IMPACT OF NUTRITIONAL KNOWLEDGE AND DIETARY HABITS ON WEIGHT MANAGEMENT OF FITNESS PROGRAM PARTICIPANTS

MSC. THESIS

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Impact of nutritional knowledge and dietary habits on weight management of fitness program participants

MSc. Thesis

A Thesis Submitted to the Department of Sport Science,

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I hereby certify that I have read and evaluated this Thesis titled ' Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants at , Harar Fitness Center, Harar City, Eastern, Ethiopia' prepared by Hiwot Legese. I recommend that it can be submitted as fulfilling the thesis requirement.

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As a member of the Board of Examiners of the MSc Thesis Open Defense Examination, I certify that I have read and evaluated the thesis prepared by Hiwot Legese and examined the candidate. I recommend that the thesis can be accepted as fulfilling the Thesis requirement for the degree of Master of Science in Sport Nutrition.

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DEDICATION

My family, whose unfailing love, support, and encouragement have been a constant source of strength during this research journey, are the recipients of this work. To my parents, who have always believed in my potential, and to my friends and coworkers, whose were cooperation and wisdom have greatly enhanced this effort. The innumerable academics and researchers whose contributions have opened the door for fresh discoveries and whose unwavering enthusiasm for learning continue to motivate me are also honored in this study.

STATEMENT OF THE AUTHOR

By my signature below, I declare and affirm that this thesis is my work and that I have followed all ethical and technical principles of scholarship in the preparation, data collection, data analysis, and complication of this thesis. Any scholarly matter included in the Thesis has been recognized through citation.

This thesis is submitted for partial fulfillment of the requirements of an MSc in sports nutrition in the year of 2024 at Haramaya University. The thesis is deposited in the Haramaya University library and made available to borrowers under the library's rules. I solemnly declare that this thesis has not been submitted to any other institution anywhere for the award of any academic Degree, Diploma, or Certificate.

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I hereby declare that this thesis is my original work and has not been presented for a degree in any other university. It has been submitted in partial fulfillment of the requirements for the degree of Master of Science in Sport Nutrition specialization at Haramaya University. And that all sources of materials used for the thesis have been duly acknowledged.

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BIOGRAPHICAL SKETCH

The researcher was born at a place called Seru Abbas woreda in East Arsi Zone Oromia Region in 1996 G.C. She learnt her Elementary School from grade 1-8 in Halila elementary school and she learnt her secondary and preparatory school in seru abbas Woreda. She joined her higher education institution in Haramaya University for her higher education in Sport Science program in the year of 2014 G.C and graduates in 2016 G.C. In November 2023 G.C She joined Haramaya University to pursue her MSc program in Sport Nutrition.

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ABBREVIATION AND ACRONYMS

ADL	Activities of Daily Living
AOR	Adjusted Odd Ratio
BMI	Body Mass Index
CI	Confidence Interval
ETB	Ethiopian Birr
GERD	Gastro Esophageal Reflux Disease
KDHS	Kenya Demographic and Health Surveys
MSG	Monosodium Glutamate
NAFLD	Nonalcoholic Fatty Liver Disease
NCHS	National Centers for Health Statistics
NHANES	National Health and Nutrition Examination Survey
PCOS	Polycystic Ovary Syndrome
PHE	Physical and Health Education
US	United States
USDA	United State Department of Agriculture
WHO	World Health Organization

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ABSTRACT

In developing nations like Ethiopia, poor weight management has become more prevalent recently. Individuals may differ in their comprehension and implementation of nutritional knowledge and good eating practices. Numerous well-educated people struggled with weight control, and little research was done on how dietary practices and nutritional knowledge affected body weight management. This study was to assess the nutritional knowledge and dietary habits of fitness program participants and their impact on weight management in selected Harar fitness center practitioners. An experimental study design was conducted in selected Harar fitness centers from June 25-Augest 25, 2024. The total sample size of this study was 247 fitness center participants. A simple random sampling technique was used to select fitness centers. Enrolling randomly selected fitness center participants in a selfadministrative, structured questionnaire was used to collect data. Data was entered into epidata version 4.6 and analyzed by SPSS Version 26.0. Descriptive statistics are used to describe participants' background characteristics and the nutritional knowledge and dietary habits of fitness center participants. From the study, the total response rate was 98%. The majority of respondents were the ages of 27% (18-24) and 28% (25-30) years. From the total study participants, 214 (87%) were male and one hundred fifty-seven (64%) with a 95%CI (57.7-71.0%) of the respondents had a normal range body mass index. Harar fitness center participants have good nutritional knowledge (28.6%) and good dietary habits (81.6%). In conclusion, the effect of nutritional knowledge and dietary habits on managing body weight is positive. But in the Harar city fitness center, participants' nutritional knowledge and dietary habits were above the mean. We recommended that critical intervention on nutritional knowledge and dietary habit awareness will be important to manage body weight. The impact of nutritional knowledge, dietary habits practice, and physical activity is very important to body weight management practice.

Key words: *- weight management, nutritional knowledge, dietary habit and fitness center.*

1. INTRODUCTION

1.1. Background of the Study

Nutrition is increasingly acknowledged as a critical component of peak athletic performance, with both the research and practice of sports nutrition advancing rapidly. Dietary habits and nutritional understanding were extremely crucial for humans to achieve a healthy lifestyle. (Brunt & Rhee, 2008). To begin, this study could help athletes, students, and others become more conscious of nutritional behaviors that they can incorporate into their daily lives. Dietary practices included a balanced food intake in each meal, avoiding fast food and junk food (Yahia et al., 2008, 2016).

Improving nutritional understanding was crucial for several reasons, including consuming a well-balanced diet rich in carbs, proteins, minerals, and vitamins. Because Physical and Health Education (PHE) students may be considered athletes, research into eating habits and nutritional knowledge was vital for them. Nutrients are intended to provide energy sources for the entire body while doing any daily activity (DEBBY DEMORY-LUCE, Zakeri, Issa & Berenson, 2004). Established importance of nutritional intake on athlete health and performance, educational support should be employed to improve knowledge in climbers and address shortcomings (Edward & Storey, 2024). Nutrition was crucial to athletes' health; however, a lack of nutritional understanding can result in poor eating habits, thus impacting athlete performance (Brien & Davies, 2007). Athletes with appropriate nutrition instruction and awareness may make better eating choices. However, athletes who had inadequate nutrition education and expertise may make poor eating choices (Brunt & Rhee, 2008). Obesity pandemic in the United States is likely to worsen (Edward & Storey, 2024).

Physical activity had a minor influence on body weight, often less than 3% of beginning body weight, but it had an additive effect when combined with dietary restriction (Yahia et al., 2016). Furthermore, physical activity has been found to be an essential behavioral element in promoting long-term weight reduction and reducing weight return; however, this may necessitate rather large doses of physical activity of around 300 minutes per week. Physical exercise may worry the currently reduced abdominal adiposity, which may serve (Koochek et al., 2008; Lichtenstein et al., 2006; Poddar et al., 2009). As a result, health-related risk factors

for a variety of chronic diseases improved. There was an important field of research that required further examination, with special emphasis on the dose of physical activity that significantly affects these health outcomes (Bhawra & Kirkpatrick, 2023; Johansen et al., 2006; Yahia et al., 2016).

Obesity had a substantial impact on women's health, lowering their quality of life and decreasing their lifespan according to American Obesity Association (2002). There were numerous obesity-related illnesses that only or primarily affected women. These included osteoarthritis, birth deformities, breast and endometrial malignancies, cardiovascular and gallbladder disorders, infertility, gynecological difficulties, urinary stress incontinence, and stigma/discrimination (Archer & Horn, 2006). This research focused on weight gain prevention, weight loss success, and weight maintenance. The interest in physical activity as a lifestyle strategy to combat the rising incidence of overweight and obesity derives from the fact that it was the only way to regularly raise energy expenditure. Physical activity was the most variable part of total daily energy expenditure. As a result, it was critical to understand how an increase in energy expenditure caused by physical activity affected weight reduction, long-term weight loss maintenance, and weight gain prevention. Optimal weight control through physical activity may also help to reduce abdominal adiposity and metabolic risk (Richard et al., 2000).

The best outcomes were achieved by properly refueling and recovering with protein and carbohydrates before and after the activity (Kanauchi & Kanauchi, 2018). To promote muscular growth, they needed to consume enough energy. This comprised a high carbohydrate diet for energy, as well as protein and nutrient-dense foods to offer the raw ingredients for muscle growth and maintenance (Kanauchi & Kanauchi, 2018; Richard et al., 2000). The diet should change according to training frequency, intensity, and duration. If these eating practices were maintained during periods of rest, less severe training, or upon retirement, it might lead to weight increase and even obesity in a short period of time. Some people are more concerned with their weight because it benefits their performance or looks good. Their concentration on skill and agility rather than power resulted in decreased energy requirements and expenditures. Their eating habits would consist of smaller, more frequent meals, low fat, low glycolic foods, and high fiber. This should provide them a more consistent energy level that varies with training (Demirci et al., 2018; Richard et al., 2000; Wang, 2015).

1.2. Statements of the Problem

Over 1.9 billion adults were overweight or obese in 2016, with over 650 million of them being obese. Globally, women are more likely than men to be overweight or obese. Obesity and overweight are linked to increased rates of cardiovascular disease, diabetes, and major malignancies (Mkuu et al., 2018). Dieting, which comprises regulated and supervised food consumption to accomplish weight reduction, weight maintenance, or weight growth, is widely used by overweight or obese people, frequently in conjunction with physical exercise (Demirci & Demirci, 2018; Strychar, 2006). Healthy eating, on the other hand, refers to eating a variety of meals that include the nutrients required to sustain good health, well-being, and energy levels. These nutrients include protein, carbs, fat, water, vitamins, and minerals (Kennedy, 2022). Nutritional knowledge is essential for making informed food decisions. It can directly influence food choices, even in the absence of explicit food label information, as well as foodrelated attitudes and beliefs. Furthermore, the usage of food labels may regulate the link between nutritional understanding and dietary behaviors (Brien & Davies, 2007; Edward & Storey, 2024; National Health Services, 2018; Wang, 2015).

