. J Diab Res Clin Pr. 2011;92(3):303–11.
43. Gutterman S. Obesity : Status and Effects. 2011;
44. Popkin. Urbanization, lifestyles changes and the nutrition transition. World Dev. 1999;27(11):1905–16.
45. Yaturu, S. (2011) Obesity and Type 2 Diabetes. Journal of Diabetes Mellitus, 1, 79-95. http://dx.doi.org/10.4236/jdm.2011.14012. Gazette. 2010;II(0):1–24.
46. British Heart Foundation National Centre (BHFNC) for Physical Activity and Health (2012) What is sedentary behavior? Retrieved from file:///C:/Users/Puru/Downloads/whatissedentarybehaviour. pdf. Med J Aust. 2006;184(6):274–7.
47. Jebb. Dietary Determinants of Obesity. 2007;8:93–7.
48. NIH. Overweight and Obesity [Internet]. [cited 2017 Oct 5].
49. Amole BB, Oyatoye EO, Kuye OL. Determinants of Patient Satisfaction on Service Quality Dimensions in the Nigeria Teaching Hospitals. Emi [Internet]. 2015;7(3):1804–1299. Available from: http://emijournal.cz/wp-content/uploads/2015/08/01_Determinants-of-Patient-Satisfaction-on-Service-Quality-Dimensions-in-the-Nigeria-Teaching-Hospitals1.pdf
50. Yannakoulia, D. Panagiotakos, C. Pitsavos, Y. Skoumas, and C. Stafanadis. Eating patterns may mediate the association between marital status, body mass index, and blood cholesterol levels in apparently healthymen and women fromth. 2008;1:14–20.
51. Mbochi RW, Hsc BED. Overweight And Obesity Prevalence and Associated Socioeconomic Factors, Physical Activity and Dietary Intake Among Women In Kibera Division, Nairobi. 2010;(November).
52. Marques-Vidal P, Bovet P, Paccaud F, Chiolero A: Changes of overweight and obesity in the adult Swiss population according to educational level, from 1992 to 2007. BMC Public Health 2010; 10: 87. :1–2.

53. Seppänen-Nuijten E, Lahti-Koski M, Männistö S, Knekt P, Rissanen H, Aromaa A, Heliövaara M: Fat free mass and obesity in relation to educational level. BMC Public Health 2009; 9: 448. :1–13.
54. Kumar S, Garg SK, Singh JV, Bhatnagar M, Chopra H, Bajpai SK. Socio- demographic correlates of overweight and obesity among adults in rural Meerut. 2014;26(04):1–5.
55. International ICF. Demographic and Health Survey Sampling and Household Listing Manual. 2014;(May).
56. WHO. World Health Organization. WHO Obesity: Preventing and Managing the Global epidemic; 894, Report of the WHO consultation. World Health Organization Technical Report Series 2000. 2000. 1-253 p.
57. CDC. Anthropometry Procedures Manual. 3. 2009;(January):3–20.
58. National GK. Tanzania Steps Survey Report Ministry of Health and Social. 2016;(November).
59. Gravena AAF, Brischiliari SCR, Lopes TCR, Agnolo CMD, Carvalho MDB, Pelloso SM. Excess weight and abdominal obesity in postmenopausal Brazilian women: a population-based study. BMC Womens Health [Internet]. 2013;13(1):46.
60. U.S. Department of Health and Human Services. Overweight and Obesity Statistics. Nih [Internet]. 2010;6.
61. Besson H, Ekelund U, Luan J, et al. A cross-sectional analysis of physical activity and obesity indicators in European participants of the EPIC-PANACEA study. Int J Obes 2009;33:497–506. Mortality. 1998;(January 1993):81–9.
62. Orsini N, Bellocco R, Bottai M, et al. Correlates of total physical activity among middle-aged and elderly women. Int J Behav Nutr Phys Act 2007;4:16. 1988;64–72.

8 Appendices

8.1 Informed Consent Form – English Version

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

DIRECTORATE OF RESEARCH AND PUBLICATIONS

Title: Factors of Overweight and Obesity among Women of Reproductive Age 15 – 49 Years In Ilala Municipality

Greetings! My name is …..I am working on the research project which aiming at assessing Risk Factors for Overweight among Women of Reproductive Age in Ilala Municipality. The participation in this study is voluntary. All collected information will be kept confidential and will be used for the purpose of this study only. Apart from asking you questions in the study we shall also take measurements of weight, height and waist in order to determine your weight status. The interview will take around 60 minutes.

We plan to interview 480 women in this Municipality. We are asking you to take part in this study. Your participation in this study is important to us. You have been selected by chance.

It is important to note that, this study has no direct benefit, but the study findings may be used to support the design of interventions in order to overcome poor uptake of the interventions and to promote positive behavior change.

You will not receive any money by participating in this study. This research has been reviewed and approved by Muhimbili University of Health and Allied Sciences research publication committee.

If you have questions about this study, contact the study Principal Investigators Albert W. Kapala, Muhimbili University of Health and Allied Sciences (MUHAS), P.O.BOX 65011, Dar es Salaam, Mobile No. 0768 20 20 40

Signature ……

Do you agree? Yes ☐ No ☐ I……..have read /understood the contents in this form. I agree / disagree to participate in the study

Signature of Participants……..

Signature of witness (if participant cannot read) ……..

Signature of research assistant ……

Date of signed consent ……..…

8.2 Fomu ya Ridhaa

Chuo Kikuu cha Afya na Tiba Muhimbili

Utafiti wa Kuangalia Sababu za Uzito Uliozidi kwa akina Mama walio kwenye Umri wa Kuzaa katika Manispaa ya Ilala, Dar es Salaam

Salaam! Jina langu naitwa……ninafanya Utafiti Kuangalia Sababu za Uzito Uliozidi kwa akina Mama walio kwenye Umri wa Kuzaa katika Manispaa ya Ilala, Dar es Salaam. Ushiriki wako katika Utafiti huu ni hiari. Taarifa zote zitakazokusanywa zitakuwa ni siri na zitatumika kwa madhumuni ya Utafiti huu tu. Zaidi ya kuulizwa maswali mbalimbali katika Utafiti huu, tutapima uzito, urefu na mzunguko wa kiuno ili kufahamu hali ya uzito wako.

