MAGNITUDE OF UNMET HEALTHCARE NEEDS OF THE ELDERLY IN TEMEKE DISTRICT USING THE FRAILTY INDEX

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Master of Public Health Dissertation
Muhimbili University of Health and Allied Sciences
October 2024

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

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By

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A Dissertation Submitted in Partial Fulfilment (for Dissertations) of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

October 2024

CERTIFICATION

The undersigned certify that they have read and with this recommended for acceptance of the dissertation entitled **"Magnitude of unmet healthcare needs of the elderly in Temeke district by using the frailty index**" in partial fulfilment of the requirements for the Master of Public Health at Muhimbili University of Health and Allied Sciences, (MUHAS)

Dr. Khadija I. Yahya-Malima

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Date

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(Co – supervisor)

Date:

DECLARATION AND COPYRIGHT

I, **Samira Othman Mgumia**, declare that I am the sole author of this **dissertation** as my own original research work, and that it has not been presented and it will not be presented to any other University for similar or any other degree award; and where other people's research was used, they have been fully acknowledged.

Signature…… Date ……...

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ACKNOWLEDGEMENT

First, I would like to thank Allah (S.W) for keeping me alive and in good health with strength and passion which enabled me to complete this research work.

Second, I would like to pass my special thanks and appreciation to my supervisor Dr Khadija I. Yahya-Malima and my co- supervisor Mr. Pankras Luoga for their help, guidance and support from development of research proposal to writing my report.

Furthermore, I would also like to express my gratitude to my work colleagues, MPH cohort class of 2022 for their thought-provoking discussions, constructive criticism, and moral support during the research process.

Third, I thank Temeke Municipal Council for permitting me to research in their district. My research assistants and the residents that generously spared their precious time and took part in data collection, without whom this study would not have been feasible.

Finaly, I would like to thank my parents, siblings and friends, for their unconditional love, endless encouragement and understanding during the challenging moments of this research journey. Their support has been a constant source of motivation.

DEDICATION

This dissertation is dedicated to my loving parents, whose wisdom, love and advice have left an indelible impression in my life. Their unwavering support and understanding have been instrumental in helping me complete this dissertation.

ABSTRACT

Background: It is uncertain if the frailty rate of the elderly population in Tanzania (7.3% to 19.1%) matches the rate of unmet health needs of this population; if it does, it will effectively aid in structuring strategic policy vision for their care.

Objective: To estimate the magnitude of unmet healthcare needs of the elderly in Temeke District by using the frailty index as a determinant.

Methods: An analytical cross-sectional study of 237 elderly population (60+ years) in Temeke district determined the prevalence of unmet health needs using the frailty index. Using a stratified multiple and random sampling, we estimated the prevalence estimates presented by percentage and 95% Confidence Interval. Using IBM SPSS version 25, logistic regression was employed to identify factors associated with unmet healthcare needs, presenting Odds Ratios and 95% confidence intervals.

Results: The mean age of participants was 69 years ±8SD, and 42.19% (n=100) were women. The prevalence of frailty was 5.06% (n=12;95%CI;2.9 - 8.6), while the proportion of unmet healthcare needs was statistically high at 51.05% (n=121;95%CI;44.7 – 57.6). Distance and transportation challenges were the main barriers to accessing healthcare.

Conclusion: The prevalence of frailty was relatively low and may not be a good proxy measure of unmet healthcare needs. It is plausible that those with severe frailty are more likely to die early and, hence, affect the prevalence estimate. A multifaceted approach by a collaboration of health, social welfare, rural/urban development and legal sectors may be necessary to strategize how to estimate the health needs of elderly citizens, hence its use in the policy.

TABLE OF CONTENTS

CERTIFICATION i
DECLARATION AND COPYRIGHT ii
ACKNOWLEDGEMENT iii
DEDICATION iv
ABSTRACT v
TABLE OF CONTENTS vi
LIST OF TABLES ix
LIST OF FIGURES x
ABBREVIATIONS xi
OPERATIONAL DEFINITIONS xii
CHAPTER ONE 1
1.0 INTRODUCTION 1
1.1 Background 1
1.2 Problem statement 3
1.3 Rationale of the study 5
1.4 Research questions 6
1.4.1 Broad research question 6
1.4.2 Specific research questions 6
1.5 Research objectives 6
1.5.1 Broad objective 6
1.5.2 Specific objectives 6
CHAPTER TWO 8
2.0 LITERATURE REVIEW 8
2.1 Definition of Frailty 8
2.2 Prevalence of Frailty in Tanzania 8
2.3 Risk Factors and Determinants of Frailty 9
2.4 Factors associated with the unmet healthcare needs of the elderly. 10
2.5 The general identified gap 11
CHAPTER THREE 12
3.0 METHODOLOGY 12

3.1 Overview 12
3.2 Study area 12
3.3 Study design 12
3.4 Target and study population 12
3.5 Eligibility criteria 13
3.5.1 Inclusion criteria: 13
3.5.2 Exclusion criteria: 13
3.6 Sampling frame and unit 13
3.7 Sample size and selection 13
3.8 Variables 14
3.8.1 Independent variables 14
3.8.2 Dependent variable 14
3.9 Data collection methods 14
3.9.1 Recruitment of research assistants and training 15
3.10 Data analysis 15
3.11 Ethical consideration 16
3.12 Dissemination of Results 17
CHAPTER FOUR 18
4.0 STUDY FINDINGS 18
4.1 Overview 18
4.2 Descriptive Statistics 18
4.3 Demographic characteristics of the Participants 18
4.4 Demographic Characteristics of the participants showing the association between dependent and independent variables. 19
4.5 Frailty Index among the Elders 20
4.6 Unmet Healthcare Needs of the elderly in Temeke district 21
4.7 Factors Associated with the Unmet Healthcare Need 23
4.8 Factors that Determined Frailty among Elders in Temeke District 23
4.9 Relationship between Degree of Frailty and Extent of Unmet Healthcare Needs 24
CHAPTER FIVE 25
5.0 DISCUSSION 25

5.1 Discussion 25
5.1.1 Prevalence of Frailty among the Elders 25
5.1.2 Factors Associated with Unmet Healthcare Needs 26
5.1.3 Factors that Determined Frailty among Elders 27
5.1.4 Association between Degree of Frailty and the Extent of Unmet Healthcare Needs 28
5.2 Study strengths and limitations 29
CHAPTER SIX 30
6.0 CONCLUSION AND RECOMMENDATIONS 30
6.1 Conclusion 30
6.2 Recommendations 30
REFERENCES 32
APPENDICES 42
Appendix I: CONSENT FORM (English version) 42
Appendix II: CONSENT FORM (Swahili version) 44
Appendix III: Questionnaire 46
Appendix IV: Dodoso 52
Appendix V: Approval for ethical clearance 58
Appendix VI: Introduction letter to RAS 60
Appendix VII: Introduction letter to DAS 61

LIST OF TABLES

Table 4.1 Socio-Demographic characteristics of the participants 19
Table 4.2 Specific Unmet Healthcare Needs among Elders in Temeke District 21

LIST OF FIGURES

Figure 1: The adapted and modified Integral Conceptual Model of Frailty (ICMF) among older people to determine their unmet healthcare needs (27). 4

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CCU	Coronary Care Unit
CGA	Comprehensive Geriatric Assessment
HRQOL	Health Related Quality of Life
NHIF	National Health Insurance Fund
PHC	Population and Housing Census
TFI	Tilburg Frailty Indicator
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Frailty	Is an age-related condition involving a decline in physiological function, leading to increasedsusceptibility to negative health consequences.
Healthcare services	Cover a wide array of healthcare services offered by professionals and facilities to enhance or preserve an individual's well-being, including medical consultations, hospital treatments, vaccinations, screenings, rehabilitation, and diverse forms of medical care and assistance.
Elderly	Individuals who are advanced in age, the term commonly used to refer to those over the age of 60 years.
Unmet healthcare needs	Are Instances where individuals face obstacles preventing them from accessing essential medical care or prescribed medication.
Frailty index	Proportion of health deficits present in an individual out of the total number of age-related health variables considered. Serves as a proxy measure of aging and vulnerability to poor outcomes.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

The global population is ageing (1), with projections indicating that by 2030, 1 out of every sixindividuals worldwide will be 60 or older. According to the World Health Organization's reporton ageing and health, by 2050, older people population globally is expected to double to reach 2.1 billion (2). While this demographic shift was previously observed mainly in developed countries over the past thirty years, advancements in disease management have led to increasedlife expectancy, resulting in more individuals living beyond 60 years. However, ageing is linked to various health issues necessitating healthcare services, such as cardiovascular diseases, respiratory conditions, diabetes, and hypertension, among others, which can lead to frailty (3). Consequently, as populations age, healthcare systems must adapt to address evolving needs and cope with the rising demand for healthcare services among older individuals grappling with frailty (4) Since frailty has been estimated in Tanzania and its levelof burden is known too, what this study adds is how will the frailty index be a useful tool to estimate unmet healthcare needs.

Frailty is a prevalent condition among older adults characterized by heightened susceptibilityto adverse health outcomes (5). It is linked to various concurrent health issues (6), diminishedphysiological reserves, and reduced functional capacity, increasing the likelihood of disabilities, hospitalizations, and mortality in older people (5). Several factors contribute to theonset of frailty in communities, including age, gender, economic status, disease burden (7), sleep disturbances (8), low educational attainment, living alone, and unhealthy habits (poor diet, smoking, and alcohol consumption) (9). With global ageing and rising life expectancies (10), recognizing the impact of frailty is crucial for developing effective healthcare strategies to enhance the well-being and quality of life for older individuals (11,12).

