EXPLORING THE EXPERIENCE OF LIFESTYLE MODIFICATION PRACTICES AMONG CARDIOVASCULAR PATIENTS ATTENDING CARDIAC CLINIC AT KILIMANJARO CHRISTIAN MEDICAL CENTRE, TANZANIA.

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MSc (Cardiovascular Nursing) Dissertation.

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Department of Clinical Nursing

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By

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A Dissertation Submitted in Partial Fulfillment of the Requirements for the Master of Science in Cardiovascular Nursing of

Muhimbili University of Health and Allied Sciences

October, 2024

CERTIFICATION

The undersigned certifies that they have read and hereby recommends for examination by the University of Muhimbili Health and Allied Sciences a dissertation entitled **"Exploring the experience of lifestyle modification practices among cardiovascular patients attending cardiac clinic at Kilimanjaro Christian Medical Centre, Tanzania"** in partial fulfillment of the requirements for the degree of Master of Science in Cardiovascular nursing.

_____

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Date_____

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(Co-supervisor)

Date_____

DECLARATION

I, **Gladness Nicholaus Mkawe**, declare that this dissertation is my own original work, and that it has not been submitted for a similar degree in any other University.

Signature: …….Date: …….

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DEDICATION

This work is dedicated to my husband, Given Mushi, my beloved father Mr. Nicholaus Mkawe, my mother, Mrs. Lightness Nailiba, and my children Godson, Gereon and Gavrila. Their unwavering emotional, psychological, and physical support has been my pillar of strength throughout this academic journey.

ABSTRACT

Background: Cardiovascular diseases (CVDs) are a significant cause of morbidity and mortality worldwide, with lifestyle modification being a cornerstone in their management. Understanding the facilitators and barriers to lifestyle modification practices among CVD patients is crucial for improving patient outcomes and reducing disease burden.

Objective: This study aims to explore the experience of lifestyle modification practices among cardiovascular patients attending the cardiac clinic at Kilimanjaro Christian Medical Centre (KCMC).

Materials and Methods: A qualitative exploratory study design was employed to delve into the experiences of lifestyle behaviors among CVD patients. The study focused on in-depth interviews. The target population included adult CVD patients aged 18 and above attending the cardiac clinic at KCMC, encompassing various CVD conditions. A total of 10 participants were recruited in this study after reaching saturation point. Data collection primarily involved semi-structured interviews supplemented by observational techniques to provide contextual understanding. Thematic analysis was utilized for data analysis, enabling the identification of key facilitators and barriers to lifestyle modifications among CVD patients.

Results: The study included 10 participants from the study site, with ages ranging from 49 to 68 years. The results comprised of four major themes: 1) **Understanding of lifestyle modification practices:** Participants exhibited varying degrees of understanding, with notable confusion about the benefits of lifestyle changes. 2) **Implementation of lifestyle modifications:** Participants made commendable efforts in dietary adjustments and physical activities, despite facing challenges such as cultural preferences and physical limitations. 3) **Facilitators:** Perceived health benefits, strong social support networks, and guidance from healthcare providers were identified as crucial facilitators. 4) **Barriers:** Significant barriers included lack of consistent motivation, psychological stressors, social and environmental influences, and financial constraints.

Conclusion: The findings highlight significant gaps in patient understanding of recommended lifestyle changes, often resulting in inconsistent adherence and suboptimal health outcomes. Despite these challenges, participants demonstrated commendable efforts in implementing dietary modifications and engaging in physical activities, albeit hindered by cultural preferences and physical limitations. The identification of facilitators such as perceived health benefits, social support networks, and healthcare guidance underscores the importance of comprehensive care approaches that integrate psychosocial support and patient empowerment strategies.

Key terms: Cardiovascular diseases, lifestyle modification, patient experience, counseling, Behavioral change.

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ABBREVIATIONS

CVDs	Cardiovascular diseases
KCMC	Kilimanjaro Christian Medical Centre
LMICs	Low middle-income countries
NCDs	Noncommunicable diseases
SSA	Sub Saharan African
WHO	World health organization

DEFINITION OF TERMS

Lifestyle Modification: Lifestyle modification involves making changes to one's daily habits and behaviors, such as dietary choices, physical activity levels, smoking cessation, and stress management, with the aim of improving cardiovascular health and reducing the risk of complications (1).

Facilitators: These are factors or conditions that make it easier for individuals to adopt and maintain lifestyle modifications aimed at improving cardiovascular health. Facilitators may include social support, access to resources, motivation, and knowledge about healthy behaviors (2).

Barriers: Barriers refer to obstacles or challenges that hinder individuals from adopting or adhering to lifestyle modifications for cardiovascular health. These could include lack of social support, financial constraints, cultural beliefs, and psychological factors such as stress or depression (3).

Lifestyle modification practices: These are behaviors or changes individuals make in their daily lives to promote cardiovascular health. Examples include dietary changes, regular physical activity, smoking cessation, stress management, and medication adherence (1).

Cardiovascular patients: Individuals diagnosed with cardiovascular diseases or conditions affecting the heart and blood vessels, including but not limited to coronary artery disease, hypertension, and heart failure (4).

Cardiac Clinic: A specialized healthcare facility or department where patients with cardiovascular conditions receive diagnosis, treatment, and management from cardiologists and other healthcare professionals (5).

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Cardiovascular diseases (CVDs) represent a spectrum of conditions affecting the heart and blood vessels, including coronary heart disease, stroke, and peripheral arterial diseases (1). These diseases collectively contribute to a significant global health burden, with 17.9 million annual deaths attributed to CVDs, accounting for 32% of total global deaths, mainly due to heart attacks and strokes (4). Without intervention, projections suggest a rise to 23 million CVD-related deaths by 2030 (4,6). Alarmingly, over 75% of CVD deaths occur in low- and middle-income countries (4), with Tanzania grappling with a substantial burden, as approximately 33% of its population suffers from non-communicable diseases (NCDs), particularly CVDs (7,8).

CVDs impose not only a significant health burden but also an economic one, particularly in developing countries, affecting productivity and livelihoods (9). Lifestyle factors such as unhealthy diet, physical inactivity, smoking, and excessive alcohol consumption contribute significantly to the rise of CVDs **(**1,8**)**. Modifiable risk factors, including elevated blood pressure, dyslipidemia, and obesity, further exacerbate the problem (2). Addressing these risk factors through lifestyle modification interventions, including dietary changes, exercise, and smoking cessation, is crucial in reducing the burden of CVDs (4,9).

Globally, CVDs manifest approximately 10 to 15 years earlier in low- and middle-income countries compared to developed nations, indicating disparities in healthcare access and preventive measures (9). In sub-Saharan Africa (SSA), CVDs are a leading cause of morbidity and mortality, with high systolic blood pressure alone contributing to 56.6% of disability-adjusted life-years in 2021 (5). This region witnessed a 50% increase in CVD-related deaths between 1990 and 2019, with nearly 1 million deaths recorded in 2019 alone, highlighting the urgent need for targeted interventions (5).

Recognizing the growing burden of NCDs, including CVDs, global leaders have committed to addressing this issue through multisectoral action plans and policies (6). Tanzania, like many developing countries, faces challenges in managing NCDs, with CVDs representing a significant portion of NCD-related deaths (7).

Modifiable risk factors include elevated blood pressure, dyslipidemia, elevated blood sugar, overweight and obesity, smoking, excessive alcohol intakes, unhealthy diet, and physical inactivity play a major role in the development of CVDs, and there are established guidelines to address these risks and reduce mortality and morbidity (10). Life style modification is a non-pharmacological management of CVDs measured using physical exercise, low salt diet, and moderation of alcohol intake, stop smoking, and maintaining health weight (9). It is the cornerstone of helping out CVDs patients to attain lifestyle behaviors that are healthy with the potential benefits in promoting health and preventing CVDs complications(6). Moreover comprehensive lifestyle modification programs for CVDs patients reduce mortality, incidence, and readmission rates (11). Noncompliance with lifestyle modifications among CVD patients poses a serious risk of complications such as stroke, heart failure, aortic dissection, sudden cardiac death and catastrophic health expenditure (7,12).

Despite efforts to implement CVD interventions in Tanzania, challenges such as high healthcare costs and low uptake of healthier lifestyles persist (13). Comprehensive lifestyle modification programs have demonstrated efficacy in reducing mortality and readmission rates among CVD patients, emphasizing the importance of behavioral changes (12). Health education and risk communication have shown promise in motivating patients to adopt healthier lifestyles, yet adherence to recommended lifestyle modifications remains suboptimal (14).

Understanding the facilitators and barriers to lifestyle modification practices among cardiovascular patients is crucial for improving CVD management and prevention strategies. This study aims to explore facilitators and barriers to cardiovascular patients' lifestyle modifications, thereby informing the development of effective cardiac rehabilitation programs and enhancing behavioral change strategies to combat CVDs in Tanzania and similar settings.

1.2 Problem statement

Tanzania is a low-middle income country facing a significant burden of Non-Communicable Diseases (NCDs), with cardiovascular diseases (CVDs) being the leading cause of premature mortality. Despite having a good understanding of NCD risks, many individuals still make inconsistent lifestyle choices, suggesting that while awareness may motivate change, it often does not result in actual lifestyle modifications (16)

Inconsistent follow-up care and low health literacy present significant challenges in managing cardiovascular diseases (CVDs), particularly in underserved areas. Many patients struggle to adhere to treatment plans and maintain regular check-ups, resulting in poor disease management and higher rates of hospital re-admissions. Low health literacy further complicates this, as patients often misunderstand complex medical instructions, hindering their ability to manage their conditions at home. In Tanzania, where 33% of non-communicable disease-related deaths are due to CVDs, research on cardiovascular disease management is limited, restricting the development of effective, locally informed strategies and policy interventions.

Noncompliance with lifestyle modifications among CVD patients still poses a serious risk of complications and catastrophic health spending; while certain patients continue to struggle with adhering to healthier habits (9,13). The reasons for noncompliance are multifactorial and may be influenced by family, social, and economic constraints (6,13). However, there limited information regarding facilitators and barriers, for instance issues of supportive social environment, health education, access to resources (healthy food, exercise facilities).

Moreover, while lifestyle modifications have been shown to benefit health and prevent complications of CVDs, many patients struggle to adopt and maintain healthier habits, particularly those with multiple unhealthy behaviors (8,16). Furthermore, studies in Tanzania have predominantly focused on assessing the knowledge, prevalence, risk factors, and burden of CVDs, leaving a knowledge gap concerning the experience of lifestyle modification among CVD patients (13,17). This indicates the gap for further research.

Therefore, this study aimed to explore the experiences of lifestyle modification among CVD patients attending the cardiac clinic at Kilimanjaro Christian Medical Centre, shedding light on the real-life situation and views of patients in this setting. Understanding the experiences (focusing on facilitators and barriers) to lifestyle modifications among CVD patients is crucial to improve healthcare and patient outcomes.