Tunategemea kuwahoji akina mama 480 katika Manispaa ya Ilala. Tunakuomba ushiriki kwenye Utafiti huu, ushiriki wako ni muhimu sana. Wshiriki katika Utafiti huu wamechaguliwa kwa njia ya bahati nasibu ili kuondoa upendeleo.

Ni muhimu kufahamu kuwa, katika Utafiti huu hakutakuwa na faida za moja kwa moja, lakini matokeo ya Utafiti huu yatasaidia kupanga mikakati mbalimbali baada ya kufahamu sababu za uzito uliozidi kwa akina mama walio kwenye umri wa kuzaa katika Manispaa ya Ilala, Dar es Salaam.

Kama una swali lolote juu ya Utafiti huu, unaweza kuwasiliana na Albert W. Kapala, Chuo Kikuu cha Afya na Tiba Muhimbili S.L.P 65011, Dar es Salaam, Simu namba 0768 20 20 40.

Sahihi ……

Umekubali kushiriki? Ndiyo ☐ Hapana ☐

Mimi……..nimesoma na kuelewa maelezo yaliyomo kweye fomu ya ridhaa.
Nimekubali / Sijakubali kushiriki kwenye Utafiti

Sahihi……..

Sahihi ya shahidi (Kama mshiriki hajui kusoma) ……..

Sahihi ya Mtafiti …….……

Tarehe ya kusaini ridhaa…….. ……

8.3 Questionnaire English Version

Factors of Overweight and Obesity among Women of Reproductive Age 15 – 49 Years In Ilala Municipality, Dar es Salaam

WHO STEPS Instrument

February 2018

A. Questionnaire Identification

1 . ENUMERATOR ID _____ [ ]

2 . REGION _____ [ ][ ]

3 . DISTRICT _____ [ ]

4 . WARD _____ [ ][ ][ ]

5 . EA _____ [ ][ ][ ]

6 . HOUSEHOLD NUMBER _____ [ ][ ][ ]

7 . NAME OF HEAD OF HOUSEHOLD _____

8 . MOBILE PHONE [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

9 . CONSENT STATEMENT

Greating! My name is ……..I am working on the research project which aiming at assessing Knowledge, Attitude and Risk Factors of Overweight among Women of Reproductive Age in Ilala Municipality. The participation in this study is voluntary. All collected information will be kept confidential and will be used for the purpose of this study only. Apart from asking the questions in the study we shall also take measurements of weight, height and Waist in order to determine your weight status.

The interview will take around 60 minutes only, are you ready so that we can start interview?

Yes → Qn 11

No → Qn 10

10 . RESULT CODES

1 . COMPLETED

2 . REFUSED

3 . DWELLING VACANT

11 . JINA LA MDADISI _____ [ ]

12 . TAREHE [ ][ ][ ][ ][ ][ ][ ][ ]

B. Household Roster

No	1	2	3	4	5	6	7	8
Code	R1	R2	R3	R4	R5	R6	R7	R8
Qns	MAKE A COMPLETE LIST OF ALL INDIVIDUALS WHO NORMALLY LIVE AND EAT THEIR MEALS TOGETHER IN THIS HOUSEHOLD, STARTING WITH THE HEAD OF HOUSEHOLD.	Sex	What is your date of birth? *Don't Know 77 77 7777* *Date,month,Year*	What is your age?	What is (NAME)'s relation to the head of household?	What is (NAME) marital status	Is (NAME) being living in this household for 3 months?	JE, (JINA) NIMWANAMKE NA ANA UMRI WA MIAKA 15 – 49 , NA ALMEISHI KWENYE KAYA HIYO KWA KIPINDI CHA MIEZI MITATU AU ZAIDI
			_ _ _ _ _ _ _ _	_ _	NAME		Y…1 N…2	Y…1 N…2

Codes

Codes 6(R6)
HEAD.....1
SPOUSE.....2
SON/DAUGHTER.....3
STEP SON / DAUGHTER.....4
SISTER/BROTHER.....5
GRANDCHILD.....6
FATHER/MOTHER…...7
LIVE-IN SERVANT…...8
OTHER NON-RELATIVES (SPECIFY)……....9

Codes for 7(R7)
Never married 1
Currently married 2
Separated……3
Divorced…. 4
Widowed.. 5
Cohabitating.. 6
Refused…. 88

DK = Don't

C. Individual Information

No	Questions	Response	
[9]	Did (NAME) ever gone to school?	Y ..1 N…2 →21	
[10]	What is the **highest level of education** you have completed?		
[11]	Which of the following best describes your **main work** status over the past 12 months?		
[12]	Do you currently smoke any **tobacco products**, such as cigarettes, cigars or pipes? *(USE SHOWCARD*	Y..1 N…2	T6
[13]	Do you currently smoke tobacco products **daily**?	Y ..1 N…2	T6
[14]	How old were you when you **first started** smoking daily? (AGE IN YEARS) Do you remember how long ago it was?	—— ——	T5A
[15]	In years	—— ——	T5A
[16]	In months	—— ——	T5A
[17]	In weeks	—— ——	
	On average, how many of the following do you smoke each day?		
[18]	Manufactured cigarettes	— — —	
[19]	Hand-rolled cigarettes	— — —	
[20]	Pipes full of tobacco	— — —	
[21]	Cigars, cheroots, cigarillos	— —	

Codes for Qn 10 (C5)

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

Codes for Qn 11 (C8)

Government employee……1
Non-government employee……2
Self-employed……3
Non-paid……4
Student……..…5
Homemaker……6
Retired……..…..7
Unemployed (able to work)……8
Unemployed (unable to work)……...9
Refused……..…88