A systematic review study provided the worldwide prevalence proportions for adults aged ≥50as 12% (11-13%) for physical frailty and 24% (22–26%) for the deficit accumulation model (those using a frailty index, F.I.) (7) and in Asian countries the average prevalence

of frailty among older adults ≥ 60 years was reported to be 20.5% (95% CI = 15.5% to 26.0%) (9). Also,a review of studies in LMICs suggested high rates of phenotypic frailty in community-dwellingolder adults, from 17 to 44% (13). The burden and determinants of frailty in sub-Saharan Africa(SSA) are largely unknown (8), but in South Africa and Burkina Faso, the prevalence of frailtyis reported to be 22% (6) and 7% (14), respectively.

Like many other developing countries, Tanzania is experiencing a demographic shift towards an ageing population. According to the World Health Organization, life expectancy at birth inTanzania has increased from 52.5 years in 2000 to 66.67 years in 2024 (15)**;** the number of Tanzanians over 60 years are expected to triple between 2020 and 2050 according to the United Nations demographics (16) the increase in life expectancy and lifestyle changes have led to a rising number of older adults in Tanzania. Frailty is estimated to affect 7.27% to 19.1%of older people in Tanzania based on different assessment tools and geographic areas (17–19,46).Extension of life expectancy has been accompanied by an increase in the time spent in frail states, which increases the risk of adverse outcomes, including a high prevalence of non- communicable diseases, falls, delirium and disability (20,21). However, limited evidence exists regarding the prevalence and impact of frailty among older people in the country (17,22,23). Therefore, it appears that the healthcare system is ill-equipped to handle the challenges posed by frailty in older people, resulting in issues such as insufficient care for frail individuals, inadequate treatment, and management of their health conditions (19). Consequently, the heightened demand on healthcare resources worsens the current issues within the healthcare system, including shortages of geriatric specialists, limited resources, overwhelmed healthcare staff, and inadequate infrastructure, further straining the system (17).

This study aimed to estimate the extent of unaddressed healthcare needs among older people through the frailty index. By evaluating the occurrence and seriousness of frailty in this demographic, the research offered a valuable understanding of the healthcare necessities of older individuals in Tanzania. This data can serve as a beneficial tool to inform policy decisions, allocate healthcare resources effectively, and create specific interventions to enhance geriatric care (23,24)**.**

1.2 Problem statement

The increase in average life expectancy has increased the population of older residents in Tanzania, resulting in increased demand for specialized healthcare services that could also consider frailty among older people a primary public concern (5). Thus, the ageing populationfaces a growing challenge of unmet healthcare needs, exacerbated by limited access to medical services, insufficient healthcare resources, and a lack of tailored healthcare policies with specific strategies for managing elderly healthcare. The existing models of healthcare do not include an assessment of age-related disorders; hence, change is needed to counteract the destabilizing effects of age-related disorders on healthcare systems (25).

Despite the rising incidence of chronic illnesses and the heightened susceptibility of older adults to health issues, there remains a considerable shortfall in the availability and responsiveness of healthcare services. Additionally, the emotional impact on elderly individuals can be profound, as deficiencies in social care often contribute to heightened anxiety and depression stemming from feelings of isolation and insufficient support (89). With the implementation of Universal Health Coverage, it is imperative to address this gap. Tanzania should develop a reliable method for assessing the future healthcare needs of this demographic by estimating the extent and nature of unmet healthcare requirements, potentially incorporating a tool into national surveys in the future.

Due to the limited information on the prevalence of frailty in the country, the healthcare systemin Tanzania seems to be unprepared to carry the burden of frailty among older people (26,27).Therefore, this study seeks to investigate the extent and nature of these unmet needs, using the frailty index, to understand the barriers faced by older people in accessing necessary healthcare. It attempts to fill that gap by providing more comprehensive data on frailty in a representative population of one district in Dar es Salaam, as a baseline to inform unmet healthcare needs to allow targeted interventions and care practices for older adults with frailty.

1.3 Conceptual framework

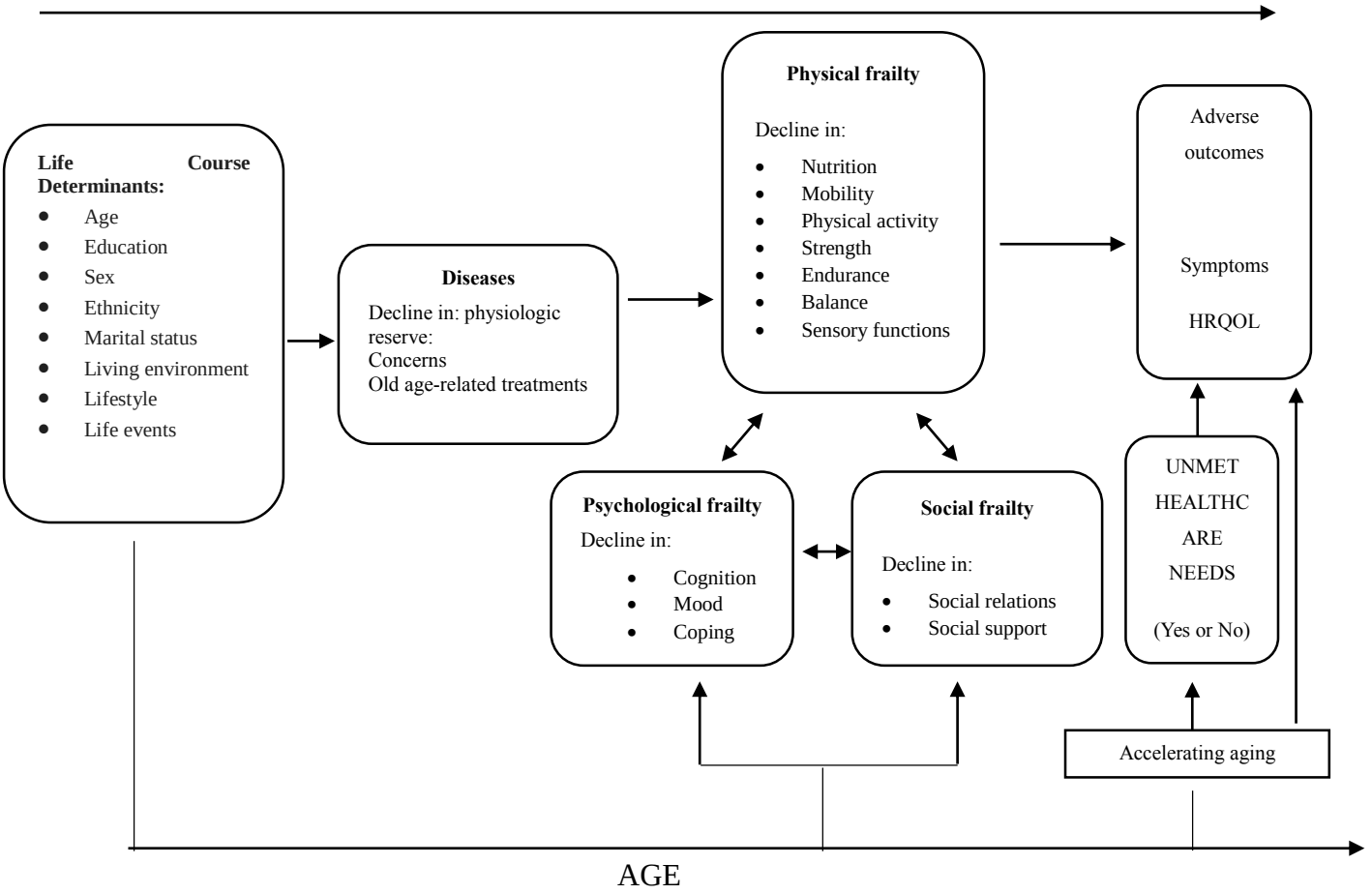


Figure 1: The adapted and modified Integral Conceptual Model of Frailty (ICMF) among older people to determine their unmet healthcare needs (27).

The integral conceptual model of Frailty (ICMF) is a relevant framework for studying the utility of the frailty index in determining the unmet healthcare needs of older people in the community. Frailty among older people can be understood through a conceptual framework that integrates the physical, social, and psychological domains (26,27).

Frailty is not exclusively linked to age but is shaped by a range of elements including genetics,illnesses, lifestyle decisions, and the aging process. The physical dimension of frailty encompasses the decline of musculoskeletal, cardiovascular, metabolic, and

immunological systems due to reduced physical engagement. Social influences like solitary living, financial circumstances, and unhealthy habits can impact frailty. Furthermore, psychological factors such as cognitive abilities and mental well-being also influence the progression of frailty (28).This framework suggests that frailty is a complex interplay of multiple systems and domains, making it essential to address physical, social, and psychological aspects when assessing and managing frail older adults. Understanding these interactions can guide interventions aimed at improving the well-being and quality of life of elderly individuals experiencing frailty. By considering multiple dimensions, the ICMF provides a comprehensive view of frailty (28–30).

Application to Unmet Healthcare Needs:

The application of the ICMF is to assess physical frailty (e.g. mobility, strength) using tools like the frailty index, explore psychological aspects (e.g., cognitive function, mental health) and investigate social determinants (e.g., social support, living conditions) and assess how these dimensions interact and contribute to unmet healthcare needs (29).

1.3 Rationale of the study

Frailty, a prevalent and significant issue linked to ageing, is particularly notable among older people in low- and middle-income nations such as Tanzania, where elder health lacks policy focus and suffers from a scarcity of geriatric experts. It involves heightened susceptibility to adverse health effects and necessitates tailored healthcare approaches. Evaluating the unaddressed healthcare requirements of older people is crucial for pinpointing essential health services needed to inform strategic policy enhancements within Tanzania's current Health Policy of 2007.