1.3 Conceptual framework

The conceptual framework provide a systematic roadmap of the study (18,19). This conceptual framework in this study was constructed by the researcher. In the context of exploring experience of lifestyle modification practices among cardiovascular disease (CVD) patients

attending the cardiac clinic, the behavior modification theory serves as a comprehensive view (20). This theory, rooted in psychology and behavioral science, elucidates how individuals' behaviors can be altered through conditioning and reinforcement. Behavior modification theory, also known as behaviorism, posits that human behavior is learned through interactions with the environment (20). According to this theory, behaviors can be modified through various techniques, including positive and negative reinforcement, shaping, modeling, and extinction (6).

The behavior modification theory chosen as it offers valuable insights into understanding the facilitators and barriers to lifestyle modification practices among cardiovascular patients attending the cardiac clinic at KCMC. By addressing these factors through tailored interventions that foster intrinsic motivation, provide social support, and mitigate barriers, healthcare providers can empower CVD patients to adopt and sustain healthy behaviors, ultimately improving their health outcomes and quality of life.

Lifestyle modification among CVD Patients: Lifestyle modification encompasses a spectrum of behavioral changes aimed at improving health outcomes and managing chronic conditions such as cardiovascular diseases (9). Among CVD patients, lifestyle modifications may include dietary changes, physical activity, smoking cessation, stress management, and medication adherence. These modifications are crucial for preventing disease progression, reducing morbidity, and enhancing overall quality of life (8,9).

Facilitators to lifestyle modifications practices: Intrinsic motivation refers to the inherent desire and drive to engage in behaviors for personal satisfaction and fulfillment rather than external rewards. For CVD patients, intrinsic motivation may stem from a desire to regain health, improve well-being, maintain independence, or enhance longevity (21,22). Additionally, social support from healthcare providers, family members, and peers can serve as a facilitator by reinforcing positive behaviors, providing encouragement, and offering practical assistance (23).

Barriers to lifestyle modifications practices: Despite the importance of lifestyle modifications, CVD patients often encounter barriers that hinder adherence (2,24). These barriers may include lack of knowledge or awareness about the importance of lifestyle changes, financial

constraints, cultural beliefs, psychological factors such as depression or anxiety, and environmental factors such as limited access to healthy food options or safe exercise spaces (2,3). Moreover, external pressures or competing priorities may detract from patients' ability to prioritize their health needs (24).

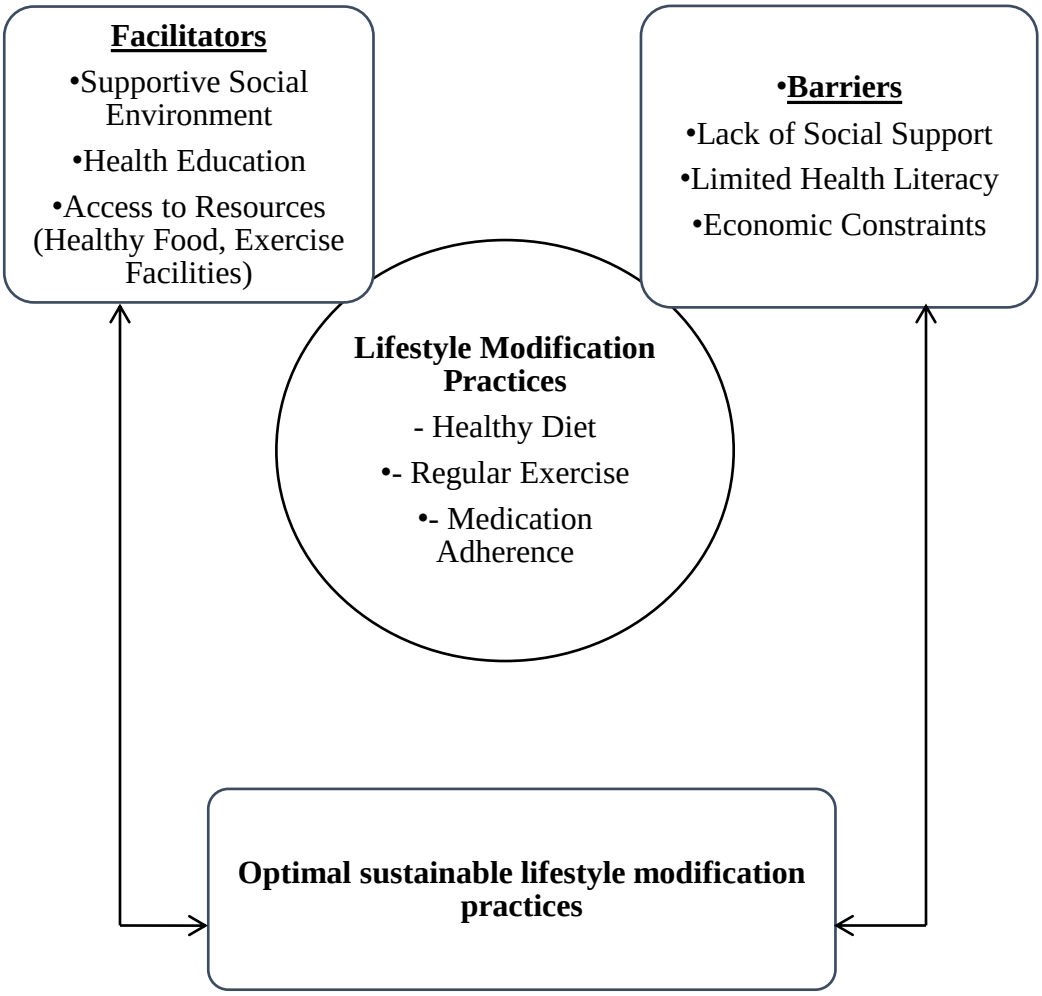


Figure 1: Conceptual framework

Source: constructed by a researcher

1.4 Rationale of the study

Firstly, the study seeks to describe the current state of lifestyle modification practices among CVD patients attending the cardiac clinic at KCMC. By delineating the behaviors and habits of these patients, the research aims to shed light on the extent to which lifestyle modifications are integrated into their daily routines. This objective serves as a foundational step in understanding the baseline practices and sets the stage for further exploration into facilitators and barriers.

Secondly, the study aims to delve into the facilitators that contribute to compliance with lifestyle modifications among CVD patients at KCMC. By identifying the factors that enable patients to adhere to recommended changes, such as dietary adjustments, exercise regimens, and medication adherence, the research can uncover insights that may inform targeted interventions and support strategies. Understanding these facilitators is crucial for healthcare providers and policymakers to develop effective programs that promote sustained adherence to lifestyle modifications.

Conversely, the third objective focuses on delineating the barriers impeding compliance with lifestyle modifications among CVD patients at KCMC. This aspect of the study aims to identify the multifaceted challenges faced by patients in adopting and maintaining recommended lifestyle changes. Understanding these barriers, ranging from socioeconomic factors to psychological barriers and healthcare system constraints, the research can inform the development of interventions aimed at mitigating these obstacles and fostering long-term adherence to lifestyle modifications. Finding from this study fosters Cardiovascular nurses roles on supporting patients in adopting healthy lifestyle habits, providing personalized patients education and optimizing care to cardiovascular patients.

1.5 Research Questions

1.5.1 Main research questions

What is the experience of lifestyle modifications practices among CVD patients attending cardiac clinic at KCMC?

1.5.2 Specific research questions

1. What are the lifestyle modification practices among CVD patients attending the cardiac clinic at KCMC?
2. What are the facilitators to lifestyle modifications practices among CVD patients attending the cardiac clinic at KCMC?
3. What are the barriers to lifestyle modifications practices among CVD patients attending the cardiac clinic at KCMC?

1.6 Study Objectives

1.6.1 Broad Objective

To explore the experience of lifestyle modification practices among CVD patients attending cardiac clinic at KCMC.

1.6.2 Specific objectives

1. To describe the lifestyle modification practices among CVD patients attending the cardiac clinic at KCMC
2. To explore the facilitators to lifestyle modifications practices among CVD patients attending cardiac clinic at KCMC.
3. To describe the barriers to lifestyle modifications practices among CVD patients attending the cardiac clinic at KCMC.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The lifestyle modification practices among CVD patients

Globally, lifestyle modification serves as a crucial non-pharmacological approach to controlling blood pressure in hypertensive patients, emphasizing a transition from unhealthy to healthy behaviors (14). Evidence from a systematic review and meta-analysis conducted in Brazil underscored the efficacy of lifestyle modification programs for coronary heart disease patients, resulting in reduced all-cause mortality, cardiac mortality, and cardiac-related readmissions and non-fatal reinfarctions (25). Notably, interventions incorporating self-regulation techniques exhibited greater improvements in dietary and exercise behavior (26).

In high-income countries, despite the potential benefits, adherence to healthy lifestyle practices among hypertensive patients remains low. A study in Ethiopia revealed that only a quarter of participants adhered to recommended lifestyle modifications, with factors such as age, duration since hypertension diagnosis, comorbidities, and knowledge influencing adherence (9). Similarly, while knowledge and attitudes toward lifestyle modification were favorable among hypertensive patients, actual practices were suboptimal. Income and duration of follow-up since diagnosis were associated with knowledge, whereas age and knowledge were linked to practices (6).

In Brazil, reductions in smoking have significantly contributed to preventing cardiovascular disease (CVD) deaths (27). Conversely, increases in hyperglycemia, obesity, and dyslipidemia have posed challenges to CVD management, highlighting the complex interplay of lifestyle factors in disease outcomes (28).

In low and middle-income countries (LMICs), lifestyle modification practices among CVD patients face similar challenges. Despite knowledge and positive attitudes, adherence to recommended behaviors remains inadequate. Factors such as socioeconomic status and duration of follow-up since diagnosis influence adherence to lifestyle modifications (6,9).

The literature review highlights significant gaps in the adherence to lifestyle modification practices among cardiovascular disease (CVD) patients globally, particularly in LMICs like Ethiopia. Despite favorable knowledge and attitudes, actual adherence remains suboptimal, influenced by factors such as socioeconomic status, age, and duration since diagnosis.

Additionally, while reductions in smoking have shown promising outcomes in CVD prevention, challenges such as increasing rates of hyperglycemia and obesity necessitate multifaceted approaches to disease management. However, there is a notable scarcity of research addressing lifestyle modification practices among CVD patients in Tanzania, indicating a crucial gap in understanding and addressing the needs of this population. Further research is warranted to develop tailored interventions to enhance adherence and improve outcomes among Tanzanian CVD patients.

2.2 The facilitators to lifestyle modifications practices among CVD patients.

Compliance with lifestyle modifications among cardiovascular disease (CVD) patients is influenced by a myriad of factors, both intrinsic and extrinsic. Intrinsic factors, such as situational awareness, self-efficacy, gratitude, and resilience, play a crucial role in motivating patients to adopt healthier behaviors (1). Studies have also highlighted the significance of extrinsic factors, including financial security, caregiver support, and ease of healthcare access, in facilitating adherence to lifestyle modifications among CVD patients (2).