Generally, obesity results from eating more while malnutrition results from eating less food than needed for growth, maintenance, and daily activity. Daily energy needs could be estimated based on age, height, weight, and level of activity (Reeves & Henry, 2000). Overweight and obesity in developing countries, had been neglected as most attention was concentrated on famine and under nutrition or malnutrition of children (ÇetİN & Ece, 2021; william philip T james, 2001). Physical activity is defined as any movement of the body that necessitates the contraction of skeletal muscles and causes an increase in energy expenditure over resting levels. Exercise, on the other hand, is a type of physical activity that is planned, structured, repeated, and deliberate, with the intention of increasing or maintaining physical fitness (Piggin, 2020). Unhealthy diets and overweight are more prevalent among people from lower social classes in most high-income countries. Financial constraints, health education, and the availability and accessibility of healthy or unhealthy foods are frequently discussed explanations for this dietary inequality. However, these Impact cannot fully studied knowledge and dietary habits.

Under the research Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants, it is important to answer the following questions:

This research aims to address the following research questions:

1. What are the dietary habits of Fitness Center participants?
2. What is the level of knowledge and nutritional understanding needed to manage body weight among fitness center practitioners?
3. What is the impact of nutritional knowledge and dietary habits on weight management?

1.3. Scope of the Study

In terms of subject matter this study sought to measure body weight management through dietary consumption and nutritional knowledge among Harar city fitness facility participants.

Geographically, the study was limited to the Harar Fitness Center.

1.4. Significant of the Study

The study's relevance is that Harar fitness center participants was gain a thorough understanding of eating habits, nutritional value, and their favorable impact on weight management. Also, both fitness facility teachers and participants should have better nutritional information about weight management. Furthermore, it would open the door for any interested scholar to conduct additional research on the topic. Nevertheless, there might be gaps and variations in people's comprehension and implementation of nutritional knowledge and good eating practices. In this study, practitioners of fitness facilities were have their eating habits, nutritional knowledge, and weight management examined. By examining these factors, the study seeks to identify possible areas for improvement and intervention in order to promote wholesome eating practices and practical weight-loss strategies. There are fitness centers in Harar, but there appears to be a lack of understanding about the necessity of healthy eating habits and nutritional value, as well as how they can affect weight management for participants in these fitness centers. The purpose is to give a problem-solving approach to solve these difficulties and contribute to the Dietary habits and knowledge impact on the fitness center in the study area.

1.4.Objectives of the Study

1.4.1. General objective

The general objective of this study was assess impact of nutritional knowledge and dietary habits on weight management of fitness program participants at Harar fitness center, Harar City, Eastern, Ethiopia from June 25 – August 30/2024.

1.4.2. Specific objectives

1. To assess eating habits of weight managements of fitness center participants.
2. To assess nutritional knowledge impact on weight management among Harar fitness center participants.

2. REVIEW OF RELATED LITERATURE

2.1. Dietary Habits for weight control

Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition is an adequate, well-balanced diet combined with regular physical activity and cornerstones of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity (Gilbert & Khokhar, 2008). American Heart Association Nutrition Committee states that do not eat meat more than once a day. Eat fish and poultry more often than red or processed meats because they were less fattening. Avoid frying food. Fried food absorbs the fats from the cooking oils, increasing your dietary fat intake. Instead, bake or broil food. If you do fry, use polyunsaturated oils, such as corn oil. Cut down on your salt intake. Limit table salt, or flavor intensifiers that contain salt, such as monosodium glutamate (MSG). Included adequate fiber in your diet (Lichtenstein et al., 2006). A cross sectional study in Accra metropolis done; Fiber was found in green leafy vegetables, fruit, beans, bran flakes, nuts, root vegetables, and whole-grain foods. Do not eat more than 4 eggs per week. Although they were a good source of protein, and they were low in saturated fat, eggs were very high in cholesterol. Choose fresh fruit for dessert, rather than cookies, cake, or pudding. Eat a well-balanced diet. Too much of anything calories or a particular type of food had its drawbacks. Follow the recommendations of the food guide plate (Quaidoo et al., 2018).

In United Kingdom study done nutrients meant to produce the energy sources to whole the body during do any daily activity and plays a vital role in the health of athletes. Lack of nutritional knowledge can lead to poor eating habit which could then affect the athlete's performance. Athletes who had the correct nutrition education and knowledge may make better food choices (Grete & Friesen, 2011). According to (Edward & Storey, 2024) nutrients were expending through the food that we eat and through metabolic process in the digestive system and absorbed at a cellular level in the body (Edward & Storey, 2024). According to Yahiya et al., (2016). Students were left with very little ways to meet the dietary habits and nutritional knowledge was very important for human to get the healthy lifestyle. Firstly, this study could help those athletes especially among students become aware meaning of dietary habits which they could apply in daily life. Dietary habits consist of balance food intake in daily meal which avoid from taking fast food and junk food (Yahia et al., 2016).

Weight management means keeping your body weight at a healthy level. Information Regular exercise and a healthy diet were crucial when it comes to controlling your weight. A weight management plan depends on whether you were overweight or underweight. An easy way to determine your own desirable body weight was to use the following formula: Women: 100 pounds for the first 5 feet of height plus 5 pounds for each additional inch. Men: 106 pounds of body weight for the first 5 feet of height plus 6 pounds for each additional inch. For a small body frame, 10% should be subtracted. For a large frame, 10% should be added. Body fat and body mass measurements are used to determine whether a person is under-or overweight. A registered die titian or exercise physiologist could help you calculate your body fat. The recommended amount of body fat differs for men and women (william philip T james, 2001).

The dietary habits and nutritional knowledge were very important for human to get the healthy lifestyle. Firstly, this study could help those athletes especially among students become aware meaning of dietary habits which they could apply in daily life (Update and Preparation, 2006; Bhawra *et al.*, 2023). Dietary habits consist of balance food intake in daily meal which avoid from taking fast food and junk food. Improve nutritional knowledge were important for many aspects such as help intake balancing food such as food that contain of carbohydrates, proteins, vitamins and mineral. Since Physical and Health Education (PHE) students could be consider as athletes, therefore study in dietary habits and nutritional knowledge was important among Physical and Health Education (PHE) students. Approximately 17 -19% body fat. A man with 25% body fat or higher is considered obese (Puckett & James, 2006; william philip T james, 2001).

Women who were overweight or obese were at a higher risk of developing these conditions compared to those who are not. And the morbidity and mortality of obesity-related conditions have resulted in an increase in the associated health-care cost of these conditions. Thus, it was important to consider intervention opportunities to lower the health risk associated with obesity, which in turn may reduce the health-care costs associated with these conditions. One of the lifestyle-intervention opportunities that had been shown to be effective was physical activity due to its importance in body-weight regulation and its independent effect on related health outcomes (william philip T james, 2001; Zarei et al., 2013).

BMI was an indirect measurement of your body composition. It takes into consideration both your weight and height. BMI helps determine your risk for certain diseases, including diabetes and hypertension. It was important to note that the terms “overweight” and “obesity “do not

mean the same thing Weight management for people who had been overweight involves continued physical activity and monitoring the amount of food eaten (Koochek et al., 2008; Saintila et al., 2022)

Anorexia nervosa and bulimia were eating disorders associated with a negative body image. Anorexia nervosa was a disorder in which people extremely limit their food intake. This results in dangerously quick weight loss, to the point of starvation. This disorder was most commonly found in adolescent females, but may also occur in males, children, and adults (Edward & Storey, 2024; Strychar, 2006). Many people with bulimia don't lose a lot of weight, and may not get medical attention until they seek help. Excessive intentional weight loss can cause a person to be dangerously underweight. To maintain their weight, people with eating disorders must eat enough food to prevent them from losing the weight they have gained (Laleh & Holmes, 2014).

Moreover, there was a need for improved interventions to promote the adoption and long-term maintenance of physical activity, which could lead to improved weight control, abdominal adiposity, and chronic disease risk factors. Numerous factors lead to overweight and obesity. Key among them was urbanization which brings with it a reduction in daily energy expenditure through reduction of physical activity and a shift to a higher caloric content diet (Kanauchi & Kanauchi, 2018; Wang, 2015).

According to Kenyan medical experts, Kenyans today were eating a fatter oilier diet than ever before, even as they rely more on personal and public vehicles to move even the shortest of distance. The current obesity disease reflects the profound changes that have taken place in the society over the last 20 - 30 years that had created an environment that promotes a sedentary lifestyle and the consumption of a high fat, energy dense diet (william philip T james, 2001), .Worldwide, more than 60% of adults do not involve in sufficient levels of physical activity which is beneficial to their health (Kanauchi & Kanauchi, 2018).
To maintain your weight, you can use the following formula: 10 calories per pound of desirable body weight if you were sedentary or very obese 13 calories per pound of desirable body weight if your activity level is low, or if you are over age 5- 15 calories per pound of desirable body weight if you regularly do moderate activity 18 calories per pound of desirable bodyweight if you regularly do strenuous activity (Reeves & Henry, 2000).

Low activity: No planned, regular physical activity; occasional weekend or weekly activity (such as golf or recreational tennis) was the only type of physical activity. Moderate activity: Participating in physical activities such as swimming, jogging, or fast walking for 30 -60 minutes at a time Strenuous activity: Participating in vigorous physical activity for 60 minutes or more at least 4 -5 days per week. To successfully manage your weight, follow these basic guidelines: Eat a healthy, well-balanced diet. Balance physical activity with diet to maintain your desired weight (Koochek et al., 2008).

Based on measured data from 2007-2009,in Canada 62.1% of adults had overweight or obesity (a body mass index (BMI) equal to or above 25 kg/m2), and over 25% of adults had obesity (a BMI equal to or above 30 kg/m2).8,9 The prevalence of overweight and obesity was under estimated when based on self- reported data (51.1%).8 Obesity prevalence is 17.4%, with great variance across health regions (ranging from 5.3% to 35.9%) and provinces (12.5% in British Columbia to25.4% in New found land and Labrador). In Alberta, the prevalence of selfreported obesity has increased from 20.5% in 2003 to 23.9% in 2007/08. In 2004, 60.9% of adults in Alberta were overweight or obese (Brien & Davies, 2007). The prevalence of obesity was higher in the Aboriginal population. Based on self-reported 2002/03 data, the prevalence was similar for off-reserve First Nations (26.1%), Inuit (23.9%) and Métis (26.4%) but higher for on-reserve First Nations adults (36.0%). The prevalence of measured obesity had doubled across all age groups between the 1981 and 2007/09 surveys (Brien & Davies, 2007).