This study, utilizing the Frailty Index in a cross-sectional approach, offers valuable insights into the healthcare requirements of older people in the Temeke district, serving as a foundation to assess the effectiveness of the frailty index in gauging unmet healthcare needs. By comprehending frailty and its associated risks, healthcare systems can customize interventionsto address the distinct needs of this growing vulnerable demographic. The research aimed to identify frailty index within Temeke, and determinants of unmet health care needs of the older residents in Temeke.

1.4 Research questions

1.4.1 Broad research question

What is the magnitude of unmet healthcare needs of the elderly inTemeke district by using the frailty index?

1.4.2 Specific research questions

1. What is the prevalence of frailty among the elderly in Temeke District, as assessed by the frailty index?
2. What are the determinants of unmet healthcare needs among the elderly in Temeke District, as assessed by frailty index?
3. What is the relationship between the degree of frailty and the extent of unmet healthcare needs of the elderly in Temeke?

1.5 Research objectives

1.5.1 Broad objective

To estimate the magnitude of unmet health care needs of the Temeke District's elderly byusing the frailty index as a determinant.

1.5.2 Specific objectives

1. To estimate the prevalence of frailty among the elderly in Temeke district **by using the frailty index.**
2. To identify the determinants of unmet healthcare needs of the elderly within Temeke District **using the frailty index.**
3. To analyze the association between the degree of frailty and the extent of unmet healthcare among the elderly in Temeke District.

The hypothesis tested;

Since the main idea was to use the frailty index to estimate healthcare needs, there is a relationship between frailty and unmet healthcare needs. Then, the hypothesis (non-directional) stated that "Higher frailty scores may be associated with greater unmet healthcare needs among the elderly".

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Definition of Frailty

Frailty is a commonly observed geriatric syndrome characterized by a decline in physiological reserve and function across multiple organ systems. It is associated with increased vulnerabilityto poor health outcomes, including disability, falls, hospitalization, and mortality. As the globalpopulation ages, understanding the burden of frailty becomes crucial for healthcare planning and resource allocation, particularly in low- and middle-income countries such as Tanzania. This literature review explores existing knowledge and research regarding estimating frailty and the healthcare needs of Tanzania's older population (23,31).

2.2 Prevalence of Frailty in Tanzania

Frailty prevalence in Tanzania remains uncharted mainly due to limited data availability. While several studies have investigated frailty in high-income countries, little attention has been given to frailty's prevalence and impact in Tanzania. A study conducted using the comprehensive Geriatric assessment (CGA) showed that the prevalence of frailty in older community-dwelling Tanzanians was 19.1%, highlighting the need for further research to understand the burden of frailty and its implications for healthcare needs (31).

Frailty in older adults can be a good determinant of required health services that the health care can use to inform policy given that Tanzania's national ageing policy recognizes the challenges faced by older people (31) in accessing quality health care; however, it does not specify specific targets or priorities of health care for this particular group whereby frailty has been associated with high mortality (33). Since the evidence from frailty studies has not yet been fully translated into clinical practice in Tanzania (34), which increases the risk of falls, hospitalizations, disability and death (35,36), integration of frail assessment into clinical care could allow further refinement of healthcare services and better management of the complexity of patient presentation withfrailty (37). Measuring frailty in primary care may offer opportunities to prevent age- related health decline (38).

Healthcare Needs of Frail Elderly in Tanzania: To effectively address the healthcare needs of frail elderly individuals in Tanzania, a comprehensive understanding of their requirements is necessary. A study showed that frail individuals have higher healthcare service utilization, including increased hospitalizations and longer durations of care. Accordingly, healthcare systems should be tailored to accommodate these requirements, emphasizing primary care services, preventive measures, and dedicated geriatric units. However, the existing healthcare infrastructure in Tanzania faces challenges in delivering appropriate care to frail individuals, mainly due to resource constraints and a lack of trained healthcare professionals (22,23,31).

2.3 Risk Factors and Determinants of Frailty

The risk factors and determinants of frailty worldwide encompass a range of physical, psychological, social and lifestyle elements that contribute to the vulnerability of older people to adverse health outcomes (39,40). Factors associated with frailty include age, gender, socioeconomic status, physical activity, education level, living arrangements, comorbidities, depression and dependency on activities of daily living (40).

Studies have highlighted various key aspects contributing to the understating of frailty in sub-Saharan countries. For example, research conducted in rural African populations has shown that phenotypic frailty scores can be helpful for future care and research by allowing frailty to be used as a covariate in analyses and enabling the identification of frail and pre-frail individuals for further study on determinants and consequences of frailty (41).

Understanding the risk factors and determinants contributing to the burden of frailty among older people in Tanzania is crucial in developing targeted interventions. In 2020, several key determinants of Frailty in Tanzania were identified, including age, gender, educational level, income, and comorbidities such as hypertension and diabetes. These findings suggest that addressing social determinants of health, improving access to education and income-generating activities, and managing chronic diseases can potentially reduce the prevalence and burden of Frailty in Tanzania (23).

2.4 Factors associated with the unmet healthcare needs of the elderly.

Factors associated with unmet healthcare needs among the elderly in Tanzania can be influenced by various social, economic, and health-related factors (50). One among the few being lack of social support and informal caregivers since in Tanzania, families are the main providers of care for older adults but cannot fulfil all their needs (51). Social work implications on aging and vulnerability play a crucial role in addressing the needs of older individuals. Developing models that incorporate both clinical and community-based resources can enhance continuity of care. This includes utilizing patient navigators and community health workers who understand the local context and can facilitate better connections between patients and services (89). The study conducted in Bagamoyo district highlighted the importance of examining the social, economic, and health status of older people to help them make informed choices about their future and contribute to community development (50).

Poor health status, quality of life and physical ability associated with aging (51). As people age, they are more likely to need frequent healthcare due to comorbidities like hypertension, diabetes and physical disabilities (52).

Moreover, financial barriers, lack of health insurance coverage, low education level (52) and geographical access issues can significantly impact the ability of older individuals to access healthcare services. In low-resource settings like Tanzania, inadequate transport infrastructure can limit older people's access to healthcare facilities, especially in rural areas. The lack of affordability for healthcare services, limited access to medications, and time constraints for seeking care are key challenges faced by older adults in Tanzania (53).

Addressing these factors requires a comprehensive approach that includes strengthening the health system, expanding health insurance coverage, improving transportation to healthcare facilities, and enhancing social support for older individuals. By focusing on these key areas, Tanzania can work towards reducing unmet healthcare needs among its older population and ensuring equitable access to essential healthcare services (51,52).

2.5 The general identified gap

After a critical literature review, the gap was the limited information on the unmet healthcare needs of the older population, even though the prevalence of the frailty index is available. Thus, the health system lacks a proxy indicator that would identify specific unmet needs of this population to facilitate healthcare planning and make available specialized care based on priority. This study thus tested how good the frailty index is in approximating the magnitude of unmet healthcare needs for healthcare planning as a policy suggestion.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Overview

This chapter presents the methodology employed in data collection and analysis, including thestudy design, area of study, targeted population, sample and sampling procedures. It also presents data collection methods and instruments that were used.

3.2 Study area

This study was conducted in Temeke District in Dar es Salaam, June 2024. Temeke District, officially the Temeke Municipal Council, is one of five districts of the Dar es Salaam Region of Tanzania. Temeke is bordered to the south by the Mkuranga District of the Pwani Region, to the north by the Indian Ocean, and to the northwest by the IlalaDistrict. Kigamboni District shares Temeke's eastern boundary. The district covers an area of 150.4 km² (8,957/km²) with 30 wards. The 2022 National Tanzania Census states the population of the district as 1,346,674. Dar es Salaam was selected because it is the most densely populated and most significant city, with both original local tribes and multicultural people from across Tanzania. In addition, urban life imposes life challenges on the elderly who have retired from work with little savings; therefore, the selection of Dar es Salaam provided a good study sample.

3.3 Study design

An analytical cross-sectional study design, with the use of quantitative method was used to estimate the magnitude of unmet healthcare needs concerning factors associated with the degree of frailty among older individuals aged 60 years and above residing in Temeke district.

3.4 Target and study population

The target population included all older people aged 60+ years in Temeke district. The study population consisted of older people aged 60 years and above, selected using simple random sampling as representatives from each stratum (wards). This population was selected based on the premise that by age 60, most people begin to experience geriatric

symptoms and, hence, changes in their healthcare requirements. Temeke district was selected due to its dense population, with most locals being the original inhabitants.

3.5 Eligibility criteria

3.5.1 Inclusion criteria:

Individuals aged 60 years and above living in Temeke district capable of participating in the interview.

3.5.2 Exclusion criteria:

Individuals with severe cognitive impairment and health conditions hindering their ability to communicate.

3.6 Sampling frame and unit

A multistage stratified random sampling technique was used to select the study units to ensure representation across all wards of Temeke district.The stage started with the region, district, ward, street, and then households; individuals were randomly selected from the households. The technique is appropriate for studying large and diverse populations (Fawler, 1993; Molenberg's, 2010). In the first stage, Dar es Salaam region was purposively selected from the sampling frame of 26 regions in Tanzania. The second stage was the selection of districts in which Temeke was selected purposively from the frame of five districts of Dar es Salaam. The third stage was the random selection of two wards (Tandika and Buza ward) from Temeke district, these 2 wards were selected due to having a sizable older adult's population. Two streets were randomly selected in each ward: Kilimahewa and Tamla Street from Tandika and Amani and Buza streets from Buza. The local government office was used as a starting point in the identification of the houses with eligible participants and the respondents were selected from the simple random sampled households identified.

