DETERMINANTS OF DEPRESSION AND ANXIETY AMONG FAMILY CAREGIVERS OF PATIENTS ATTENDING MAINTENANCE HEMODIALYSIS AT TERTIARY HOSPITAL, TANZANIA

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By

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A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Science (Nursing Nephrology) of

Muhimbili University of Health and Allied Sciences
October, 2024

CERTIFICATION

The undersigned certifies that they have read and recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled **‘‘Determinants of Depression and Anxiety among Family Caregivers of Patients Attending Maintenance Hemodialysis at Tertiary Hospital, Tanzania’’** in (partial) fulfillment of the requirements for the degree of Master Science (Nursing Nephrology) of Muhimbili University of Health and Allied Sciences.

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Prof. Francis Furia

Main supervisor

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Date

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Mr. Pius Temba

Co-supervisor

_____

Date

DECLARATION AND COPYRIGHT

I, **Thomas E. Mponzi**, hereby declare that this **dissertation** is wholly original with no intention of being submitted to another university for consideration for a degree of this kind or any other.

Signature……. **Date**……...

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DEDICATIONS

I dedicate this dissertation to my cherished family members, who have provided me with unwavering support and motivation towards this remarkable academic accomplishment.

ABSTRACT

Background: Family caregivers play essential roles; financial assistance such as bill payment, linkage communication between patients and healthcare professionals, proximal follow-up of treatment plans, proper cleanliness, and nutrition planning. Family caregivers experience anxiety and depression while carrying out this duty. Therefore, this study was assessing the prevalence of depression, anxiety and associated factors among family caregivers of patients with end stage kidney disease receiving hemodialysis services at Benjamin Mkapa Hospital and Muhimbili National Hospital.

Materials and Methods: Analytical cross-sectional study design was employed. Participants in the study were chosen by convenience sampling method, and information was gathered using a standardized HADS questionnaire and an administered questionnaire. Data was analyzed using the Statistical Package for Social Sciences (SPSS) software version 26. A descriptive statistics was run to obtain mean and standard deviation, frequency and percentages for socio-demographic characteristics of the study participants. Also, a chi-square test was used to test the association of the socio-demographic data and Depression /anxiety. Furthermore, logistic regression was conducted to all variable with p-value less than 0.2 so as to determine the predictors of depression and anxiety. Data was displayed using statistical tables and charts, and statistical significant was defined as a p-value of less than 0.05.

Results: This study recruited a total of 300 family members. The mean age was 38.22 years (10.38 years SD), and the majority were females, 188 (62.7%). Depressive symptoms and anxiety were present in 64% and 57%, respectively. Caregiver ages, being spouses as caregivers, as well as parent caregivers, were associated with anxiety and depression while male care givers and education levels were associated with anxiety alone.

Conclusion: This study demonstrated a high prevalence of depression and anxiety scores among family caregivers of patients with chronic kidney disease receiving hemodialysis services. This has a negative impact on the quality of care provided to patients and their health outcomes. It is therefore imperative that healthcare professionals devise plans that aid in the early detection and mitigation of the consequences caused by anxiety and depression.

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LIST OF ABBREVIATION

BMH	Benjamin Mkapa Hospital
CCM	Chronic Conservative Management
CKD	Chronic kidney disease
ESRD	End-stage renal disease
HD	Hemodialysis
HANDS	Hospital Anxiety and Depression Scale
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
KT	Kidney Transplant
MUHAS	Muhimbili University of Health and Allied Sciences
PD	Peritoneal Dialysis
RRT	Renal Replacement Therapy
WHO	World Health Organization

DEFINITION OF TERMS

Depression is a term used to describe a mental health condition marked by melancholy, lack of interest or pleasure, guilt or low self-worth sentiments, interrupted sleep or food, fatigue, and difficulty concentrating (1).

A family caregiver is a member of the patient's immediate family who is in charge of providing various forms of care, including diet planning, accompanying the patient to follow-up appointments, act as a link between patient and health care providers, and helping with bill payment (2).

Hemodialysis is a therapy option in which dialysate solution is exposed to blood plasma through a semi-permeable membrane, changing the solute materials such as creatinine and urea in patients with end-stage kidney disease (3).

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

In recent years, there has been an increase in public concern about depression and anxiety among family caregivers. Globally, anxiety and depression symptoms among family caregivers vary by region, with a higher prevalence in Asian and African nations. In Europe, a study done in Sweden revealed high self-reported depressive symptoms and anxiety at baseline compared to a reported ten-year follow-up, which was from 20.14% to 8.59% and 8.5% to 3.24%, respectively (4). This may be connected to certain interventions given to family caregivers to help them manage recognized depressive symptoms.

In the Asian continent, India and Malaysia report a prevalence of depressive symptoms to be 52.5% and 56.2% (5,6), respectively. However, the study conducted in Malaysia revealed a high prevalence of anxiety, which was 64.7% (6). In Africa, the prevalence of depressive symptoms was underreported, with few studies indicating a range from 31.6% to 46% (7,8). In Tanzania, there were scarcely known publications on depressive symptoms and anxiety among family caregivers of patients with chronic kidney diseases (9,10).

Depression has been linked to a several determinants, including the dual responsibility of offering care for the sick while also taking care of other family members such as spouses and children (11). Furthermore, several previous studies have highlighted factors that contributed to depression, such as frequent hospitalization of the patients, financial constraints, and lifestyle changes due to a lack of freedom to participate in social events like wedding ceremonies, burial ceremonies, going to holidays, and recreational activities (12,13).

Family caregivers experienced physical and psychological problems, fatigue, chronic pain, disturbed sleeping patterns during care giving process,(14),a high burden of care, a sense of social isolation, and financial difficulties (15,16). Furthermore, they felt frustrated by the intricacy of dialysis regimens, depressed, guilt-ridden, and unsupported by other family

members (17). They also felt alone when it came to social events like weddings and funerals, lost their freedom to go on outings and have fun, were afraid of losing their patients, and had fewer opportunities to make money (17).

The caregiving burden for family caregivers of hemodialysis patients has been lessened with the introduction of various programs approaches for intervention, including the family-centered approach, which teaches family members, Gaining expertise in handling patient care issues and psychological therapies that reduce stress from dialysis and aid in creating effective copying techniques (18,19).These interventions were helped to improve patient outcomes and prognosis.

Moreover, financial incentives, a focus on social adherence, frequent home visits, open lines of contact with medical professionals, and social worker support were some of the strategies that helped family caregivers experienced less anxiety and depression (19,20).It follows that once the health status of the family caregivers was taken into consideration, the patient's quality of life and outcome would inevitably improve.

However, several studies done in Tanzania were focused much to patients depressive symptoms and they are quality of life (9,10,21). Therefore, this study was designed to address the need of assessing the prevalence of depressive symptoms, anxiety, and associated factors among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital in Dodoma and Muhimbili National Hospital (MNH) in Dar-es-salaam, Tanzania.

1.2 Problem statement

Tanzania is like other African countries in the sense that family members assumed primary caretakers for patients with different medical issues (22,23). Patients with end-stage renal disease who are receiving maintenance hemodialysis must attend an outpatient clinic three times a week with the caregivers (24).Family caregivers take on multitasking responsibilities, such as accompanying patients to medical facilities, preparing meals that are nutritionally appropriate for them, paying for treatment and transportation expenses, offering emotional support, and serving as a liaison between patients and medical professionals (2).

The caregivers' physical consequences [like fatigue, perceived illness, neglecting to seek medical attention, an increased risk of cardiovascular disease], mental impacts [like insomnia], and social impacts [like conflicts, lack of free time] are associated with depression and anxiety while performing caring roles for the patient (16).This has negative health-related quality of life for caregivers and consequently impairs the provision of required services to patients.

Most of the studies in Tanzania were done to explore experiences of caregivers caring for patients with chronic conditions such as dementia, cardiac diseases, HIV, and schizophrenia and focused on patient’s perspectives rather than depression and anxiety for caregivers of patients with chronic kidney disease undergoing hemodialysis (9,10,25,26) Therefore, the current study assessed the prevalence of depressive symptoms, anxiety, and associated factors among family caregivers whose patients attended dialysis therapy at Benjamin Mkapa Hospital (BMH) and Muhimbili National Hospital.

1.3 The Conceptual Framework

The study utilized the adopted biopsychosocial model, which was developed by Dr. George Engel in the 1970s. His approach gained traction as a replacement for doctors trained in the biological approach, which emphasizes illness and pays less attention to the patient's interpersonal and social needs. According to the bio-psychosocial model, higher-system-level events should be examined with the same rigor and critical scrutiny as systems lower in the hierarchy to best serve the patient (27). This suggests that the doctor should assess both the stabilizing and destabilizing potential of interactions and events in the patient's social milieu, keeping in mind that the patient's illness may have a cascading effect on others that could further destabilize the patient.

The model consists of three aspects: biology, psychology, and social aspects. Since the concepts overlap and interact with each other, Dr. Engel suggests that for a better understanding of the health and well-being of an individual, one should not rely on biological aspects alone; rather, it should incorporate psychological and social aspects. Therefore, the current study used this model to formulate study objectives and some of the demographic questionnaires.

Biological Factors:

- Caregiver’s Age: Age can impact mental health through various biological mechanisms, including hormonal changes, physical health deterioration, and changes in brain function. Older caregivers may face increased vulnerability to depression due to age-related physical health issues and potential cognitive decline. Conversely, younger caregivers might experience anxiety related to managing caregiving responsibilities while balancing other life demands.

Psychological Factors:

- Depression and Anxiety: Both conditions are deeply rooted in psychological processes such as stress, coping strategies, and personal resilience. Psychological factors include:

- Stress and Coping Mechanisms: Caregivers with poor coping strategies or high stress levels may be more prone to developing depression and anxiety.
- Self-Efficacy and Resilience: Lower self-efficacy and resilience can exacerbate feelings of helplessness and anxiety, leading to more severe mental health issues.