Y = YES N=NO

→ MEANS SKIP

No	Questions	Response	
22	In the past, did you **ever** smoke **daily**?	Y ..1 N…2 →	T9
23	How old were you when you **stopped** smoking **daily**?	__ __ DK →	T9
24	How **long ago** did you stop smoking daily? (DAYS)	__ __ __ DK →	T9
25	Do you **currently use** any **smokeless tobacco** such as *[snuff, chewing tobacco, betel]*? *(USE SHOWCARD)*	Y ..1 N…2 →	T12
26	Do you **currently use smokeless tobacco** products **daily?**	Y ..1 N…2 →	T12
	On average, how many **times a day** do you use Snuff		
27	mouth	__ __	
28	Snuff by nose	__ __	
29	chewing	__ __	
30	Betel, quid	__ __	
32	Others (Specify)	__ __ →	T13
33	In the **past**, did you **ever use** smokeless tobacco such as *[snuff, chewing tobacco, or betel]* **daily**?	Y ..1 N…2	
34	During the past 7 days, on how many days did someone **in your home** smoke when you were present?	DAYS__ __	
35	During the past 7 days, on how many days did someone smoke in closed areas **in your workplace** (in the building, in a work area or a specific office) when you were present?	DAYS __	
	Alcohol Consumption		
36	Have you **ever** consumed an alcoholic drink such as beer, wine, spirits, fermented cider or *[add other local examples]*?	Y ..1 N…2 →	D1
37	Have you consumed an alcoholic drink within the **past 12 months**?	N ..1 H…2 →	D1
38.	During the past 12 months, **how frequently** have you had at least one alcoholic drink?	___	
39.	Have you consumed an alcoholic drink within the **past 30 days**?	N ..1 H…2 →	D1
40.	During the past 30 days, on how many **occasions** did you have at least one alcoholic drink?	NUMBER ___ ___	

No	Questions	Response	
41	During the past 30 days, when you drank alcohol, **on average**, how many **standard alcoholic drinks** did you have during one drinking occasion? *(USE SHOWCARD)*	NUMBER ___ __	
42	During the past 30 days, what was the **largest number** of standard alcoholic drinks you had on a single occasion, counting all types of alcoholic drinks together?	NUMBER __ __	
43	During the past 30 days, how many times did you have for **women**: **four or more** standard alcoholic drinks in a single drinking occasion?	NO OF TIMES __ __	
44	During the past 30 days, when you consumed an alcoholic drink, how often was it with meals? Please do not count snacks.	___	
	During each of the **past 7 days**, how many standard alcoholic drinks did you have each day?		
45	MON	__ __	
46.	TUE	__ __	
47.	WED	__ __	
48.	THU	__ __	
49.	FRI	__ __	
50.	SAT	__ __	
51.	SUN	__ __	
	Diet		
52.	In a typical week, on how many days do you **eat fruit**? *(USE SHOWCARD)*	__ __ IF 0 →	D3
	How many **servings** of fruit do you eat on **one** of those days? (*USE SHOWCARD*		
53.	*(UNIT)*	__ __	DK = 77
54.	QUANTITY		
55.	In a typical week, on how many days do you **eat vegetables**? *(USE SHOWCARD)*	___ ___	
	How many **servings** of vegetables do you eat on one of those days? *(USE SHOWCARD)*		
56	*UNIT*	___	
57	QUANTITY	___ ___	

No	Questions	Response	No
58	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like lifting heavy loads, manual construction work, digging etc for at least 10 minutes continuously? *(USE SHOWCARD*	Y ..1 N…2 →	P4
59	In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	DAYS__	
60	How much time do you spend doing vigorous-intensity activities at work on a typical day?	MIN ___ __ __	
61	Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking, *carrying light loads, doing chores like cleaning, washing or ironing clothes etc* ,for at least 10 minutes continuously? *(USE SHOWCARD)*	Y ..1 N…2 →	P7
62	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	DAYS__ __ __	
63	How much time do you spend doing moderate-intensity activities at work on a typical day?	MIN __ ___ ___	
64	Do you walk or use a bicycle *(pedal cycle)* for at least 10 minutes continuously to get to and from places?	Y ..1 N…2 →	P10
65	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?	DAYS ____	
66	How much time do you spend walking or bicycling for travel on a typical day?	MIN __ __ __	

No	Questions	Response	Skipping
67	Do you do any vigorous-intensity sports, fitness or recreational *(leisure)* activities that cause large increases in breathing or heart rate like *running, playing football etc*, for at least 10 minutes continuously? *(USE SHOWCARD)*	Y ..1 N …2 →	P13
68	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational *(leisure)* activities?	DAYS __	
69	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	__ __ __	
60	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, swimming, dancing* etc for at least 10 minutes continuously? *(USE SHOWCARD)*	Y ..1 N…2 →	P16
61	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational *(leisure)* activities?	DAYS __	
62	How much time do you spend doing moderate-intensity sports, fitness or recreational *(leisure)* activities on a typical day?	MIN__ __ __	
63	How much time do you usually spend sitting or reclining on a typical day?	MIN__ __ __	
64	Have you ever had your blood pressure measured by a doctor or other health worker?	Y ..1 N…2 →	H6
65	Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?	Y ..1 N…2 →	H6
66	Have you been told in the past 12 months?	Y….1 N….2	
67	Drugs (medication) that you have taken in the past two weeks	Y….1 N….2	
68	Advice to reduce salt intake	Y….1 N….2	
69	Advice or treatment to lose weight	Y….1 N….2	
70	Advice or treatment to stop smoking	Y….1 N….2	
71	Advice to start or do more exercise	Y….1 N….2	

No	Questions	Response	Skipping
72	Have you ever seen a traditional healer for raised blood pressure or hypertension?	Y….1 N….2	
73	Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Y….1 N….2	
74	Have you ever had your blood sugar measured by a doctor or other health worker?	Y….1 N….2	
75	Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Y….1 N….2	
76	Have you been told in the past 12 months?	Y….1 N….2	
77	Insulin	Y….1 N….2	
78	Drugs (medication) that you have taken in the past two weeks	Y….1 N….2	
79	Special prescribed diet	Y….1 N….2	
80	Advice or treatment to lose weight	Y….1 N….2	
81	Advice or treatment to stop smoking	Y….1 N….2	
82	Advice to start or do more exercise	Y….1 N….2	
82	Have you ever seen a traditional healer for diabetes or raised blood sugar?	Y….1 N….2	
84	Are you currently taking any herbal or traditional remedy for your diabetes?	Y….1 N….2	
85	**Measurements**		
86	Height (centimeters)	__ __ __ · __	
87	Weight (Kg),if too large to scale 666.6	__ __ __ · __	
88	Waist circumference	__ __ __ · __	
89	Are you pregnant?	Y ..1 N…2	
90	In your life, have you had child/children?	Y ..1 N…2 →	KNOWLEDGE
91	Are they all alive?	Y ..1 N…2	
92	How many of them are not alive?	__ ___	
93	How many of them are alive?	__ ___	
941	Total	___ ___	
942	Did you give birth in the previous 6 months	Y ..1 N…2	
	Knowledge		
95	What are the health problems that can occur when a person is overweight or obese?		