In a study conducted by Kahkone et al., it was found that adherence to lifestyle modifications among patients with coronary heart disease was influenced by various factors such as gender, education level, physical activity, dietary habits, and cholesterol levels (3). Similarly, research by Cohen Rodrigues et al. in the Netherlands emphasized the importance of healthcare providers in supporting CVD patients in adopting healthy lifestyles, with eHealth being identified as a potential facilitator (4).

The role of nurses in promoting healthy lifestyle choices among CVD patients cannot be overstated. Rashidi et al. conducted a systematic review highlighting the significant impact of nursing interventions on treatment engagement among individuals with CVD (5). Nurses' support, motivation, and patient-centered care contribute to enhancing patients' adherence to lifestyle modifications.

Furthermore, cultural and familial influences significantly shape patients' attitudes towards lifestyle changes. A study conducted in the UK revealed how South Asian patients prioritize lifestyle modifications post-myocardial infarction, navigating through complex religious, cultural, and familial beliefs (6). Such findings underscore the importance of considering sociocultural factors in designing effective lifestyle intervention programs for CVD patients.

Lifestyle intervention programs tailored to individual needs have shown promising results in promoting adherence to lifestyle modifications among CVD patients. These programs often incorporate personalized education, regular follow-ups, and robust interpersonal support systems (7). Additionally, family-based approaches have been successful in reducing cardiovascular risk factors, particularly in high-risk families, as demonstrated in a study conducted in India by Jeemon et al. (8).

The literature reviewed indicates the multifaceted nature of facilitators influencing lifestyle modification practices among cardiovascular patients. Intrinsic factors such as self-efficacy and situational awareness, coupled with extrinsic factors like healthcare access and support from caregivers, play pivotal roles. However, challenges such as cultural beliefs and access to digital tools persist, highlighting the need for tailored interventions addressing diverse patient needs and contexts.

2.3 The barriers to lifestyle modifications practices among CVD patients.

Barriers to lifestyle modifications among CVD patients are multifaceted and often influenced by sociodemographic and health-related characteristics. Nielsen et al. (20) highlighted the persistence of social inequality as a significant challenge even in populations with equal and cost-free access to healthcare. Social determinants such as economic hardship, physical barriers to accessing healthcare facilities, and chronic stressors play a crucial role in influencing individual behavioral risk factors associated with CVD management (21).

Furthermore, health literacy emerges as a critical factor influencing health outcomes and lifestyle modification practices among CVD patients. Studies have shown that individuals with lower levels of health literacy face greater challenges in managing cardiovascular risk factors (22). Jayasinghe et al. demonstrated that lower education levels and unemployment were associated with worse physical health outcomes among patients with low health literacy levels, highlighting the intricate relationship between socioeconomic status, health literacy, and health outcomes.

A study conducted in Bangladesh shed light on specific barriers and facilitators to adopting heart-healthy lifestyles among individuals with acute coronary syndrome. The barriers identified encompassed various domains including smoking cessation, physical activity, and dietary modifications (23). Smoking cessation barriers included difficulties in managing

nicotine withdrawal symptoms and beliefs that smoking enhances productivity. Physical activity barriers ranged from physical limitations to lack of exercise as a habitual practice. Dietary barriers encompassed challenges related to food availability, preferences, knowledge, support, and income levels. Identifying these barriers is essential for designing targeted interventions to promote lifestyle modifications among CVD patients.

The literature review highlights the complex interplay of sociodemographic, health-related, and environmental factors in influencing lifestyle modification practices among CVD patients. Despite equal access to healthcare services, social determinants such as economic hardship and limited health literacy contribute to disparities in health outcomes. Understanding specific barriers faced by CVD patients, such as those related to smoking cessation, physical activity, and dietary modifications, is crucial for developing tailored interventions to address these challenges. However, there remains a gap in understanding how these barriers manifest within specific contexts, particularly in low and middle-income countries such as sub-Saharan Africa and Tanzania. Further research is needed to explore the unique sociocultural and economic factors that shape lifestyle modification practices among CVD patients in these settings and to develop effective interventions to mitigate barriers and improve health outcomes.

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 Study design

This study employed a qualitative explorative study design to explore experience of lifestyle behaviors among CVDs patients. This study design enables the researcher to explore the topic with limited coverage within the literature and allow participants to contribute to the development of new knowledge (29).

3.2 Study area

Study was conducted at KCMC hospital, located at Moshi municipality in Kilimanjaro region Northern Tanzania. Moshi Municipal Council is bordered to the North by Moshi Rural District, to the East by Mwanga District, to the South by and West by Manyara Region. KCMC is a zonal referral and teaching hospital with the University named Kilimanjaro Christian medical university college. KCMC provides its services for five regions named Kilimanjaro, Arusha, Manyara, Tanga, and Singida.

KCMC is a referral center ensures a broad spectrum of cardiovascular patients seeking care across Northern Tanzania, neighbor regions and neighbor country Kenya, facilitating a comprehensive understanding of lifestyle modification practices in this demographic is important. With a focus on cardiovascular health, KCMC offers specialized services tailored to address the unique needs of patients with conditions such as myocardial infarction, coronary artery disease, rheumatic heart disease, peripheral vascular disease, valvular heart disease, cardiac arrhythmias, and congenital heart disease.

3.3 Study population

In this study, the population consisted of patients with cardiovascular diseases (CVDs) attending the cardiac clinic at Kilimanjaro Christian Medical Centre (KCMC) hospital. The CVD patients included those diagnosed with myocardial infarction, coronary artery disease, rheumatic heart disease, peripheral vascular disease, valvular heart disease, cardiac arrhythmias, and congenital heart disease. The target population specifically focused on CVD patients aged 18 and above, as this age group faces significant challenges in adhering to a healthier lifestyle. This target population represents a subset of the broader population under

investigation, defined by specific characteristics or criteria directly relevant to the research objectives (30).

3.4 Eligibility criteria

3.4.1 Inclusion criteria

The study included all CVDs patients attending cardiac clinic at KCMC Hospital base on their age (18years and above) with an experience from six months after CVD diagnosis and fluent in Swahili language.

3.4.2 Exclusion criteria

The study excluded all CVDs patient on acute ill condition, and those who were mentally disabled to participate in interview during data collection period.

3.5 Sample size estimation

A sample of 10 participants was recruited in this study after reaching saturation point. Saturation is a criterion for discontinuing data collection in qualitative research (29). Therefore, saturation point was used to determine the sample size after the participants provide maximum information on the topic of the study when started to generate similar themes from the subsequent interviews.

3.6 Sampling procedure

Employing purposive sampling, this study aimed to select participants deliberately based on predefined criteria conducive to addressing the research objectives comprehensively. Specifically, participants were chosen based on their age, ranging from 18 years and above, to capture the demographic most susceptible to challenges in adhering to lifestyle modifications. Additionally, individuals with a minimum of six months experience post-CVD diagnosis and proficiency in Swahili was targeted. This approach ensures the inclusion of individuals with relevant experiences and facilitates effective communication during in-depth interviews. Facilitating a comfortable environment, participants were approached respectfully, and informed consent was obtained prior to data collection. Interview was conducted in privacy room to avoid interference and foster candid discussions.

Purposive sampling allows researchers to deliberately select participants who meet specific criteria relevant to the research objectives. In this case, participants are chosen based on their age, duration post-CVD diagnosis, and proficiency in Swahili. This targeted approach ensures

that the sample represents individuals most likely to provide valuable insights into the challenges and facilitators of lifestyle modifications after a CVD diagnosis.

3.7 Data collection method

Data collection involved in-depth interviews with cardiovascular patients attending the cardiac clinic at the study site. This method enabled researchers to gather detailed insights into participants' perspectives, experiences, and challenges related to lifestyle modifications. Additionally, observational techniques were employed to supplement interview data, providing further context to participants' behaviors and environments.

Prior to the main data collection, a pilot study was conducted with a sample two of cardiovascular patients similar to the target population. The pilot aimed to evaluate the clarity, relevance, and suitability of the interview questions and observational methods. Feedback from the pilot study informed refinements to the interview guides and observation protocols, ensuring that data collection tools were appropriately tailored to the study context.

In-depth interviews offer a platform for participants to express their experiences, beliefs, and attitudes in their own words. This method allows researchers to explore complex topics deeply and uncover nuanced perspectives that may not emerge through other data collection methods. By conducting interviews in the private room at the hospital premises and accommodating their clinic schedules, researcher created a comfortable and convenient environment that encourages open and honest discussions, enhancing the richness of the data collected.

3.8 Data collection tools

The primary data collection tool for this study was semi-structured interview guides developed specifically to explore the experience of lifestyle modification practices among cardiovascular patients. These guides were designed to elicit detailed responses from participants while allowing for flexibility to explore emergent themes and topics during the interview process.

3.9 Data collection procedure

After obtaining the permissions for data collection, the researcher was presented to the cardiac clinic in charge who was conversant with the environment. Clinic in charge introduced the researcher to the study participants where the researcher took that opportunity to explain the purpose of the study, benefit, and risk as well as the inclusion and exclusion criteria of participating in a study. The research was conducted between May and June 2024. To maximize the variation and avoid biases of participants, CVD patients who meet the inclusion criteria were purposively selected based on their age 18yrs and above with an experience of six months after CVD diagnosis and proficiency in Swahili. Swahili language was used as the medium of communication since this is the national language preferred by all Tanzanians. The researcher conducted interviews in the private room at the hospital premises to accommodate participants' clinic schedules. The duration of each interview varied, with most sessions lasting approximately 30 to 45 minutes for each participant. During the interviews, the researcher created a comfortable and convenient environment that encouraged open and honest discussions, while ensuring confidentiality and privacy. A written consent form to participate in the study was obtained beforehand. Information from interviews was recorded by using an audio recorder and notebook was used to record other obtained information during the interview.

3.10 Trustworthiness

3.10.1 Trustworthiness

Trustworthiness of the study was ensured throughout the study following Lincoln and Gubas (1985) method of trustworthiness. This method involves the implementation of trustworthiness measures of credibility, transferability, dependability and conformability.

3.10.2 Credibility

The credibility of the study was strengthened through prolonged engagement between the researcher and participants, fostering mutual understanding and trust. This rapport allowed for deeper insights into participants' experiences and behaviors (30). Techniques such as triangulation, thick description, and sustained engagement were employed to enhance honesty and ensure the integrity of the findings. Consent procedures provided participants with the option to withdraw at any stage, ensuring that only those genuinely willing to participate were involved.

3.10.3 Transferability

The researcher ensured possible transferability to the context by providing thick description of the particular characteristic of the participant, their geographical location and experiences as well as the research findings

3.10.4 Dependability

The dependability of the study was ensured through continuous supervision and guidance from two experienced supervisors. Additionally, peer debriefing and peer scrutiny were employed as effective communication practices to build trust and enhance the reliability of the research process (31).