Social Factors:

- Kind of Relationship with the Patient: The nature of the caregiver-patient relationship (e.g., spouse, child, and sibling) affects emotional burden and stress levels. Intense emotional involvement or a strained relationship can contribute to higher levels of depression and anxiety.
- Gender: Gender differences in social roles and expectations can influence mental health. Male caregivers might face unique pressures or societal expectations that contribute to anxiety. Social norms and gender roles can impact how caregivers manage and express their mental health challenges.
- Education Status: Education can affect mental health through various pathways, including access to resources, knowledge about mental health, and coping skills. Caregivers with lower education levels might experience higher anxiety and depression due to limited access to mental health education and resources.

Integrative Impact on Depression and Anxiety:

- **Depression:**
  - Biological Factors: Age-related changes can increase susceptibility to depression.
  - Psychological Factors: High stress and ineffective coping mechanisms exacerbate depressive symptoms.
  - Social Factors: The quality of the caregiver-patient relationship can contribute significantly to feelings of depression.

- **Anxiety:**
    - Biological Factors: Age and related health issues can contribute to heightened anxiety.
    - Psychological Factors: Anxiety may be influenced by poor coping strategies and high stress levels.
    - Social Factors: Gender differences, relationship dynamics, and education status play crucial roles in shaping anxiety levels.

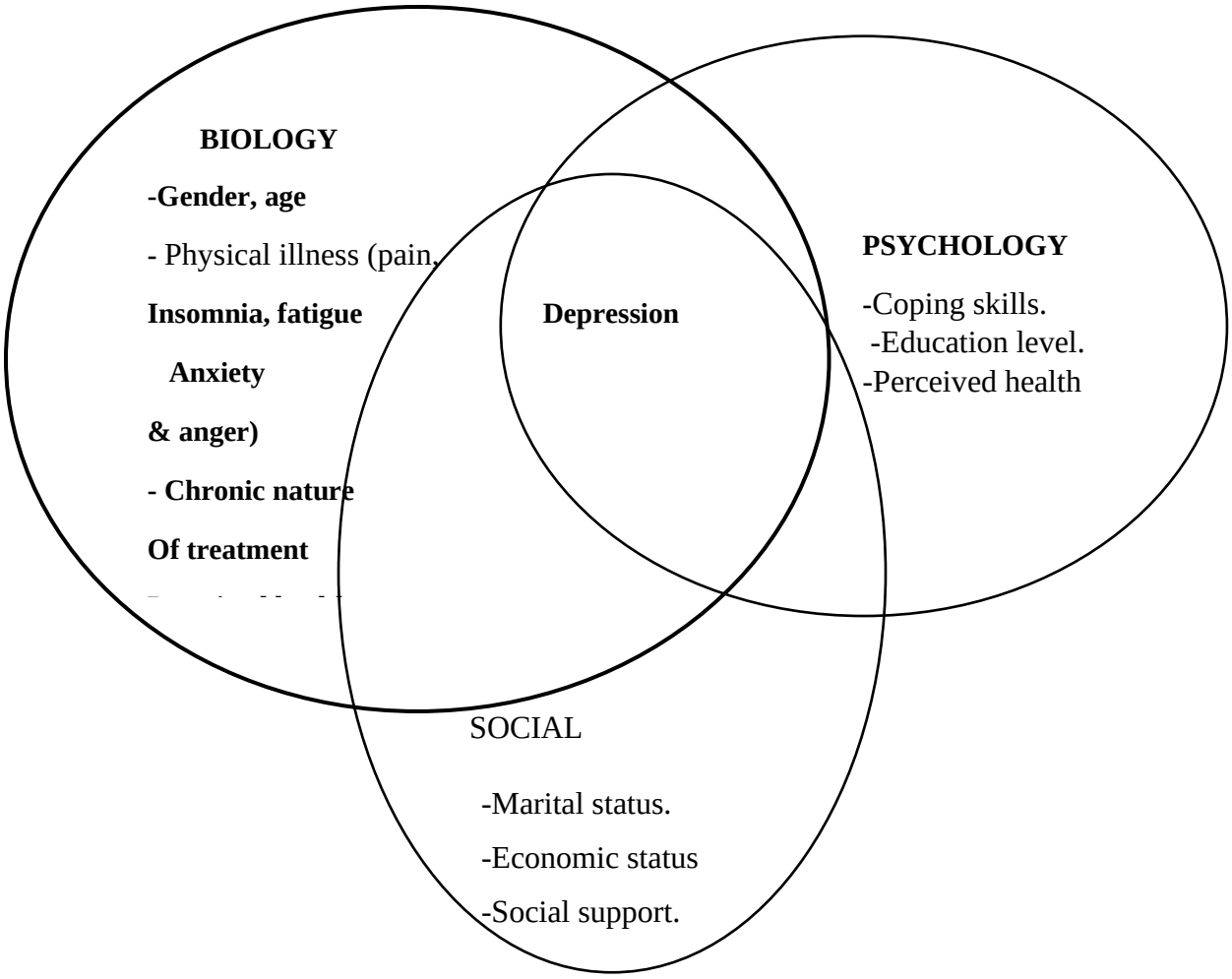


Figure 1: Adapted biopsychosocial model of anxiety/depression

1.4 Rationale of the study

The study's findings assisted in estimating the prevalence of anxiety and depression among family caregivers, this would help healthcare providers to have holistic patient care approaches that consider both patients and their caregivers, as they play critical roles in the care of hemodialysis patients. Also, the study would help to inform the policy of health care providers to be trained in recognizing signs of caregiver depression and anxiety and offering early screening interventions. This could be more crucial in addressing the needs of the caregivers, facilitating good communication, and reducing any stress environment during the caregiving process. Furthermore, the results would be used as a call-up for future intervention research that would assess the effectiveness of an intervention program.

1.5 Research questions

1.5.1 Broad research question

What is the prevalence of depressive symptoms and anxiety, and associated factors among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital?

1.5.2 Specific Research Questions

1. What is the prevalence of depressive symptoms among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital?
2. What is the prevalence of anxiety among family caregivers of patients attending hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital?
3. What are the factors associated with depression among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital?
4. What are the factors associated with anxiety among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital?

1.6 Research Objectives

1.6.1 Broad objective

To determine the Prevalence of Depressive Symptoms and anxiety, and Associated Factors among Family Caregivers of Patients attending hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital.

1.6.2 Specific objective

1. To determine the prevalence of depressive symptoms among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital.
2. To determine the prevalence of anxiety among family caregivers of patients attending hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital
3. To determine factors associated with depressive symptoms among family caregivers of patients attending maintenance hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital.
4. To determine factors associated with anxiety among family caregivers of patients attending maintenance hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter provided insights from other scholarly works based on four main objectives namely: prevalence of depression symptoms among family caregivers, prevalence of anxiety among family caregivers, and factors associated with depression and anxiety among family caregivers whose patients attending Hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital.

2.1 Prevalence of Depressive symptoms among family caregivers

Depression among family caregivers to patients with chronic illness is very common worldwide. This is supported by various Studies done in different countries. For example, in a study conducted in Indonesia among 104 caregivers about 9.6% had depression(28), and in Greece, 11.4% of caregivers had a high level of depression(29).Also, a Meta-analysis study of 85 studies shows that 25.14% of the 23,317 caregivers of cancer patients had depression(30), in Saudi Arabia about 31% and 14% had mild and moderate depression respectively (12).

Furthermore, the study done in Africa also shows a high level of depression among family caregivers who provide care to patients with chronic conditions for example, in Egypt 53.3% of dialysis patients' caregivers had depression(17), and in Nigeria, among 115 caregivers of stroke survivors 46.1% had depression (31) also another study show that among 105caregivers of CKD patients, about 31.6% had depression (7), in Ethiopia 45.15% (32), in Uganda 48.2%had depression (33).In Tanzania, family caregivers are not well documented when it comes to depression and anxiety, although a study done by Iseselo et al shows that family caregivers experience psychological illness due to financial setbacks, lack of social support, stigma from family members, discrimination and changes of patient`s behavior(34).

Depression among family caregivers affects their cognitive ability and lowers the quality of life through disturbed sleep patterns, feelings of tiredness to carry out daily activities, and damage to physical and psychological well-being (35,36). This has an impact on the prognosis

of the patients which increases frequent hospital admission, poor treatment and medication adherence, and unable to follow instructions given by health care providers.

In addition to the excellent job, family caregivers do in guaranteeing that patients may attend and comply with hemodialysis therapy services, medical professionals sometimes overlook and pay less attention to them by not incorporating them into the treatment plan while managing the patient (37). Therefore, the current study will assess the prevalence of depression among family caregivers and the results will help to show the magnitude of the depression problem and suggest the importance of providing intervention to family caregivers.

2.2 Prevalence of Anxiety among Family Caregivers

Anxiety among family caregivers is very common and normally affects their ability to make rational decisions, causing feelings of tension or restlessness, panic behavior, trouble sleeping, and reduced ability to concentrate. This has an impact on the patient`s health outcome and compliance with services offered during treatment.

Globally, several studies have been conducted to investigate anxiety among family caregivers of patients with chronic diseases; in Greece, among 115 family caregivers involved in the study, 27.8% had a high level of anxiety (38), in Mexico14.8% had anxiety (39), in Iran among 300 family caregivers of cancer patients about 53% of had severe anxiety (40), in Pakistan 52.7% of family caregivers of patients attending hemodialysis therapy during the covid-19 pandemic had anxiety to visit their patients at Hospital, fear for acquiring infection, and feeling of social isolation (11).In Africa, in a study done in Ghana 56.2% of family caregivers had anxiety (23), and in Nigeria, 31.6% had anxiety (7). This implies that caring for patients with chronic conditions is a stressful situation leading to anxiety hence the need to counteract the situation is very crucial.