96	Can you tell me the reasons why people are overweight or obese?		
97	How can people prevent overweight and obesity? ……		
98	People with diabetes should not eat fruits		
99	Starchy foods such as bread, potatoes and pasta are fattening		
100	Children under the age of two should drink whole, not semi skimmed milk		
101	A high blood cholesterol increases the likelihood of developing heart disease		
102	High sugar intake is a more major cause of obesity than a high fat intake		
103	Physical inactivity is a major cause of regaining weight		
104	Hypertension is aggravated by obesity and improved by weight		
105	Increasing body weight leads to increasing psychological problems		
	Attitude		
106	How likely do you think you are to become overweight or obese?	If 2 or 3 →	108
107	Can you tell me the reason why it is not likely?		
108	How serious do you think it is to be overweight or obese?	If 2 or 3 →	110
109	If not really serious, can you tell me the reason why it is not serious?		
110	How good do you think it is to eat less, for example by eating smaller portions of food?	If 2 or 3 →	112
111	If not good, Can you tell me the reasons why it is not good?		
112	How difficult is it for you to eat less?	If 1 →	114
113	If difficult, can you tell me the reasons why it is difficult?		
114	How good do you think it is to do some physical activity, such as walking for 30 minutes a day, running or doing a sport?	If 2 or 3 →	116
115	If Not good, Can you tell me the reasons why it is not good?		
116	How difficult is it for you to do some physical activity/exercise?	If 1 →	118
117	If Difficult, Can you tell me the reasons why it is difficult?		
118	How confident do you feel in doing some physical activity/exercise?	If 2 → A10	
119	If Not confident, Can you tell me the reasons why you do not feel confident?		

Codes for Questions on Knowledge and Attitude

Codes for Qn 95

1. Increased risk of chronic conditions (such as heart/cardiovascular disease, high blood pressure and diabetes, stroke, certain types of cancer, respiratory difficulties, chronic musculoskeletal problems, skin problems and infertility)
2. Reduced quality of life
3. Premature death
4. Other
5. Don't know

Codes for Qn 96

1. Increased/excessive intake of energy-dense foods that are high in fat and/or sugar
2. Lack of or decreased physical activity
3. Other
4. Don't know

Codes for Qn 98 - 105

1. Disagree
2. Neutral
3. Agree

Codes for Qn 97

1. Reduce energy intake (less high-energy foods and drinks)/reduce the intake of fatty and sugary foods
2. Eat vegetables and fruits more often
3. Eat legumes/whole-grain products more often
4. Increase physical activity level/engage in regular physical activity
5. Other
6. Don't know

Codes for Qn 106

1. Not likely
2. You're not sure
3. Likely

Codes for Qn 108

1. Not really serious
2. Neutral/serious
3. Serious

Codes for Qn 110& Qn 114

1. Not good
2. You're not sure
3. Good

Codes for Qn 112 & Qn 116

1. Not difficult
2. .Difficult

Codes for Qn 118

1. Not confident
2. Confident

8.4 Questionnaire Swahili Version

Dodoso la Utafiti wa Kuangalia Sababu za Uzito Uliozidi kwa akina Mama walio kwenye Umri wa Kuzaa kati ya Miaka 15 – 49 katika Manispaa ya Ilala, Dar es Salaam

Februari 2018

D. Utambulisho

1 . NAMBA YA MDADISI _____

2 . MKOA _____

3 . WILAYA _____

4 . KATA _____

5 . EA _____

6 . NAMBA YA KAYA _____

7 . JINA LA MKUU WA KAYA _____

8 . NAMBA YA SIMU

9 . Ridhaa

Habari! Jina langu ni…… ninafanya utafiti kuangalia Uelewa, Mtazamo na Sababu zinazosababisha uzito uliozidi kwa akina Mama wenye miaka kuanzia 15 - 49 Manispaa ya Ilala. Ushiriki katika Utafiti huu ni wa hiari. Taarifa zote zitakazokusanywa zinakuwa ni siri na zitatumika kwa malengo ya utafiti tu.

Vile vile tutachukua vipimo vya uzito, urefu na kiuno ili kujua hali ya uzito wako

Utafiti utachukua muda wa dakika 60 hivi kukamilika, Je upo tayari kushiriki tuanze mahojiano?

Ndiyo → Sw 11

Hapana → Sw 10

10 . Matokeo ya Mahojiano

1 . Imekamilika

2 . Amekataa

3 . Kaya haina mhojiwa

11 . JINA LA MDADISI _____

12 . TAREHE

B.Taarifa za Wanakaya

Na	1	2	3	4	5	6	7	8
Geresho	R1	R2	R3	R4	R5	R6	R7	R8
Maswali	Tafadhali nitajie majina ya watu wote ambao kwa kawaida wanaishi na kula pamoja kweye kaya hii, ukianzia na mkuu wa kaya	Jinsi	Je, [JINA] alizaliwa lini? Kama hajui *77 77 7777* *Date,month,Year*	Una umri gani kwa sasa?	Uhusiano na Mkuu wa kaya	Hali ya ndoa ya (Jina)	Je, (JINA) amekuwa akiiishi kwenye kaya hii kwa kipindi cha miezi mitatu au zaidi?	JE, (JINA) NIMWANAMKE NA ANA UMRI WA MIAKA 15 – 49 , NA ALMEISHI KWENYE KAYA HIYO KWA KIPINDI CHA MIEZI MITATU AU ZAIDI
			_ _ _ _ _ _ _ _	_ _			N…1 H…2	N…1 H…2

Mageresho

Codes 6(R6)
HEAD.....1
SPOUSE.....2
SON/DAUGHTER.....3
STEP SON / DAUGHTER.....4
SISTER/BROTHER.....5
GRANDCHILD.....6
FATHER/MOTHER…...7
LIVE-IN SERVANT…...8
OTHER NON-RELATIVES (SPECIFY)……....9

Codes for 7(R7)

Never married	1
Currently married	2
Separated…….	3
Divorced….	4
Widowed..	5
Cohabitating..	6
Refused….	88