3.10.5 Conformability

Conformability pertains to the impartiality and objectivity of the findings, guaranteeing that they remain unaffected by any biases or preferences of the researchers(30) .To reflect accurate and relevant findings of the experience and ideas of the participants were used as original source and quotes provided.

3.11 Data analysis

Data analysis employed deductive thematic analysis approach identifies -themes, and relationships within the dataset. Audio recordings were simultaneously transcribed and translated from Swahili to English. Transcripts from interviews was systematically coded and analyzed to uncover key facilitators and barriers to lifestyle modifications among CVD patients. This process involved multiple stages, including data familiarization, coding, theme development, and interpretation. Thematic data analysis steps involved the following: -

Data familiarization: The researcher started to familiarize with the interview transcripts, gaining an initial understanding of the content and context of the data.

Coding: The transcripts was systematically coded, with meaningful segments of text identified and labeled based on recurring themes, concepts, or patterns.

Theme development: Codes were organized into broader themes or categories that capture key ideas or phenomena present in the data. This process involved synthesizing of codes to identify overarching patterns and relationships.

Interpretation: Themes were interpreted in relation to the research objectives, allowing researchers to draw conclusions and insights from the data. This stage was involved critically by analyzing the significance of identified themes and considering their implications for theory, practice, or further research.

The themes and categories that emerged from the data were co-coded by the qualitative research expert, who brought his technical advise and guidance to the analysis. This collaboration allowed for a more robust understanding of the data and facilitated a thorough discussion of the themes that emerged, enhancing the overall rigor of the analysis.

3.12 Ethical consideration

Ethical approval for the study was obtained from the MUHAS Institutional Review Board (Ref. No. DA.282/298/01.C/2122). Participants were thoroughly informed about the study's objectives, procedures, and their rights, and voluntary participation was encouraged. Informed consent was obtained from each participant prior to data collection. The researcher personally introduced the study, clarified any uncertainties, and ensured that participation did not interfere with clinic management services. To protect confidentiality and anonymity, interviews were conducted in a private room, minimizing environmental distractions and safeguarding participants' privacy. Confidentiality was strictly upheld throughout the study by securing all personal information and restricting access to authorized personnel only. No identifying details were linked to the collected data, ensuring participants remained anonymous (31).

3.13 Dissemination plan

The findings of the study will be disseminated to peer-reviewed journals for possible publications, presentations at conferences and seminars, as well as dissemination to relevant stakeholders within the healthcare community. Additionally, efforts were made to translate research findings into actionable recommendations for healthcare providers, policymakers, and patient advocacy groups, aiming to inform and improve healthcare practices and policies related to lifestyle modifications for cardiovascular patients.

CHAPTER FOUR

4.0 RESULTS

4.1 Sociodemographic characteristics of the participants

The study included ten IDI participants from the study site. The cohort comprised predominantly older adults, with ages ranging from 49 to 68 years. Educational attainment varied from primary to college levels, underscoring a spectrum of educational backgrounds. Occupationally, participants included businessmen, farmers, teachers, a retired medical recorder officer, and housewives, highlighting both professional diversity and the influence of occupation on lifestyle and health. The duration since cardiovascular disease (CVD) diagnosis ranged widely, from six months to over a decade, with some participants also managing co-morbid conditions like hypertension and diabetes mellitus.

Table 1: Sociodemographic characteristics of the participants

Participant No.	Age	Sex	Education Level	Occupation	Time Since CVD Diagnosis
1	52	Male	Primary Education	Businessman	1 year CVD,5years, DM,3years HTN
2	58	Female	Primary Education	Housewife	4 years
3	50	Female	College	Teacher	3 years
4	60	Male	Primary Education	Businessman and Farmer	12 years HTN, 3 years CVD
5	68	Female	Primary Education	Housewife	8 years
6	50	Female	Primary Education	Farmer	5 years
7	59	Female	Primary Education	Farmer	>4 years
8	63	Male	College	Retired Medical recorder officer	10 years DM+HTN, 6 months CVD
9	62	Male	Secondary Education	Farmer	10 years HTN+CVD
10	49	Female	Primary Education	Farmer	14 years HTN+CVD

4.2 Data reduction matrix

Four major themes were obtained; these include understanding lifestyle modifications, highlighting challenges like limited understanding and confusion about benefits. Lifestyle modification practices emphasize dietary changes and physical activity, while facilitators like health benefits and social support aid adherence. Barriers to maintaining changes encompass motivation issues, psychological factors, physical limitations, social barriers, lack of guidance, misconceptions, and financial constraints, (Table 2).

Table 2: Data reduction matrix

Theme	Subtheme	Codes
Understanding of Lifestyle Modification Practices	Limited Understanding	lack of knowledge, specific modifications, inadequate implementation, confused
	Importance of Lifestyle Modifications	fail to grasp importance, lack of awareness, lack of commitment
	Confused About Benefits	confusion about benefits, unclear understanding, lack of motivation, inconsistent efforts
	Stress Management	Counseling, increased stress post-diagnosis
Lifestyle Modification Practices in cardiovascular patients	Dietary Changes	Reduce oil, use sunflower oil, consume fish, eat white meat, limit meat consumption, avoid fatty foods, reduce salt intake, reduced fatty foods, weight loss, Low salt and fat diet, inclusion of beans
	Physical Activity	Exercise regularly, gardening, household chores, farming, animal husbandry, walk long distances, Involvement in farming and business activities, walking, exercise
Facilitators to Lifestyle Modifications	Perceived Benefits and Outcomes	Positive changes, increased energy, improved health, motivation, lowers blood sugar, normalizes blood pressure, improves health, prevents tiredness
	Social and Family	family support, community support, encouragement,

	Support	adherence, supportive environments, support from children, help in meal preparation family involvement, encouragement, financial support
	Medical Advice and Counseling	Adherence to medical advice, regular clinic attendance
	Personal health improvement	Personal health improvement
	Religious/Spiritual Support	Role of faith in sustaining changes
	Motivation for Lifestyle Changes Healthcare Advice	Advice from healthcare professionals
Barriers to maintain Lifestyle Modification	Lack of Consistent Motivation	Initial enthusiasm, hard to keep up, no quick results, waning commitment
	Emotional and Psychological Challenges	Stress, anxiety, depression, mental state, difficult to maintain changes
	Social and Environmental Barriers	Family habits, lack of support, unhealthy food options, social pressures
	Lack of Guidance	No guidance from healthcare workers, lack of resources
	Physical Limitations and Health Setbacks	Pain, fatigue, health setbacks, difficult exercise routine
	Misconceptions and Beliefs	Superstitions, traditional treatments, misconceptions about lifestyle changes
	Financial Constraints	Expensive healthy food, budget constraints, cheaper unhealthy options,

4.3 Description of results

The results comprised of four major themes, these includes understanding lifestyle modification practices, lifestyle modification practices, facilitators to lifestyle modifications, and Barriers to maintaining modifications practices. Under understanding lifestyle modification practices, subthemes include limited understanding, importance of lifestyle modifications, and confusion about benefits, highlighting gaps in knowledge, awareness, and motivation. Lifestyle modification practices focus on dietary changes and physical activity, emphasizing specific practices like reducing oil and exercising regularly. Facilitators include health benefits, social and family support, medical advice, personal health improvements, and religious support. Barriers to maintaining modifications encompass lack of consistent motivation, psychological factors, social and environmental barriers, inadequate guidance, physical limitations, misconceptions and financial constraints.

Theme 1: Understanding lifestyle modification practices

Lifestyle modifications are crucial for managing cardiovascular health, yet many patients face significant challenges in understanding and implementing these changes. This theme explores the common issues related to patients' comprehension and execution of lifestyle modifications, focusing on three primary subthemes: limited understanding, the perceived importance of lifestyle modifications, confusion about the benefits of lifestyle modifications and stress management concerns.

Limited understanding

Many cardiovascular patients exhibit a limited understanding of the specific lifestyle modifications necessary for managing their condition. This gap in knowledge often leads to inadequate or incorrect implementation of changes, which can compromise their health outcomes. Patients may not fully grasp what dietary changes, exercise routines, or other modifications are needed for their condition.

> *"I know I should eat healthier, but I'm not sure exactly what foods are good or bad for my heart. I sometimes get confused about what's actually beneficial."* (P3)

Importance of lifestyle modifications

Some patients often fail to grasp the critical importance of lifestyle modifications in managing their cardiovascular health. This lack of awareness can result in a lack of commitment to making and maintaining necessary changes. Without recognizing the significant impact that lifestyle changes can have on their health, patients may not prioritize these modifications or adhere to them consistently.

> *"My doctor told me to change my diet and exercise more, but I didn't really understand how serious it was. It seemed like just another piece of advice."* (P4)

Confused about benefits

Even when patients attempt to make lifestyle changes, confusion about the benefits can hinder their efforts. Without a clear understanding of how these modifications improve their health, patients may struggle to stay motivated and consistent. The lack of immediate visible results can further contribute to their confusion and discourage sustained efforts.

> *"I've been trying to follow the recommendations, but it's hard to tell if it's really helping. Sometimes I wonder if it's worth all the effort when I can't see immediate results."* (P6)

Stress management

Participants emphasized the critical importance of effective stress management strategies following their cardiovascular disease diagnosis. Professional counseling played a pivotal role in equipping them with coping mechanisms and emotional support necessary to navigate their health challenges. Many participants highlighted the profound impact of familial support during hospitalizations and challenging times, which significantly alleviated stress and improved their overall well-being.

> *"I received counseling and follow that guidance" (*P4*).*
>
> *"When I was hospitalized in the ICU, I was very ill... My children came from Kahama and Mwanza to take care of me" (*P6*).*
>
> *"Stress was high at the beginning, but counseling helped me manage it better" (*P7*).*

However, despite these efforts, some participants continued to grapple with effectively managing stress, reflecting ongoing emotional struggles.

*"Despite counseling, I still find it challenging at times to cope with stress and its effects on my health" (*P5*).*

Theme 2: Lifestyle modification practices in cardiovascular patients

This include subthemes such as dietary changes, where patients discussed reducing oil and salt intake, consuming fish and white meat, and including beans in their diet. Physical Activity was another subtheme, where participants mentioned regular exercise, gardening, and walking. Stress Management involved receiving counseling and coping with increased stress post-diagnosis.

Dietary changes

Participants demonstrated a strong commitment to modifying their diets to effectively manage cardiovascular disease. They described conscientiously reducing oil intake and opting for sunflower oil as advised, alongside consuming fish and white meat while limiting fatty foods and salt. Additionally, beans were consistently included in meals to enhance nutritional value. These dietary adjustments were perceived as pivotal for maintaining health and managing their condition optimally.