Moreover, the WHO action plan of 2013 to 2030 laid down ways to overcome anxiety and depression among individuals by keeping emphasis on good leadership and governance, provision of comprehensive mental health services, integrated and responsive mental and social care services, promotion and prevention of mental health problems and strengthening

information system, evidence, and research for mental health (41). This effort is supported by a Study done in South Africa which recommends integrative mental health services by healthcare providers at the primary healthcare level (42).

Predictors of anxiety are pointed out by Several studies; factors like full-time caregivers, low socioeconomic earnings, duration of time spent on providing care, comorbidities, frequent hospitalization, fatigue, and lack of family support (38,43,44).Therefore, the current study assessed the prevalence of anxiety among family caregivers and the identified predictors among family caregivers of patients attending hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital.

2.3 Factors associated with depressive symptoms among family caregivers

Several factors have been highlighted to cause depression among the caregivers of chronically ill patients. A study done in Saudi Arabia showed that the close proximity between patients and their caregivers, deteriorating behavior and psychological stance of the patients, caregivers gender, and adverse life events could contribute to the depression (12). Also, a study showed that female caregivers were more likely to be depressed because of their active participation in the caring process because of the social-cultural influence of care, and they also assumed caring roles at a young age (17).

Furthermore, caregivers who offered care to patients on a daily basis were prone to developing depression, and also, those with education status and religious affiliation were shown to be statistically significant predicators of depression among family caregivers (8).

2.4 Factors associated with anxiety symptoms among family caregivers

In Asia, a study conducted in Indonesia revealed that time spent by caregivers on care every 24 hours were strong predictors of anxiety (45). Also, the study done in Malaysia showed that anxiety among caregivers was mainly contributed by the lack of social support during the caregiving process (6).

In Africa, study conducted in Ghana showed that education level and religion were the predictors of anxiety among caregivers (23).

In Tanzania, there is little known documented data on caregiver's anxiety; therefore, this study included this objective so as to determine the predictors of anxiety among caregivers of patients receiving maintenance hemodialysis.

CHAPTER THREE

3.0 MATERIAL AND METHODOLOGY

This chapter focuses on study design, study setting, study population, sampling, and sampling procedure. It also covers data collection procedures, data management, data analysis plans, and ethical clearance issues.

3.1 Study design

Analytical cross-sectional study design with a quantitative process was conducted. The cross-section study design is one of the observation research types that examines population data at a particular moment in time(46).

3.2 Study setting

The study was conducted at Benjamin Mkapa Hospital and Muhimbili National Hospital. Initially the study was designed to be conducted at Benjamin Mkapa Hospital only, but due to challenges faced at the site, including fluctuation of patients during the study period, the Muhimbili National Hospital was opted as an additional study site to fulfill the expected sample size.

Benjamin Mkapa Hospital, situated in Dodoma municipal, offers renal services including kidney transplants, hemodialysis, and a nephrology clinic. The hemodialysis unit is managed by a team of nephrologists, registrar doctors, dieticians, registered nurses, medical attendants, and social workers. The hospital is open six days a week, Monday through Saturday, with Sunday open for emergencies. The HD unit provides services like service rounds, vascular access placement, nutrition counseling, health education, and payment of treatment expenses. Patients are split into two shifts, with the hospital open on Sunday for emergencies.

Muhimbili National Hospital is a tertiary referral and teaching hospital which is situated at United Nations Road no.9, Charambe Street West Upanga, in Ilala Municipal Dar es Salaam region. Patients are admitted from adjacent nations in addition to the entire nation. It provides

both inpatient and outpatient care, with a total bed capacity of 2000. Serving 150 patients daily, MNH boasts the largest hemodialysis facility with 53 machines. Thirty RNs, seven attendants, three social workers, one pharmacist, three nutritionists, seven nephrologists' doctors, and six nephrologists' nurses staff the MNH dialysis unit. A brief dialysis course was also offered by the institution to medical professionals from various Tanzanian hospitals.

3.3 Study population

The study included family caregivers of patients with end-stage kidney disease undergoing maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital.

3.3.1 Inclusion criteria

i. Adult Family caregivers aged above 18 years
ii. Had caring experiences for at least three months or more.

3.3.2 Exclusion criteria

i. Family caregivers whose patients are admitted to ICU.
ii. Family caregiver with known multiple comorbidities.

3.4 Sampling and sampling procedure

3.4.1 Sample size calculation

The sample size from this study is calculated by using the infinite formula for sample size calculation

$$n=\frac{z^2\ P\ (100-P}{E^2},$$

Whereby

n= Desired sample size.

Z=Value from standard normal distribution corresponding to 95% confidence level (1.96 for 95% confidence interval),

P= proportion derived from a previous study conducted in Brazil=33.3%(47).

E= marginal of error which is assumed to be 5.

$$n = z2\ \frac{P\ (100-P)}{E^2},$$

$$= \frac{(1.96)^2 \times 33.3(100-33.3)}{5^2}$$

$$= \frac{3.8416 \times 33.3 \times 66.7}{25} = \frac{8,532.17}{25} = 341.28 = 341$$

= 341+ 10% non-response rate (34.1) = 375

Therefore, the expected sample size will be 375 family caregivers.

3.4.2 Sampling procedure

Convenience sampling was used to choose study participants. A list of patients from the dialysis registry was used to help choose family caregivers, since patients were asked to name the person in responsibility of watching after them during treatment. Family caregivers were enlisted after fulfilling the eligibility conditions, and this process continued until the necessary sample size was achieved. The number of caregivers chosen per patient was not exceeding two family members, depending on close intimacy with patients.

3.5 Data collection Method

Similar collection tool was used by principle investigator in the data collecting procedure at Benjamin Mkapa Hospital and Muhimbili National Hospital for all family caregivers who met the inclusion criteria and voluntarily signed an informed consent form to participate in the study. A well-structured questionnaire was used to gather demographic data from the study participants and the validated Hospital Anxiety and Depression Scale (HADS) was utilized to assess participant's level of anxiety and depression.

The HADS tool was initially created in 1983 by Zigmond and Snaith and is used globally in different groups (48). The tool contains 14-item scales with four possible responses to each item. Each item is scored from 3 to 0 (`yes definitely` to `not at all`) with a reversal of the scoring for items 7 and 10. The anxiety score is based on items 2, 4,6,8,11,12, and 14 while

the depression score is based on items 1,3,5,7,9,10 and 13. The total score for both anxiety and depression ranges from 0 to 21. Interpretation of total score;

0 - 7 = Non-case (Normal, without anxiety or depression), 8 – 10 = Borderline case (borderline abnormal) and ≥11 = Case (abnormal).

3.5.1 Validity and Reliability:

Validity:

An established measure, the Hospital Anxiety and Depression Scale (HADS), had Cronbach's α value of 0.840 for depression, 0.829 for anxiety, and 0.884 for the entire scale. Item-scale correlations, which show construct validity, varied from 0.540 to 0.804 and were consistently higher for every item with its factor.

Reliability:

A group of fifty randomly selected controls completed the HADS twice, twenty days apart. The two subscales and the overall scale both showed high retest stability. The HADS/anxiety, HADS/depression, and overall HADS all had intraclass correlation coefficients of 0.899, 0.837, and 0.944.

3.6 Data management

The obtained data from the study participants were fed into SPSS version 26, and the data cleaning was done on daily basis before the next day of data collection because it helped in making follow-up when the missing data was identified during data collection period. Also, the information gathered was only utilized by authorized individuals. Furthermore, the study ensured privacy and confidentiality by enforcing passwords in the computer storage area and ensuring that field notes and hard copies were securely stored in a locked cabinet.

3.7 Data analysis procedure

Data analysis plan

The analysis of data from the study participants was by statistical package of social sciences (SPSS) version 26. Descriptive statistics was run to obtain means, standard deviations, frequencies, and percentages. Furthermore, a chi-square test was computed to identify the association between demographic information of the study participants and outcomes including depression and anxiety. However, all demographic characteristics with p-value of less than 0.05 from the chi-square results were included in the Univariate logistic regression analysis and all variables with p-value less than 0.2 were included in the multivariate analysis model as it helped in quantifying and controlling confounders. A P-value of less than 0.05 (5%) was considered as statistically significant (Table 1).

Table 1: summary of measurement of the variables per objective

Objective	**Variable**	**Method of measurement**
To determine the prevalence of depressive symptom among family caregivers of patients attending maintenance hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital	**Dependent variable:** depression **Independent variable**: socio-demographic information and co-related factors	-The objective was measured by the ordinal scale of the HADS tool (normal score 0–7, baseline case 8–10, and case/abnormal > 11). The HADS mean score of depression and standard deviation were computed. The tool contained seven questions for measuring depression with a total score of 21. Family caregivers with borderline scores and cases were considered to have depression.

To determine the prevalence of anxiety among family caregivers of patients attending hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital	**Dependent variable:** Anxiety **Independent variable:** socio-demographic data and co-related factors	The objective was measured by the ordinal scale of the HADS tool (normal score 0–7, baseline case 8–10, and case/abnormal > 11). The HADS mean score of anxiety and standard deviation were computed. The tool contained seven questions for measuring anxiety with a total score of 21. Family caregivers with borderline scores and cases were considered to have anxiety.
To determine factors associated with depressive symptoms among family caregivers of patients attending maintenance hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital.	**Dependent variable:** Depression **Independent variable:** socio-demographic data and co-related factors	A chis-square test for measuring the association of demographic information and depression -p value less than 0.05 considered statistically significant Univariate analysis was computed for variables with a p-value less than 0.05. Multivariate analysis was computed for variables with p-value less than 0.2.
To determine factors associated with anxiety among family caregivers of	**Dependent variable:** Anxiety	A chis-square test for measuring the association of socio-demographic

patients attending maintenance hemodialysis therapy at Benjamin Mkapa Hospital and Muhimbili National Hospital	**Independent variable:** socio-demographic information	information and anxiety p value less than 0.05 considered statistically significant Univariate analysis was computed for variables with a p-value less than 0.05. Multivariate analysis was computed for variables with p-value less than 0.2.

