

**BURNOUT PREVALENCE AND ASSOCIATED FACTORS AMONG
HEALTH CARE PROVIDERS IN ACUTE CARE SETTINGS AT A
TERTIARY TEACHING HOSPITAL IN DAR ES SALAAM
TANZANIA.**

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**MMed (Anaesthesiology) Dissertation
Muhimbili University of Health and Allied Sciences
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**Muhimbili University of Health and Allied Sciences
Department of Anaesthesiology**



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By

Alex Felix Lwiza

**A Dissertation Submitted in (Partial) Fulfilment of the Requirements for the Degree
of Masters of Medicine (Anaesthesiology) at**

Muhimbili University of Health and Allied Sciences

October, 2021

CERTIFICATION

The undersigned certifies that he has read and hereby recommend for examination by Muhimbili University of Health and Allied Sciences a dissertation entitled “**BURNOUT PREVALENCE AND ASSOCIATED FACTORS AMONG HEALTH CARE PROVIDERS IN ACUTE CARE SETTINGS AT A TERTIARY TEACHING HOSPITAL IN DAR ES SALAAM TANZANIA**” in (partial) fulfilment of the requirement for the degree of master of medicine (Anaesthesiology) of the Muhimbili University of Health and Allied Sciences.

.....
Dr. Edwin Lugazia (MD, MMed, FCTA, MBA)
(Supervisor)

.....
Date

DECLARATION AND COPYRIGHT

I, Alex Felix Lwiza, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature:

Date:

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DEDICATION

I dedicate this dissertation to all my fellow health care workers in Tanzania, especially those in acute care settings for their selfless dedication and commitment to improving the level of care offered and helping all people have better health.

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LIST OF ABBREVIATION

EE	Emotional Exhaustion
EMD	Emergency Medicine Department
DP	Depersonalization
HCW	Health care worker
ICD-11	11th Revision of the International Classification of Diseases
JKCI	Jakaya Kikwete Cardiac Institute
LMIC	Low- and Middle-Income Countries
MBI	Maslach Burnout Inventory
MNH	Muhimbili National Hospital
MOI	Muhimbili Orthopaedic Institute
MUHAS	Muhimbili University of Health and Allied Sciences
PA	Personal Accomplishment
WHO	World Health Organization

DEFINITION OF TERMS

Acute health setting - A place where a patient receives active but short-term treatment for a severe injury or episode of illness, an urgent medical condition, or during recovery from surgery.

Burnout - Feelings of energy depletion or exhaustion; increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and reduced professional efficacy.

Health care worker - One who delivers care and services to the sick and ailing directly as doctors and nurses.

ABSTRACT

Background: Burnout is an occupational phenomenon as listed in ICD-11, with defining symptoms of feelings of energy depletion or exhaustion, or feelings of cynicism related to one's job, and reduced professional efficacy. Although studies show high prevalence, burnout is still a neglected topic among health care providers. Health care providers burnout has been linked to increased patient safety risk, low provider professionalism, and low satisfaction with the care encounter. However, most of the data available are from developed countries as burnout is still a newly recognized phenomenon in the sub-Saharan region.

Aim of the study: This study aimed to find the prevalence of and factors associated with burnout among health care providers in acute care settings at a tertiary teaching hospital in Dar es salaam, Tanzania.

Methodology: This was an analytical cross-sectional study, in which all health workers at **the** Emergency Medicine Department, Intensive Care Unit, and Anaesthesia at Muhimbili National Hospital who met the inclusion criteria were recruited in this study. A two-part self-administered questionnaire that included an adapted version of the Standardized Maslach Burnout Inventory was used for data collection. Data were cleaned and analyzed using Statistical Package for the Social Sciences (SPSS).

Results: 174 health care personnel were recruited and issued questionnaires to participate in the study, with 135 questionnaires returned making a response rate of 78%. Out of 135 health workers in the study, 43.7% were from ICU; the majority being female (63.7%), and assistant nursing officers (42%) being the most prevalent cadre. The study found the prevalence of burnout among participants to be 62%, with 122 (90.4%) participants showing a high level of Emotional Exhaustion making it the most prevalent among the three burnout symptoms.