2.2. Nutrition knowledge for weight control

Understanding nutrition is essential for making well-informed food choices, which has a significant influence on lifestyle and general health outcomes. Malnutrition and inadequate nutritional awareness are frequently correlated, underscoring the urgent need for thorough knowledge in this area (Edin et al., 2024). Acquiring nutrition knowledge is a cumulative process; Lack of practical knowledge and poor understanding of nutrition principles are factors that prevent sound nutrition practices by athletes (Grete & Friesen, 2011). Research suggests that, lack of nutrition knowledge and common nutrition misconceptions are leading causes for inappropriate dietary intake and/or behaviors seen among adolescent (Edward & Storey, 2024; Saintila et al., 2022; Yahia et al., 2016). A lack of food (energy or specific nutrients), lack of awareness and cheap foods high in fat, sugar, and salt are leading to weight gain and obesity as well as specific deficiencies (Lichtenstein et al., 2006).

Sports nutrition can be defined as the application of nutrition knowledge to a practical daily eating plan focused on providing the fuel for physical activity, facilitating the repair and rebuilding process following hard physical work, and optimizing athletic performance in competitive events, while also promoting overall health and wellness. The area of sports nutrition is often thought to be reserved only for "athletes," which implies the inclusion of only those individuals who are performing at the best level. In this text, the term athlete refers to any individual who is regularly active, ranging from the fitness enthusiast to the competitive amateur or professional. Differences may exist in specific nutrient needs along this designated spectrum of athletes, creating the exciting challenge of individualizing sports nutrition plans (Edward & Storey, 2024; Lemon, 1996).

Improve nutritional knowledge were important for many aspects such as help intake balancing food such as food that contain of carbohydrates, proteins, vitamins and mineral. Since Physical and Health Education (PHE) students could be considered as athletes, therefore study in dietary habits and nutritional knowledge was important among Physical and Health Education (PHE) students. According to (Yahia et al., 2008) nutrients were expending through the food that we eat and through metabolic process in the digestive system and absorbed at a cellular level in the body According to students were left with very little ways to meet (Yahia et al., 2008). Athlete knowledge on hydration for sports performance was poor; just 22% of the athletes identified the correct hydration strategy during exercise, with only 10% of athletes correctly identifying the reason they should drink during exercise (Edward & Storey, 2024).

Nutritional knowledge impacts attitude and eating habits among the society (Demirci & Demirci, 2018; Grete & Friesen, 2011; Saintila et al., 2022). The nutritional knowledge could get from many sources like magazines, internet, and others sources. Nutrition education, in any shape or form, would help to provide athletes base for knowledge. When provided with this knowledge base, athletes then are able to make their own nutrition choices. Athletes increase in knowledge when provided with any type of nutrition education. Increase in knowledge, intentions, and self-efficacy if maintain would impact on healthy choices for food (Grete & Friesen, 2011). According to (Poddar et al., 2009)in Virginia, people could reasonably estimate specific foods they eat each day, such as the number of fruits and vegetables but not the level of hidden nutrients such as fat or fiber in their diets. People underestimate their dietary fat intake and overestimate their dietary fiber intake (Poddar et al., 2009) states that, if the students had previous course in nutrition, they would perform well in nutritional knowledge test rather than whose did not have any nutritional knowledge course. knowledge of nutrition would

encouragement the attitude of nutritional intake in daily life and then could reduce the problem of health and diseases especially among students (Demirci & Demirci, 2018).

The pivotal role of nutritional knowledge in addressing malnutrition is underscored by its potential to influence dietary habits positively (Edin et al., 2024). Good nutrition was an adequate, well-balanced diet combined with regular physical activity and cornerstones of good health (Gilbert & Khokhar, 2008). The perspective cohort study done status as a direct association had been found between body weight and deaths from all causes in women, ages 30 to 55. According to the American obesity association, when BMI exceeds 30 kg/m2, the relative risk of death related to obesity increases by 50 percent (Poddar et al., 2009). A systematic review in Europe shows balanced nutrition included drinking plenty of clean water and regularly eating foods from each of six food groups. A person should regularly eat or drink enough of all of these nutrients to grow and remain healthy (Gilbert & Khokhar, 2008).

The body mass index (BMI) could be a useful measure of the degree of under-nutrition or over nutrition. More details about each of the underlined topics could be found in this guide on the pages shown in parentheses. Globally, nearly 1 billion people are classified as overweight, 300 million of them being clinically obese (WHO, 2004). Nearly one third of the adult American population was obese, while in South Africa, more than one in two adult women were overweight (william philip T james, 2001). The prevalence of overweight was 20.5%, and the prevalence of obesity, 9.1%. Women aged 35 to 44 (Mkuu et al., 2018). In Malaysia, 8.57% of the respondents were underweight, 60.95% were normal, 24.76% were overweight, and 5.71% were obese (Zarei et al., 2013).

2.3 Impact of nutritional Knowledge and dietary habits on weight management

Most studies reported some significant, positive association between nutrition knowledge and dietary intake or pattern (Spronk et al., 2014). It is crucial to have sufficient and correct nutrition information because it may help guide dietary decisions and encourage the preservation of a healthy nutritional status. Using the nutrition information sources that young adults frequently consult, it would be possible to spread awareness of the value of adopting good eating habits, such as reading labels before buying packaged food items. Being aware of nutrition-related behaviors and concepts, such as appropriate food intake and wellbeing, food intake and disease, foods that represent important nutrient sources, and dietary guidelines and references, has been defined as having competent nutrition knowledge (Quaidoo et al., 2018)..In Italia study done,

The majority of the respondents (66%) were confident that they had a high level of nutrition knowledge (Scalvedi et al., 2021).

In A healthy body weight is currently defined as a body mass index (BMI) of 18.5 to 24.9 kg/m2, Overweight is a BMI between 25 and 29.9 kg/m2 , and obesity is a BMI >30 kg/m2

(Lichtenstein et al., 2006). For overweight people who are healthful, enhanced physical activity and exercise are part of a complete weight-loss plan. The capacity to create and maintain an exercise regime is one of the strongest indicators of results of this case in the therapy of overweight (Rana, 2022). Which diets result in safe weight loss, have positive long- term consequences for chronic disease risk factors, and are sustainable in the long term (Strychar, 2006).

Multicomponent lifestyle intervention (healthy eating plan, increased physical activity and support for behavioral change) is the first approach and brings a range of health benefits. More intensive interventions such as very low-energy diets and medication can help some people to reduce weight further, and may assist motivation to continue with lifestyle change towards longer term weight loss goals. Bariatric surgery is currently the most effective intervention for severe obesity. The decision to use intensive interventions takes the individual’s situation into account and may require referral to healthcare professionals with expertise in obesity management (NHMRC, 2013).

3. MATERIALS AND METHODS

3.1. Description of the study area

The study was take place at Harar, which is located in Eastern Ethiopia, roughly 527 kilometers from Addis Abeba. The study site is precisely placed at 9° 18' 49" N and 42° 07' 05" E. It is also located 1,917 meters above sea level in Eastern Ethiopia. According to the Central Statistical Agency of Ethiopia's (CSA) 2007 Census, Harar has a total population of 183,415 people, including 92,316 men and 91,099 women (Central Statistical Agency of Ethiopia, 2007) . It is worth noting that Harar is Ethiopia's sole region where the majority of the population lives in cities, with 99,368 people living there, accounting for 54.18% of the total. The region has an estimated surface area of 311.25 square kilometers, with a population density of 589.05 persons per square kilometer. During the census, 46,169 households were counted across the region. The region has an average of 3.9 people per home, with 3.4 in urban households and 4.6 in rural households. Harar has a tropical climate, with distinct wet and dry seasons. The winter season receives much less rainfall than the summer season. Harar's average annual temperature is 19.4°C. The location receives an average of 723 mm of rainfall per year. Thus, this study was conducted in Harar city fitness centres from June 25/ 2024 –august 25/ 2024.

3.2 Research Design

An experimental study design was carried out at the fitness center.

3.3 . Study Population

All fitness center participants are the source of population. 240 fitness center participants are considered as study population.

3.3.2 Study population

The study population are enrolled all participants from four fitness centers in Harar city. Namely Gutenberg (n=151), Smart Tower (n=144), Stadium (n=73) and Shashageraj (n=82) fitness center. A total of 450 individuals participated in these centers. The number may fluctuate due to absences, withdrawals, and individuals stopping their exercise regimen. The study was

included men and women, as well as adults, who attend the fitness centers during the exercise period.

3.4 Inclusion and Exclusion Criteria

3.4.1 Inclusion criteria

All fitness center participants with the age 18-40 were included as the study population. After completing their health history and fitness status questionnaire that were help the researcher to obtain information on Weight management care of the subjects participating for the research study.

3.4.2 Exclusion criteria

Fitness center participants who were sick during data collections and any known cardiovascular disease, smokers, taking regular medication or psychiatrics iatric disorder and also any recent physical injury was excluded from the study.

3.5 Sample size determination

Sample size determination for the first objective: - A sample size was calculated using a population proportion formula by using normal weight population 0.81 in harar town (Tekola et al., 2024). The sample size is calculated using the following formula with total population was less than 10,000 are 151. Therefore $n=z^2pq/d^2$ where: - $n=1.96^2*0.81*0.19/0.05^2=236$, the study population less than 10000. So; nf = desired sample size nf =n/ (1+n/N) nf =desired sample size z=standard normal deviate set at 1.96 which is corresponds to 95%confidence interval p=assumed to be 0.5 (there is no data related with this population proportion) q= (1-p); which is 0.5 d=degree of accuracy desired set at 0.05

nf = 236/(1+236/450)=157 by adding 10% contingency the total sample size was be 173.

Sample size determination for the second objective: - The sample size calculated by using the effect of each factor associated with weight management among Harar fitness centres Participants in sample size calculation 95% confidence level, 5% margin of error, 80%

estimation power, and 1.5 design effect considered. Two population proportion formulae in epiinfo version 7.2.4.0 software are used to calculate the sample size (Table 1).

Table 1: sample size calculation for the second objective impact on weight management in selected Harar fitness center practitioners in 2024.

Factors	body weight management		design effect	CI	AOR	Sample size plus 10% contingency	reference
	good	poor					
Nutritional knowledge	42.7	57.3	1.5	95%	5.21	247	(Saintila et al., 2022).
Dietary habits	29.6	70.4	1.5	95%	0.01	231	(Aureliusz & , Magdalena Król, 2023).

Finally, the larger sample size which determined with nutritional knowledge single proportion formula based on the first specific objective considered were enrolled.so; by adding 10% contiguous the final simple size was 247.

3.6 Sampling Technique and Procedure

The total population of Harar fitness center participants enrolled based on fitness center participant which are 247 (Fig-1). The number of participants were taken from each fitness center participants.