3.8 Ethical issues and ethical consideration

The approval for Ethical clearance of this study was obtained from the Institution Review Board of Muhimbili University of Health and Allied Sciences (MUHAS-IRB). While the permission to conduct this study at Benjamin Mkapa Hospital and Muhimbili National Hospital was obtained from the Executive director of the hospital.

The participation to this study was entirely voluntary after consented. Participants in the study were not penalized if they left at any point during the investigation. It was also explained to participants that there would be no payment or any advantages for participating in the study. Furthermore, the study upheld the participants' rights to confidentiality and human dignity. The protected laptop with the collected data was only accessible to authorized personnel. To ensure correct handling of the field notes, a lockable locker was utilized, and participant numbers were utilized instead of real names to indicate identity.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-demographic characteristics of the study participants

The study enrolled 300 (80%) caregivers of hemodialysis out of 375 study participants. The anticipated sample size was not attained because of the fluctuation of patients in the field during data collection procedure, though the findings were more than two third hence could be used for generalizability. The participants mean age was 38.22 years (SD=10.38 years) and mostly lying between the age grouped of 30-39 years 121 (40.3%). More than a half of the study participants were females 188(62.7%) and married 190(63.3%). The majority of the study participants were unemployed 230 (76.7%) and they had acknowledged receiving caring support like financial and psychological support from family members, friends, and the community 215(71.7%) Most of the study participants completed college education 95(31.7%) [Table2].

4.2 Prevalence of depression among Study participants

The overall prevalence of depression among family caregivers was 192(64%) [95% C.I:58.4-69.2] with the mean HADS score of 8.97 (SD = 3.75). Of the studied participants 89 (29.7%) [95% C.I:24.8-35.1] were borderline case and 103 (34.3%) [95% C.I:29.2-39.9] were case [Fig2]

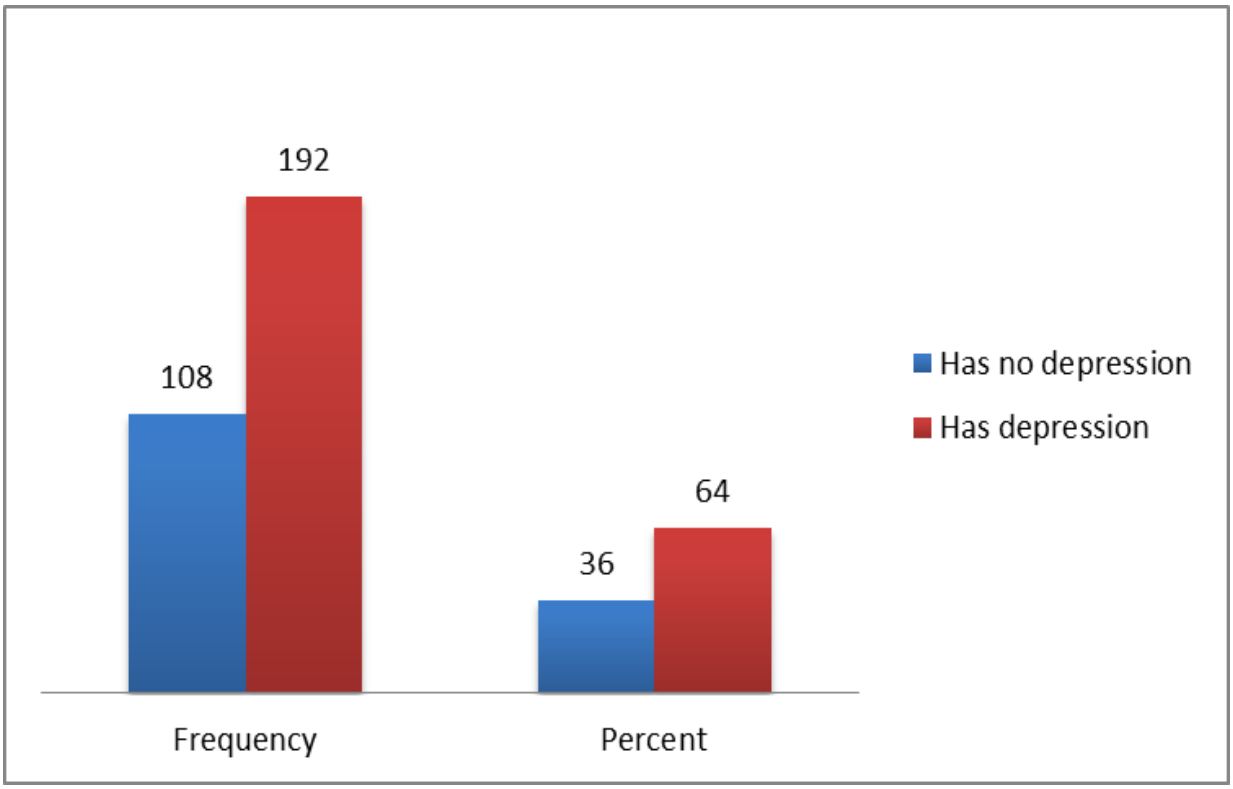


Figure 2: Prevalence of depression among caregivers

Table 2: Socio-demographic characteristics of the study participants (N=300).

Variable (s)		Frequency	Percentages (%)
Gender	Male	112	37.3
	Female	188	62.7
Age group	18-29	60	20
	30-39	121	40.3
	40-49	67	22.3
	>50	52	17.3
Education Level	No formal education	27	9
	Primary school level	84	28
	Secondary school level	94	31.3
	College level and above	95	31.7
Marital Status	Married	190	63.3
	Single	110	36.7
Relationship with patients	Spouse	74	24.7
	Child	35	11.7
	Parent	116	38.7
	Other relatives	25	25
Duration of caring(in years)	0 - 1	145	48.3
	1 to 5	155	51.7
Employment status	Employed	70	23.3
	Not employed	230	76.7
Caring support	Yes	215	71.7
	No	85	28.3

4.3 Prevalence of Anxiety among study participants

The overall prevalence of anxiety among family caregivers was 171(57%)[95%C.I:51.3-62.5] with a mean HADS score of 7.99 (SD=3.916). Of the studied participants, 102 (34%)[95%C.I:28.9-39.5]were Borderline case and 69 (23%)[95%C.I:18.6-28.1] were case [Fig3].

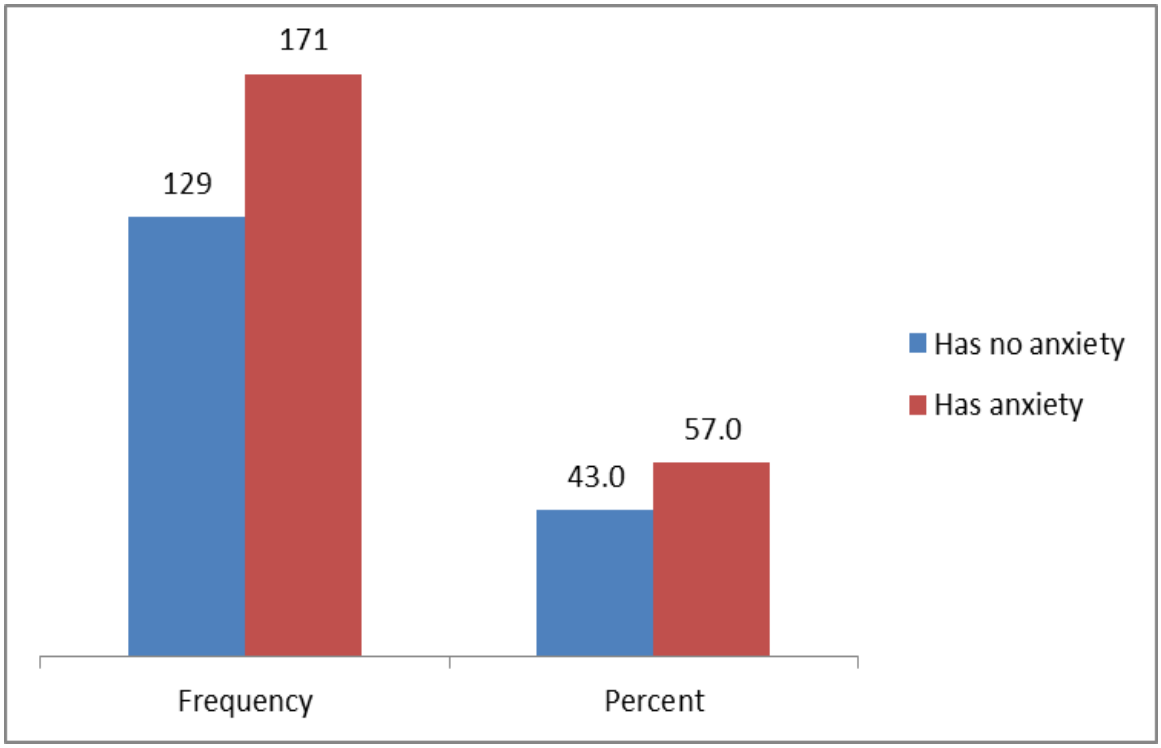


Figure 3: Prevalence of Anxiety among caregivers

4.3.1 Factors associated with depressive symptoms

A chi-square test was used to ascertain the association between depressive symptoms and the Socio-demographic factors. Depressive symptoms were found to be associated with age (p value 0.017), marital status (p value 0.034), relationship with patients (p value 0.000), and education level (p value 0.031) [Table 3].

4.3.2 Logistic regression on factors associated with depressive symptoms.

All variables with a p value less than 0.2 were included in the logistic regression analysis model. In the Univariate analysis model, gender, marital status and relationship with patients

were significantly associated of depression. After adjusting to other factors associated with depression, gender and marital status of the study participants were not statistically significant associated with depression.