Longer duration of a single day shift was associated with increased burnout among work-related factors ($p < 0.001$). Whilst, among social-related factors; fewer night-time sleeping hours and tobacco use, were significantly associated with increased burnout; moreover, participants with regular physical exercise practice had lower odds for burnout among health care workers in the acute care setting (OR 0.45; 95% CI 0.21-0.97; $p < 0.001$).

Conclusion and recommendations: The study has shown a high and alarming prevalence of burnout among health care workers in the acute care setting. This calls for immediate action to be taken, warranting further studies at the regional and national levels to ascertain the burden of burnout and causes in our setting. This will be useful in selecting appropriate interventions to alleviate burnout and improve health care workers' wellbeing.

CHAPTER ONE

1.1 Introduction

Herbert Freudenberger initially described burnout in 1974, as a state of both mental and physical exhaustion caused by one's professional life, especially coming as a consequence of severe stress and high ideals in “helping” professions e.g. health care providers; making them feel exhausted, listless, and unable to cope(1). Although burnout has been a global challenge since the 1970s, it is only recently that it has become increasingly recognized, with most research and measures taken on raising awareness and intervening in the situation.

The World Health Organization (WHO) with its current focus on burnout, decided to include burnout in its 11th Revision of the International Classification of Diseases (ICD-11) that was released in June 2018 as an occupational phenomenon rather than a medical condition, with a clearer definition than in previous editions. The WHO defines burnout as a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed (2), characterized by three dimensions:

i) *Emotional exhaustion*

Usually cited as the most common symptom of burnout globally, mostly linked with long working hours. The health care worker’s physical and emotional energy levels are extremely drained and in a downward spiral. A usual thought process when reaching this point is, “I’m not sure how much longer I can keep going like this.”

ii) *Depersonalization*

Prolonged emotional exhaustion, few resting hours, with little social support and recreational activities, leads to depersonalization. This mostly manifests by cynicism, sarcasm, and the need to vent about your clients or your specific job whenever you get a chance to talk even with people not allowed to talk about your patients legally. This is commonly known as “compassion fatigue” and mostly at this level, you are emotionally distant from your clients, patients, or anyone else for that matter. This is a usual manifestation when a person's emotional energy is completely tapped dry.

iii) *Reduced professional efficacy*

Reduced efficacy has been a major concern recently, leading to increase global awareness of burnout, as it has been shown to greatly impact patients' care and safety. This happens when the health care worker begins to doubt the meaning and quality of his/her work and think, “What’s the use? My work doesn’t serve a purpose anyway.” and most become paranoid and fear making mistakes especially when they see/feel things are not going to get better or get corrected sooner.

Several studies have linked health care worker burnout to several risk factors, such as social demographic factors such as age, gender, marital status, presence of dependents, duration of daily schedule invested in work/studies, difficulties in interpersonal relationships, monthly income, alcohol use (recreational drug use) and smoking. (3–5)

Evidence shows that burnout affects more than half of practising physicians in the United States of America (USA) and is on the rise. The 2018 Survey of America’s Physicians Practice Patterns and Perspectives reported that 78% of physicians had burnout, an increase of 4% since 2016. (6) Furthermore, 80% of doctors in a British Medical Association 2019 survey were at high or very high risk of burnout, with junior doctors most at risk, followed by general practitioner partners. (7)

Increasingly, physician burnout has been recognized as a public health crisis in many high-income countries, because it not only affects physicians’ personal lives and work satisfaction but also creates a severe burden on the whole health care system, in particular threatening patients’ care and safety.

As previously noted, burnout effects are not only seen to affect the personal well-being of healthcare workers. Many studies have demonstrated that physician burnout impairs patient care, leading to lower patient satisfaction ratings, major medical errors, and a higher probability of health care workers being tangled in malpractice suits (8–10). Also, among nurses burnout is linked to increased risk of patient mortality and spreading of hospital-transmitted infections(11,12).

At an institutional level, burnout has been shown to lead to greater job turnover augmented with thoughts of quitting among health care workers of all cadres(13,14), subsequently, amplifying the already prevailing physician and nursing shortage in the whole health care system.