E. Taarifa za Mhojiwa

Na	Maswali	Majibu	Mchujo
[9]	Je, [JINA] amewahi kusoma shule?	N ..1 H…2 →21	
[10]	Ni kiwango gani cha elimu cha juu zaidi ulichofikia?		
[11]	Ni ipi kati ya haya yafuatayo yanaelezea vizuri kazi ambayo umekuwa ukifanya katika miezi 12 iliyopita?		
[12]	Je, kwa sasa unavuta aina yoyote ya tumbaku kama vile sigara, kiko, sigara ya kusokota n.k?	N..1 H…2	T6
[13]	**Kama Ndio,** Kwa sasa unavuta sigara au tumbaku **kila siku**?	N ..1 H…2	T6
[14]	Ulikuwa na umri gani ulipoanza kuvuta sigara kila siku **kwa mara ya kwanza**?	—— ——	T5A
	Unakumbuka ni muda gani uliopita?		
[15]	Mwaka	—— ——	T5A
[16]	Mwezi	—— ——	T5A
[17]	Wiki	—— ——	
	Kwa wastani, unavuta **kiasi gani** kwa siku cha kila moja ya aina zifuatazo za tumbaku?		
[18]	Sigara zinazotengenezwa viwandani	— — —	
[19]	Sigara /tumbaku za kusokota kwa mikono	— — —	
[20]	Kiko kilichojazwa tumbaku/sigara	— — —	
[21]	Biri(Cigars)	— —	

Mageresho Swali 10 (C5)

Sijasoma 1
Sikumaliza elimu ya msingi 2
Nimemaliza elimu ya msingi 3
Nimemaliza elimu ya sekondari 4
Nimemaliza elimu ya juu ya sekondari 5
Nimemaliza Chuo/Chuo Kikuu 6
Elimu baada ya shahada ya kwanza(uzamili/uzamivu)….. 7

Amekataa kujibu 88

Mageresho ya Swali 11 (C8)

Mtumishi wa Serikali……. 1
Mtumishi asiye wa Serikali…2
Nimejiajiri mwenyewe…… 3
Kazi/shughuli bila malipo…. 4
Mwanafunzi……. 5
Shughuli za nyumbani…….. 6
Mstaafu……. 7
Sina kazi (ana uwezo wa kufanya kazi).8
Sina kazi (hana uwezo wa kufanya kazi)….9
Amekataa kujibu…. 88

N = NDIYO
H=HAPANA

→ MCHUJO

Na	Maswali	Majibu	Mchujo
22	Hapo zamani, **ulishawahi** kuvuta sigara/tumbaku **kila siku**?	N ..1 H…2 →	T9
23	**Kama Ndio**, ulikuwa na miaka mingapi **ulipoacha** kuvuta sigara/tumbaku **kila siku**	__ __ SIJUI →	T9
24	**Ni muda gani umepita** tangu ulipoacha kuvuta sigara/tumbaku kila siku? (SIKU)	__ __ __ SIJUI →	T9
25	**Kwa sasa** unatumia aina yoyote ya tumbaku **isiyo ya kuvuta** kama vile ugoro, 'kuber' n.k.?	N ..1 H…2 →	T12
26	**Kwa sasa, unatumia tumbaku isiyo ya kuvuta kila siku?**	N ..1 H…2 →	T12
	Kwa wastani, ni **mara ngapi kwa siku** unatumia ….		
27	Ugoro wa kuweka kinywani	__ __	
28	Ugoro wa kunusa/kuvuta kwa pua	__ __	
29	Tumbaku ya kutafuna	__ __	
30	Kuber'	__ __	
32	Aina nyingine (TAJA)	__ __ →	T13
33	Hapo zamani, **ulishawahi** kutumia aina yoyote ya tumbaku isiyo ya kuvuta kama vile ugoro, 'kuber' n.k. **kila siku**?	N ..1 H…2	
34	Ndani ya siku saba zilizopita, ni siku ngapi mtu mnayeishi naye ndani ya nyumba amevuta sigara ukiwepo?	SIKU__ __	
35	Ndani ya siku saba zilizopita, ni siku ngapi mtu amevuta sigara kwenye eneo lisilo la wazi kazini ukiwepo?present?	SIKU __	
	Utumiaji wa Pombe/Vileo		
36	Je, umewahi kutumia kinywaji chenye kilevi (kama vile bia, mvinyo, pombe kali au pombe ya kienyeji) katika **miezi 12 iliyopita**? *(TUMIA kadi ya kielelezo AU TOA MIFANO) (USE*	N ..1 H…2 →	D1
37	Je umekunywa kinywaji chenye kilevi ndani ya miezi 12 iliyopita?	N ..1 H…2 →	D1
38.	Katika miezi 12 iliyopita, **ni mara ngapi** umekunywa angalau kinywaji kimoja chenye kilevi? *(MSOMEE MAJIBU, TUMIA kadi ya kielelezo)*	___	
39.	Umetumia kinywaji chenye kilevi (kama vile bia, mvinyo, pombe kali au pombe ya kienyeji) katika **siku 30 zilizopita**? *(TUMIA kadi ya kielelezo AU TOA MIFANO)*	N ..1 H…2 →	D1
40.	Katika **siku 30** zilizopita, **ni mara ngapi** umekunywa angalau kinywaji kimoja chenye kilevi?	IDADI ___ ___	

Na	Maswali	Majibu	Mchujo
41	Katika siku 30 zilizopita, ulipokunywa kinywaji chenye kilevi, kwa makisio ulikunywa vinywaji vingapi (standard drinks) kwa mkupuo (*TUMIA KADI YA KIELELEZO)*	IDADI ___ __	
42	Katika siku 30 zilizopita , ulipokunywa kinywaji chenye kilevi , ni kiasi gani **kikubwa** ulichokunywa (standard drink) siku uliyokunywa zaidi kwenye mkupuo mmoja ukijumlisha vinywaji vyote?	IDADI __ __	
43	Katika siku 30 zilizopita, ni mara ngapi umekunywa Kinywaji chenye kilevi (standard drink); Kwa wanaume: 5 au zaidi Kwa wanawake: 4 au zaidi ; kwenye mkupuo mmoja?	IDADI — —	
44	Katika siku 30 zilizopita ulipokunywa kinywaji chenye kilevi, ni mara ngapi ulikunywa pamoja na chakula? Tafadhali usihesabu milo ya katikati	___	
	Katika **siku 7 zilizopita**, umekunywa vinywaji vingapi (standard drinks) vyenye kilevi katika kila siku ya wiki?		
45	J3	— —	
46.	J4	— —	
47.	J5	— —	
48.	J6	— —	
49.	J7	— —	
50.	J1	— —	
51.	J2	— —	
	Diet		
52.	Kwa kawaida ni siku ngapi ndani ya wiki moja unakula **matunda**? *(TUMIA SHOWCARD*)	__ __ KAMA 0 →	D3
	Unakula matunda kipimo gani katika moja ya siku hizo? *(TUMIA SHOWCARD)*		
53.	*(KIPIMO)*	— —	SIJUI= 77
54.	KIASI		
55.	Kwa kawaida ni siku ngapi ndani ya wiki moja unakula **mbogamboga**? *(TUMIA SHOWCARD*)	___ ___	
	Unakula mbogamboga kipimo gani katika moja ya siku hizo? *(TUMIA SHOWCARD)*		
56	*KIPIMO*	___	
57	KIASI	___ ___	