In the multivariate analysis model, age groups of the study participants were significantly associated with depression, while in the unadjusted model they were not. Being the age between 30-39 years and 40-49 years, they were less likely to develop depression with (AOR=0.410, p = 0.032, C.I. 0.182-0.924) and (AOR=0.417, p = 0.050, C.I. 0.174-1.000), respectively, when compared to their counterparts.

Furthermore, in the multivariate analysis model, participants who cared for their spouses and children were less likely to be depressed by 0.307 (AOR=0.307, p = 0.006, C.I. 0.133-0.707) and 0.157 (AOR=0.157, p = 0.001, C.I. 0.052-0.474), respectively. Although in the Univariate model, participants who offered care to spouses and children were strong predictors of depression by more than two folds and five folds, respectively [Table4].

Table 3: Factors associated with depressive symptoms

Variable (s)		Depression category			Chi-square (X^2)	p-value
		Normal n (%)	Borderline case n (%)	Case n (%)		
Gender	Male	43(38.4)	39 (34.8)	30 (26.8)		
	Female	65(34.6)	50(26.6)	73(38.8)	4.850	0.088
Age group (years)	18-29	31(51.7)	17(28.3)	12(20.0)		
	30-39	39(32.2)	43(35.5)	39(32.2)	15.385	0.017
	40-49	19(28.4)	18(26.9)	30(44.8)		
	>50	19(36.5)	11(21.2)	22(42.3)		
Marital status	Married	58(30.5)	61(32.1)	71(37.4)		
	Single	50(45.5)	28(25.5)	32(29.1)	6.742	0.034
Relation with patient	Spouse	18(24.3)	22(29.7)	34(45.9)		
	Child	5(14.3)	7(20.0)	23(65.7)	32.025	0.000
	Parent	49(42.2)	37(31.9)	30(25.9)		
	Other	36(48.0)	23(30.7)	16(21.3)		
Caring duration (years)	0-1	57(39.3)	40(27.6)	48(33.1)		
	1-5	51(32.9)	49(31.6)	55(35.5)	1.387	0.500
Employment status	Employed	27(38.6)	21(30.0)	22(31.4)		
	Not employed	81(35.2)	68(29.6)	81(35.2)	0.396	0.821
Education Level	No formal education	10(37.0)	9(33.3)	8(29.6)		
	Primary education level	22(26.2)	21(25.0)	41(48.8)		
	Secondary education level	43(45.7)	28(29.8)	23(24.5)	13.842	0.031
	College and above	33(34.7)	31(32.6)	31(32.6)		

Table 4: Univariate and multivariate logistic regression on factors associated with depression among study participants.

Variable (s)		COR	P-Value	95% C.I	AOR	P-Value	95% C.I
Age group (in years)	18-29	1.857	0.110	0.870-3.963	0.708	0.472	0.276-1.814
	30-39	0.826	0.582	0.418-1.632	0.410	0.032	0.182-0.924
	40-49	0.688	0.343	0.317-1.492	0.417	0.050	0.174-1.000
	>50 (Ref)						
Gender	Male	1.897	0.010	1.167-3.083	1.334	0.287	0.784-2.269
	Female(Ref)						
Marital Status	Married	1.897	0.010	1.167-3.083	0.827	0.533	0.455-1.503
	Single (Ref)						
Relationship with patients	Spouse	2.872	0.003	1.429-5.772	0.307	0.006	0.133-0.707
	Child	5.538	0.001	1.939-15.820	0.157	0.001	0.052-0.474
	Parent	1.262	0.434	0.704-2.263	0.782	0.438	0.420-1.455
	Others (Ref)						
	I have no formal	0.905	0.825	0.372-2.199	1.224	0.688	0.457-3.281
Education level	Education						
	Primary school level	1.500	0.217	0.788-2.857	0.701	0.309	0.353-1.390
	Secondary school Level	0.631	0.124	0.351-1.134	1.640	0.125	0.872-3.085
	College(Ref)						

4.3.3 Factors associated with anxiety symptoms

A chi-square test was used to determine the association between anxiety symptoms and the Socio-demographic factors. Anxiety symptoms were found to be associated with gender (p value 0.020) and Education level (p value 0.015) [Table5].

Table 5: Factors associated with anxiety symptoms

Variable (s)		**Anxiety category**			**Chi-square(X^2)**	**P-value**
		Normal **n(%)**	Borderline case **n(%)**	Case **n(%)**		
Gender	Male	55(49.1)	41(36.6)	16(14.3)	7.808	0.020
	Female	74(39.4)	61(32.4)	53(28.2)		
Age group(years)	18-29	26(43.3)	19(31.7)	15(25.0)		
	30-39	52(43.0)	44(36.4)	25(20.7)	9.649	0.140
	40-49	21(31.3)	28(41.8)	18(26.9)		
	>50	30(57.7)	11(21.2)	11(21.2)		
Marital status	Married	81(42.6)	71(37.4)	38(20.0)		
	Single	48(43.6)	31(28.2)	31(28.2)	3.773	0.152
Relation with patient	Spouse	26(35.1)	28(37.8)	20(27.0)		
	Child	10(28.6)	12(34.3)	13(37.1)	11.215	0.082
	Parent	53(45.7)	38(32.8)	25(21.6)		
	Other	40(53.3)	24(32.0)	11(14.7)		
Caring duration (years)	0-1	63(43.4)	48(33.1)	34(23.4)		
	1-5	66(42.6)	54(34.8)	35(22.6)	0.104	0.949
Employment status	Employed	29(41.4)	27(38.6)	14(20.0)		
	Not employed	100(43.5)	75(32.6)	55(23.9)	0.971	0.615
Education Level	No formal education	5(18.5)	11(40.7)	11(40.7)		
	Primary education level	40(47.6)	31(36.9)	13(15.5)		
	Secondary education level	49(52.1)	24(25.5)	21(22.3)	15.806	0.015
	College level	35(36.8)	36(37.9)	24(25.3)		

4.3.4 Logistic regression on factors associated with Anxiety among study participants.

All variables with a p value less than 0.2 were included in the logistic regression analysis model. In the Unadjusted model, caregiver's age lying between 30-39 years and 40-49 years, Caring for spouses and children and secondary education level were significant associated with anxiety. After adjusting to other factors to control confounders, the age group between 18-29 years was significant associated with anxiety (AOR=0.260, p= 0.005, C.I. 0.101-0.671) while in the Univariate model were not.

Additionally, in the multivariate analysis model, it showed that male caregivers had a twofold higher risk of developing anxiety as compared to female caregivers (AOR = 1.774, P = 0.032, CI: 1.050-2.997), while in the Univariate model, gender was not significant.

Regarding the type of relationship with hemodialysis patients, in the Univariate analysis model, caregivers who cared for their spouse and children were more than twofold at increased risk of developing anxiety, and in the multivariate model, the risks of developing anxiety were reduced by 30.2% (AOR = 0.303, p = 0.004, C.I. = 0.133-0.688) and 23.1% (AOR = 0.231, p = 0.003, C.I. = 0.087-0.611, respectively) when the factors were adjusted.

However, caregivers with secondary education in multivariate analysis were more than two fold (AOR=2.387, p=0.007, C.I. 1.267-4.495) likelihood of developing anxiety when compared to those completed college education and above [Table 6].

Table 6: Univariate and multivariate logistic regression of factors associated with anxiety.

Variable (s)		COR	P-Value	95% C.I	AOR	P-Value	95% C.I
Caregiver	18-29	1.783	0.131	0.842-3.777	0.260	0.005	0.101-0.671
age (years)	30-39	1.809	0.077	0.938-3.492	0.295	0.003	0.133-0.655
	40-49	2.987	0.004	1.405-6.351	0.194	0.000	0.082-0.461
	>50 ((Ref)						
Caregiver	Male	0.673	0.100	0.420-1.079	1.774	0.032	1.050-2.997
gender	Female(Ref)						
Marital	Married	1.042	0.865	0.649-1.674	1.129	0.689	0.624-2.042
status	Not married						
Relationship	Spouse	2.110	0.026	1.092-4.076	0.302	0.004	0.133-0.688
with	Child	2.857	0.017	1.206-6.768	0.231	0.003	0.087-0.611
patients	Parent	1.358	0.303	0.759-2.432	0.742	0.360	0.391-1.406
	Others (Ref)						
Education	No formal	2.567	0.080	0.892-7.384	0.443	0.158	0.143-1.373
Level	Education						
	Primary level	0.642	0.146	0.353-1.166	1.687	0.112	0.885-3.218
	Secondary	0.536	0.035	0.300-0.958	2.387	0.007	1.267-4.495
	Level						
	College (Ref)						

CHAPTER FIVE

5.0 DISCUSION

Depression and anxiety among patients undergoing hemodialysis therapy were widely covered by previous studies (9,12,25); however, there is a dearth of information regarding family caregivers who provide care to patients with end-stage kidney disease receiving hemodialysis in Tanzania. This study aimed to determine the prevalence of depressive symptoms and anxiety and their associated factors among family caregivers of patients receiving maintenance hemodialysis.

Prevalence of depressive symptoms among caregivers

This study found that more than half 192 (64%) of the family caregivers had depression. This finding is lower than an early study conducted in Pakistan that showed the prevalence of depression among caregivers to be 82.6%(11). These findings are also contrary to a study conducted in Indonesia by Bawazier et al. that showed 18% of caregivers of hemodialysis patients are depressed (45). The vast differences in results could be attributed by the variation of data collection technique employed since the current study did not include patient in the administering of questionnaire. Also, smaller sample size used in the previous study and cultural differences contributed to the differences observed. Therefore, the HADS score questionnaire should be used in a patient-free zone in order to avoid huge disparities and to obtain consistent results

Furthermore, the obtained finding was high than that reported in the study done in Egypt and Saud Arabia, that showed 53% and 31% (12,17) respectively. Despite these differences in results but this might suggests that depression among family caregivers of patients with chronic illnesses; particularly chronic kidney disease are very common. This could have an impact on the overall well-being of caregivers and patient outcomes. Therefore, it is crucial to include family caregivers in the management plan during the caregiving process so as to improve the patient's quality of life.