*"I was advised to use very little oil product or food... prefer to use just a small amount" (*P1*).*

*"My diet is low in salt and fat, and I avoid sugary foods. Every meal includes a small portion of beans" (*P8*).*

*"You should eat at least three small pieces of meat, but I rely more on fish or white meat" (*P2*).*

*"I avoid fatty foods or foods with a lot of salt... and I don't eat fatty meats" (*P3*).*

Despite their diligent efforts, some participants acknowledged the challenge of adhering strictly to these dietary changes due to ingrained habits and taste preferences.

*"Despite efforts to reduce salt intake, I still find it challenging because I am accustomed to salty foods" (*P4*).*

Physical activity

Participants engaged in a variety of physical activities such as gardening, household chores, and regular exercise to manage their cardiovascular health effectively. These activities not

only provided essential physical exertion but also contributed significantly to their overall well-being and sense of achievement. Many participants cited benefits like weight management and pain relief from incorporating physical activities such as walking long distances and engaging in farming and animal husbandry.

*"My activities involve exercise, such as farming and business" (*P4*).*

*"I started walking every morning, which has improved my health significantly" (*P7*).*

However, despite recognizing these benefits, some participants faced challenges in maintaining consistent physical activity due to health issues or occasional lack of sustained motivation.

*"Despite understanding the benefits, I sometimes struggle with regular exercise due to physical limitations" (*P2*).*

Theme 3: Facilitators to lifestyle modifications

This encompassed perceived health benefits like lowering blood sugar and normalizing blood pressure. Social and family support involved help from children and family members in meal preparation and providing encouragement. Medical advice and counseling highlighted adherence to medical advice and regular clinic attendance, while personal health improvement and religious/spiritual support were also important facilitators. motivation from healthcare advice was emphasized as crucial in guiding lifestyle changes.

Perceived benefits and outcomes

Patients' perceptions of the benefits and outcomes of lifestyle modifications greatly influence their adherence. Those who notice positive changes are more likely to continue, while those who do not see immediate benefits may become discouraged.

"I started feeling more energetic and less out of breath after sticking to my new routine for a few months. Seeing those changes motivated me to keep going." (P8)

"The motivation comes from seeing improvements in their health and knowing that other patients who follow these lifestyle changes continue living and supporting their families. This encourages them to follow the same routine." (P3)

Some participants attributed improvements in their health to the lifestyle changes they implemented. Lowering blood sugar levels and normalizing blood pressure were noted as direct outcomes of their dietary adjustments and increased physical activity. This improvement

not only enhanced their physical well-being but also contributed to a reduction in fatigue, enabling them to engage more actively in daily activities with renewed energy and vigor.

*"I do it because, when I exercise, my blood sugar drops from high levels to seven, eight, six" (*P1*).*

*"Yes! They improve my health" (*P3*).*

“After treatment, I knew I had to follow the guidance. Seeing others enjoy themselves while I couldn’t, but I had to manage.” (P4)

Social and family support

Beyond individual efforts, the pivotal role of family support emerged prominently in facilitating participants' adherence to lifestyle modifications. Participants highlighted the integral support provided by children and spouses, who not only assisted in practical ways such as meal preparation but also offered emotional encouragement and financial support. This familial involvement was crucial in sustaining motivation and reinforcing the importance of healthy habits in daily life.

“When I cook in one pot, I don’t add salt. They tolerate this, and later they add salt to their portion, but the food doesn’t taste the same.” (P3)

*"My children, especially the girls, help a lot" (*P4*).*

*"My spouse has been very supportive, especially in preparing healthy meals" (*P7*).*

Medical advice and counseling

Participants emphasized the pivotal role of medical advice and regular clinic attendance in managing their cardiovascular health. Adherence to prescribed treatment plans and consistent medical consultations were seen as essential components in achieving and maintaining health goals. This structured approach not only provided participants with personalized guidance but also instilled a sense of accountability in maintaining their health regimen.

*"My children gave me the instructions, saying, 'Mama, we live far away and can't come often unless we get leave.' So, I listened to them" (*P6*).*

*"Regular visits to the clinic have kept me on track with my health goals" (*P7*).*

Personal health improvement

Personal reflections on health improvements served as intrinsic motivators for participants to continue their journey towards better health outcomes. Positive changes observed in their

physical well-being, such as improved energy levels and overall vitality, were cited as reasons for maintaining lifestyle modifications.

> *"They are beneficial because things are improving somewhat. I decided to devote myself to Jesus" (*P8*).*

Religious/spiritual support

Faith played a significant role in participants' perseverance and commitment to lifestyle changes. Religious beliefs provided a framework for understanding and adhering to dietary restrictions and physical activity guidelines, with family members actively supporting these practices based on shared religious values.

> *"I've prayed to God to help me reduce my stress so I can manage my condition and take my medication. I don't have any more worries or stress" (*P6*).*

> *"Sometimes, people have advised me to see traditional healers or go to certain places because of my leg pain (oedema), saying it's not just physical. They suggest visiting traditional healers, but I've told them I'm not ready for that. I believe only God can help me, so I stick to going to the hospital and praying."* (P7)

Motivation for lifestyle changes

Guidance and advice from healthcare professionals emerged as pivotal motivators for participants in adopting and maintaining lifestyle modifications. Recommendations from medical practitioners regarding dietary adjustments and physical activity routines were seen as authoritative and credible sources of information that guided participants' decision-making processes.

*"When you visit a doctor, they ask if you use a lot of salt. If you say you don't know because you're not the cook, they advise you to tell the cook to use less salt and they also advise against drinking a lot of alcohol" (*P8*).*

Theme 4: Barriers to maintaining lifestyle modifications practices

Maintaining lifestyle modifications poses significant challenges for cardiovascular patients, influenced by various barriers that hinder their adherence. Lack of consistent motivation emerges as a primary issue, with many patients initially enthusiastic but struggling to sustain efforts due to the absence of immediate health improvements and daily life demands.

Psychological factors such as anxiety, depression, and stress further complicate adherence, leading some patients to resort to unhealthy coping mechanisms like overeating or avoiding exercise. Physical limitations and health setbacks, including medication side effects like blurred vision and physical symptoms such as swelling and chest tightness, significantly restrict patients' ability to engage in recommended activities. Social and environmental barriers, such as family eating habits and limited access to healthy food options, also play pivotal roles in undermining efforts towards lifestyle changes. Additionally, the lack of guidance from healthcare providers leaves patients feeling uncertain about effective strategies, while misconceptions rooted in cultural beliefs pose persistent challenges. Financial constraints further exacerbate these issues, making it difficult for patients to afford essential resources like nutritious food and gym memberships, thereby impeding their ability to maintain healthier lifestyles. Daily practices and logistic barriers were also reported.

Lack of consistent motivation

Many cardiovascular patients report initial enthusiasm for lifestyle changes but struggle to maintain motivation over time. The demands of daily life and the absence of immediate health improvements contribute to waning commitment.

> *"At first, I was very dedicated to following the diet and exercise plan, but after a few months, it became really hard to keep up. I didn't see any quick results, and that made it even harder to stay motivated."* (P3)

> *"I don't think so because if reducing salty and oils had benefits, my condition would have either gone away or improved significantly. But it keeps recurring."* (P7)

Psychological factors

Anxiety, depression, and stress can negatively impact patients' ability to maintain lifestyle changes. These psychological factors can diminish their capacity to stay consistent with modifications such as diet and exercise.

> *"When I feel stressed or down, I tend to eat junk food and skip workouts. It's like a vicious cycle because I know I need to make these changes for my health, but my mental state makes it so difficult."* (P8)

Physical limitations and health setbacks

Some patients find it difficult to maintain physical activity due to existing health conditions or setbacks related to their cardiovascular issues. Pain, fatigue, and other symptoms can interfere with regular exercise routines.

> *"I try to walk every day, but some days the pain in my legs is just too much. There are times when I feel too tired to do anything, and that makes it hard to keep up with my exercise routine."* (P7)

Some reported medication side effects and health issues like swelling and chest tightness, posed significant barriers to maintaining recommended lifestyle changes. Participants described how these challenges restricted their ability to engage in physical activities or adhere to dietary restrictions, thereby impacting their overall health outcomes.

> *"The medication caused changes in my body, like blurred vision and increased body heat" (*P2*).*
>
> *"I do, my child. First, I try to walk long distances but I find it difficult as I get out of breath and need to use a walking stick."* (P6)
>
> *"I used to exercise, but recently I had to stop due to swelling of the legs and chest tightness" (*P8*).*

Social and environmental barriers

Patients often face social pressures and environmental constraints that hinder their ability to sustain lifestyle changes. Factors such as family habits, lack of support, and the availability of unhealthy food options play significant roles.

> *"My family loves fried food, and it's always around. Even when I try to stick to healthier options, it's tough because I feel left out during meals. Plus, it's hard to find healthy choices when eating out."* (P4)
>
> *"Honestly, changes are good but hard to follow, because I don't cook. I live with my daughter-in-law and her child, who usually cooks. If I tell her to reduce salt, she might say, "Sorry, Grandma, I added too much."* (P5)

Lack of guidance

Participants expressed frustration over the perceived lack of guidance and support from healthcare providers regarding lifestyle changes. Many felt they did not receive adequate information or resources to effectively manage their condition through lifestyle modifications. This lack of professional guidance left participants uncertain about the correct approaches to adopt for their health.

*"No, I have never received any" (*P1*).*

*"When you come to the clinic, they explain through the doctors, and you decide to follow the advice they give you" (*P3*).*

"No, it's just me, the nurses and doctors don't follow up closely about my lifestyle changes." (P9)

Misconceptions and beliefs

Superstitions, traditional beliefs, and misconceptions about health and lifestyle changes were identified as significant barriers. Participants discussed how cultural beliefs influenced their perception of illness and treatment, sometimes conflicting with medical advice. Overcoming these deeply ingrained beliefs proved challenging, as community misconceptions continued to influence their health-related decisions.

*"They tell you superstitions, to go there, do this, but you see that superstition can't settle in your heart. When you have undergone tests that show this and that, you should follow the health professionals rather than those who mislead you because their main aim is to take your money." (*P1*).*

*"Many people in my community still don't understand the importance of these lifestyle changes" (*P7*).*

"Yes, initially I had environmental stress causing my heart and pressure problems. At first I tried traditional methods before coming to the hospital, but I realized I needed proper treatment." (P9)

Financial Constraints

The cost of healthier food options, gym memberships, and other lifestyle modification resources can be prohibitive for some patients, leading to lapses in their adherence to recommended changes.