3.7 Sample size and selection

From the studies on older dwelling Tanzanians the prevalence of frailty is 19.1% (46) Hence from formular,

$N=Z2P\ (1-P)/e2\ N=1.9622\times0.191(1-0.191)/0.0025= 237$

Taking a non-response rate of 10% into consideration = 261.

3.8 Variables

3.8.1 Independent variables

This study's independent variables included respondents' demographic characteristics such as age, sex, economic condition, living status and location (Urban or semi-urban). Other independent variables were health status, mental well-being, and social support.

3.8.2 Dependent variable

The outcome variable of this study (frailty) was computed from the 15 questions subdivided into physical, psychological, and social domains. The physical domain was assessed with eight items about physical health, weight loss, difficulty walking and maintaining balance, tiredness, hand strength, and visual and hearing impairments. The psychological domain was assessed with four items related to cognition, depression, feeling anxious, and coping problems. The social domain was assessed with three items: living alone, social relationships, and social support. The sum score of 15 questions was computed, and the score ranged from minimum value of 0 and a maximum value of 15. Those elders who scored less than five were coded 0 and regarded as expected, while those who scored five or more were coded one and considered as having frailty.

3.9 Data collection methods

Data was collected by interviewer-administered questionnaire**,** using the TilburgFrailty Indicator (TFI). The interview guide developed in English was translated by the researcher into Kiswahili to ensure that, participants understood the content. To maintain content, it was then translated back to English. This technique ensured good understanding and getting right answers from respondents as they were approached using familiar language to the informants.

The Tilburg Frailty Indicator is a self-report questionnaire to assess older people's frailty. It contained multiple questions referring to various aspects of frailty, suchas physical, psychological, and social aspects, making it a valuable tool for research and clinicalpractice. This questionnaire consisted of three parts: A, B and C. The first part contained ten questions on the determinants of frailty, such as age, gender, education level, income, marital status, comorbidities, satisfaction with the living environment, and lifestyle. The second part included 15 items to assess physical, psychological, and social frailty. The

physical domain evaluated about physical health, weight loss, difficulty in walking and maintaining balance, tiredness, hand strength, and visual and hearing impairments with 8 questions. The psychological domain with 4 items assessed matters related to cognition, depression, feeling anxious, and coping problems. The social domain was assessed with three items concerning living alone, social relationships, and social support. The total score of the TFI is 0–15, with a score ranging from 0 to 8 for physical frailty, 0 to 4 for psychological frailty and 0 to 3 for social frailty. Higher scores refer to greater frailty, as older persons with a total TFI score ≥5 were considered to be frail. And the third part involved questions about health care needs of older people and their health care utilization.

3.9.1 Recruitment of research assistants and training

Three research assistants were recruited to assist the researcher in data collection. The main roles of RA were to do the interviews using the interview guide and giving summary of matters arising from the interviews done each day. Their background education was diploma in health-related education and this was an advantage for data collection because of high understanding of the purpose of the research. There was one-day training to help the research assistants understand the purpose, aims of the study and be able to ask questions correctly. The training was conducted by the researcher. The scope of training included research questions to be answered, objectives of the study, study area and study population, data collection procedure and tools, importance of confidentiality, the ethical consideration and timeframe.

3.10 Data analysis

The analysis of this study was done using statistical software called IBM SPSS version 25, which involved data entry, cleaning, and analysis. Adjustments for survey stings was made to adjust for the strata effect. Descriptive and inferential statistics was employed and descriptive statistics such as frequency and percentage were used to describe the sample and the characteristics of respondents as well as the prevalence of frailty among the older people population. Regarding inferential analysis, the chi-square test of the association was applied to test the association of categorical predictors and the status of the elderly population to have frailty. Since the outcome variable was dichotomized (0=Normal, 1= Have frailty), unadjusted and adjusted binary logistic regression analysis was used to

determine association between the degree of frailty and the extent of unmet healthcare while controlling other factors such as demographic characteristics among the elderly population. Furthermore, in unadjusted analysis all independent variables with $p<0.2$ were included in adjusted analysis (Agresti, 2002). The results of the regression model were presented in the form of regression parameter estimates and estimated odds ratios(OR). The estimated OR, determined by taking the exponent of the regression parameterestimates, showed the increase or decrease in the likelihood of elderly to have frailty at a given level of the independent variable compared to those in the reference category. An estimate of $OR > 1$ indicated that the likelihood of having frailty at a given level of the independent variable is greater than that for the reference category. Similarly, an estimate of $OR<1$ specified that the chance of having frailty for the elderly at a given level of the independent variable was less than that for the reference category. The significancefor all statistical tests was determined at 5%.

3.11 Ethical consideration

The proposal was submitted for ethical clearance to conduct the study through the Institutional Research Board of Muhimbili University of Health and Allied Sciences (MUHAS), Ref. No.DA.282/298/01.C/2290. Permission to survey Temeke District was sought from the District Medical Officers, Regional Administrative Secretary and other relevant authorities.

Verbal consent was obtained from the participants before interview. Participants could decline to be interviewed and those interviewed were free to end the interview at any point without facing any consequences. Participants were not given any incentives for taking part in the study. Confidentiality was observed throughout the study. Participants were informed about the objectives of the study and their participation was voluntary.

All respondents were requested for their verbal permission to record information during the interview process and that the information generated was strictly used for research purposes only. The study did not anticipate any harm to the informants at any stage.

3.12 Dissemination of Results

The study report is intended to be submitted to Muhimbili University of Health and Allied Sciences as partial fulfilment of Master of Public health. Also, a manuscript will be prepared for submission to peer reviewed journals. This report serves as a reference point for potential interventions to be implemented in the future.

CHAPTER FOUR

4.0 STUDY FINDINGS

4.1 Overview

This chapter discusses the findings based on the magnitude of unmet healthcare needs of older people within Temeke district. This chapter consisted of several sections including descriptive statistics which includes summary statistics for continuous variables and frequencies and percentages for categorical variables and regression analysis to ensure consistency of estimators.

4.2 Descriptive Statistics

The section explained the descriptions of the demographic variables, prevalence of frailty among the older populations and specific unmet healthcare needs.

4.3 Demographic characteristics of the Participants

The study involved 237 participants, whereby Table 4.1 provided a gender distribution of older individuals with unmet healthcare needs from the research. The findings revealed that women constitute 42.19% (n=100). A third of elders had primary education (34.60%) and (9.70%) have no formal education.

Most of the elders (54.01%) are married, (30.38%) are employed, those having a monthly income between 100,000 and 500,000 (41.35%). A significant portion earns less than 100,000 (29.54%), (See Table 4.1).

Table 4.1 Socio-Demographic characteristics of the participants

Categories	Frequencies (%)
Gender	
Female	100 (42.2)
Male	137 (57.8)
Education	
Informal education/Primary education	103(43.5)
Secondary	34 (14.)
Diploma/University	100(42.2)
Marital status	
Separated/unmarried/divorced	63 (26.5)
Widow	46 (19.4)
Married	128 (54.0)
Employment status	
Self employed	41 (17.3)
Retired	56 (23.6)
Employed	72 (30.4)
Un-employed	68 (28.7)
Monthly income (TZS)	
<100,000	70 (29.5)
100,000 - 500,00	98 (41.4)
500,0000 -1,000,0000	52 (21.9)
>1,000,00	17 (7.2)
TOTAL	**237**

4.4 Demographic Characteristics of the participants showing the association between dependent and independent variables.

The data indicates that among those with frailty, 5 are female and 7 are male, in total, the frailty was observed in only 12 participants, making the prevalence of 5.06%; 95% CI; 2.9 -8.6 whereas among those without frailty, 95 are female and 130 are male. The Pearson Chi-Square value is 4.18 with a p-value of 0.970, suggesting no statistically significant association between gender and frailty. The frailty distribution is not significantly different

between males and females, nor is it with any demographic variables; hence, no table is shown.

4.5 Frailty Index among the Elders

The outcome of this study (Frailty) was computed from the 15 questions subdivided into physical, psychological, and social domains. The physical domain was assessed with eight items about physical health, weight loss, difficulty walking and maintaining balance, tiredness, hand strength, and visual and hearing impairments. The psychological domain was assessed with four items related to cognition, depression, feeling anxious, and coping problems. The social domain was assessed with three items: living alone, social relationships, and social support. The sum score of 15 questions were computed, and the score had a minimum value of 0 and a maximum value of 15. Exploratory factor analysis (EFA) was computed to obtain one factor which was then coded with the value of 0 and 1. Those elders who scored less than five were coded 0, while those who scored five or more were coded one and considered as having frailty.

The findings show that majority of elders (94.94%) do not have frailty, indicating they have maintained their physiological reserve and are less vulnerable to stressors. A small portion (5.06%) do exhibit frailty, suggesting these individuals have a decreased physiological reserve and are more susceptible to adverse health outcomes.