Prevalence of anxiety among caregivers

This study showed that more than a half (171 (57%) of the family caregivers became anxious when caring for patients with end-stage kidney disease receiving hemodialysis. This finding is lower than that reported in Pakistan by Raza et al. and in Indonesia by Reza et al., which showed about 90.4% and 99% of the caregivers for hemodialysis patients had anxiety (43,49) respectively. The huge differences could be attributed to the cultural differences and anxiety measurement tool employed.

However, these findings were higher than those reported by Pio et al. in Indonesia and Gerogianni et al. in Greece, which showed that the prevalence of anxiety among caregivers of hemodialysis patients was 25% and 27.8%, respectively(28,29) respectively. The contradictory findings imply that social-cultural disparities across various groups, as well as potential variations in the instruments employed to measure caregivers' anxiety, contribute to the variation in anxiety experienced by family caregivers for patients with chronic illnesses.

Factors associated with depressive symptoms among caregivers

Regarding predictors of depression, a multivariate logistic regression showed that caregiver's ages between 30-39 years and 40-49 years were at lower risks of developing depression with p-value of 0.032 and 0.05 respectively. This could be explained by the fact that younger caregivers were probably more capable of adapting to complex dialysis schedules as they were energetic compared to older caregivers (50). The results were contrary to previous studies where age was not significantly associated with depression (11).

Furthermore, this study revealed family caregivers' relationships with patients, such as being caring spouses and children, were significantly associated with depression with p-value of 0.006 and 0.001 respectively. Similar findings were observed by the study done by Bawazier and Abebe et al (22,45)his shows that family caregivers who were taking care of their spouses and children were overworked and overly committed to helping the beloved ones, which is why they were depressed when they witnessed their patients' suffering

Factors associated with anxiety symptoms among caregivers

With respect to the predictors of anxiety, the multinomial logistic regression showed that young adult family caregivers (18-49 years old) were associated with anxiety with p-value less than 0.05.This suggests that when family caregivers were younger, they were preoccupied with making ends meet and achieving their goals in life as a result, it became difficult for them to manage the simultaneous obligations of caring for patients who needed to visit hospitals three times per week (1,22).

In addition, the current study showed that family caregivers who offered care to spouses and children were associated with anxiety with p-value of 0.004 and 0.003 respectively. This would be due to the close intimacy between them, and they always became anxious when patients' conditions were not stable or any other stimuli related to accessibility and availability of the services. These results were similar to the systematic study conducted by Alshammari et al (51).

Also, this study has revealed that family caregivers who had completed secondary education were found to be less likely to experience anxiety with p-value of 0.007. This indicated that family caregivers with secondary education are more likely to easily follow instructions provided by healthcare providers and handle any challenges encountered during the caregiving process.

Furthermore, this study showed that male caregivers were associated with anxiety with the p-value of 0.032, this finding were contradicted with previous study conducted in turkey which reported female gender were associated with the risk of anxiety (52). The differences could be attributed by cultural differences.

5.1 Study Limitation

This study utilized an observational cross-sectional study design, which allows snapshot collection of data, enhancing difficulties in establishing temporal causal relationships between dependent and independent variables.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The study reveals that over half of the participants are experiencing depression and anxiety, highlighting a significant mental health challenge within the caregiver population. The analysis identifies several key factors associated with these mental health issues.

Depression is notably associated with the caregiver's age and their relationship with the patient. This suggests that both the age of the caregiver and the nature of their relationship with the patient play crucial roles in the development of depressive symptoms.

- Anxiety is associated with multiple factors: caregiver age, male gender, the type of relationship with the patient, and the caregiver's education status. This indicates that anxiety among caregivers is influenced by a combination of demographic and situational factors, including gender and educational background.

6.2 Recommendation

1) Targeted Interventions Based on Caregiver Age and Relationship:

- Age-specific programs: develop age-specific mental health support programs for caregivers. For instance, younger caregivers might benefit from different support structures compared to older ones.
- Relationship-Based Support: Recognize that the type of relationship with the patient (e.g., spouse, child, or sibling) can influence mental health. Tailor interventions to address the unique stressors associated with different caregiver relationships.

2) Holistic Support Services:

- Comprehensive Support: Offer a range of support services, including counseling, peer support groups, and stress management techniques. Integrate services that address both mental health and practical caregiving challenges.

3) Educational Initiatives:

- Education and Training: Provide educational programs and workshops for caregivers that cover stress management, coping strategies, and mental health awareness. Tailor these programs to different education levels to ensure they are accessible and relevant.

4) Future studies should be carried out to examine depression and anxiety over time and evaluate the efficacy of intervention programs in family caregivers through multicenter research**.**

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APPENDICES

Appendix I: Family Caregivers Informed Consent Form

Study title: PREVALENCE OF DEPRESSIVE SYMPTOMS AND ASSOCIATED FACTORS AMONG FAMILY CAREGIVERS OF PATIENTS ATTENDING MAINTENANCE HEMODIALYSIS AT BENJAMIN MKAPA HOSPITALAND MUHIMBILI NATIONAL HOSPITAL.

My name is Thomas E. Mponzi, a graduate student pursuing a Master`s degree in Nephrology Nursing at Muhimbili University of Health and Allied Sciences. This consent form was created to give you comprehensive information about the study`s purpose and support you in making an informed decision.

The study`s purpose:

Among family caregivers of patients receiving hemodialysis at Benjamin Mkapa Hospital, the study aims to determine the prevalence of depressed symptoms, anxiety, and associated factors among family caregivers of patients attending maintenance hemodialysis therapy at BMH and MNH.

The procedure to be followed:

First, to participate in this study is quietly voluntary. Second, you will be given an informed consent form. Third, you will be given a self-administered questionnaire and asked to fill it out and the questionnaire will take not more than 30 minutes to complete. Fourth, any clarification and assistance will be given by the main investigator.

Benefits of participant:

The study will help to estimate the magnitude of depressive symptoms and anxiety among family caregivers of patients receiving hemodialysis services. Then, result of this study will help in providing suggestions to hospital management on the early screening programs and prevention strategies.

Risks of the study:

There are no remarkable risks to taking part in the research. While there is always a chance that a study will put its participants at risk for physical, psychological, and social issues

Settlement:

This study will not offer any recompense in terms of financial or non-financial for you to participate in this research.

Confidentiality and privacy

The equipment used in data collection such as a laptop will be password-protected and accessible to authorized persons only, participant identity will be prevented by using participant numbers instead of real names, and all field notes will be properly managed by use of a locked locker. High respect for human dignity will be observed through the use of separate rooms, as the participant will feel comfortable sharing information

Withdraw right

You have the freedom to stop participating in the study whenever you want. It won't affect anything if you decide not to participate in this study.

Any question (s)

Do not hesitate to get in touch with me if you have any questions about taking part in the study. My mobile number is 0684579733 and my Email address:thomasmponzi@gmail.com

Agreement of statement:

To my best level of knowledge, I voluntarily agree to be part of the study as I understand each part of the study in detail.

Participant identification name……..

Participant signature……..

Date of data collection.…….

Principle Investigator statement

The undersigned has provided the aforementioned participants with a thorough explanation.

Author name ……

Signature …….

The date on data collection…….

Kiambatanisho II: Fomu ya Kuomba idhini ya Kushiriki Katika Utafiti

Ukubwa wa msongo wa Mawazo na visabishi vyake Kati ya wanafamilia wanatoa huduma kwa wagonjwa wenye matatizo ya Figo wanaopata huduma ya uchujaji damu katika Hospital ya Benjamin Mkapa, Dodoma na Hospitali ya Taifa Muhimbili, Dar es salaam, Tanzania.

Utangulizi:

Mimi ni Thomas E Mponzi, Mwanafunzi wa shahada ya umahili katika Chuo Kikuu cha Afya na sayansi shirikishi Muhimbili, ninasoma fani ya uuguzi ya magonjwa ya Figo na utafiti wangu unahusu ukubwa wa msongo wa Mawazo na visababishi vyake Kati ya wanafamilia wanaotoa huduma kwa wagonjwa wenye matatizo ya Figo wanaopata huduma ya uchujaji damu katika Hospitali ya Benjamin Mkapa, Dodoma, Tanzania na Hospitali ya Taifa Muhimbili.

Kupitia Fomu hii itakusaidia uweze kutoa maamuzi sahihi kulingana na ulivyoelewa bila shinikizo lolote.

Dhumuni la utafiti:

Ni kuweza kugundua ukubwa wa msongo wa Mawazo na visabishi vyake Kati ya wanafamilia wanaotoa huduma kwa wagonjwa wenye matatizo ya figo wanaopata huduma ya uchujaji damu katika Hospitali ya Benjamin Mkapa Dodoma na Hospitali ya Taifa Muhimbili, Tanzania.

Kitakacho fanyika kwenye utafiti huu

Moja, hauta lazimishwa kushiriki kwenye utafiti huu (hiari). Mbili, utapewa fomu maalumu ya kuomba idhini. Tatu, utapewa dodoso la maswali kwaajili ya kujaza na hutotumia zaidi ya dakika thelathini (30) kumaliza kujibu.Nne, Kama utahitaji maelekezo na msaada wowote utaupata Kwa mtafiti mkuu Kwa haraka iwezekanavyo.

Faida za ushiriki kwenye Tafiti

Utafiti huu utasaidia kuonesha ukubwa wa tatizo la msongo wa Mawazo na Wasiwasi. Pia kuweza kushauri uongozi wa Hospitali kuangalia namna ya kupunguza tatizo kwa kufanya

kinga tiba ili kupunguza madhara yatokanayo na msongo wa mawazo na wasisi kwa watoa huduma kwa wagonjwa wanaopata huduma ya uchuchaji damu.