> *"I know I should buy fresh vegetables and lean meats, but they are expensive. I can't always afford them, so I end up buying cheaper, less healthy options. Going to the gym is also out of my budget."* (P6)

> *"Yes, it depends on the resources available; sometimes you eat (leafy greens and fruits), sometimes you don't, because of life's challenges, sometimes you can't follow through."* (P10)

CHAPTER FIVE

5.0 DISCUSSION

5.1 Discussion of the key findings

This study on the facilitators and barriers to lifestyle modification practices among cardiovascular revealed four major themes. Participants often lacked clarity about the specifics and benefits of lifestyle changes, leading to inconsistent adherence and suboptimal outcomes. Despite commendable efforts in dietary and physical activity changes, cultural preferences and physical limitations hindered sustained adherence. Facilitators such as perceived health benefits, social support, and healthcare guidance were crucial, while barriers including motivation issues, psychological stressors, and financial constraints were significant challenges. These findings underscore the need for tailored patient education, integrated care approaches, and targeted interventions to enhance long-term adherence and health outcomes.

5.2 Understanding lifestyle modification practices

This study reported limited understanding regarding the rationale behind lifestyle modifications despite positive attitudes towards their importance. This gap in comprehension often translated into difficulties in implementing sustained changes in dietary habits and physical activity levels. For instance, participants frequently expressed uncertainty about how specific lifestyle changes, such as dietary adjustments and regular exercise, could positively impact their cardiovascular health outcomes. The literature supports the findings from the current study that patients often have limited understanding of lifestyle modifications despite favorable attitudes. Studies in Ethiopia highlight that while knowledge about lifestyle practices is generally positive among hypertensive patients, actual adherence remains low (6, 9). Factors such as socioeconomic status and duration since diagnosis influence this discrepancy, indicating a need for tailored educational interventions (6). Similarly, in high-income countries, adherence rates to lifestyle modifications are suboptimal despite awareness campaigns, suggesting a universal challenge that transcends economic boundaries (9).

In this study, the study participants acknowledged the importance of lifestyle modifications in managing their condition. However, there was variability in their perceived significance and how these changes could be translated into tangible health benefits. Some viewed these modifications as necessary but struggled to align their daily routines with recommended

practices due to perceived barriers like cultural dietary preferences or time constraints. Corresponding to the evidence from systematic reviews, such as those conducted in Brazil, underscores the efficacy of lifestyle modification programs in reducing cardiovascular mortality and readmissions (14, 24). These programs emphasize the transition from unhealthy to healthy behaviors, reinforcing the importance of sustained efforts in patient education and support (14). Despite these benefits, challenges such as cultural preferences and lack of accessible resources hinder consistent adherence, necessitating culturally sensitive approaches to dietary counseling and physical activity promotion (14).

Confusion regarding the benefits of lifestyle modifications was also evident among our participants. Despite recognizing the potential health advantages, such as lowering blood pressure and reducing the risk of complications, there was ambiguity about the specific outcomes achievable through sustained adherence to these changes. This uncertainty sometimes led to inconsistent engagement with recommended lifestyle practices. The findings from the current study align with studies highlighting confusion among patients regarding the benefits of lifestyle modifications. In high-income settings, interventions incorporating self-regulation techniques have shown promise in improving dietary and exercise behaviors, suggesting that personalized guidance and behavioral strategies are essential (25). However, disparities in knowledge translation to practice persist, indicating a critical gap that healthcare providers must address through targeted education and continuous support mechanisms (25).

These findings underscore the complexity of enhancing lifestyle modification practices among cardiovascular patients. Addressing limited understanding, clarifying the importance of lifestyle changes, and dispelling confusion about their benefits are crucial steps toward improving adherence and health outcomes. Healthcare providers should implement tailored educational programs that consider socioeconomic factors, cultural contexts, and individual patient needs. Strategies such as peer support, motivational interviewing, and leveraging digital health technologies could enhance engagement and long-term adherence to recommended lifestyle modifications. Furthermore, there is a pressing need for more research in Tanzania and similar LMICs to develop context-specific interventions that address the unique challenges faced by cardiovascular patients in adopting and maintaining healthy behaviors.

5.3 Lifestyle modification practices

This study highlighted commendable efforts among cardiovascular patients in implementing dietary changes and engaging in physical activities aimed at improving cardiovascular health. However, significant challenges such as cultural dietary preferences and physical limitations hindered consistent adherence to these beneficial behaviors. Integrating culturally sensitive dietary counseling and accessible physical activity options could potentially enhance patient engagement and long-term adherence.

Participants in this study demonstrated varying degrees of adherence to recommended dietary changes, influenced largely by cultural preferences and accessibility to suitable foods. Many expressed difficulties in modifying dietary habits due to entrenched cultural norms surrounding food choices and meal preparation methods. This finding implies the need for personalized dietary counseling that respects cultural preferences while promoting healthier alternatives. Aligning with global findings, lifestyle modifications play a crucial role in managing cardiovascular risk factors like hypertension through dietary adjustments and other healthy behaviors. Evidence from diverse settings, including high-income countries and LMICs, consistently emphasizes the challenges of sustaining dietary changes despite awareness of their benefits (9, 24). These findings underline the universal nature of cultural influences on dietary practices and the importance of culturally tailored interventions to improve dietary adherence among cardiovascular patients.

Engagement in physical activities among this study participants varied, with barriers such as physical limitations and lack of accessible facilities hindering consistent participation. Many expressed difficulties integrating regular exercise into their daily routines due to work schedules or physical discomfort. Addressing these barriers through accessible exercise programs and tailored physical activity recommendations could significantly enhance patient adherence and health outcomes. Similarly, studies in various global contexts have identified physical activity as a critical component of lifestyle modification for cardiovascular health (Global citation). Challenges such as limited access to safe exercise spaces and competing time demands resonate across different regions, highlighting the need for innovative solutions to promote physical activity among cardiovascular patients (9, 27).

These findings imply the importance of holistic approaches to lifestyle modification that address cultural, economic, and infrastructural barriers faced by cardiovascular patients. Healthcare providers should implement personalized counseling strategies that respect cultural dietary preferences while promoting healthier food choices. Moreover, creating accessible opportunities for physical activity and addressing logistical challenges can foster sustainable behavior change among patients.

5.4 Facilitators to lifestyle modifications

The findings from the current study at the medical center identified several facilitators that promote adherence to lifestyle modifications among cardiovascular patients. Perceived health benefits, strong social support networks, and guidance from healthcare providers emerged as pivotal factors influencing patient behavior towards adopting and sustaining healthier lifestyles. These findings align with studies globally (1, 2) and underscore the importance of comprehensive care approaches that integrate medical management with psychosocial support and patient empowerment strategies.

Participants in the study expressed a strong belief in the health benefits associated with lifestyle modifications such as dietary changes and increased physical activity. Many cited improvements in energy levels, weight management, and overall well-being as motivating factors for adhering to prescribed lifestyle changes. This intrinsic motivation is consistent with findings from various studies (3, 4), highlighting the universal appeal of health outcomes in driving patient engagement in behavior change programs.

The presence of robust social support networks, including family members, friends, and community groups, was identified as a significant facilitator in the current findings. Participants often relied on encouragement and shared experiences from their social circles to maintain motivation and adherence to lifestyle modifications. Similar findings have been reported in diverse settings (5, 6), underscoring the role of social support in fostering sustained behavior change among cardiovascular patients across different cultural contexts.

Effective guidance and ongoing support from healthcare providers were crucial facilitators identified in the current study. Clear communication, personalized advice, and regular monitoring by healthcare professionals enhanced patient confidence and commitment to prescribed lifestyle changes. Studies have consistently highlighted the pivotal role of

healthcare providers in promoting healthy behaviors among CVD patients (7, 8), emphasizing the need for patient-centered care approaches that prioritize education and continuous support. While the current study aligns with previous research in highlighting the importance of perceived health benefits and social support networks, it also contrasts with some studies that emphasize different facilitators such as financial incentives or technological interventions (9, 10). This contrast underscores the variability in facilitators across different healthcare settings and patient populations, suggesting the need for tailored interventions that consider local contexts and patient preferences

5.5 Barriers to maintaining lifestyle modification practices

The findings from the current study at the medical center revealed significant barriers that hindered participants' ability to maintain lifestyle changes aimed at managing cardiovascular health. In this study, key barriers included lack of consistent motivation, psychological stressors, social and environmental influences, and financial constraints.

Participants frequently reported fluctuating motivation levels as a barrier to maintaining prescribed lifestyle modifications. This finding aligns with previous studies that have identified motivation as a critical factor influencing adherence to health behaviors among CVD patients (2, 3). Lack of sustained motivation can lead to inconsistent adherence and suboptimal health outcomes, highlighting the need for continuous support strategies tailored to individual motivational needs.

Psychological stress emerged as a significant barrier in the current study, impacting participants' ability to prioritize and maintain lifestyle changes. This aligns with literature emphasizing the detrimental effects of chronic stress on cardiovascular health and behavioral adherence (4). Addressing psychological stress through targeted interventions such as cognitive-behavioral therapy or stress management techniques is essential for enhancing resilience and improving long-term adherence to lifestyle modifications.

Social and environmental factors, including familial support, community norms, and access to health resources, significantly influenced participants' ability to maintain lifestyle changes. These findings are consistent with research highlighting the pivotal role of social determinants in shaping health behaviors and outcomes among CVD patients (5, 6). Interventions that

engage social networks and create supportive environments can mitigate these barriers and foster sustained behavior change.

Financial barriers, such as limited income and healthcare costs, were identified as prominent obstacles in adhering to recommended lifestyle modifications. Similar findings have been reported globally, underscoring the economic disparities that impact access to healthy foods, fitness facilities, and preventive healthcare services (7, 8). Addressing financial constraints through policies that enhance affordability and accessibility to cardiovascular care and healthy lifestyle resources is critical for promoting equitable health outcomes.

The complex interplay of sociodemographic, health-related, and environmental factors highlighted in the current study underscores the need for multifaceted interventions to address barriers to lifestyle modifications among CVD patients. Strategies should include motivational interviewing to enhance intrinsic motivation, mental health support to address psychological stressors, community-based programs to foster supportive environments, and financial assistance initiatives to alleviate economic burdens. Tailoring interventions to local contexts and patient needs is essential for overcoming these barriers and improving long-term health outcomes.

While the current study aligns with previous research on the impact of motivation, stress, social influences, and financial constraints on lifestyle modifications, it contrasts with some studies that emphasize different barriers such as cultural beliefs or healthcare access (9, 10). These differences underscore the variability in barriers across diverse populations and highlight the importance of context-specific approaches in designing effective interventions.

5.6 Strengths and limitations of the study

5.6.1 Strengths of the study

In-depth interviews allowed for a nuanced exploration of participants' experiences and perceptions. Thematic analysis facilitated a detailed understanding of both facilitators and barriers to lifestyle modifications among CVD patients. The study identified both facilitators and barriers to lifestyle modifications, providing a well-rounded understanding of the factors influencing patient behavior.

5.6.2 Limitations of the study

Recruitment from a single healthcare center may not fully capture the diversity of demographic and clinical characteristics among CVD patients. Participants' responses may have been influenced by perceived social expectations, potentially affecting the accuracy of reported experiences.