Table 4.2 Specific Unmet Healthcare Needs among Elders in Temeke District

Categories	Frequencies (%)		Chi-square statistic	Prob>Chi2
Access of medical facilities		121 (51.1)	0.105	0.745
	No			
	Yes	116 (49.0)		
Distance to health facility		103 (43.5)	4.055	0.044
	No			
	Yes	134 (56.5)		
Transport challenges	No	95 (40.1)	9.321	0.002
	Yes	142 (59.9)		
Body challenges	No	209 (88.2)	138.232	0.000
	Yes	28 (11.8)		
Healthcare visits	0	13 (5.5)	83.388	0.000
	1 – 5	87 (36.7)		
	5-10	99 (41.8)		
	More than 10	38 (16.0)		
Cancer treatment	No	170 (71.7)	44.764	0.000
	Yes	67 (28.23)		
Challenges of healthcare treatments	Economic challenges			
	No	47 (19.8)		
	Yes	190 (80.2)		
	Transport challenges			
	No	223 (94.1)	196.764	0.000
	Yes	14 (5.9)		
	Access to good and accurate services			
	No	204 (86.1)		
	Yes	33 (13.9)		

Source: survey Data 2024

4.6 Unmet Healthcare Needs of the elderly in Temeke district

The data shows that (51.1%95% CI (0.42-0.55)) reported not having access to medical facilities, while (48.9%) indicated that they do have access. This indicates a nearly even split, with slightly more than half of the respondents lacking access to necessary medical facilities. This lack of access can significantly impact the health outcomes of these individuals, highlighting a critical area for improvement in healthcare provision. Also, chi-square tests revealed no significant association between the access to medical facilities and

the categorical outcome since the p-value is greater than 0.05. Regarding the distance to medical facilities, (43.5%) stated that distance is not a problem for them, while (56.5%) reported that distance does pose a problem. This suggests that for the majority, the distance to healthcare facilities is a significant barrier. This can contribute to delayed or foregone medical care, exacerbating health issues and increasing the risk of complications among those affected. Additionally, the chi square was less than 0.05 indicated a significant association between distance and the categorical outcome (See Table 4.3).

The findings show that transportation issues are a significant barrier for many individuals in accessing healthcare providers. Specifically, 142 individuals (59.9%) reported experiencing transport difficulties, making it hard for them to visit healthcare providers. On the other hand, 95 individuals (40.1%) did not face any transport-related challenges. However, the chi square test revealed a significant association between transport challenges and the categorical outcome since the p-value was less than 0.05. In terms of physical challenges preventing access to nearby healthcare facilities, 209 individuals (88.2%) reported no physical obstacles, while 28 individuals (11.8%) acknowledged such barriers. This indicates that a majority do not face physical limitations when trying to access healthcare. Also, the chi-square tests revealed a significant association between physical limitations and categorical outcome with a p-value less than 0.05. Regarding the number of doctor visits in the past year, the data reveals varied patterns (5.5%) did not visit a doctor at all, (36.7%) made between 1 and 5 visits, (41.8%) made between 5 and 10 visits and (16.0%) visited a doctor more than 10 times. This shows a significant association between healthcare visits and categorical outcome with a probability of chi-square less than 0.05 (See Table 4.3).

When asked about recent prostate cancer screenings (71.7%) had not undergone the screening, while (28.3%) had been screened. The primary challenges faced in obtaining quality healthcare include a combination of economic and transportation difficulties, as well as issues related to healthcare access and the quality of service provided, Economic challenges (11.8%), Economic and transportation challenges (21.1%), Economic, transportation, and respect from healthcare providers (5.1%), Economic, transportation, access, and quality of service (20.7%), Economic, transportation, access, quality of

service, and respect from healthcare providers (4.2%), Economic and respect from healthcare providers (1.3%), Economic, access, and quality of service (10.6%), Economic, access, quality of service, and respect from healthcare providers (5.5%), Transportation challenges (2.5%), Transportation, access, and quality of service (3.0%), Transportation, access, quality of service, and respect from healthcare providers (0.4%), Respect from healthcare providers (0.8%), Access and quality of service (8.4%) and access, quality of service, and respect from healthcare providers (4.6%) (See Table 4.3).

Additionally, the chi-square statistic (1.4) with a p-value of 0.2453 indicates no statistically significant association between frailty status and unmet healthcare needs since the p-value is greater than 0.05.

4.7 Factors Associated with the Unmet Healthcare Need

The older population have shown a preference of services at home. A third of the sampled elders (33.33%95%, n=79) prefer advice from a doctor or relatives in health care services. This indicates a strong preference for home healthcare involving medical advice for which health tests to opt for and medication services.

4.8 Factors that Determined Frailty among Elders in Temeke District

OR and confidence interval was used to investigate the factors related to unmet healthcare needs. The dependent variable was frailty, while the independent variables included the extent of unmet healthcare needs, demographic characteristics, social characteristics, economic characteristics, and healthcare utilization.

Based on OR formulae;

OR = 93*5/132*7

OR = 465/924

OR = 0.5 and the confidence interval based on the confidence interval formulae was (0.15,1.63).

The calculated odds ratio is approximately 0.5. This finding implies that the odds of experiencing unmet healthcare needs among individuals with frailty are half the odds observed among those without frailty. Indicated that individuals characterized by frailty

appear to have a lower likelihood of encountering unmet healthcare needs compared to their non-frail counterparts. The confidence interval computed is (0.15, 1.63), indicating the range within which the true population odds ratio is expected to fall with 95% confidence.

4.9 Relationship between Degree of Frailty and Extent of Unmet Healthcare Needs

The paired t-test was utilized to examine the variation in frailty associated with unmet healthcare needs. Prior to addressing these needs, the average frailty score was 0.05. However, following the resolution of these needs, the average frailty score decreased significantly to 2.679. This change resulted in a mean difference (diff) of -2.629 between the two conditions. The standard error was0.033. The t-value computed was -79.35, indicating an extremely significant difference between the two conditions. Moreover, the corresponding p-value of 0 signifies that this difference is statistically significant at 5%.

The findings suggest that individuals who had their healthcare needs met experienced a substantial improvement in their frailty status compared to those whose needs were not addressed. These results underscore the critical importance of addressing unmet healthcare needs in alleviating frailty within the studied population. By enhancing access to and quality of healthcare services, healthcare providers and policymakers have the potential to mitigate risks associated with frailty and improve overall health outcomes for affected individuals. Addressing these needs not only enhances individual health but also contributes to a higher quality of life and reduces healthcare burdens within the community.

CHAPTER FIVE

5.0 DISCUSSION

5.1 Discussion

The chapter reviewed the study's findings in relation to its objectives. Initially, it assessed the prevalence of frailty among elderly individuals, identified specific healthcare needs that were unmet among this demographic, determined the factors associated with these unmet needs, and finally, analyzed the relationship between the severity of frailty and the extent of unmet healthcare needs. In this section the study findings are interpreted and discussed with comparison from what was reported by other studies done in developing and developed countries.

5.1.1 Prevalence of Frailty among the Elders

The results indicated that the vast majority of older do not exhibit frailty, suggesting they have preserved their physiological reserves and are less vulnerable to stressors. Conversely, a small proportion show signs of frailty, indicating they have a reduced physiological reserve and are more prone to experiencing adverse health outcomes. Physiological resilience and lifestyle factors play a pivotal role. Many elderly individuals in Tanzania maintain robust physiological reserves through active lifestyles and adherence to traditional diets rich in nutrients. This approach not only sustains their physical health but also enhances their resilience against frailty-related vulnerabilities (84).

Social and family support systems are equally critical. Strong familial and community networks provide essential social support to older adults. These networks foster a sense of belonging and security, reducing their susceptibility to stressors and adverse health outcomes associated with frailty (71). Such support networks are particularly beneficial in the Tanzanian context, where communal values and intergenerational solidarity are deeply rooted. Access to healthcare services, though challenging, has shown improvements. Elderly Tanzanians have increasingly better access to healthcare, which allows them to manage chronic conditions effectively and receive timely medical interventions. This accessibility is crucial in preventing or delaying the onset of frailty by addressing health issues promptly and comprehensively (58).

Cultural practices and traditions also significantly contribute to the well-being of older adults. Cultural norms that emphasize respect for elders and strong caregiving traditions within families enhance psychological well-being. These practices reduce stress levels and contribute to fostering resilience among older adults, thereby mitigating the risk of frailty (65). Nutritional status plays a fundamental role in healthy aging. Tanzanian elders benefit from locally available nutrient-rich diets that support their physiological functions. Adequate nutrition provides essential nutrients and micronutrients necessary for maintaining health and reducing the risk of frailty-related conditions (68).

5.1.2 Factors Associated with Unmet Healthcare Needs

The preference among elderly individuals in Tanzania for home visits by health workers rather than clinic visits is influenced by convenience, comfort, and accessibility issues specific to this demographic. Elderly Tanzanians often encounter challenges such as limited mobility, difficulties with transportation, and financial constraints, which hinder their ability to visit clinics regularly (85). Home visits alleviate these barriers by bringing healthcare services directly to the elderly in their familiar surroundings, thereby enhancing accessibility and improving patient compliance. Additionally, home-based care, facilitates patient-centered treatment by addressing individual needs and promoting continuity of care (86). This approach allows healthcare providers to assess living conditions, social support systems, and medication adherence comprehensively.

Furthermore, home visits play a pivotal role in reducing unmet healthcare needs by bridging gaps in healthcare access and utilization. There is an emphasize that these visits ensure elderly patients receive timely medical attention, preventive care, and monitoring of chronic conditions, which are often overlooked in traditional clinic settings (87). This proactive healthcare delivery not only addresses immediate medical needs but also helps in preventing exacerbations of chronic illnesses and reducing hospitalizations among the elderly population.

This study has consistently shown that elderly individuals in Tanzania exhibit a strong preference for comprehensive home healthcare services encompassing medical advice, medical tests, and medication, citing reasons of convenience, comfort, and the desire to maintain independence in familiar environments. A previous study emphasized that home

visits by healthcare professionals enable better management of chronic conditions and improve medication adherence among elderly populations in Tanzania (88). These visits facilitate personalized care tailored to individual living conditions, social support networks, and specific healthcare needs. Home-based healthcare enhances patient satisfaction and compliance with treatment plans, thereby leading to improved health outcomes overall (86). Furthermore, integrating medical consultations, health assessments, and medication services into home visits significantly reduces the issue of unmet healthcare needs among elderly individuals. This holistic approach ensures timely and continuous healthcare provision, thereby preventing exacerbations of chronic illnesses and reducing emergency hospitalizations due to unmanaged health conditions (87).