Na	Maswali	Majibu	Mchujo
58	Je, kazi yako inahusisha shughuli za kutumia nguvu ambazo zinaongeza kasi ya kupumua na mapigo ya moyo kama vile kubeba mizigo mizito, kumwaga zege, kupiga kokoto, kuchota maji, kusomba mazao, kilimo au kazi za ujenzi kwa angalau dakika 10 mfululizo? *(TUMIA SHOWCARD)*	N ..1 H…2 →	P4
59	Katika wiki ya kawaida, ni kwa siku ngapi unafanya shughuli hizo za kutumia nguvu nyingi katika kazi yako?	SIKU__	
60	Unatumia muda gani kufanya shughuli za nguvu katika siku moja ya kazi?	DAKIKA___ __ __	
61	Kazi yako inahusisha shughuli za kutumia nguvu kiasi ambazo zinaongeza kidogo kasi ya kupumua na mapigo ya moyo kama vile kutembea kwa haraka, kubeba mizigo isiyo mizito, kudeki, kufagia, kuosha vyombo, kufua, kupika, kupiga pasi, kuvuna mazao kwa angalau dakika 10 mfululizo? *(TUMIA SHOWCARD)*	N ..1 H…2 →	P7
62	Katika wiki ya kawaida, ni kwa siku ngapi unafanya shughuli hizo za kutumia nguvu kiasi katika kazi yako?	SIKU__ __ __	
63	Unatumia muda gani kufanya shughuli za nguvu kiasi katika siku moja ya kazi?	DAKIKA __ ___ ___	
64	Una kawaida ya kutembea kwa miguu au kwa kutumia baiskeli kwa angalau dakika 10 mfululizo wakati unapokwenda mahali fulani?	N..1 H…2 →	P10
65	Katika wiki ya kawaida, unatumia siku ngapi kutembea kwa miguu au kwa kutumia baiskeli kwa angalau dakika 10 mfululizo wakati unapokwenda mahali fulani?	SIKU ____	
66	Unatumia muda gani kutembea kwa miguu au kwa kutumia baiskeli katika siku moja ya kawaida?	DAKIKA __ __ __	

Na	Maswali	Majibu	Mchujo
67	Una kawaida ya kushiriki katika shughuli za michezo au mazoezi ambazo zinaongeza kwa kiasi kikubwa kasi ya kupumua au mapigo ya moyo kama vile kukimbia, kuruka kichura, kuinama na kuinuka, kuruka viunzi, kucheza nmpira kwa angalau dakika 10 mfululizo? *(TUMIA SHOWCARD)*	N ..1 H …2 →	P13
68	Katika wiki ya kawaida, unatumia siku ngapi kufanya shughuli hizo za michezo au mazoezi?	SIKU__	
69	Katika siku ya kawaida, unatumia muda gani kufanya shughuli hizo za michezo au mazoezi?	__ __ __	
60	Una kawaida ya kushiriki katika shughuli za michezo au mazoezi ambazo zinaongeza kwa kiasi kidogo kasi ya kupumua au mapigo ya moyo kama vile kuendesha, baiskeli, kutembea, kuogelea, kuimba kwa vitendo kwa angalau dakika 10 mfululizo? *(TUMIA SHOWCARD)*	N ..1 H…2 →	P16
61	Katika wiki ya kawaida, unatumia siku ngapi kufanya shughuli hizo za michezo au mazoezi?	SIKU __	
62	Katika siku ya kawaida, unatumia muda gani kufanya shughuli hizo za michezo au mazoezi?	DAKIKA__ __ __	
63	Kwa kawaida unatumia muda gani kukaa au kujinyoosha kujilaza katika siku moja mfano ukiwa unaangalia TV, unasikiliza redio, unasoma gazeti au vitabu nk?	DAKIKA__ __ __	
64	Je umeshawahi kupimwa na daktari au mtaalam wa afya?	N ..1 H…2 →	H6
65	Je umeshawahi kuambiwa na daktari au mtaalam wa afya kuwa una shinikizo la damu, au presha yako iko juu kuliko kawaida?	N ..1 H…2 →	H6
66	Je umeambiwa hivyo ndani ya miezi 12 iliyopita?	N….1 H….2	
67	Dawa au matibabu ambayo umetumia katika wiki 2 zilizopita	N….1 H….2	
68	*Masharti maalum ya chakula*	N….1 H….2	
69	Ushauri au matibabu ya kupunguza uzito	N….1 H….2	
70	Ushauri au matibabu ya kuacha kuvuta sigara	N….1 H….2	
71	Ushauri wa kuanza mazoezi au kufanya mazoezi zaidi	N….1 H….2	