These strengths and limitations highlight the study's contributions and suggest areas for further research and clinical practice aimed at improving adherence to lifestyle modifications among CVD patients.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study has provided valuable insights into the challenges and facilitators encountered by cardiovascular patients in adopting and maintaining lifestyle modifications at Kilimanjaro Christian Medical Centre. The findings highlight significant gaps in patient understanding of recommended lifestyle changes, often resulting in inconsistent adherence and suboptimal health outcomes. Despite these challenges, participants demonstrated commendable efforts in implementing dietary modifications and engaging in physical activities, albeit hindered by cultural preferences and physical limitations. The identification of facilitators such as perceived health benefits, social support networks, and healthcare guidance underscores the importance of comprehensive care approaches that integrate psychosocial support and patient empowerment strategies.

6.2 Recommendations

For clinical practice: Healthcare providers should prioritize clear communication and personalized education to enhance patient understanding of lifestyle modifications. Integrating culturally sensitive dietary counseling and accessible physical activity options can promote sustained behavior change. Regular monitoring and support are essential to address barriers and optimize health outcomes.

Moving forward, healthcare providers should prioritize clear and personalized patient education strategies to enhance understanding and motivation for lifestyle modifications. Integrated care models that address both medical and psychosocial aspects are essential in overcoming barriers like lack of motivation, psychological stressors, and financial constraints.

For nursing: Nurses take an active role in assessing the specific needs of patients and providing tailored educational interventions to promote lifestyle changes. Implementing personalized education and lifestyle modification strategies can enable cardiovascular nurses to improve patient outcomes and contribute to long-term health benefits.

For policymakers: Policymakers should invest in healthcare infrastructure that supports comprehensive care approaches, including psychosocial support services and community-based programs. Policies promoting access to affordable healthy foods and physical activity resources can mitigate socioeconomic barriers to lifestyle modifications.

There is a clear need to support community-based programs and initiatives that promote accessible and culturally sensitive dietary counseling and physical activity options.

For future research: Future research should focus on longitudinal studies to assess the long-term sustainability of lifestyle changes among cardiovascular patients, ensuring continuous improvement in patient care and health outcomes. Can also focus to explore innovative strategies to improve patient engagement and adherence to lifestyle modifications over the long term.

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APPENDICES

Appendix I: Informed Consent Form (English Version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)

DIRECTORATE OF RESEARCH AND PUBLICATIONS

MUHAS INFORMED CONSENT FORM

Greetings,

I, Gladness Nicholaus Mkawe, hereby provide you with this informed consent form for your study titled "EXPLORE THE FACILITATORS AND BARRIERS TO LIFESTYLE MODIFICATION PRACTICES AMONG CARDIOVASCULAR PATIENTS ATTENDING CARDIAC CLINIC AT KILIMANJARO CHRISTIAN MEDICAL CENTRE".

Introduction: The purpose of this study is to delve into the facilitators and barriers to lifestyle modification practices among cardiovascular disease (CVD) patients attending the Cardiac Clinic at Kilimanjaro Christian Medical Centre. It aims to employ a qualitative explorative study design to explore the experiences of lifestyle behaviors among CVD patients. Through in-depth interviews, we seek to contribute to a body of knowledge that is both conceptual and theoretical, rooted in the meanings that life experiences hold for medical education. The qualitative approach chosen allows us to delve deeply into participants' perspectives and gather rich information.

Purpose: This study seeks to understand the factors influencing lifestyle modification practices among cardiovascular patients, aiming to inform healthcare professionals and policymakers about effective strategies for supporting and promoting healthy behaviors among this population. By exploring the facilitators and barriers encountered by CVD patients, we aim to contribute to the development of tailored interventions and educational programs aimed at improving cardiovascular health outcomes.

Risks and Benefits: Participation in this study involves minimal risk, such as potential discomfort or emotional distress associated with discussing personal experiences related to

cardiovascular health. However, the benefits of participating include the opportunity to contribute to the advancement of knowledge in the field of cardiovascular care and potentially improve healthcare services for individuals with CVD.

Confidentiality: Your privacy and confidentiality will be strictly protected throughout the study. All data collected will be anonymized and stored securely, accessible only to authorized members of the research team. Your identity will not be disclosed in any publications or presentations arising from this study.

Voluntary Participation: Your participation in this study is entirely voluntary, and you have the right to withdraw at any time without penalty. Your decision to participate or decline participation will not affect your relationship with the researchers or healthcare providers at Kilimanjaro Christian Medical Centre.

Contact Information: If you have any questions or concerns about the study or your participation, please feel free to contact the principal investigator, Gladness Nicholaus Mkawe at +255 623 334 608. Additionally, if you have any concerns about your rights as a research participant, you may contact the MUHAS Directorate of Research and Publications at P.O. Box 65001, Dar es Salaam-Tanzania **255 0222151596**.

By signing below, you indicate that you have read and understood the information provided in this consent form and voluntarily agree to participate in the study.

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Appendix II: Informed Consent Form (Swahili Version)

CHUO KIKUU CHA AFYA NA SAYANSI VISHIRIKA MUHIMBILI (MUHAS)

KURUGENZI YA UTAFITI NA MACHAPISHO

FOMU YA RIDHAA YA KUSHIRIKI KATIKA UTAFITI

Salamu,

Mimi, **Gladness Nicholaus Mkawe**, kwa hivi ninakupa fomu hii ya ridhaa iliyoinform kwa ajili ya utafiti wako uliopewa jina "KUCHUNGUZA WAFANIKISHAJI NA VIKWAZO KATIKA MABADILIKO YA MAISHA KATIKA MIONGOZO YA MAGONJWA YA MOYO KATIKA KLINIKI YA MOYO YA KILIMANJARO CHRISTIAN MEDICAL CENTRE".

Utangulizi: Madhumuni ya utafiti huu ni kuchimba kina katika mambo yanayowezesha na kuzuia mabadiliko ya mazoea ya maisha kati ya wagonjwa wa magonjwa ya moyo wanaohudhuria Kliniki ya Moyo katika Kituo cha Tiba cha Kikristo cha Kilimanjaro. Lengo ni kutumia muundo wa utafiti wa kuchunguza kwa kina ili kuchunguza uzoefu wa tabia za maisha kati ya wagonjwa wa magonjwa ya moyo. Kupitia mahojiano ya kina, tunataka kuchangia katika mwili wa maarifa ambao ni dhana na nadharia, uliozama katika maana ambayo uzoefu wa maisha unachukua kwa elimu ya matibabu. Njia ya kike iliyochaguliwa inaturuhusu kuchimba kwa kina mtazamo wa washiriki na kukusanya habari tajiri.

Madhumuni: Utafiti huu unalenga kuelewa mambo yanayoathiri mabadiliko ya mazoea ya maisha kati ya wagonjwa wa moyo, lengo likiwa kutoa habari kwa wataalamu wa afya na wapangaji sera kuhusu mikakati yenye ufanisi ya kusaidia na kukuza tabia za afya kati ya kundi hili la watu. Kwa kuchunguza wafanikishaji na vikwazo vinavyokutana na wagonjwa wa magonjwa ya moyo, lengo letu ni kuchangia katika maendeleo ya mikakati ya kibinafsi na programu za elimu zilizolenga kuboresha matokeo ya afya ya moyo.

Hatari na Faida: Kushiriki katika utafiti huu kunahusisha hatari ndogo, kama vile uwezekano wa usumbufu au mateso ya kihisia yanayohusiana na kujadili uzoefu wa kibinafsi unaohusiana na afya ya moyo. Walakini, faida za kushiriki ni pamoja na fursa ya kuchangia katika

maendeleo ya maarifa katika uga wa huduma za moyo na labda kuboresha huduma za afya kwa watu wenye magonjwa ya moyo.

Usiri: Faragha na usiri wako utalindwa kikamilifu wakati wa utafiti huu. Data yote iliyokusanywa itahifadhiwa kwa usiri na salama, ikitumika tu na wanachama walioruhusiwa wa timu ya utafiti. Utambulisho wako hautafichuliwa katika machapisho au maonyesho yoyote yanayotokana na utafiti huu.

Ushiriki wa Hiari: Ushiriki wako katika utafiti huu ni kabisa wa hiari, na una haki ya kujiondoa wakati wowote bila adhabu. Uamuzi wako wa kushiriki au kukataa kushiriki hautaathiri uhusiano wako na watafiti au watoa huduma za afya katika Kituo cha Tiba cha Kikristo cha Kilimanjaro.

Mawasiliano: Ikiwa una maswali au wasiwasi wowote kuhusu utafiti au ushiriki wako, tafadhali wasiliana na mpelelezi mkuu, Gladness Nicholaus Mkawe kwa +255 623 334 608. Zaidi ya hayo, ikiwa una wasiwasi wowote kuhusu haki zako kama mshiriki wa utafiti, unaweza kuwasiliana na Idara ya Utafiti na Machapisho ya MUHAS kupitia P.O. Box 65001, Dar es Salaam-Tanzania 255 0222151596.

Kwa kusaini hapa chini, unaonyesha kuwa umesoma na kuelewa habari zilizotolewa katika fomu hii ya ridhaa na unakubali kushiriki kwa hiari katika utafiti huu.

Sahihi ya Mshiriki: _____ Tarehe: _____

Sahihi ya Mtafiti: _____ Tarehe: _____

Appendix III: Idi Guide (English Version)

Dear Participant,

Welcome to our qualitative study on "Facilitators and Barriers to Lifestyle Modification Practices Among Cardiovascular Patients Attending Cardiac Clinic at Kilimanjaro Christian Medical Centre." Your participation in this research is invaluable as we aim to gain deeper insights into the factors influencing lifestyle modifications among individuals living with cardiovascular diseases (CVD).

Purpose of the Study:

The purpose of this study is to explore the various lifestyle modification practices adopted by cardiovascular patients, identify the facilitators that support these practices, and understand the barriers that hinder effective lifestyle modifications among this population. By shedding light on these aspects, we aim to inform healthcare providers and policymakers about potential strategies to enhance lifestyle interventions for better cardiovascular health outcomes.