In conclusion, the preference for comprehensive home healthcare among elderly individuals not only addresses challenges associated with traditional clinic-based care but also plays a crucial role in mitigating unmet healthcare needs. By delivering integrated healthcare services directly to homes, including medical consultation, medical tests and medications, healthcare providers can effectively enhance health outcomes and quality of life for elderly patients in Tanzania (87).

5.1.3 Factors that Determined Frailty among Elders

The odds ratio and confidence interval were used to examine the relationship between unmet healthcare needs and frailty among elderly at Temeke. The findings indicated the negative relationship because the odds ratio 0.5 was less than 1. Confidence interval revealed that researcher i**s** 95% confident that the correlation between unmet healthcare needs and frailty in the population of elderly at Temeke is between 0.15 and 1.63**.** Access to comprehensive healthcare services is essential for managing chronic diseases, preventing illness, and maintaining overall health in older adults. When healthcare needs are unmet, elders are more likely to suffer from deteriorating health conditions that can lead to frailty (54). Effective management of chronic conditions such as hypertension, diabetes, and arthritis necessitate regular medical attention and access to medications. Unmet healthcare needs often result in poor management of these conditions, accelerating the decline in physical and cognitive functions, which leads to frailty (61). Also, Preventive health services, including vaccinations, screenings, and routine check-ups, are vital for

early detection and management of health issues. Lack of access to these services can result in the progression of undiagnosed conditions, thereby increasing the risk of frailty (69). Adequate healthcare includes access to nutrition and health education, essential for maintaining a healthy lifestyle. When healthcare needs are unmet, elders might lack necessary nutritional support and information, contributing to malnutrition and increased frailty (77). In addition, healthcare access is often linked with robust social support systems, which provide emotional and practical assistance. Elders with unmet healthcare needs may also lack these support systems, leading to isolation and increased vulnerability to frailty (79).

Previous study supports the finding that improved access to healthcare services significantly reduces frailty among the elderly (54). The study highlighted that unmet healthcare needs are closely linked to deteriorating health conditions and increased frailty, consistent with the current findings. Similarly, it was found that effective management of chronic conditions, facilitated by adequate healthcare access, is crucial in preventing frailty (61). The study, like the current one, underscores the importance of addressing unmet healthcare needs to maintain the health and resilience of older adults.

5.1.4 Association between Degree of Frailty and the Extent of Unmet Healthcare Needs

The findings suggest that individuals who had their healthcare needs met experienced a substantial improvement in their frailty status compared to those whose needs were not addressed. These results underscore the critical importance of addressing unmet healthcare needs in alleviating frailty within the studied population. By enhancing access to and quality of healthcare services, healthcare providers and policymakers have the potential to mitigate risks associated with frailty and improve overall health outcomes for affected individuals. Addressing these needs not only enhances individual health but also contributes to a higher quality of life and reduces healthcare burdens within the community.

Research consistently demonstrates that older adults who receive adequate healthcare experience improved health outcomes, including a reduced risk of frailty. Access to regular medical check-ups, timely treatment of chronic conditions, and preventive care are crucial

in maintaining physical and cognitive functions, thereby mitigating frailty risks (81,82).

Access to preventive healthcare services, such as vaccinations, screenings, and health education, facilitates early detection and management of health issues. This proactive approach helps prevent the progression of conditions that contribute to frailty, promoting overall health and well-being (83). Effective management of chronic diseases requires consistent medical attention and adherence to treatment plans. Access to healthcare services ensures that older adults receive necessary medications, therapies, and lifestyle interventions, which are crucial for managing chronic conditions and reducing frailty-related complications (57).

5.2 Study strengths and limitations

The cross-sectional study only refers to one point of time. Also, since the respondents answered interviewer-administered questionnaires based on their knowledge and experience, exaggeration and failure to recall may exist as a questionable factor. However, the study's strength lies in its nuanced understanding of the relationship between frailty and unmet healthcare needs among the elderly in Temeke District. The study effectively identifies key barriers to quality healthcare access for the elderly contributes valuable insights into elderly healthcare needs, advocating for targeted strategies to enhance health outcomes in this demographic.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The prevalence of frailty was relatively lower. It may not be a good proxy measure of unmet healthcare needs, which nullifies the hypothesis stated, but it suggests a reduced physiological reserve and increased vulnerability to adverse health outcomes mostly due to challenges identified in obtaining quality healthcare among the elderly including economic constraints, transportation difficulties, issues with healthcare access, and concerns about the quality of service provided. Addressing these challenges requires comprehensive healthcare policies and interventions aimed at improving accessibility, affordability, and quality of care for older adults in Tanzania. It is plausible that those with severe frailty are more likely to die early and, hence, affecting prevalence estimate, and that the older residents in urban areas may be healthier with less unmet severe health care needs to raise the frailty index.

6.2 Recommendations

To strategize the health needs of older citizens in the policy, a multifaceted approach by a collaboration of health, social welfare, rural/urban development and legal sectors maybe necessary. The following are recommended in response to the results of this study;

Improve access to healthcare services: After the identification of the factors associated with unmet healthcare needs like inconvenient transportation, financial constraints, lack of social support, improving access to healthcare services, especially for the older people and those living alone, could help address this.

Enhance community-based and home-based care: The high prevalence of unmet needs, especially for dental, vision, and hearing care, indicates a need to strengthen community-based and home-based healthcare services for older adults who may have difficulty accessing facility-based care.

Integrate geriatric assessment and care: Incorporating comprehensive geriatric assessments into the healthcare system to identify and address the complex, interrelated

needs of frail older adults. This holistic approach could help reduce unmet needs but may require building geriatric care capacity locally.

More research needed on how best to identify frail older adults: Conducting further research to identify effective ways of detecting frailty in older adults using brief screening assessments. Care must be taken when applying these tools across different settings, as the specific operationalization can substantially impact prevalence estimates.

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APPENDICES

Appendix I: CONSENT FORM (English version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCESSCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

Index number: …….

Greetings!

Dear participant,

I want to thank you for taking your time to meet with me today.

My name is Samira Othman Mgumia, a master's in public health student at Muhimbili University of Health and Allied Sciences (MUHAS). As part of the fulfilling requirements of my course, I am conducting research on estimating the magnitude of unmet healthcare needs of older people within the Temeke district by using the frailty index under the supervision of Dr Khadija Malima and Mr. Pankras Luoga.

Purpose of the Study: After thorough literature review, little is known on the prevalence of frailty among older people in Tanzania, hence this study aims to help us understand the burdenof frailty among older people and its impacts on the health care system in the country.

Procedure of the study: information is provided for you to decide whether you wish toparticipate in the present study or not. You should be aware that you are free to decide

not toparticipate or to withdraw at any time without affecting your relationship with the researcher. Do not hesitate to ask any questions about the study either before participating or during thetime that you are participating. I would be happy to share our findings with you after theresearch is completed.

Confidentiality: However, your name will not be associated with the research findings in anyway, no information that could be used to identify you will be collected. This is for assuring your confidentiality as my informant.

The expected benefits: There are no direct benefits for your participation however, information you provide will help the district as well as the hospital to improve the provision of health care to older people hence implementation of the free health care services to older people policy in your area.

Potential risks: No harm is expected as a result of participation in the study and you can ask the interviewer questions any time during the study.

Whom to contact. In case of any question or query concerning this study, please feel free to contact the principal investigator, Samira O. Mgumia, mobile number +255 745 746 785 or mysupervisors Mr. Pankras Luoga (0757-645746) and Dr Khadija Malima (0784-627380). If youhave any question about your rights as participants you may contact Dr, Nahya Mohamed, Chairperson of Research and Publications Committee, Muhimbili University of Health and Allied Sciences. P.O Box 65001, Dar es Salaam-Tanzania, Tel +255-713250074.

Informed consent for the participants: I have read the contents of this form and understoodit, my questions have been adequately answered and I am satisfied that I understand what the study involves. I agree to participate in this study.

Signature of Participant……..
Date…….

Appendix II: CONSENT FORM (Swahili version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

FOMU YA RIDHAA

Nambari ya utambulisho: …….

Salamu!

Mpendwa mshiriki,

Ninataka kukushukuru kwa kuchukua muda wako kukutana nami leo.

Naitwa Samira Othman Mgumia, mwanafunzi wa Shahada ya Uzamili ya Afya ya Umma katika Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili (MUHAS). Kama sehemu ya kutimiza mahitaji ya kozi yangu, ninafanya utafiti wa kukadiria ukubwa wa mahitaji ya afya yasiyotekelezwa kwa wazee ndani ya wilaya ya temeke kwa kutumia frailty indexchini ya usimamizi wa Dk Khadija Malima na Bw Pankras Luoga.

Madhumuni ya Utafiti: Baada ya mapitio ya kina ya fasihi, hakuna kinachojulikana kuhusu kuenea kwa udhaifu miongoni mwa wazee nchini Tanzania, hivyo utafiti huu unalenga kutusaidia kuelewa mzigo wa udhaifu miongoni mwa wazee na athari zake katika mfumo wa huduma za afya nchini.

Utaratibu wa utafiti: Taarifa imetolewa ili uamue kama ungependa kushiriki katika utafiti huu au la. Unapaswa kufahamu kuwa uko huru kuamua kutoshiriki au kujiondoa wakati wowote bila kuathiri uhusiano wako na mtafiti.

Usisite kuuliza maswali yoyote kuhusu utafiti ama kabla ya kushiriki au wakati ambao unashiriki. Nitafurahi kukushirikisha matokeo yetu baada ya utafiti kukamilika.

Usiri: Hata hivyo, jina lako halitahusishwa na matokeo ya utafiti kwa njia yoyote ile, hakuna taarifa ambayo inaweza kutumika kukutambua itakusanywa. Hii ni kwa ajili ya kukuhakikishiausiri kama mtoa taarifa wangu.