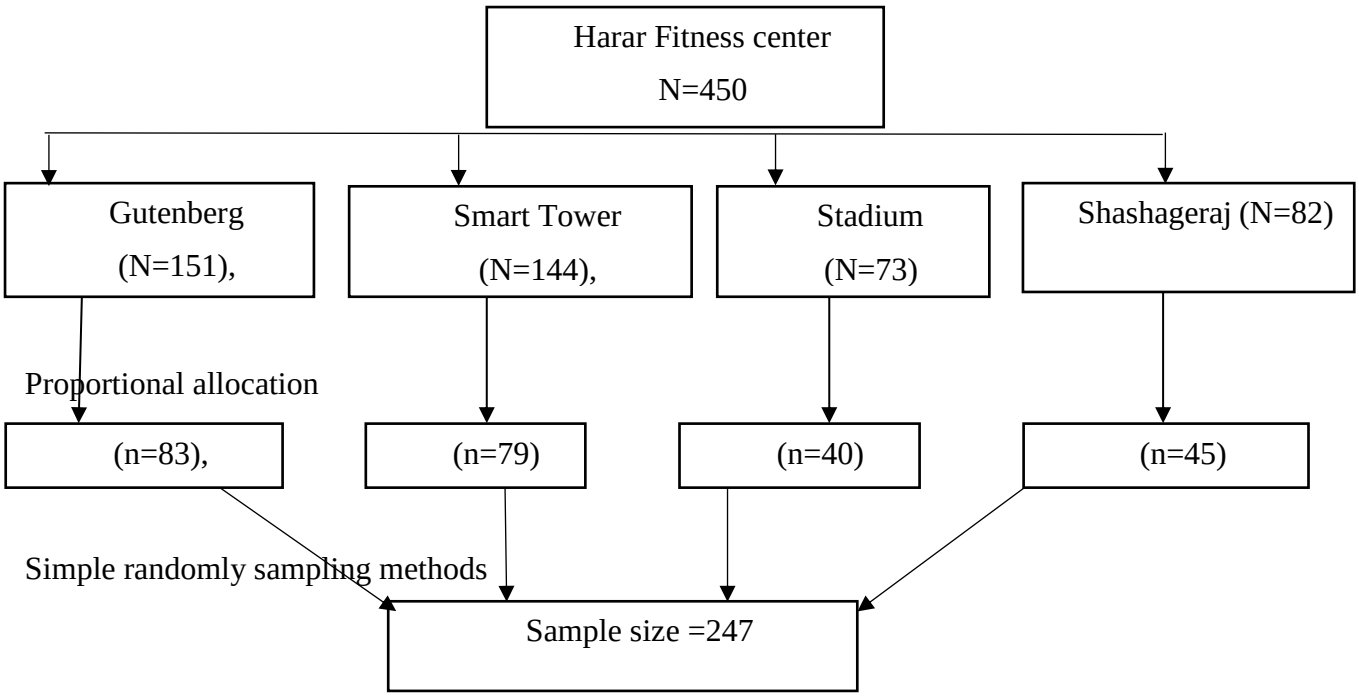


Figure 1:- Schematic representation of the sampling procedure of quantitative part fitness centers participants in Harar city, Eastern, Ethiopia (The data was taken from the fitness center).

3.7 Data Collection Methods and Instruments Tools

3.7.1 Data collection instrument

Data collection was an important part of research since it offered the needed information and raw data for analysis. The impact of nutritional knowledge and dietary habits of fitness center participants before and after intervention is based on educational material (Astrachan, 1999; Ethiopian Public Health Institute, 2022; NHMRC, 2013; Pearson & Grace, 2013) on body weight management practice. Based on dietary habits and nutritional knowledge; impacts on weight management among Harar fitness facility practitioners. These tools are vital for collecting thorough data and insights from participants. The study used questionnaires delivered to respondents during self-administrative before educational intervention and after educational interventions based on dietary practice guidelines and gave nutritional awareness three days per week for a full two months after preparing a proper lesson plan. I conduct a supportive assessment every week to gauge their awareness and dietary practices.

Nutrition education: Educating participants on the value of a well-balanced diet and the nutrients required for good health. This could entail giving advice on healthy cooking techniques, portion amounts, and dietary groupings.
Labelling and Food Information: Providing consumers with information about the nutritional value of food items by means of easily comprehensible labels that include details like calorie and fat content.

Personalized Counselling: Individual or group counselling with dietitians or nutritionists to help people choose better foods according to their lifestyle, health, and personal preferences.

The basic goal of the study was to collect socio-demographic information, anthropometric measurements, and conduct nutritional intake and knowledge assessments. In addition to the quantitative approach, which was allowed for statistical analysis and the generalization of findings. The study was to collect the data that was contributed to a comprehensive analysis of the impact on fitness, dietary habits, and knowledge of health and wellness among fitness center participants. In this study, the researcher used structured questionnaires as the primary data collection instrument. According to Parmjit, Puzziawati, and Hoon (2009), closed-ended questions were also used because they are more efficient in coding and processing than openended ones. Questionnaires were very effective in this study since they allowed the researcher to gather information from a large number of research participants. The questionnaires were adapted from current sources and piloted to verify dependability (Grete & Friesen, 2011; Koochek et al., 2008; Laleh & Holmes, 2014; Poddar et al., 2009; Richard et al., 2000; Saintila et al., 2022; william philip T james, 2001; Yahia et al., 2016).

3.7.2 Procedure of Data Collection

After preparing structural self-administrative questionnaires; it was prepared in English and translated to local languages Afan Oromo. Two day training was given for four data collectors and project staff on the study objective research ethics and data collection tools. After individual participants selected study objectives and procedures were thoroughly explained for each selected fitness participants, and informed consent was taken. Finally, the structured self-administered questions were administered for 20 minutes by trained data collectors. Data collection process was supervised by principal investigator. These interviews were take 30 minute per individual for the qualitative data and it was subsequently collected through the investigator.

3.8 Variables

3.8.1 Dependent variables

- ✓ Weight management of fitness center participants

3.8.2 Independent variable

- ✓ Socio demographic characteristics (age, sex, income, living place etc.)
- ✓ Nutritional Knowledge
- ✓ Dietary habits
- ✓ Physical activity

3.9. Operational definitions

Weighting management: - Good health and weight management include a life-long commitment to a healthy lifestyle. The best way to achieve a healthy weight is to eat a healthy diet that includes all food groups, and has plenty of whole grains, fruits and vegetables. Incorporating at least 30 minutes of physical activity each day can help individuals achieve or maintain good health (Kennedy, 2022). Underweight (BMI <18.5), normal weight (BMI 18.5 to 24.9), overweight (BMI 25 to 29.9), and obese (BMI >30) (Brien & Davies, 2007; Kanauchi & Kanauchi, 2018; Poddar et al., 2009).

Good nutritional knowledge :-The fitness centre participants who scored; greater than or equal to 50% and less than 50% was scored all on nutritional knowledge questions to have good and poor nutritional knowledge respectively (Aureliusz & , Magdalena Król, 2023; Brien & Davies, 2007; Demirci & Demirci, 2018; Edward & Storey, 2024; Saintila et al., 2022; Yahia et al., 2016).

Dietary habits: - It is the combination of foods and beverages that constitutes an individual's complete dietary intake over time. This may be a description of a customary way of eating or a description of a combination of foods recommended for consumption (Phillips, 2021). For each food group, the following scores were assigned: +2 points in case of frequency of consumption in line with recommendations, 0 points in case of frequency of consumption very far from recommendations, and +1 points in the intermediate condition, meaning not far from the recommendation, but not corresponding to it. To was calculated as the sum of all group scores. For example, for the groups "fresh fruit" and "vegetables," the maximum score (2 points) was

set for “more than once a day”; score 1 was assigned to option “once a day”; and 0 score was assigned to the other reported intakes (Naeeni & Jafari, 2014; Quaidoo et al., 2018).

Balance diet: - A balanced diet refers to the consumption of a variety of foods in the right proportions to provide the body with the essential nutrients it needs to function optimally. A well-balanced diet helps maintain overall health, supports growth and development, boosts energy levels, and prevents chronic disease (Mishra, 2020).

Fitness Centre: - A place where**;** activities include planned, impromptu team sports, yoga, and martial arts sessions; coordinated, group instruction programs; and options for individual fitness, like weight training, swimming, and cardio training (Freitas & Lacerda, 2019).

3.10. Data quality control

Before the actual study, a pretest study was undertaken in Haramaya University fitness center with people who were not included in the sample group. The pretest study was analyzed the relevance of the questionnaires used to collect data for the study. The purpose was also to assess the clarity of the questionnaire items. Based on pretest research responses and expert opinions, the questionnaires were modified. First the investigator would inform physical fitness center. Instructor about the study, give training data collectors and the questioner would be piloted. In order to assured the quality of the study used pre-test study to check the questioner of the research. Furthermore, the data collected from the respondent would make sure the completeness of the data.

3.11. Method of Data Analysis

In order to analyze the collected data, the following steps were employed. Firstly, data was collected and organized based on the objectives and coded according to the described topics. Next to this, various techniques was used for the analyses and presentation of data. In quantitative technique analyses was characterized by the use one sample descriptive analysis (mean, percentage) by means of statistical package for social science (SPSS version 26), and analyzed to see impact of knowledge, dietary habits other demographic characteristics impact on weight management. Next, the result was elaborated with more description. Finally, the major finding of the study was report and realistic and feasible recommendations would forward.

3.12. Ethical considerations

Ethical clearance was obtained from the Institutional Health Research Ethical Review Committee of Haramaya University College of Health and Medical Science. Permission letter written by Haramaya University, sport science academy was provided to each Harar fitness center to obtain permission. Informed voluntary written and signed consent was obtained from each fitness center participant before interview started after though explanation on objectives and procedure of the study. Each participant was informed as they have right to withdraw from the study at any stage of interview without any explanation. Any information participants was recorded anonymously and confidentiality.

4. RESULTS AND DISCUSSION

4.1. Socio democratic characteristics of Harar city fitness center participants

The total response rate was 98%. The majority of respondents were the age of 27% (18-24) and 28% (25-30) years. From the total study participants, 214 (87%) were male and around 152 (62%) were single. The educational status of fitness center participants was student 92 (38%), public servant 54 (22%), and merchant 33 (14%). One third of study participant monthly income was 3001-7000 ETB (Table 2).