Hatari

Hakuna hatari yoyote ambayo imegundulika Kwa kushirki kwenye utafiti huu, lakini kuna nafasi finyu ambayo inaweza sababisha maudhu madogo ya kisaikolojia, kijamii, kimwili na kihisia.

Je, kuna Fidia:

Kushiriki kwako kwenye utafiti huu ni bure kabisa maana hautapata fidia yoyote ya kifedha au isiyo ya kifedha.

Usiri:

Utafiti huu utazingatia staha ya mtu hivyo Kutakua na mazingira ya usiri kwa kutumia chumba cha pekee kwenye kukusanya taarifa, taarifa zote zitakazo kusanywa zitamuhusu muhusika tu nasi vinginevyo, vifaa vyote vilivyo husika kwenye kukusanya taarifa vitahifadhiwa vizuri na vitatumika kwa mlengwa pekee.

Kujiondoa katika tafiti:

Unaruhusiwa kutoendelea na utafiti huu muda wowote unaotaka.Pia kutoshiriki kwenye utafiti huu hakutakuathiri kwa namna moja au nyingine katika upatikanaji wa huduma katika Hospitali ya Benjamin Mkapa na Hospitali ya Taifa ya Muhimbili.

Kama una swali lolote kuhusu utafiti:

Wasiliana na Mimi Kupitia 0684579733au barua pepethomasmponzi@gmail.com

Sentensi ya kuridhia:

Kwa uwelewa wangu mwenyewe bila kushinikizwa na mtu yeyote, nimekubali kuwa sehemu ya utafiti huu.

Jina la utambuzi la mshiriki ……

Sahihi…….

Tarehe ya kukusanya taarifa…….

Kiapo cha graffiti

Mimi, naapa kwamba nimetoa taarifa sahihi kuhusu utafiti huu Kwa mshiriki tajwa hapo juu.

Jina la mtafiti ……

Sahihi……..

Tarehe ya kukusanya taarifa……

Appendix III: Questionnaire in English Version

PART I: SOCIAL DEMOGRAPHIC CHARACTERISTICS OF FAMILY CAREGIVERS.

1. Caregiver gender
    a. Male
    b. Female
2. Caregiver Age…….
3. Education level
    a. I have no formal education
    b. Primary school level
    c. Secondary school level
    d. College level and above
4. Caregiver marital status
    a. Married
    b. Divorced
    c. Widowed
    d. Single
5. What kind of relationship do you have with the patients?
    a. Spouses
    b. Children
    c. Parents
    d. Other relatives
6. Caregivers` duration of caring for patients on hemodialysis
    a. For up to a year
    b. Between 1 to 5 years
    c. Between 6 to 10 years
    d. Greater than 10 years
7. Employment status
    a. Employed
    b. Not employed

8. "What is your current economic status?"
    a. Low
    b. Middle
    c. High

9. "Are you currently capable of participating in income-generating activities? If `Yes` skip question no.10 and if `No` please proceed to answer question 10."
    a. Yes
    b. No

10. Reason for not performing income-generating activities
    1. Caring for the patient
    2. Retired from work

11. Do you get any caring support from other family members or friends?
    a. Yes
    b. No

12. Have you been diagnosed with any medical illness?
    a. No
    b. Hypertension
    c. Diabetic Mellitus
    d. Other diseases

PART II: Hospital Anxiety and Depression Scale (HADS)

Instructions: This questionnaire is designed to help identify how you feel. Read each item and circle the response on your emotional state for the last. Don't delay in responding too much: your quick reaction to each item will probably be more accurate than a long thought-out response.

D	**A**		**D**	**A**	
		I`m tense or wound up			I think I`m moving more slowly
	3	The majority ofthetime	3		Almost always

	2	Frequently	2		Very often
	1	Periodically, now and then	1		Sometimes
	0	Nothing at all	0		Not at all
		I still enjoy the things I used to enjoy			I start to feel kind of scared like I have butterflies in my stomach
0		Most as much		0	Not in any way
1		Not quite so much		1	Once in a while
2		Only a little		2	Very frequently
3		Not regularly		3	Regularly
		I have a feeling that something terrible is going to happen			I have lost interest in my appearance
	3	Definitely and quite severely	3		Definitely
	2	Sure, but not too severely	2		I don't give it the attention it deserves
	1	A little, but I'm not concerned about it	1		Maybe not quite as careful
	0	Not at all	0		I exercise the same caution as before
		I can laugh and see the funny side of things			I get a restless feeling that makes me want to move constantly
0		As much as I always could		3	Really, very lot
1		Not quite so much now		2	Quite a lot
2		Not much now		1	Not by much
3		Not at all		0	Not at all
		My mind is filled with worries			I look forward with enjoyment to things
	3	Most	0		As much as I ever did
	2	Many times	1		such

	1	Periodically, but not too frequently	2		Hardly at all
	0	Rarely at all	3		Less
		I feel cheerful			I get a sudden feeling of panic
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit comfortably and relax			I could read a nice book watch TV or listen to the radio
	0	Indeed	0		Frequently
	1	Usually	1		Sometimes
	2	Not often	2		Not often
	3	sometimes	3		Rarely

Questions relating to anxiety are indicated by an 'A' while those relating to depression are shown by a 'D'. Scores of 0-7 in respective subscales are considered normal, with 8-10 borderline and 11 or over indicating clinical 'caseness'

Kiambatanisho IV: Dodoso la Kiswahili

Kwa Mwanafamilia anaye muhudumia mgonjwa wa Figo anayepata matibabu ya Uchujaji Damu.

Sehemu I: Maelezo binafsi ya Mshiriki

1. Jinsia
    a. Me
    b. Ke
2. Umri wako ni……..
3. Kiwango cha Elimu
    a. Sina kiwango cha Elimu ya darasani
    b. Kiwango cha elimu ya shule Msingi
    c. Kiwango cha elimu ya shule ya sekondari
    d. Kiwango cha elimu ya chuo cha Kati na kuendelea
4. Hali ya ndoa
    a. Kuoa/kuolewa
    b. Kuachika
    c. Mjane
    d. Sijao/sijaolewa
5. Uhusiano wako na Mgonjwa ni
    a. Mke/Mume
    b. Mtoto
    c. Mzazi
    d. Ndugu mwingine
6. Muda uliotumia kumuhudumia mgonjwa anaye fanya matibabu ya uchujaji damu
    a. Mpakamwaka1
    b. Mwaka1 mpaka Miaka 5
    c. Miaka 6 mpaka 10
    d. Zaidi ya Miaka 10

7. Hali yako ya ajira
    a. Nimeajiriwa
    b. Sija-ajiriwa
8. Kiwango chako cha Uchumi
    a. Chini/kidogo
    b. Kati
    c. Juu

9. Je Unaendelea na shughuli zako za kukuingizia kipato? (kama ndiyo ruka swali namba10,KamaniHapana endelea na swali namba 10)
    a. Ndiyo
    b. Hapana
10. Sababu ya kutoendelea na shughuli zako za kukuingizia kipato
    a. Kutoa huduma Kwa mgonjwa
    b. Kustaafu
11. Je,kuna msaada wowote unapata kutoka kwa ndugu au rafiki katika kumuhudumia mgonjwa?
    a. Ndiyo
    b. Hapana
12. Je, ulishagundulikanaugonjwawowotewakiafya?
    a. Hapana
    b. Shinikizo la Juu la damu
    c. Sukari
    d. Magonjwa mengine

Sehemu B: Dodoso la kuangalia kiwango cha Wasiwasi wa Hospitali na Msongo wa Mawazo (HADS).

D	A		D	A	
		Nina wasiwasi au nimejeruhiwa			Nadhani ninasonga polepole zaidi
	3	Muda mwingi	3		Karibu kila wakati
	2	Mara kwa mara	2		Mara kwa mara
	1	Mara kwa mara, Kila mara	1		Mara nyingine
	0	Hakuna kitu kabisa	0		Hapana kabisa
		Bado ninafurahia vitu nilivyo ni kifurahia			Ninaanza kuogopa, kama vile nina vipepeo oni mwangu
0		Hakika zaidi		0	Si kwa njia yoyote
1		Sio sana		1	Mara moja moja
2		Kidogo tu		2	Mara kwa mara sana
3		Sivyo kabisa		3	Mara kwa mara
		Nina hisia kwamba kitu kibaya kea			Nimepoteza hamu ya kuonekana kwangu
	3	Hakika na kwa ukali kabisa	3		Hakika
	2	Kweli, lakini sio kali sana	2		Sitoi umakini unaostahili
	1	Kidogo, lakini sina wasiwasi	1		Labda mimi sio mwangalifu sana
	0	Hapana kabisa	0		Ninachukua tahadhari sawa na hapo awali
		Ninaweza kucheka na kuona lewa kuchekesha wa mambo			Ninapata hisia zisizo tulia ambazo hunifanya ani kusonga kila mara
0		Kadiri nilivyoweza siku zote		3	Kweli, sana
1		Sio sana sasa		2	Mengi kabisa
2		Hakika sio sana sasa		1	Si kwa kiasi
3		Hapana kabisa		0	Hapana kabisa

		Akili yangu imejaa wasiwasi			Natarajia mambo kwa furaha
	3	Mara nyingi	0		Kadiri nilivyowahi kufanya
	2	Mara nyingi	1		Sio sana kama nilivyotumia
	1	Mara kwa mara, lakini samara ,i sana	2		Vigumu kabisa
	0	Mara chache kabisa	3		Hakika ni chini ya nilivyokuwa
		Ninahisi mchangamfu			Ninapata hisia za ghafla za hofu
3		Hapana kabisa		3	Mara nyingi sana kweli
2		Si mara nyingi		2	Mara kwa mara
1		Mara nyingine		1	Si mara nyingi sana
0		Mara nyingi		0	Hapana kabisa
		Ninaweza kukaa kwa raha na nzika			Ningeweza kusoma kitabu kizuri au kutazama ı kusikiliza redio
	0	Hakika	0		Mara kwa mara
	1	Kwa kawaida	1		Mara nyingine
	2	Si mara nyingi	2		Si mara nyingi
	3	Hapana kabisa	3		Nadra

Maswali yanayo husiana na wasiwasi yanaonyeshwa kwa herufi 'A' huku yale yanayo husiana na mfadhaiko yanaonyeshwa kwa 'D'. Alama za 0-7 katika mizani ndogo huchukuliwa kuwa ya kawaida, huku mstari wa mpaka 8-10 na 11 au zaidi ukionyesha 'kesi' ya kimatibabu.