Manufaa yanayotarajiwa: Hakuna manufaa ya moja kwa moja kwa ushiriki wako hata hivyo,taarifa utakazotoa zitasaidia wilaya pamoja na hospitali kuboresha utoaji wa huduma za afya kwa wazee hivyo utekelezaji wa huduma za afya bila malipo kwa wazee katika eneo lako.

Hatari zinazowezekana: Hakuna madhara yanayotarajiwa kutokana na kushiriki katika utafitina unaweza kumuuliza mhoji maswali wakati wowote wakati wa utafiti.

Kwa mawasiliano: Iwapo kuna swali lolote kuhusu utafiti huu, tafadhali jisikie huru kuwasiliana na mpelelezi mkuu, Samira O. Mgumia, nambari ya simu ya mkononi (+255 745746 785) au wasimamizi wangu Bwana Pankras Luoga (0757-645746) na Dr Khadija Malima(0784-627380). Ikiwa una swali lolote kuhusu haki zako kama washiriki unaweza kuwasiliana na Dk, Nahya Mohamed, Mwenyekiti wa Kamati ya Utafiti na Machapisho, MUHAS. P.O Box 65001, Dar es Salaam-Tanzania, nambari ya simu ya mkononi (+255-713250074).

Idhini ya ufahamu kwa washiriki: Nimesoma yaliyomo katika fomu hii na kuelewa, maswaliyangu yamejibiwa vya kutosha na nimeridhika kwamba ninaelewa nini utafiti unahusisha.

Ninakubali kushiriki katika utafiti huu.

Saini ya Mshiriki……..

Tarehe ……

Appendix III: Questionnaire

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCESSCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

Estimating the magnitude of unmet healthcare needs of the elderly within the Temeke district byusing the frailty index

A: Personal particulars

Mobile number (optional)

1. Location:
   - Ward ……
   - Street ……
2. Gender:
   - Male
   - Female
3. Age: …….
4. Education level:
   - No formal education
   - Primary education
   - Middle school
   - Secondary education
   - College
   - University
5. Marital status:
   - married
   - divorcee
   - widow
   - separated
   - never married

6 Work?

o Employed

o Retired

o Private employment

o I am unemployed

7 Your estimated income in a month (Tsh)

o > 100,000/=

o 100,000/= - 500,000/=

o 500,000/= - 1,000,000/=

o < 1,000,000/=

8 Source of income?

o Employment

o Pension

o Business

o Children

o Help from relatives and friends

9 Are you the head of the household?

o Yes

o No

10 If no, who do you live with?

o Myself

o Children and their families

o Relatives

B: Tilburg Frailty Indicator

Physical components

Do you feel healthy?

Yes

No

Do you have any chronic illness?

o Hypertension

o heart disease

o Diabetes

o Cancer

o Arthritis

o Joint/bone disease

o Prostate inflammation

o None the above

Have you experienced an unexpected weight loss of more than 6 kg recently?

o Yes

o No

Difficulty in walking?

Yes

No

Poor hearing?

Yes

No

Poor vision?

Yes

No

Lack of strength in hands?

Yes

No

Physical tiredness?

Yes

No

Psychological components

Do you have problems with your memory?

Yes

No

Have you felt down during the last month?

Yes

No

Have you felt nervous or anxious during the last month?

Yes

No

Are you able to cope with social and economic problems well?

Yes

No

Social components

Do you feel lonely?

Yes

No

Do you sometimes wish you had more people around you?

Yes

No

Do you receive enough support from other people?

Yes

No

C: Healthcare needs and utilization

Can you get to medical facilities whenever needed?

o Yes

o No

Is it too far from where you live to reach the nearest health care provider?

Yes

No

Are there any travel issues that make it difficult for you to visit a health care provider?

o Yes

o No

Do you have any physical limitations that prevent you from reaching the nearest health center?

o Yes

o No

How many doctor visits did you make in the past year?

o 0

o 1-5

o 5-10

o More than 10

Have you recently been diagnosed with cancer, especially prostate cancer, breast cancer, or cervical cancer?

o Yes

o No

What are the main challenges you face in getting the best health services as an elderly person?

o Economic Challenges

o Transportation

o Access to good and accurate services

o Respect from health workers

Do you have health insurance?

o Yes

o No

Does your health insurance meet your needs?

o Yes

o No

Have you ever avoided medical treatment due to the cost?

o Yes

o No

Have drug costs ever been an obstacle in your follow-up of the treatment prescribed by the doctor?

o Yes

o No

Do you trust the health care providers available in the health centers near you?

o Yes

o No

Have you ever felt discriminated or mistreated by health workers?

o Yes

o No

Do you feel that health care providers serve the elderly with respect and dignity at health centers?

o Yes

o No

Is the information on your illness, test results and treatment explanation from service providers sufficient?

o Yes

o No

On a scale of 1-10, how satisfied are you with the service you receive from your health care provider when you go to a health center?

o Unsatisfactory (1 – 3)

o Satisfactory (4 – 7)

o Very satisfactory (8 – 10)

Do you think a home visit by health workers after discharge is better than going back to the clinic?

o Yes

o No

What health care do you think is important to be available at home, especially for the elderly?

o Consultation from a doctor

o Laboratory investigations

o Medications

o Physiotherapy

Appendix IV: Dodoso

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

Makadirio ya ukubwa wa mahitaji ya afya yasiyotekelezwa kwa wazee ndani ya wilaya yatemeke kwa kutumia frailty index.

A: Maelezo ya kibinafsi

1. Nambari ya simu..... (hiari)

2. Mahali:

- Kata
- Mtaa

3. Jinsia:

- Mwanaume
- Mwanamke

4. Umri: ……

5. Ngazi ya elimu:

- Hakuna elimu rasmi
- Msingi
- Elimu ya kati
- Elimu ya sekondari
- Chuo (astashahada, stashahada)
- Chuo kikuu

6. Hali ya ndoa
    - Ndoa
    - Talaka
    - Mjane
    - Kutengana
    - Sijaoa/ sijaolewa
7. Kazi?
    - Muajiriwa
    - Mstaafu
    - Ajira binafsi
    - Sina ajira
8. Makadirio ya mapato yako kwa (Tsh)
    - > 100,000/=
    - 100,000/= - 500,000/=
    - 500,000/= - 1,000,000/=
    - < 1,000,000/=
9. Chanzo cha mapato?
    - Ajira
    - Penshen
    - Biashara
    - Watoto
    - Misaada kutoka kwa ndugu na jamaa
10. Je, wewe ni mkuu wa kaya?
    - Ndiyo
    - Hapana
11. Ikiwa hapana, unaishi na nani?
    - Mwenyewe
    - Watoto na familia zao
    - Ndugu

B: Tilburg Frailty Indicator

Vipengele vya kimwili

1. Je, unajisikia afya yako ipo sawa?
    - Ndiyo
    - Hapana
2. Una ugonjwa wowote wa kudumu?
    - Shinikizo la damu
    - Ugonjwa wa moyo
    - Kisukari
    - Kansa
    - Ugonjwa wa yabisi
    - Ugonjwa wa maungio/ mifupa
    - Kuvimba kwa tezi dume
    - Hakuna kati yah apo juu
3. Je, umepata hali ya kupungua uzito zaidi ya kilo 6 bila kutarajia hivi karibuni?
    - Ndiyo
    - Hapana
4. Ugumu katika kutembea
    - Ndiyo
    - Hapana
5. Usikivu mbaya?
    - Ndiyo
    - Hapana
6. Uoni hafifu?
    - Ndiyo
    - Hapana
7. Ukosefu wa nguvu mikononi?
    - Ndiyo

- Hapana

8. Uchovu wa kimwili?

- Ndiyo
- Hapana

Vipengele vya kisaikolojia

9. Je, una matatizo ya kumbukumbu?

- Ndiyo
- Hapana

10. Je, kuna wakati umejisikia mnyonge katika mwezi uliopita?

- Ndiyo
- Hapana

11. Je, umejisikia woga au wasiwasi katika mwezi uliopita?

- Ndiyo
- Hapana

12. Je, unaweza kukabiliana na matatizo ya kijamii na kiuchumi vizuri?

- Ndiyo
- Hapana

Vipengele vya kijamii

13. Je, unahisi upweke?

- Ndiyo
- Hapana

14. Je, wakati fulani unatamani ungekuwa na watu wengi zaidi karibu nawe?

- Ndiyo
- Hapana

15. Je, unapokea msaada wa kutosha kutoka kwa watu wa karibu yako?

- Ndiyo
- Hapana

C: Mahitaji ya huduma ya afya na matumizi

1. Je, unaweza kufika vituo vya matibabu kila inapohitajika?

- Ndiyo
- Hapana

2. Je, kuna umbali mkubwa sana kutoka unapoishi mpaka kumfikia mtoa huduma wa afya aliye karibu nawe?

- Ndiyo
- Hapana

3. Je, kuna masuala yoyote ya usafiri yanayofanya iwe vigumu kwako kutembelea mtoa huduma wa afya?

- Ndiyo
- Hapana

4. Je, una vikwazo vyovyote vya kimwili vinavyokuzuia kufikia kituo cha karibu kinachotoa huduma za afya?

- Ndiyo
- Hapana

5. Ulifanya ziara ngapi za daktari kwa mwaka uliopita?

- 0
- 1-5
- 5-10
- Zaidi ya 10

6. Je, umefanyiwa uchunguzi wa saratani hivi karibuni hususani saratani ya tezi dume, saratani ya matiti, au saratani ya shingo yakizazi?