4.2. Impact of nutritional Knowledge on body weight management

The majority of the fitness center participants knew the nutritional and physical fitness activity goals were to create healthy lifestyles that are around and improve overall health wellbeing. Half of the fitness center participants were motivated to do physical activity to improve their body weight 123 (50%) and perform moderate physical activity (less than five hours per week) 124 (51%). Around 136 (55.5%) fitness center participants were needed to reduce their body weight. Of those participants who reduced their body weight in order to physically fit 93 (38%) and to manage their weight 96 (39%). This study finding shows only 70 (28.6%) of participants had good knowledge of nutrition regarding weight management (Table 3).

4.3. Dietary habits of fitness center study participants Practice

In this study, participants 199 (81%) had good dietary habits. From the total of this study, 156 (64%) were taking a balanced diet, and 143 (48%) were taking more than three cups of fluid per day. But 28 (11%) of participants take fat-containing diets frequently. Under the study, participants need to weight manage through physical fitness activities 162 (66%), and more than three-fourths of study participants need to reduce their body weight. Nearly half of the study participants eat meat and fish daily; 114 (67%); only 27 (15%) take milk and legumes; and 70 (29%) eat eggs (Table 4).

Table 2:- Shows Socio democratic characteristics of Harar city fitness center participants (N=245).

Socio-demographic Characteristics		Frequency	Percent
Age of the participants	18-24	66	26.9
	25-30	68	27.8
	31-35	64	26.1
	36-40	22	9.0
	41-45	15	6.1
	46-50	10	4.1
	Total	245	100.0
Sex of respondent	Male	214	87.3
	Female	31	12.7
	Total	245	100.0
Marital status	Single	152	62.0
	Married	93	38.0
	Total	245	100.0
Educational level	Able to read and write	16	6.5
	5-8 grade	49	20.0
	9-12 grade	12	4.9
	Diploma	56	22.9
	Degree	82	33.5
	MSc/PhD	30	12.2
	Total	245	100.0
Working category	Merchant	33	13.5
	Health professional	22	9.0
	Public servant (teachers, law, governmental worker)	54	22.0
	Students	92	37.6
	Other	44	18.0
	Total	245	100.0
Monthly income	<1000	44	18.0
	1000-3000	16	6.5
	3001-7000	72	29.4
	7001-10000	73	29.8
	>10000	40	16.3
	Total	245	100.0
Family size	Two and less than two	125	51.0
	Three and four	82	33.5
	Five and more	38	15.5
	Total	245	100.0

Table 3:- Impact of nutritional Knowledge towards body weight management among Harar fitness center participants (N=251).

Activity	Possible response	Frequency	Percent
what is your nutritional goal	Learn to do balance activities	12	4.9
	To create healthy lifestyle	175	71.4
	Improve overall healthy	58	23.7
what is physical fitness and nutritional purpose	To create health lifestyle	107	43.7
	Improved physical fitness	138	56.3
what is keeping you from achieving your fitness and nutritional goal	Learn to eat balance diet	132	53.9
	To create health lifestyle	31	12.7
	Improved health	82	33.5
what motivated to you do physical exercise	seeing results	123	50.2
	Accountability	16	6.5
	having funs	49	20.0
	feeling better health	57	23.3
Performance activity level	Not know	16	6.5
	Little (less than one hour a week)	37	15.1
	Moderate(less than five hours per week)	124	50.6
	High (greater than five hours a week)	68	27.7
what are you feeling about your weight	I am comforted with my present weight	65	26.5
	I would like to reduce a few pounds	136	55.5
	I feel, I have a significant amount of weight to loss.	44	18.0
Number of mealtimes per day	6 and more than per day	12	4.9
	four times per day	93	38.0
	5 times per day	103	42.0
	three times per day	37	15.1
Feeling physical activity to perform	as hobby	28	11.4
	to be physical fit	93	38.0
	to prescribed by my body	16	6.5
	to be weight management purpose	96	39.2
	both 2 and 4	12	4.9
Opinion about importance of physical activity and exercise on weight management	good body image	37	15.1
	to have physical fit	94	38.4
	maintain health	82	33.5
	Other	32	13.1
Nutritional knowledge of study participants	Good knowledge	70	28.6
	Poor knowledge	175	71.4

Table 4:- Shows that dietary habits of Harar fitness center participants (N=245).

		Frequency	Percent
Manage their weight through	physical fitness activities	162	66.1
	both nutritional management and physical activities	83	33.9
Participants need to decrease their weight	yes	212	85.1
	No	33	14.9
Do you drink milk a week	yes	37	15.1
	No	208	84.9
Take legumes and egg a week	yes	70	28.6
	No	175	71.4
Do you eat meat and fish a week	yes	114	46.5
	No	131	53.5
how many times take meals week	twice	56	22.9
	three times	91	37.1
	four and more times	98	40.0
how many cups of fluid take week	<3 cups	16	6.5
	3-5 cups	86	35.1
	>5 cups	143	58.4
Drinking alcohol	Yes	22	9.0
	No	223	91.0
Do you have any question for addiction?	Yes	26	10.6
	No	219	89.4
Do you eat balance diet every day	yes	156	63.7
	no	89	36.3
Do you eat fat food every a week	yes	28	11.4
	no	217	88.6
What type of fluid do you drink	juice	88	35.9
	milk	28	11.4
	alcohol	22	9.0
	soft drink	107	43.7
Nutritional knowledge on weight management	Good Dietary Habit	199	81.2
	Poor Dietary Habit	46	18.8

Among Harar fitness center participants, body weight management via body mass index measurement after educational intervention on nutritional and dietary habits practice was 157 (64%) and 74 (31%), normal BMI and overweight, respectively (Fig-2).

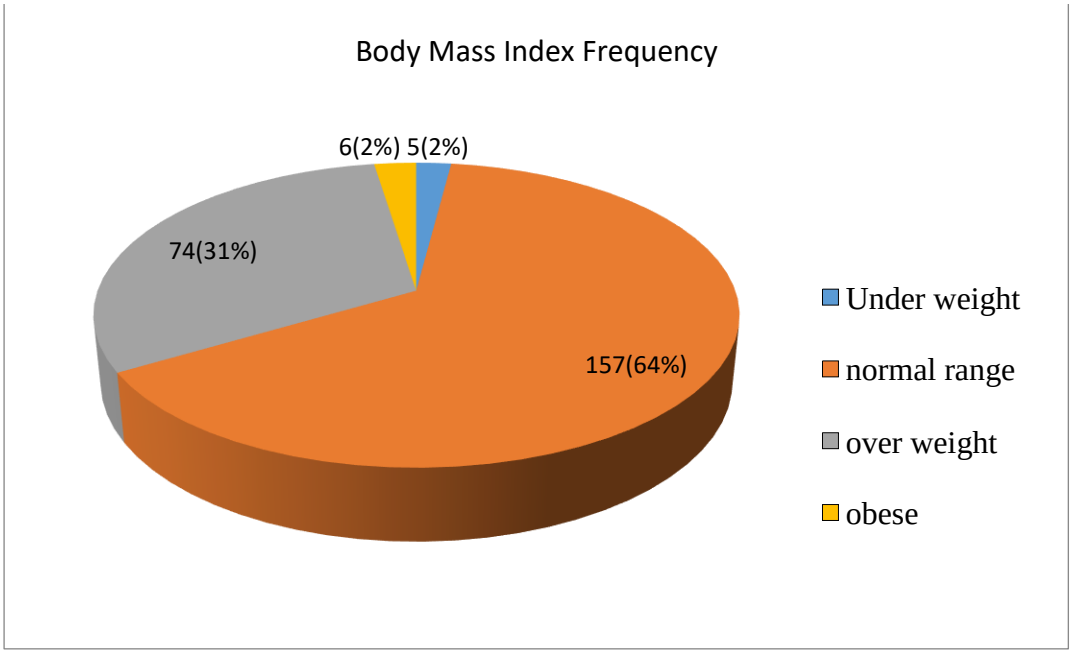


Figure 2:- show body mass index of Harar city fitness center participants

The study participants body weight normal rage were 157(64%) with 95%CI (57.7-71.0%) and overweight 74(31%) with 95% CI (25-37.4). This study was conducted to assess the impact of nutritional knowledge and dietary habits on body weight management among Harar fitness center participants. It revealed that more than half of the fitness participants had a good, normal body weight. This study was similar to a study done in Malaysia with a normal body weight of 53% and an overweight of 21% (Ludin, 2020). More than two-thirds of fitness participants had knowledge on body weight management. The purpose of the fitness center participants was to create physical fitness and a healthy lifestyle.

Harar fitness center participants managed their body weight through physical activities more than half (66%) and both nutritional management and physical activities 82 (34%).From the total of fitness center participants, 98 (40%) eat meals four and more times per day. Half (50.6%) of participants were doing moderate physical activity per week and (28%) high physical activity level per week. But in Malaysia From the study, 50% of the respondents are categorized as having minimal physical activity (Ludin, 2020). Our study shows that the number of participants who ate meat at least once a week was 114 (46.5%). In the USA, a dietary guideline shows that 28% of the populations ate meat and eggs per week (Phillips, 2021).

The number of fitness center participants, 157 (64%), had a normal body weight, which is nearly similar to the survey in the USA in 2000; 60% were trying to lose weight, but men did

not reach this level until their BMI exceeded 30 kg/m2 (Bray, 2011). BMI and body fat mass was decrease, while muscle mass was increase. Moreover, it was shown that there was a significant relationship between physical activity and body composition (Ludin, 2020). Seventy-four (31%) participants were overweight. This study was similar to a study done in Turkey; approximately 35.5% of participants were identified as overweight or obese (Demirci et al., 2018). Similarly, in Malaysia, 52.9% were of normal weight. Nearly 26% of participants were categorized as either overweight or obese, while nearly 21.4% of the respondents fell under the underweight category (Ludin, 2020). Around 28 (11%) of fitness center participants ate fat food per week. But healthy eating is one of the basic needs of a person; therefore, an adequate level of knowledge about healthy eating and nutrition and food hygiene should be considered as one of the health aspects (Saintila et al., 2022). The total number of nutritional knowledge on weight management study participants was 70 (28.6%) lower than 40.5% of the teachers who reported adequate nutritional knowledge (Saintila et al., 2022). This difference may be the study area and study population.