Na	Questions	Response	Skipping
72	Je umeshawahi kupata ushauri au kutibiwa na mganga wa jadi kuhusu ongezeko la shinikizo la damu?	N….1 H….2	
73	Kwa sasa unatumia aina yoyote ya mitishamba kwa ajili ya ongezeko la shinikizo la damu?	N….1 H….2	
74	Umewahi kupimwa kiwango cha sukari katika damu?	N….1 H….2	
75	Katika miezi 12 iliyopita, umewahi kuambiwa na daktari au mtaalamu mwingine wa afya kuwa una ugonjwa wa kisukari?	N….1 H….2	
76	Je umeambiwa hivyo ndani ya miezi 12?	N….1 H….2	
77	Insulin	N….1 H….2	
78	Vidonge ambavyo umetumia katika wiki 2 zilizopita?	N….1 H….2	
79	Masharti maalum ya chakula	N….1 H….2	
80	Ushauri au matibabu ya kupunguza uzito	N….1 H….2	
81	Ushauri au matibabu ya kuacha kuvuta sigara	N….1 H….2	
82	Je umeshawahi kupata ushauri/kutibiwa na mganga wa jadi kuhusu kisukari?	N….1 H….2	
82	Ushauri au matibabu ya kuacha kuvuta sigara	N….1 H….2	
84	Kwa sasa unatumia aina yoyote ya mitishamba kwa ajili ya kisukari?	N….1 H….2	
85	**Vipimo**		
86	Urefu (Sentimeta)	__ __ __ · __	
87	Uzito (Kg), *Ikiwa uzito umezidi uwezo wa mizani andika 666.6*	__ __ __ · __	
88	Mzunguko wa Kiuno	__ __ __ · __	
89	Una mimba?	N ..1 H…2	
90	Katika maisha yako uliwahi kuzaa motto/watotot?	Y ..1 N…2 →	UELEWA
91	Wapo hai?	Y ..1 N…2	
92	Wangapi hawapo hai?	__ __	
93	Wangapi wapo hai??	__ __	
94	Jumla	__ __	
942	Ulizaa katika kipindi cha miezi 6 iliyopita?	Y ..1 N…2	942

	Uelewa		
95	Matatizo gani ya kiafya yanaweza kumpata mtu mwenye uzito uliozidi au kiribatumbo?		
96	Unaweza kunieleza sababu kwa nini watu wanakuwa na uzito uliozidi au kiribatumbo?		
97	Watu wanawezaje kuzuia wasipate uzito uliozidi na kiribatumbo? ……		
98	Watu wanaougua kisukari hawapswi kula matunda		
99	Vyakula vyenye wanga kama vile mkate, viazi na tambi husababisha unene		
100	Watoto wenye umri chini ya miaka miwili watumie maziwa halisi, wasitumie maziwa yaliyoondolewa kiasi kidogo cha mafuta		
101	Kiwango kikubwa cha lehemu kwenye damu huongeza uwezekano wa mtu kupata ugonjwa wa moyo		
102	Ulaji wa sukari nyingi ni sababu kuu ya kiribatumbo ukilinganisha na ulaji wa mafuta kwa wingi		
103	Kutofanya mazoezi ni sababu kubwa ya kuongezeka uzito wa mwili		
104	Kiribatumbo huongeza shinikizo kubwa la damu na hupungua iwapo uzito wa mwili ukipungua		
105	Ongezeko la uzito wa mwili huongeza matatizo ya kisaikolojia		
	Mtazamo		
106	Unafikiri kuna uwezekano wa wewe kuwa na uzito uliozidi au kiribatumbo?	If 2 or 3 →	108
107	Taja sababu kwa nini hauna uwezekano wa kuwa na uzito uliozidi au kiribatumbo		
108	Unafikiri athari za uzito uliozidi au kiribatumbo ni kubwa kwa kiasi gani?	If 2 or 3 →	110
109	Kama athari zake siyo kubwa, unaweza kufafanua kwa nini siyo kubwa?		
110	Unafikiri ni vizuri kula kiasi kidogo cha chakula, kwa mfano kupunguza kiasi cha chakula kwenye sahani?	If 2 or 3 →	112
111	Kama siyo vizuri, unaweza kunipa sababu kwa nini siyo vizuri?		
112	Ni vigumu kwako kupunguza kiasi cha chakula?	If 1 →	114
113	Kama ni vigumu, nieleze kwanini ni vigumu?		
114	Unafikiri ni vizuri kufanya mazoezi, kama vile kutembea kwa dakika 30 kila siku, kukimbia au kucheza michezo?	If 2 or 3 →	116
115	Kama siyo vizuri, niambie sababu kwa nini siyo vizuri?		
116	Ni vigumu kwako kufanya shughuli / mazoezi?	If 1 →	118
117	Kama ni vigumu, unaweza kunieleza sababu kwa nini ni vigumu?		
118	Unapofanya shughuli / mazoezi unajisikia kujiamini kwa kiasi gani?	If 2 → A10	
119	Kama hujisikii kujiamini, unaweza kunieleza sababu kwa nini haujisikii kujiamini?		

Mageresho ya Maswali ya Uelewa na Mtazamo

Simbo za majibu kwa swali la 95

1. Kuongezeka kwa uwezekano wa magonjwa sugu (kama magonjwa ya moyo/mishipa ya damu, shinikizo kubwa la damuna kisukari, shambulio la moyo, baadhi ya saratani, kushindwa kupumua, magonjwa sugu ya mifupa, matatizo ya ngozi na ugumba)
2. Kupungua kwa ubora wa maisha
3. Kifo cha mapema
4. Sifahamu
5. Mengine (Taja)

Simbo za majibu kwa swali la 96

1. Kuongezeka/ulaji wa kiasi kikubwa cha vyakula vyenye nishati lishe kwa wingi vyenye mafuta na au sukari nyingi
2. Kutofanya shughuli/mazoezi ya mwili
3. Nyingine
4. Sifahamu

Simbo za majibu kwa swali la 98 - 105

1. Sikubali
2. Sina uhakika
3. Nakubali

Simbo za majibu kwa swali la 97

1. Punguza ulaji wa nishati lishe (punguza vyakula na vinywaji vyenye nishati lishe kwa wingi)/punguza ulaji wa vyakula vyenye mafuta na sukari
2. Kula mbogamboga na matunda mara kwa mara
3. Kula mikunde/nafaka zisizokobolewa mara kwa mara
4. Ongeza kiwango cha kujishughulisha/fanya mazoezi ya mwili mara kwa mara
5. Mengine
6. Sifahamu

Codes for Qn 106

1. Siyo rahisi kutokea
2. Sina uhakika
3. Inaweza kutokea

Codes for Qn 108

1. Hakuna athari mbaya
2. Sina uhakika
3. Kuna athari mbaya

Simbo za majibu kwa swali la 1. Siyo vizuri
2. Sina uhakika
3. Vizuri

Simbo za majibu kwa swali la 116

1. Siyo vigumu
2. . Vigumu

Simbo za majibu kwa swali la 118

1. Sijiamini
2. Najiamini

8.5 Listing Form English Version

1 . ENUMERATOR ID _____

2 . REGION _____

3 . DISTRICT _____

4 . WARD _____

5 . EA _____

6 . FULL ID

SN OF THE STRUCTURE	DESCRIPTION OF THE STRUCTURE	RESIDENCE (Y/N)	SN OF THE HOUSEHOLD IN THE STRUCTURE	NAME OF HEAD OF HOUSEHOLD	FAMOUS NAME	MOBILE PHONE

8.6 Fomu ya Kuorodhesha Kaya

1 . NAMBA YA MDADISI .....