Guided Questions:

Domain I: Lifestyle Modification Practices Among CVD Patients

1. What are the lifestyle modifications you have adopted since being diagnosed with cardiovascular disease? *(Probe: provide specific examples of changes you've made in your diet, physical activity, or other lifestyle habits?)*
2. How do you perceive the role of lifestyle changes in managing your cardiovascular condition? *(Probe: please, elaborate on any specific ways in which you believe lifestyle changes have impacted your health?)*
3. What factors influence your adherence to these lifestyle modifications? *(Probe: any particular challenges or motivators that have influenced your ability to stick to these changes?)*
4. Please share challenges or successes you've experienced in implementing these changes into your daily life? *(Probe: How have you navigated any difficulties encountered during the process of adopting these modifications?)*

Domain II: Facilitators to Lifestyle Modification Practices Among CVD Patients

1. Explain any external support systems or resources that have facilitated your adherence to lifestyle modifications? *(Probe: How have these support systems or resources aided you in maintaining your lifestyle changes?)*
2. In your opinion, what motivates individuals with cardiovascular diseases to engage in positive lifestyle changes? *(Probe: Have you observed any common motivators among yourself or other patients?)*
3. Have you received any guidance or encouragement from healthcare professionals regarding lifestyle modifications? *(Probe: How has this guidance impacted your approach to managing your condition?)*
4. Can you describe any instances where social or familial support has helped you maintain your lifestyle changes? *(Probe: How have these support networks influenced your ability to sustain your modifications?)*

Domain III: Barriers to Lifestyle Modifications Practices Among CVD Patients

1. What are some of the challenges you face in sustaining your lifestyle modifications over time? *(Probe: Please, provide examples of specific situations where these challenges arise?)*
2. What are the environmental or societal factors that make it difficult for you to adhere to your prescribed lifestyle changes? *(Probe: How do these factors impact your daily life and your ability to follow your prescribed modifications?)*
3. How do you cope with setbacks or obstacles in maintaining your lifestyle modifications? *(Probe: what are the strategies or coping mechanisms you've used to overcome setbacks?)*
4. Have you encountered any misconceptions or beliefs that hinder your commitment to lifestyle changes? *(Probe: How do these misconceptions or beliefs affect your approach to managing your condition?)*

Your insights will contribute significantly to our understanding of this important aspect of cardiovascular care. We sincerely appreciate your time and participation in this study.

Thank you.

Appendix IV: Idi Guide (Kiswahili Version)

Karibu Mshiriki,

Karibu kwenye utafiti wetu wa kina kuhusu "Wahamasishaji na Vizuizi vya Mabadiliko ya Maisha Miongoni mwa Wagonjwa wa Moyo Wanaohudhuria Kliniki ya Moyo katika Kituo cha Matibabu cha Kikristo cha Kilimanjaro." Ushiriki wako katika utafiti huu ni muhimu kwani lengo letu ni kupata ufahamu zaidi kuhusu mambo yanayoathiri mabadiliko ya mtindo wa maisha kati ya watu wanaoishi na magonjwa ya moyo.

Lengo la Utafiti: Lengo la utafiti huu ni kutafiti mabadiliko mbalimbali ya mtindo wa maisha yanayochukuliwa na wagonjwa wa moyo, kutambua wahamasishaji wanaounga mkono mabadiliko haya, na kuelewa vizuizi vinavyozuia mabadiliko ya mtindo wa maisha kati ya kundi hili la watu. Kwa kufafanua mambo haya, lengo letu ni kutoa taarifa kwa watoa huduma za afya na wapangaji wa sera kuhusu mikakati inayowezekana ya kuboresha mipango ya mtindo wa maisha kwa matokeo bora zaidi ya afya ya moyo.

Maswali Yaliyoongozwa: Uwanja wa Kwanza: Mabadiliko ya Maisha Miongoni mwa Wagonjwa wa Moyo

1. Ni mabadiliko gani ya mtindo wa maisha umeyachukua tangu kugunduliwa na ugonjwa wa moyo? (Chunguza: toa mifano maalum ya mabadiliko uliyoyafanya kwenye lishe yako, shughuli za kimwili, au tabia nyingine za maisha?)
2. Unauonaje umuhimu wa mabadiliko ya mtindo wa maisha katika kudhibiti hali yako ya moyo? (Chunguza: tafadhali elezea njia maalum ambazo unadhani mabadiliko ya mtindo wa maisha yameathiri afya yako?)
3. Ni mambo gani yanayowaathiri katika kufuata mabadiliko haya ya mtindo wa maisha? (Chunguza: changamoto au vichocheo maalum vilivyoinfluensha uwezo wako wa kubaki na mabadiliko haya?)
4. Tafadhali eleza changamoto au mafanikio uliyopata katika kutekeleza mabadiliko haya katika maisha yako ya kila siku? (Chunguza: Umepitia vipi vikwazo vilivyotokea wakati wa kujaribu kuyachukua mabadiliko haya?)

Uwanja wa Pili: Wahamasishaji wa Mabadiliko ya Maisha Miongoni mwa Wagonjwa wa Moyo

1. Elezea mifumo au rasilimali za nje ambazo zimekuwa msaada katika kufuata mabadiliko ya mtindo wa maisha? (Chunguza: Vipengele hivi vya msaada au rasilimali vimekuwezaje kudumisha mabadiliko ya mtindo wa maisha?)
2. Kwa maoni yako, ni nini kinachowahamasisha watu wenye magonjwa ya moyo kushiriki katika mabadiliko chanya ya mtindo wa maisha? (Chunguza: Umewahi kuona vichocheo vya kawaida kati yako wewe au wagonjwa wengine?)
3. Umepokea mwongozo au msaada wowote kutoka kwa wataalamu wa afya kuhusu mabadiliko ya mtindo wa maisha? (Chunguza: Mwongozo huu umewezaje kuathiri njia yako ya kudhibiti hali yako?)
4. Unaweza kuelezea vipindi ambapo msaada wa kijamii au wa kifamilia umekusaidia kudumisha mabadiliko ya mtindo wako wa maisha? (Chunguza: Vipi mtandao huu wa msaada umekuathiri katika uwezo wako wa kudumisha mabadiliko?)

Uwanja wa Tatu: Vizuizi vya Mabadiliko ya Maisha Miongoni mwa Wagonjwa wa Moyo

1. Ni changamoto gani unazokutana nazo katika kudumisha mabadiliko ya mtindo wa maisha kwa muda mrefu? (Chunguza: Tafadhali toa mifano ya hali maalum ambapo changamoto hizi zinatokea?)
2. Ni vipengele vya mazingira au kijamii vinavyofanya iwe ngumu kwako kufuata mabadiliko ya mtindo wa maisha uliyopewa? (Chunguza: Vipengele hivi vinavyoathiri maisha yako ya kila siku na uwezo wako wa kufuata mabadiliko yaliyopendekezwa?)
3. Unawezaje kukabiliana na vikwazo au vizuizi katika kudumisha mabadiliko ya mtindo wako wa maisha? (Chunguza: ni mikakati au njia za kukabiliana ulizotumia kushinda vikwazo?)
4. Umekumbana na dhana potofu au imani zinazokwamisha ahadi yako kwa mabadiliko ya mtindo wa maisha? (Chunguza: Vipi dhana potofu au imani hizi zinavyoathiri njia yako ya kudhibiti hali yako?)

Mawazo yako yatachangia sana katika kuelewa muhimu huu wa huduma ya moyo. Tunathamini sana wakati wako na ushiriki wako katika utafiti huu.

Appendix V: Ethical Clearance Approval

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATION

Ref. No DA.282/256/01.C/2122 Date: 03/05/2024

MUHAS-REC-04-2024-2212
GLADNESS MKAWE
SHOOL OF NURSING
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: FACILITATORS AND BARRIES TO LIFESTYLE MODIFICATION PRACTICES AMONG CARDIOVASCULAR PATIENTS ATTENDING CARDIAC CLINIC AT KILIMANJARO CHRISTIAN MEDICAL CENTRE.

Reference is made to the above heading.

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 29/04/2024
EXPIRATION DATE OF APPROVAL: 28/04/2025

STUDY DESCRIPTION:
Purpose:
This study aims to explore the facilitators and barries to lifestyle modification practices among cardiovascular patients attending cardiac clinic at Kilimanjaro Christian Medical Centre.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided:
https://rb.muhas.ac.tz/storage/Certificates/Certificate%20-%2015363.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain Data Transfer Agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain Material Transfer Agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country.
8. Apply for and obtain permission to publish the results from National Institute for Medical Research. The application should be before submitting to a publisher and not concurrently through the email publications@nimr.or.tz.
9. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
10. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
11. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.

Dr. Nahya Salim Masoud,

Chairperson, MUHAS Research and Ethics Committee



Appendix VI: Introduction Letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;
Ref. No. HD/MUH/T.505/2022 6th May, 2024

Kilimanjaro Christian Medical Centre
P.O. Box 3010,
MOSHI.

RE: INTRODUCTION LETTER OF GLADNESS MKAWE

We would like to inform you that the carrier of this letter is Gladness mkawe with registration number HD/MUH/T.505/2022 a student in the College of Medicine at Muhimbili University of Health and Allied Science (MUHAS), pursuing MSc. Cardiovascular Nursing.

As part of her studies, she will be doing an elective research titled **"FACILITATORS AND BARRIES TO LIFESTYLE MODIFICATION PRACTICES AMONG CARDIOVASCULAR PATIENTS ATTENDING CARDIAC CLINIC AT KILIMANJARO CHRISTIAN MEDICAL CENTRE".**

She is being supervised by Dr Fatina Ramadhani from MUHAS and Ms. Neema Mawi from MNH.

The ethical clearance for doing the said research has been given by the University.

Kindly request your assistance and cooperation to our student.

Yours Sincerely,

Ms. Victoria Mwaniwa
For: DIRECTOR, POSTGRADUATE STUDIES
cc: Gladness mkawe

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam. Tel. GVLine: +255-22-2150302/6; Ext. 1015; Direct Line +255-22-2151378;Telefax:+255-22-2150465;E-mail dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz

Appendix VII: Permission Letter

K.C.M.C

KILIMANJARO CHRISTIAN MEDICAL CENTRE

An institution of the Good Samaritan Foundation

P. O. Box 3010,Moshi, Tanzania

Tel: 255-027-2754373/ 80
Email: kcmcadmin@kcmc.ac.tz

Fax: 255-027-2754381
Website: http://www.kcmc.ac.tz

Our. Ref No: KCMC /P.VOL.XII

24th May, 2024

Director Postgraduate Study,
MUHAS,
P.O.BOX 65001,
DAR ES SALAAM.

REF: PERMISSION TO CONDUCT RESEARCH AT KCMC

We knowledge the receipt of your letter within dated 6th May, 2024 regarding the subject above.

I would like to inform you that, permission is hereby granted for you to conduct data.

Collection at KCMC from the date of this letter. Research titled "Facilitator and barriers to lifestyle modification practices among Cardiac Clinic at KCMC.

Upon complete of your research study at our facility, you should to bring a copy of your final report to KCMC Hospital Management and the respective Department/Directorate assist should be involved in publication and dissemination of the result.

Please ensure that you abide by the hospital's code of conduct and ethics.

Yours Sincerely,

Hosiana Mongi
For : EXECUTIVE DIRECTOR

C.C Gladness Mkawe

Appendix IX: Anti-plagiarism report

EXPERIENCE OF LIFESTYLE MODIFICATION PRACTICES AMONG CARDIOVASCULAR PATIENTS ATTENDING CARDIAC CLINIC AT KILIMANJARO CHRISTIAN MEDICAL CENTRE

ORIGINALITY REPORT

18%	15%	6%	10%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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