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1.Summary

From this study, the findings were that the impact of nutritional knowledge and dietary habits on body weight management among Harar fitness center participants was:-

- It revealed that more than half of the fitness participants had a good, normal body weight,
- More than two-thirds of fitness participants had knowledge on body weight management.
- Harar fitness center participants managed their body weight through physical activities more than half (66%) and by nutritional management and physical activities 82 (34%).
- From the total of fitness center participants, 98 (40%) eat meals four and more times per day.
- Half (50.6%) of participants believe that were doing moderate physical activity per week and (28%) high physical activity level per week.
- The number of fitness center participants, 157 (64%), had a normal body weight, Seventy-four (31%) participants were overweight.
- The total number of nutritional knowledge on weight management study participants was 70 (28.6%).

5.2. Conclusion

This study indicates that the nutritional knowledge and dietary habits of study participants positively impacted reducing body weight. The participants exhibited sound nutritional and dietary habits. Overall, the fitness center participant's dietary habits regarding daily food intake and the need for body weight reduction were positive expectations. In Harar Fitness Centre participants, the controlled body weight was above the mean.

5.3 Recommendation

The recommendations for achieving and maintaining a healthy weight include focusing on a balanced diet that includes a variety of foods from all food groups. This means consuming fruits, vegetables, whole grains, lean proteins, and healthy fats.

- For fitness participants:- Limit processed foods and those high in added sugars and unhealthy fats, such as trans fats found in fried and processed items. Aim for at least 150 minutes of moderate-intensity aerobic activity each week, like brisk walking or cycling. Incorporating strength training exercises at least twice a week is also beneficial. Keep track of your food intake and physical activity, as this can help you stay accountable and identify patterns that may need adjustments. Drink plenty of water throughout the day, as thirst can sometimes be mistaken for hunger, leading to unnecessary snacking. By incorporating these strategies into your daily routine, you can effectively manage your body weight and improve your overall health. Remember, it's important to approach weight management with patience and to focus on long-term lifestyle changes rather than quick fixes. Successfully managing body weight involves a combination of healthy eating, regular physical activity, and lifestyle adjustments
- Sport and Youth Office: - Programs or Challenges for Groups: Plan group activities that allow peers to encourage one another, like weight control challenges. In order to reach fitness goals, teamwork is encouraged and group motivation can be quite effective. Establish a Safe Space for Sharing: Encourage a group of people who feel comfortable talking about their difficulties, advancements, and objectives. This promotes consistency in good behaviors and fosters a sense of belonging. Encourage Education and Awareness: Plan educational events that highlight healthy eating practices, portion control, and balanced diets. Make sure young people and athletes are aware of how diet affects both their general health and performance. Work together with professionals: Engage experts like dietitians, sports nutritionists, and mental health counsellors to assist in creating and overseeing customized weight-loss plans.
- For Health professionals: - Consider joining a weight management program or seeking support from healthcare professionals, such as a dietitian or nutritionist, who can provide personalized advice and encouragement.

6. REFERENCES

Archer, S. L., & Horn, L. V. A. N. (2006). Perspectives in Practice Publishing Nutrition Research : A Review of. *Journal of the AMERICAN DIETETIC ASSOCIATION*, *106*(4), 89–96. https://doi.org/10.1016/j.jada.2005.11.007

Astrachan, O. (1999). Program Design and Implementation. *A Tapestry of Programming: Exploring Programming and Computer Science with C++*, *17*, 67–98.

Aureliusz, K., & , Magdalena Król, M. L. and M. K. (2023). Eating habits and nutritional knowledge among amateur ultrarunners. *Frontiers in Nutrition 1.*, *10*(1137412), 1–11. https://doi.org/10.3389/fnut.2023.1137412

Bhawra, J. and, & Kirkpatrick. (2023). Patterns and correlates of nutrition knowledge across five countries in the 2018 international food policy study. *Nutrition Journal*, *22*(1), 1–12. https://doi.org/10.1186/s12937-023-00844-x

Bray, G. (2011). Prevention, Evaluation and Introduction to Treatment. In *A Guide to Obesity and the Metabolic Syndrome* (pp. 127–161). https://doi.org/10.1201/b10790-8

Brien, G. O., & Davies, M. (2007). *Nutrition knowledge and body mass index*. *22*(4), 571–575. https://doi.org/10.1093/her/cyl119

Brunt, A. R., & Rhee, Y. S. (2008). Obesity and lifestyle in U . S . college students related to living arrangemeents. *ScienceDirect*, *51*, 615–621. https://doi.org/10.1016/j.appet.2008.04.019

Central Statistical Agency of Ethiopia. (2007). Population and Housing Census 2007 Report. *Central Statistical Agency, Addis Ababa*, 385. http://www.csa.gov.et/surveys/Population and Housing census/ETH-pop-2007/survey0/data/Doc/Reports/National_Statistical.pdf

Çetİn, S., & Ece, C. (2021). Investigation of Eating Behaviors of Sports at Fitness Centers Investigation of Eating Behaviors of Sports at Fitness Centers. *ResearchGate*, *October*.

COMPARATIVE ASSESSMENT OF NUTRITIONAL KNOWLEDGE AND DIETARY INTAKE HABIT DIRE DAWA POLICE AND HARAR CITY FOOTBALL CLUB, HARAR AND DIRE DAWA CITY ADMIN- ISTRATION ETHIOPIA. (2023).

DEBBY DEMORY-LUCE, Zakeri, Issa, M. M., & Berenson, G. (2004). Changes in Food Group Consumption Patterns The Bogalusa Heart Study. In *Continuing Education Questionnaire* (pp. 1684–1691). https://doi.org/10.1016/j.jada.2004.07.026

Demirci, N., & Demirci, P. T. (2018). The Effects of Eating Habits , Physical Activity , Nutrition Knowledge and Self-efficacy Levels on Obesity i. *ResearchGate*, *July*. https://doi.org/10.13189/ujer.2018.060702

Demirci, N., To, P., & Demirci, E. (2018). The Effects of Eating Habits , Physical Activity , Nutrition Knowledge and Self-efficacy Levels on Obesity i. *Universal Journal of Educational Research*, *6*(7), 1424–1430. https://doi.org/10.13189/ujer.2018.060702

Edin, A., Jemal, K., Ahmed, I. A., Gebremichael, B., Bushra, A. A., Demena, M., & Abdirkadir, M. (2024). Assessment of nutrition knowledge and associated factors among secondary school students in Haramaya district, Oromia region, eastern Ethiopia: implications for health education. *Frontiers in Public Health*, *12*(June), 1–8. https://doi.org/10.3389/fpubh.2024.1398236

Edward, G. and, & Storey. (2024). Nutrition knowledge , weight loss practices , and supplement use in senior competition climbers. *Frontiers in Nutrition 1.*, *10*(1277623), 1–13. https://doi.org/10.3389/fnut.2023.1277623

Ethiopian Public Health Institute. (2022). Ethiopia : Food-Based Dietary Guidelines Booklet – 2022. *ILRI Editorial and Publishing Services, Addis Ababa, Ethiopia, March*.

Freitas, A. L. P., & Lacerda, T. S. (2019). Fitness centers: What are the most important attributes in this sector? *International Journal for Quality Research*, *13*(1), 177–192. https://doi.org/10.24874/IJQR13.01-11

Gilbert, P. A., & Khokhar, S. (2008). *Changing dietary habits of ethnic groups in Europe and implications for health*. *66*(4), 203–215. https://doi.org/10.1111/j.17534887.2008.00025.x

Grete, H. and, & Friesen. (2011). Nutrition Knowledge , Practices , Attitudes , and Information Sources of Mid-American Conference College Softball Players. *Food and Nutrition Sciences*, *2*(109–117), 109–117. https://doi.org/10.4236/fns.2011.22015

Johansen, A., Rasmussen, S., & Madsen, M. (2006). Health behaviour among adolescents in Denmark : Influence of school class and individual risk factors. *Scandinavian Journal of Public Health*, *34*, 32–40. https://doi.org/10.1080/14034940510032158

Kanauchi, M., & Kanauchi, K. (2018). The World Health Organization's Healthy Diet Indicator and its associated factors: A cross-sectional study in central Kinki, Japan. *Preventive Medicine Reports*, *12*(September), 198–202. https://doi.org/10.1016/j.pmedr.2018.09.011

Kennedy, A. (2022). Nutrition & Weight Management. In *researchgate*.

Koochek, A., Johansson, S. and, & Kocturk, T. O. (2008). Physical activity and body mass index in elderly Iranians in Sweden : a population-based study. *European Journal of Clinical Nutrition*, 1326–1332. https://doi.org/10.1038/sj.ejcn.1602851

Laleh, H. and, & Holmes. (2014). Changes in Body Weight, Body Composition and Resting Metabolic Rate (RMR) in First-Year University Freshmen Students. *Journal of the American College of Nutrition*, *25*(2), 37–41. https://doi.org/10.1080/07315724.2006.10719522

Lemon, A. K. (1996). *DigitalCommons @ USU The Effect of a Nutrition and Fitness Program on the Dietary Habits , Fitness Level , and Health Status of Ute Indian Youth*.

Lichtenstein, A. H., Appel, L. J., & Brands, M. (2006). Diet and lifestyle recommendations revision 2006: A scientific statement from the American heart association nutrition committee. *Circulation*, *114*(1), 82–96. https://doi.org/10.1161/CIRCULATIONAHA.106.176158

Ludin, A. F. mat. (2020). The Relationship between Physical Activity , Body Mass Index and Body The Relationship between Physical Activity , Body Mass Index and Body Composition among Students at a Pre - University Centre in Malaysia . *ResearchGate*, *August*.

Mishra, D. R. (2020). *BASIC CONCEPT OF BALANCED DIET Dr . Rachna Mishra Department of Home Science*. 1–10.

Mkuu, R. S., Epnere, K., & Chowdhury, M. A. B. (2018). Prevalence and predictors of overweight and obesity among Kenyan women. *Preventing Chronic Disease*, *15*(4), 1–10. https://doi.org/10.5888/pcd15.170401

Naeeni, M. M., & Jafari, S. (2014). Nutritional knowledge, practice, and dietary habits among school children and adolescents. *International Journal of Preventive Medicine*, *5*(2), S171–S178. https://doi.org/10.4103/2008-7802.157687

National Health Services. (2018). What is an NHS Health Check? - NHS. *NHS Health Check*. https://www.nhs.uk/conditions/nhs-health-check/what-is-an-nhs-health-check-new/

NHMRC. (2013). *Clinical practice guidelines for management of overweight and obesity in adults, adolescents and children in Australia*.