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 INNOVATION

Ref. No.DA.282/298/01.C/2075

Date: 05/03/2024

MUHAS-REC-03-2024-2075
THOMAS EDWARD MPONZI
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: PREVALENCE OF DEPRESSIVE SYMPTOMS AND ASSOCIATED FACTORS AMONG FAMILY CAREGIVERS OF PATIENTS ATTENDING MAINTENANCE HEMODIALYSIS AT BENJAMIN MKAPA HOSPITAL.

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: 05/03/2024
EXPIRATION DATE OF APPROVAL: 05/03/2025

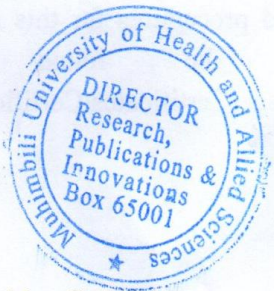
STUDY DESCRIPTION:
Purpose:

The purpose of this cross-sectional study is to determine Prevalence of Depressive Symptoms and Associated Factors among Family Caregivers of Patients attending hemodialysis at Benjamin Mkapa Hospital.

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-%2015381.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

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.282/298/06/C/767 Date: 17/06/2024

MUHAS-REC-03-2024-2075
THOMAS E. MPONZI
MSC NEPHROLOGY NURSING
SCHOOL OF NURSING
MUHAS

RE: APPROVAL FOR AMENDMENT

Reference is made to your letter dated Jul 2, 2024 concerning the above heading.

I am pleased to inform you that the Chairperson has on behalf of the Senate, approved your request for protocol amendments of your study titled ***"Prevalence of Depressive Symptoms and Anxiety, and Associated Factors among Family Caregivers of Patients Attending Maintenance Hemodialysis at Benjamin Mkapa Hospital and Muhimbili National Hospital"*** as requested.

The amendments include:
A study site was added, Muhimbili National Hospital, because of challenges found in the data collection process.

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

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.458/2022

8th March, 2024

EXECUTIVE DIRECTOR,
BENJAMIN MKAPA HOSPITAL,
P.O. BOX 11088,
DODOMA.

RE: INTRODUCTION LETTER OF THOMAS EDWARD MPONZI

We would like to inform you that the carrier of this letter is Thomas Edward Mponzi with registration number HD/MUH/T.458/2022 a student in the School of Nursing at Muhimbili University of Health and Allied Science (MUHAS), pursuing MSc. Nephrology Nursing.

As part of his studies, he will be doing an elective research titled **"PREVALENCE OF DEPRESSIVE SYMPTOMS AND ASSOCIATED FACTORS AMONG FAMILY CAREGIVERS OF PATIENTS ATTENDING MAINTENANCE HEMODIALYSIS AT BENJAMIN MKAPA HOSPITAL".**

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 Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Thomas Edward Mponzi

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: Permission letter

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH
THE BENJAMIN MKAPA HOSPITAL

In reply please quote
Ref. No.AB.150/293/01/"A"/33

25th March, 2024

Director Postgraduates Studies,
Muhimbili University Health Allied Sciences,
P. O. Box 65001,
DAR ES SALAAM.

RE: PERMISSION FOR DATA COLLECTION

Reference is made to the above heading above heading and a letter from your office with **Ref. No.HD/MUH/T.458/2022** dated **8th March, 2024**.

2. Permission for data collection is granted to **Thomas Edward Mponzi** who is a bonafide student of Muhimbili University of Health and Allied Sciences pursuing Masters of Science in Nephrology Nursing from **26th March** to **31st May, 2024**.

3. The title of the research is ***"Prevalence of Depressive symptoms and associated Factors Among Family Caregivers of Patients attending Maintenance Hemodialysis at Benjamin Mkapa Hospital".***

4. When need arise for publishing these research findings, BMH must be acknowledged. Therefore he will be required to pay **TSH 50,000/=** as a fee for data collection, control number for payment will be obtained from the office of the Chief Accountant.

5. He must adhere to Hospital rules and regulation, always have student identity card from specific university.

6. Best regards.

Dr. Sylvia S Jumbe
For: EXECUTIVE DIRECTOR

Inside University of Dodoma, P.O. Box 11088, Dodoma, Phone +255-262963710, Fax +255-262963711.
Email in- fo@bmh.or.tz, Website www.bmh.or.tz

Appendix VIII: Digital Receipt

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Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

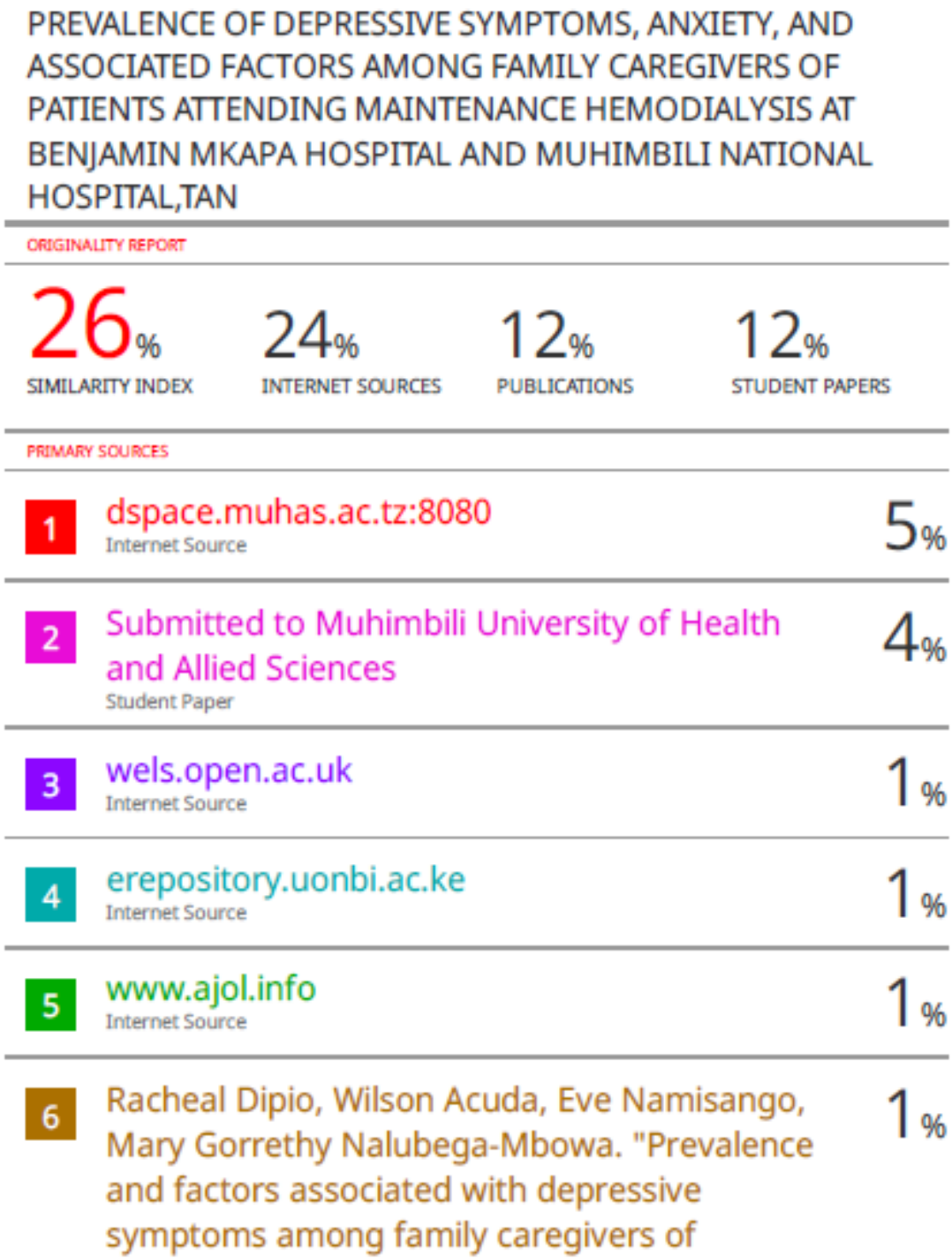
The first page of your submissions is displayed below.

Submission author:	Thomas Mponzi
Assignment title:	dissertations
Submission title:	PREVALENCE OF DEPRESSIVE SYMPTOMS, ANXIETY, AND ASS...
File name:	Mponzi_Full_Dissertation_2024.docx
File size:	2.52M
Page count:	71
Word count:	10,796
Character count:	66,104
Submission date:	17-Jul-2024 05:17PM (UTC+0300)
Submission ID:	2418226735



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Appendix IX: Plagiarism Report



PREVALENCE OF DEPRESSIVE SYMPTOMS, ANXIETY, AND ASSOCIATED FACTORS AMONG FAMILY CAREGIVERS OF PATIENTS ATTENDING MAINTENANCE HEMODIALYSIS AT BENJAMIN MKAPA HOSPITAL AND MUHIMBILI NATIONAL HOSPITAL,TAN

ORIGINALITY REPORT

26%	24%	12%	12%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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2	Submitted to Muhimbili University of Health and Allied Sciences Student Paper	4%
3	wels.open.ac.uk Internet Source	1%
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