2 . MKOA .....

3 . WILAYA .....

4 . KATA .....

5 . ENEO LA KUHESABIA .....

7 . UTAMBULISHO KAMILI

NAMBA YA NYUMBA KWENYE ORODHA	MELEZO YYA NYUMBA ILIPO	KUNA WAKAZI? (N/H)	NAMBA YA KAYA	JINA LA MKUU WA KAYA	JINA MAARUFU	NAMBA YA SIMU

8.7 Kish Grid

Kish Grid for Selection of Eligible Women

Last digit in the HH Questionnaire Number	Number of Eligible Women							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	1	2	1	1	1	1	1	1
2	1	1	1	2	1	2	1	2
3	1	2	3	1	2	3	1	3
4	1	2	3	4	1	2	3	4
5	1	2	3	4	5	3	4	5
6	1	2	3	4	5	6	3	6
7	1	2	3	4	5	6	7	7
8	1	2	3	4	5	6	7	8
9	1	2	3	4	5	6	7	8

8.8 Ethical Approval Letter

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
DAR ES SALAAM
TANZANIA
Web: www.muhas.ac.tz

Tel G/Line: +255-22-2150302/6 Ext. 1015
Direct Line: +255-22-2151378
Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. DA.287/298/01.A/ 29th May, 2018

Mr. Albert W. Kapala
Master of Public Health
MUHAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED: "RISK FACTORS OF OVERWEIGHT AMONG WOMEN OF REPRODUCTIVE AGE IN ILALA MUNICIPALITY"

Reference is made to the above heading.

I am pleased to inform you that, the Chairman has, on behalf of the Senate, approved ethical clearance for the above-mentioned study. Hence you may proceed with the planned study.

The ethical clearance is valid for one year only, from 25th May, 2018 to 24th May, 2019. In case you do not complete data analysis and dissertation report writing by 24th May, 2019, you will have to apply for renewal of ethical clearance prior to the expiry date.

Dr. Emmanuel Balandya
ACTING: DIRECTOR OF POSTGRADUATE STUDIES

cc: Director of Research and Publications
cc: Dean, School of Public Health and Social Sciences

8.9 Introduction Letter from MUHAS to RAS

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
DAR ES SALAAM
TANZANIA
Web: www.muhas.ac.tz

Tel G/Line: +255-22-2150302/6 Ext. 1015
Direct Line: +255-22-2151378
Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.320/2016

31st May, 2018

Regional Administrative Secretary
Dar es Salaam Region
DAR ES SALAAM.

Re: INTRODUCTION LETTER

The bearer of this letter Mr. Albert W. Kapala is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MPH-Executive Truck.

As part of his studies he intends to do a study titled:"***Risk factors of overweight among women of Reproductive age in Ilala Municipality ".***

The research has been approved by the Chairman of University Senate.

Kindly provide him the necessary assistance to facilitate the conduct of his research.

We thank you for your cooperation.

Ms. Luciana C. Kapama
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Public Health and Social Sciences
cc: Mr. Albert W. Kapala

8.10 Introduction Letter from RAS to Ilala Municipal Director

Jamhuri ya Muungano wa Tanzania
Ofisi ya Rais
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA DAR ES SALAAM
Anwani ya Simu:
Simu: 2203156/2203158
Fax: 2203213
E-mail:ras@dsm.go.tz
Unapojibu
Tafadhali taja:
Kumb. Na. FA 282/293/

OFISI YA MKUU WA MKOA,
3, Barabara ya Rashid Kawawa,
S.L.P 5429,
12880, **DAR ES SALAAM.**

4 Juni 2018

Mkurugenzi,
Halmashauri ya Manispaaya Ilala,
S.L.P. 20950,
DAR ES SALAAM.

YAH: UTAMBULISHO WA MR. ALBERT W. KAPALA

Tafadhali husika na mada tajwa hapo juu.

Mr. Albert W. Kapala ni mwanafunzi wa Chuo Kikuu Kishiriki Cha Afya Muhimbili ambae anataka kufanya utafiti katika Manispaa ya Ilala ili kukamilisha masomo yake.

Hivyo basi ninamleta kwako aweze kupata ushirikiano unaostahili.

Pamoja na barua hii naambatanisha kivuli cha barua iliyomtambulisha Ofisi ya Mkuu wa Mkoa kwa ajili ya rejea ya Ofisi yako.

J.J Ngonyani
KNY. Katibu Tawala Mkoa
Dar es Salaam.

Kny: Katibu Tawala wa Mkoa
DAR-ES-SALAAM

Nakala;
Mkuu wa Chuo,
Chuo cha Kikuu cha Sayansi na Tiba Muhimbili (MUHAS),
DAR ES SALAAM.

Mr. Albert W. Kapala
MUHAS,

8.11 Introduction Letter Ilala Municipal Director to Ward Executive Officers

HALMASHAURI YA MANISPAA YA ILALA

BARUA ZOTE ZIPELEKWE KWA MKURUGENZI WA MANISPAA

P.O. BOX 20950
PHONE NO: 2128800
2128805
FAX NO. 2121486

Ofisi ya Mkurugenzi
Wa Manispaa Ilala
1 Mission Street
11883 – Dar es salaam

06/06/2018

Kumb. No. IMC/JR.6/VOL.1/34

Watendaji wa Kata
Halmashauri ya Manispaa ya Ilala
S.L.P 20950
DAR ES SALAAM.

YAH: UTAMBULISHO WA MR.ALBART W. KAPALA.

Husika na mada hapo juu.
Napenda kukutaarifu kuwa Mr. Albart W. Kapala ambaye ni mwnachuo wa chuo kikuu Kishiriki cha Afya Muhimbili ameruhusiwa kufanya Utafiti katika Manispaa ya Ilala ili aweze kukamilisha masomo yake.

Kwa barua hii mnaombwa mumpokee na kumpa ushirikianao wa kutosha ili aweze kufanya utafiti huo kwa makini na nakala ya majibu ya Utafiti huo yawasilishwe katika Ofisi ya Mchumi wa Manispaa.
Nawatakieni kazi njema.

Adella A. Temba
MTAKWIMU