Pearson, D., & Grace, C. (2013). Weight Management. *Weight Management, July 2011*. https://doi.org/10.1002/9781118702758

Phillips, J. A. (2021). Dietary Guidelines for Americans, 2020–2025. In *Workplace Health and*

Safety (Vol. 69, Issue 8, p. 395). https://doi.org/10.1177/21650799211026980

Piggin, J. (2020). What Is Physical Activity? A Holistic Definition for Teachers, Researchers and Policy Makers. *Frontiers in Sports and Active Living*, *2*(June), 1–7. https://doi.org/10.3389/fspor.2020.00072

Poddar, K. H., Hosig, K. W., & Nickols-richardson, S. M. (2009). Low-Fat Dairy Intake and Body Weight and Composition Changes in College Students. *Journal of the AMERICAN DIETETIC ASSOCIATION*, *109*(8), 1433–1438. https://doi.org/10.1016/j.jada.2009.05.005

Puckett, R., & James, R. (2006). *from the association* (pp. 153–154).

Quaidoo, E. Y., Ohemeng, A., & Amankwah-Poku, M. (2018). Sources of nutrition information and level of nutrition knowledge among young adults in the Accra metropolis. *BMC Public Health*, *18*(1), 1–7. https://doi.org/10.1186/s12889-018-6159-1

Rana, A. (2022). Inability to Understand the Complexity of Maintaining Weight Loss and the Complications. *Intech Open*. https://doi.org/DOI: http://dx.doi.org/10.5772/intechopen.105362 nents'

Reeves, S. L., & Henry, C. J. (2000). Dietary change , energy balance and body weight regulation among migrating students. *International Journal of Food Sciences and Nutrition*, *51*, 429–438.

Richard, L., Fulton and Janet, & Howell. (2000). Physical Activity, Food Choice, and Weight Management Goals and Practices Among U.S. College Students. *American Journal of Preventive Medicine*, *18*(1), 8–10.

Saintila, J., Calizaya-milla, Y. E., & Calizaya-milla, S. E. (2022). Association Between Nutritional Knowledge , Dietary Regimen , and Excess Body Weight in Primary School Teachers. *V*, *15*, 2331–2339.

Scalvedi, M. L., Gennaro, L., Saba, A., & Rossi, L. (2021). Relationship Between Nutrition Knowledge and Dietary Intake: An Assessment Among a Sample of Italian Adults. *Frontiers in Nutrition*, *8*(September), 1–13. https://doi.org/10.3389/fnut.2021.714493

Spronk, I., Kullen, C., Burdon, C., & O'Connor, H. (2014). Relationship between nutrition knowledge and dietary intake. *British Journal of Nutrition*, *111*(10), 1713–1726. https://doi.org/10.1017/S0007114514000087

Strychar, I. (2006). R eview Diet in the management of weight loss. *CMAJ*, *174*(1).

Tekola, A., Regassa, L. D., Mandefro, M., Shawel, S., Kassa, O., Shasho, F., Demis, T., Masrie, A., Tamire, A., & Roba, K. T. (2024). Body image dissatisfaction is associated with perceived body weight among secondary school adolescents in Harar Town, eastern Ethiopia. *Frontiers in Psychiatry*, *15*(May), 1–7. https://doi.org/10.3389/fpsyt.2024.1397155

Update, C., & Preparation, C. D. E. E. (2006). EDUCATIONAL OPPORTUNITIES DIABETES CORE CURRICULUM WORKSHOP : PRODUCTS AND SERVICES. In *Journal of the AMERICAN DIETETIC ASSOCIATION* (Issue January).

Wang, D. (2015). *Assessment of weight status , dietary habits and beliefs , physical activity , and nutritional knowledge among university students*. *XX*(X), 1–14. https://doi.org/10.1177/1757913915609945

william philip T james, E. K. and R. J. leach. (2001). The Worldwide Obesity Epidemic. *OBESITY RESEARCH*, *9*(4). https://doi.org/10.1038/oby.2001.123

Yahia, N., Achkar, A., & Abdallah, A. (2008). Eating habits and obesity among Lebanese university students. *BioMed Central Research*, *7*(32), 1–6. https://doi.org/10.1186/14752891-7-32

Yahia, N., Brown, C. A., & Rapley, M. (2016). Level of nutrition knowledge and its association with fat consumption among college students. *BMC Public Health*, 1–10. https://doi.org/10.1186/s12889-016-3728-z

Zarei, M., Nasir, M., Taib, M., & Zarei, F. (2013). Factors Associated With Body Weight Status of Iranian Postgraduate Students in University of Putra Malaysia. *Open Access*, *2*(4), 97–102.

7. APPENDIXES

7.1 Information sheet and informed voluntary consent form for head of Fitness center institution

1. Introduction: My name is Hiwot Legase (MSc in sport science Nutrition). I am the Principal Investigator of the study to be conducted in this fitness center. I am studying for my Master's degree at Haramaya University, the College of Sport Sciences Academy. I kindly request you to lend me your attention to explain you about the study and your institution being selected as the study setting.

2. The study/project title: Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants at Harar Fitness Center, Harar City, Ethiopia.

3. Purpose/aim of the study: The findings of this study can be of a paramount importance for the fitness centers intervention programs to manage body weight in the community, thereby improve participant's chronic disease prevention. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a Master's Program in sport nutrition for the principal investigator.

4. Procedure and duration: I was asking participant's using the questionnaire to provide me with pertinent data that is helpful for the study. There are 27 questions to answer where I had fill the questionnaire by self-administer the participants. The questions on each mother/care giver will take about 20 minutes.

5. Risks and benefits: The risk of participating in this study is very minimal, but only taking few minutes from participant's time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local youth and sport planners.

6. Confidentiality: The information that we will be provided will be kept confidential. There will be no information that will identify the participants in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

7. Rights: Participation for this study is fully voluntary. The participants have the right to declare to participate or not in this study. If they decide to participate, they have the right to withdraw from the study at any time and this will not label them for any loss of benefits which they otherwise are entitled. They do not have to answer any question that they do not want to answer. The fitness center has also the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the fitness center's premises.

8. Contact address: If there are any questions or enquires any time about the study or the procedures, please contact:- [the Principal Investigator: Hiwot legasse; mobile phone:- +251919258708 and email address:- hiwilegese320906@gmail.com; as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O.Box 235, Harar, Ethiopia].

9. Declaration of informed voluntary consent: I have read the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that participants have the right to withdraw from the study at any time or not to answer any question that they do not want. I am also informed that the fitness center has the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the fitness center's premises. Therefore, I declare my voluntary consent on behalf of fitness center management to allow this study to be conducted in the fitness center with my initials.

Name and Signature of Head of fitness center: _____

Name and Signature of the Pl: _____ Date_____

7.2. Participant information sheet and informed voluntary consent form

1. Introduction: My name is _____. I am working as a data collector for the study being conducted in this Fitness center participant by Hiwot Legase who is studying for his/her Master's degree at Haramaya University, the College of Sport science Academy selected as the study participant. I kindly request you to lend me your attention to explain you about the study and being.

2. The study/project title: Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants at Harar Fitness Center, Harar City, Ethiopia.

3. Purpose/aim of the study: The findings of this study can be of a paramount importance for the fitness centers intervention programs to manage body weight in the community, thereby improve participant's chronic disease prevention. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a Master's Program in sport nutrition for the principal investigator.

4. Procedure and duration: I will be interviewing you using a questionnaire to provide me with pertinent data that is helpful for the study. There are 20 questions to answer where I will fill the questionnaire by interviewing you.

5. Risks and benefits: The question will take about 20 minutes, so I kindly request you to spare me this time for the questioner. The risk of being participating in this study is very minimal, but only taking few minutes from your time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local youth office planners.

6. Confidentiality: The information you will provide us will be confidential. There will be no information that will identify you in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons or housing. The questionnaire will be coded to exclude research. No reference will be made in oral or written reports that could link participants to the research.

7. Rights: Participation for this study is fully voluntary. You have the right to declare to participate or not in this study. If you decide to participate, you have the right to withdraw from

the study at any time and this will not label you for any loss of benefits which you otherwise are entitled. You do not have to answer any question that you do not want to answer.

8. Contact address: If there are any questions or enquires any time about the study or the procedures, please contact:- [the Principal Investigator: Hiwot Legasse Abebe; mobile phone:- +251919258708 and email address:- hiwilegese320906@gmail.com; as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O.Box 235, Harar, Ethiopia].

9. Declaration of informed voluntary consent: I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with my initials.

Name and signature of participant _____date_____

Name and signature of Data Collector: _____date_____

7.3 . The Questionnaires (English Version)

Title: - Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants at Harar Fitness Center, Harar City, Ethiopia.

How are you? My name is _____. I am doing my postgraduate thesis at Haramaya University. In order to conduct a study at Harar Fitness Center, Harar City, Ethiopia, it is to study Impact of Nutritional Knowledge and Dietary Habits on Weight Management by asking Harara city fitness program participants. You have been selected for the study; information from you and other respondents will help Impact of Nutritional Knowledge and Dietary Habits on Weight Management. Your primary answers to all our questions are important for this study. Therefore, we do not need to write your name in the questionnaire; your answers will be kept confidential. The interview will be completed in person; if you do not want to participate in the study, you can stop at any time. Thank you for your cooperation in answering all your questions. It only takes about 20 minutes to complete an interview**.** Please provide your responses by marking tick (√) in the relevant boxes and/write on the apace provide. Pleas Fill the Following Information.