- Ndiyo
- Hapana

7. Ni changamoto zipi kuu unazokabiliana nazo katika kupata huduma bora za afya wewe kama mzee?

- Changamoto za Uchumi
- Usafiri
- Upatikanaji wa huduma bora na sahihi
- Heshima kutoka kwa wahudumu wa afya

8. Je, una bima ya afya?

- Ndiyo
- Hapana

9. Je, bima ya afya uliyonayo inakidhi mahitaji yako?

- Ndiyo

- Hapana

10. Je, umewahi kuepuka matibabu kutokana na gharama?

- Ndiyo
- Hapana

11. Je, gharama za dawa zimewahi kuwa kikwazo katika ufuatiliaji wako wa matibabu uliyopangiwa na daktari?

- Ndiyo
- Hapana

12. Je, unaamini watoa huduma za afya wanaopatikana katika vituo vya afya karibu yako?

- Ndiyo
- Hapana

13. Je, umewahi kuhisi kubaguliwa au kutendewa vibaya na wahudumu wa afya?

- Ndiyo
- Hapana

14. Je, unahisi watoa huduma za afya wanawahudumia wazee kwa heshima na hadhi kwenye vituo vya afya?

- Ndiyo
- Hapana

15. Je, maelezo ya ugonjwa, majibu ya vipimo na matibabu yako kutoka kwa watoa huduma huwa yanajitosheleza?

- Ndiyo
- Hapana

16. Kwa kipimo cha 1-10, umeridhishwa kwa kiasi gani na huduma unayopokea kutoka kwamhudumu wako wa afya pindi uendapo kituo cha afya?

- Hairidhishi (1 – 3)
- Inaridhisha (4 – 7)
- Inaridhisha sana (8 – 10)

17. Je, unafikiri ziara ya nyumbani ya wahudumu wa afya baada ya kutoka ni bora kuliko kurudikliniki?

- Ndiyo
- Hapana

18. Je, ni huduma gani ya afya unaona ni muhimu kupatikana hadi majumbani hususani kwa wazee?

- Ushauri kutoka kwa daktari
- Huduma ya vipimo vya afya
- Huduma ya dawa
- Mazoezi tiba

Appendix V: Approval for ethical clearance

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATIONS

Ref. No.DA.282/298/01.C/2290 Date: 31/05/2024

MUHAS-REC-05-2024-2290
SAMIRA OTHMAN MGUMIA
SHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: ESTIMATING THE MAGNITUDE OF UNMET HEALTHCARE NEEDS OF OLDER PEOPLE WITHIN THE TEMEKE DISTRICT BY USING THE FRAILTY INDEX

Reference is made to the above heading,

I am pleased to inform you that the Chairperson 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: 31/05/2024
EXPIRATION DATE OF APPROVAL: 31/05/2025

STUDY DESCRIPTION:
Purpose:
The purpose of this analytical cross-sectional study is to estimate the magnitude of unmet health care needs of the Temeke District's older population by using the frailty index as a determinant.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2015687.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

Muhimbili University of Health and Allied Sciences
DIRECTOR
Research, Publications & Innovations
Box 65001

Appendix VI: Introduction letter to RAS

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.642/2022 04TH June, 2024

The Regional Administrative Secretary,
P.O. Box 5429,
DAR ES SALAAM

Re: INTRODUCTION LETTER SAMIRA OTHMAN MGUMIA

We would like to inform you that the bearer of this letter is **Samira Othman Mgumia** with Reg. No. **HD/MUH/T.642/2022** is a student at Muhimbili University of Health and Allied Sciences (MUHAS) "pursuing **MPH-Open Distance Learning.**

As part of her studies, she will be doing an elective research titled: "**Estimating the Magnitude of Unmet Healthcare Needs of Older People Within the Temeke District by Using the Frailty Index"**

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

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

c.c **Samira Othman Mgumia**

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +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: Introduction letter to DAS

JAMHURI YA MUUNGANO WA TANZANIA
Ofisi ya Rais
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA DAR ES SALAAM
Anwani ya Simu:
Simu: .2203156/58
Fa: +25522203213
Tovuti: www.dsm.go.tz
Barua Pepe: ras@dsm.go.tz
Unapojibu Tafadhali taja:

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

Kumb. Na. EA.260/307/01B/144

11 Juni, 2024

Mkurugenzi wa Manispaa,
Manispaa ya Temeke,
DAR ES SALAAM.

YAH: UTAMBULISHO WA UTAFITI

Tafadhali husika na kichwa cha habari hapo juu.

2. Ofisi ya Mkuu wa Mkoa wa Dar es Salaam inautambulisha utafiti ujulikanao ***"Estimating the Magnitude of Unmet HealthCare Needs of Older People within the Temeke Distrct by Using the Frailty Index"*** ikiwa ni sehemu ya kukamilisha Mafunzo ya Shahada ya Uzamili ya Samira Othman Mgumia ambaye ni Mwanafunzi katika Chuo Kikuu cha Sayansi na Afya Shirikishi Muhimbili.

3. Kibali cha kufanya utafiti huu kimetolewa na Chuo Kikuu cha Muhimbili (MUHAS-REC-05-2024-2290) ambacho kinaanzia tarehe 31/05/2024 hadi 31/05/2025. Utafiti huu umepangwa kufanyika katika Manispaa ya Temeke ndani ya Mkoa wa Dar es Salaam.

4. Kwa barua hii, namtambulisha kwako **Samira Othman Mgumia** ambaye ndio msimamizi mkuu wa utafiti huo ili aweze kufanya utafiti huu muhimu.

Nashukuru kwa ushirikiano.

Dkt. Mohamedi Mang'una
Kny; KATIBU TAWALA MKOA
DAR ES SALAAM

Nakala: Katibu Tawala Mkoa,
DAR ES SALAAM. – Aione katika jalada

IMEPOKELEWA
11 JUN 2024
MANISPAA YA TEMEKE
S. L. P 46343

24

TEMEKE MUNICIPAL COUNCIL

ALL CORRESPONDENCE TO BE ADDRESSED TO MUNICIPAL DIRECTOR

P.O.Box. 45232
Tel: 2850142

TEMEKE MUNICIPAL MEDICAL
OFFICE OF HEALTH
DAR ES SALAAM
TANZANIA.

Date: 19/06/2024

WEO's
BUZA WARD
TANDIKA WARD

REF; PERMISSION TO CONDUCT HEALTH RESEARCH ACTIVITIES IN TEMEKE MUNICIPALITY.

Please refer to the above heading.
Extension of Permission has been granted to Mr./Mrs./Ms./Prof./Dr. SAMIRA MAUMIA from (Institution) MUHAS Address DSM to Tel. No to collect data for research work in your area.

The research title is Estimating the magnitude of unmet healthcare needs of older people with in Temeke District

She/he has submitted the proposal for the mentioned study to the MMOH Office as a pre-condition prior to authorisation.

The researchers have been instructed and agreed to submit the research progress reports and final results to the MMOH prior to any publications.

Data collection will restart on 19/06/024 to 22/06/024
Sample size 261

This research work is part of Academic fulfilment for Diploma/Advanced Diploma/Degree/master /PhD it is part of ongoing research in your institution

I am kindly requesting you to give him/her the necessary assistance so as to accomplish this task timely.

Yours Sincerely

FOR: MEDICAL OFFICER

AGNES KYAMBA
For: Temeke Municipal Medical Officer of Health

TEMEKE MUNICIPAL COUNCIL

ALL CORRESPONDENCE TO BE ADDRESSED TO MUNICIPAL DIRECTOR

P.O.Box. 45232
Tel: 2850142

TEMEKE MUNICIPAL MEDICAL
OFFICE OF HEALTH
DAR ES SALAAM
TANZANIA.

Date: 19/06/024

WEO's
BUZA WARD
TANDIKA WARD

REF; PERMISSION TO CONDUCT HEALTH RESEARCH ACTIVITIES IN TEMEKE MUNICIPALITY.

Please refer to the above heading.
Extension of Permission has been granted to Mr./Mrs./Ms./Prof./Dr. JAMIRA MAUMIA from (Institution) MUHAS Address DSM to Tel. No to collect data for research work in your area.

The research title is Estimating the magnitude of unmet healthcare needs of older people with in Temeke District

She/he has submitted the proposal for the mentioned study to the MMOH Office as a pre-condition prior to authorisation.

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This research work is part of Academic fulfilment for Diploma/Advanced Diploma/Degree/master /PhD it is part of ongoing research in your institution

I am kindly requesting you to give him/her the necessary assistance so as to accomplish this task timely.

Yours Sincerely

AGNES KYAMBA
For; Temeke Municipal Medical Officer of Health

MEO's TAMUA ndi Kilimahewa mpokeeni na mumpe ushirikiano.

MEO - MENDAJI WA MAT. LAMBIKA

TEMEKE MUNICIPAL COUNCIL

ALL CORRESPONDENCE SHOULD BE ADDRESSED TO MUNICIPAL DIRECTOR

P.O.Box. 45232
Tel: 2850142

TEMEKE MUNICIPAL MEDICAL
OFFICE OF HEALTH
DAR ES SALAAM
TANZANIA.

Date: 19/06/024

WEO's
BUZA WARD
TANDIKA WARD

MEOs BUZA & AMANI MSAIDIENI

RE: PERMISSION TO CONDUCT HEALTH RESEARCH ACTIVITIES IN TEMEKE MUNICIPALITY.

FISA MTEMILA JIMA KL 19/06/2024

Please refer to the above heading.

Permission has been granted to Extension of Mr./Mrs./Ms./Prof./Dr. SAMIRA MGUMIA from (Institution) MUHAS Address DSM to Tel. No to collect data for research work in your area.

The research title is Estimating the magnitude of unmet healthcare needs of older people with in Temeke District

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Yours Sincerely

AGNES KYAMBA
For; Temeke Municipal Medical Officer of Health