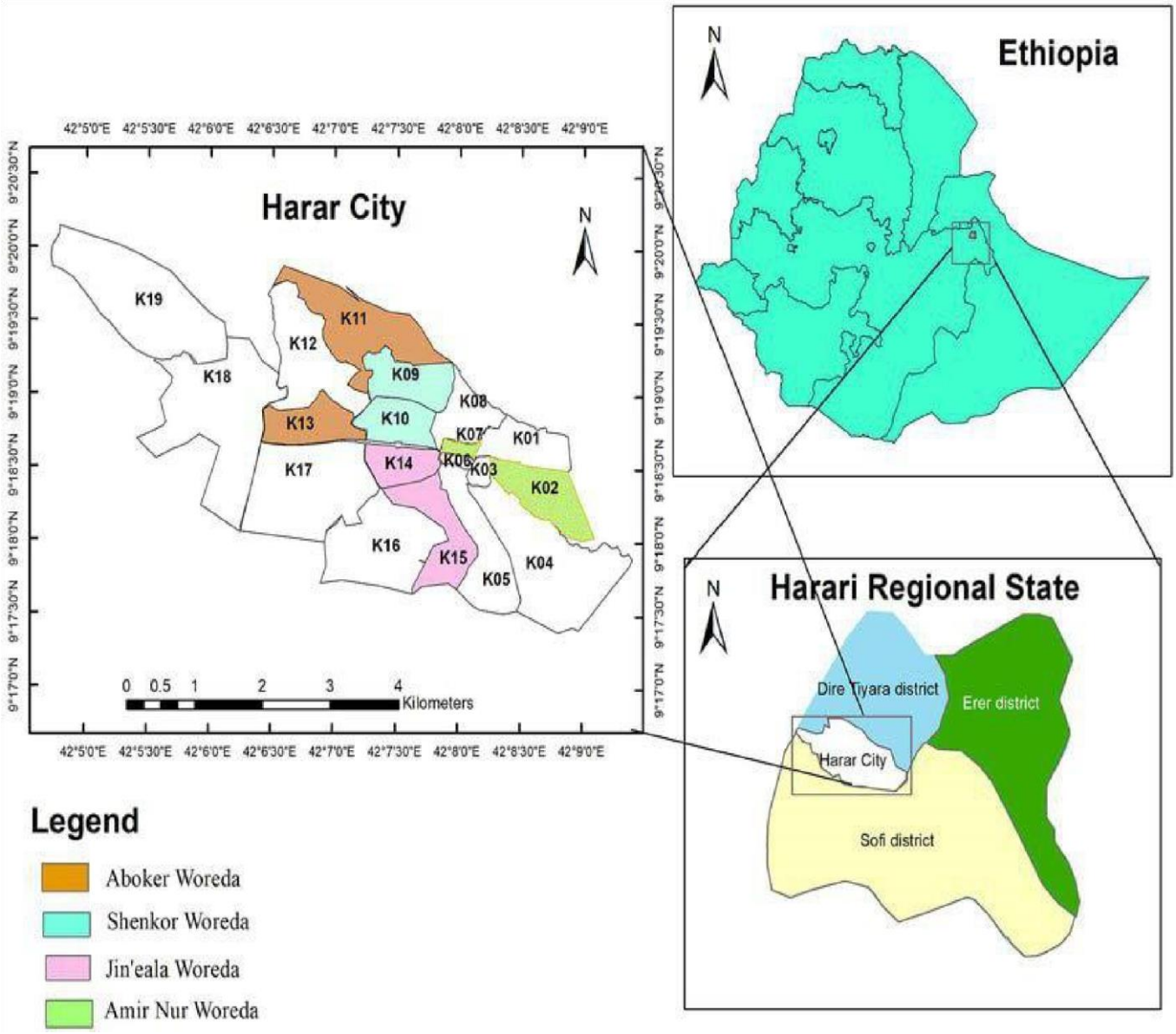
Appendix Table 1: ***Questionaries' on socio demographic characteristics of the respondent***

1.Age (years)level	1.18-24 □ 2.25-30 □ 3.31-35 □ 4.36-40 □ 5. 41-45 □ 6. 46-50□ 7. 51-55 □
2. marital status	1. Single□ 2. Married □ 3. Divorced □ 4. other_____
2. living place	Sub city_____ (rural area): _____
3.level of education	1. Illiterate □ 2. Able to read and write □ 3. 5-8th grade□ 4. 9-10/12th grade□ 5. Diploma□ 6.B.Sc 7. PhD and above □
4.profession(broad category)	1. Merchant 2. Health profess, Law ,Teachers 3. Public servant (teachers. Law, governmental worker) 4. Transport (driver) 5.Students 6. Other □
5. Monthly income(birr)	1. < 1000□ 2. 1000-3000□ 3.3000-7000□ 4.> 10,000□
6. Family size	----------

II. nutritional knowledge related questions (Please answer these questions by encircling your choice from the given alternatives)	
1. How many kilogram are you weighting?	_____
2. How many meters are heighten?	_____
3. What is your fitness and nutrition goal?	1. Learn to eat balance Diet 3. Create healthy lifestyles 2. Learn to eat Balance activities 4. Improve overall health
4. What is keeping you from achieving your fitness and nutrition goals?	1. Learn to eat balance Diet 3. Create healthy lifestyles 2. Learn to eat Balance activities 4. Improve overall health
5. What is keeping you from achieving your fitness and nutrition goals?	1. Lack of motivation 2. Hitting a plateau 3. Money 4. Time
6. What motivates you?	1. Seeing results 2. Accountability 3. Having fun 4. Feeling better 5. Praise/Rewards
7. What is your activities level?	1. None 2. Little (less than one hour a week) 3. Moderate (less than 5 hour a week) 4. High (over 5 hours a week
8. How often do you eat?	1. 6 or more times a day 3. 3-4 times a day 2. 5-6 times a day 4. Strictly breakfast, lunch, and dinner
10. How do you feel about your weight?	1. I am comfortable with my present weight 2. would like to lose a few pounds 3. I feel I have a significant amount of weight to lose 4. I would like to gain weight
10. How do you manage you weight?	1. By nutritional managements 2. physical fitness activities 3. Other sleeplessness 4. Other_____
11. Why you perform physical activities on fitness center?	1. As hobby 2. To be physical fit 3. It is prescribed by my physical purpose 4. To weight management
12. How much weight do you expect to lose?	Per week _____ per month_____

13. Have you ever a nutrition assessment done before?	1. Yes 2. No, if yes, please explain_____
14. What is your opinion about the importance of physical activity and exercise on weight managements?	----------
iii. Dietary habits related questioner	
15. Do you Milk week?	1. Yes 2. No
16. Do you take Legumes and Egg week?	1. Yes 2. No
17. Do you Meat and Fish week?	1. Yes 2. No
28. Do you take Fruits and Vegetables week?	1. Yes 2. No
19. Do you take Drug?	1. Yes 2. No
20. How many times take Meals week?	1. Once 2. Twice 3. Three times 4. Four and more times
21. How many cups of fluid take week?	1. <3 cups 2. 3-5 cups 3. >5 cups
22. Do you drink alcohol?	1. Yes, 2. No If yes, on average, approximately _____
23. Do you have any question for the ad dictation?	1. Yes 2. No
24. Do you eat balanced diet every day?	1. Yes 2. No
25. Do you eat fat often?	1. Yes 2. No
26. What kinds of drink do you drink?	1. Juice 2. Milk 3. Alcohol 4. Soft drink

7.4. Map of the Study Site



Haramaya University, College of Health and Medical Sciences
Institutional Health Research Ethics Review Committee (IHRERC)
Address: Tel.0254662011 P.O.Box 235 Fax 0256668081, Harar-Ethiopia E-mail neggalemash@gmail.com

Institutional Health Research Ethics Review Approval Form

Name of the institution: College of Health and Medical Sciences, Haramaya University, Harar Campus

Name of PI: Hiwot Legese Abebe - Tel +251919258708, Email: hiwilegese320906@gmail.com P.O.Box:

Title of the proposal/project: Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants at Harar Fitness Center, Harar City, Eastern Ethiopia.

To: Office of the Chief Executive Director, College of Health and Medical Sciences, Haramaya University, Harar Campus, Ethiopia.

The IRERC has reviewed the aforementioned project proposal with special emphasis on the following points:

1. Are all ethical principles considered?

1.1 Respect for persons Yes [√] No [ ]

1.2 Beneficence Yes [√] No [ ]

1.3 Justice Yes [√] No [ ]

2. Are the objectives of the study ethically achievable? Yes [√] No [ ]

3. Is/ Are method(s) ethically sound? Yes [√] No [ ]

Based on the above mentioned ethical assessment the Institutional Research Ethics Review Committee has

a) Approved the proposal for: i. Regional/National Review ii. Implementation [ ] [√]

Expiry date of the approval

31	05	2025
Date	month	year

b) Conditionally approved [ ]

c) Not approved [ ]

Finally we would like to take this opportunity to request your good office to facilitate his requ study. e his request for the proposed

With Best Regards

Chairperson: Negga Baraki
Name Date
Signature 19/06/2024

Secretary: Berhe G/Michael
19/06/2024
Name Date
Abdella G
Signature

N.B For any information, question or clarification don't hesitate to contact the Committee with the addresses at the top.

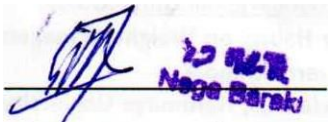
Haramaya University, College of Health and Medical Sciences
Harar Ethiopia
Institutional Health Research Ethics Review Committee (IHRERC)

Ref. No. IHRERC /156/2024

June 19/2024

To: Chief Executive Director, College of Health and Medical Sciences (COHMS), Haramaya University, Harar Campus, Ethiopia.

From: Institutional Health Research Ethics Revie ew Committee (IHRERC), C College of Health and Medical Sciences, Harar Campus, Ethiopia.



Chair-person of the IHRERC

Subject: Ethical approval of a research proposal by al by Hiwot Legese Abebe. Hiwo se Abebez a Graduate student from the College of Sport Science Academy. Haramaya University.

It is known that various research proposals are passing through the IHRERC for ethical review. To this effect Hiwot Legese Abebe, a Graduate student from the College of Sport Sciences Academy of Haramaya University has submitted a research proposal entitled "Impact of Nutritional Knowledge and Dietary Habits on Weight Management of Fitness Program Participants at Harar Fitness Center, Harar City, Eastern Ethiopia" through your office to the IHRERC for ethical review and approval (with a letter written from the office of Postgraduate Program Directorate, Haramaya University on March 08/2024 and directed from your esteemed office to office of the IHRERC on 02/07/2024). The IHRERC has scrutinized the proposal for ethical issues and made the investigator to correct and incorporate essential elements. The investigator, therefore, has incorporated all elements as enquired by the committee. The IHRERC has, thus, approved for implementation the 60 pages proposal unanimously through full consensus of the currently existing seven members on its regular meeting convened on June 11/2024. The IHRERC congratulates the investigator for the concerted efforts she made to fulfill the recommendations of the Committee.

Finally the IHRERC requests your Office, to inform officially the investigator to commence her data collection process by contacting for permission of the concerned authorities in the respected study area/ setting; and strictly following the international precautions to prevent disease transmissions. However, since the IHRERC is bestowed to make follow-up of the research process, the investigator is informed with a copy of this letter to report any changes in the research procedure and submit an activity progress report to the IHRERC every three months. A copy of the final report is also expected.

At the back of this letter please find the approval format of the IHRERC. One signed and stamped copy of the approved proposal document is also attached.

With Regards cc:

- **Hiwot Legese Abebe** (including one copy of the approved proposal)