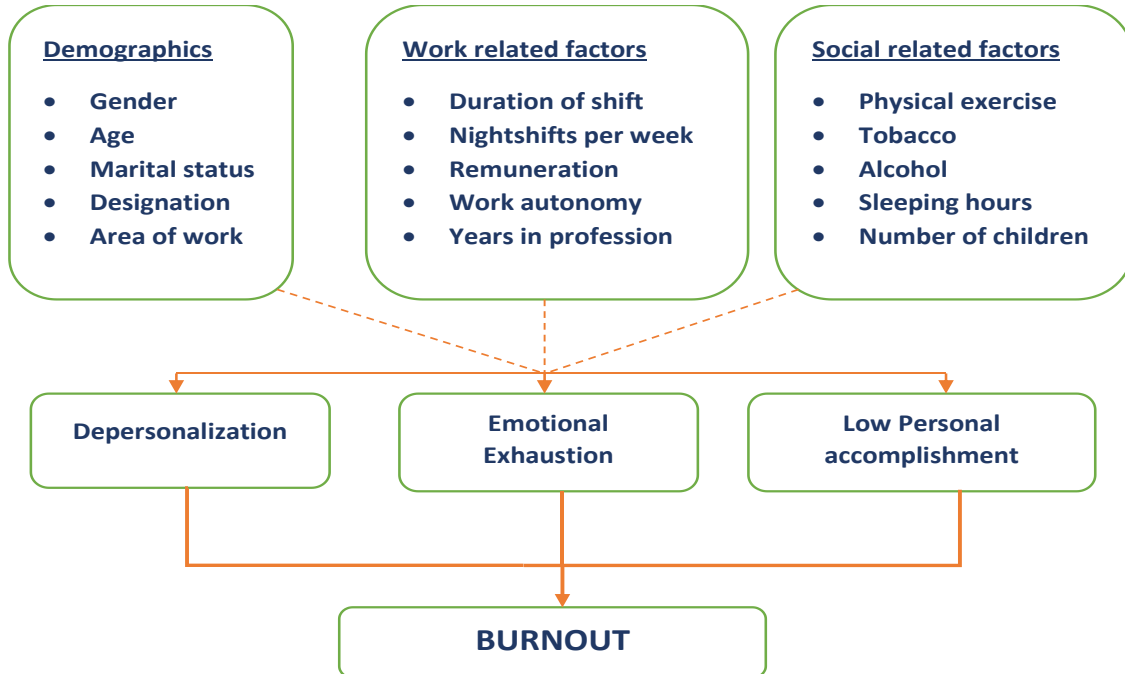
Although workplace ethics and culture vary among different countries, there is a scarcity of data on health care workers burnout in low-income and middle-income countries (LMIC) and almost all of the studies with sufficient quality have only been done in high-income countries. (15). This also proves to be an obstacle for effective interventions to reduce health care workers burnout since burnout is still disturbingly a hidden but rapidly growing epidemic in LMIC. Given the current scarcity of healthcare workers and the soaring demands for healthcare services in LMIC especially in Africa, urgent interventions ranging from awareness creation, prevention, and management burnout are called for.

1.2 Problem Statement

Burnout has been shown as a major rising problem especially among health care workers(16,17). The recently raised awareness on the topic has led to the creation of a clear definition and delimiting symptoms to aid in the expeditious diagnosis of burnout (2). Studies done among numerous professions show burnout to be more prevalent among health care workers(18–20). The majority of the studies focused on physicians alone but citing many effects on the whole health care system affecting not only patient care and workplace dynamics but also putting affected health care workers at risk for depression and suicide(17,21).

Most of these studies were done in developed countries, where the patient to health care workers ratio is relatively good compared to LMICs where health workers are overwhelmed with workloads and poor working environments (22). The situation of burnout, its severity, and associated factors in LMICs has not been fully explored thus we still face a paucity of data to guide on appropriate interventions.

1.3 Conceptual Framework



Source: Self-developed

NARRATION OF CONCEPTUAL FRAMEWORK

This study aimed to determine the prevalence of burnout symptoms among health care workers in acute health settings and factors that are associated with health care workers burnout in acute health care settings.

Burnout is defined in ICD 11 by the WHO as having the following dimensions; emotional exhaustion, depersonalization, and low personal accomplishment. In this study, all of these dimensions were assessed by using Maslach Burnout Inventory to diagnose and determine the prevalence of burnout. Several factors have impact on the prevalence of burnout in different cadres of health care workers. Those which were investigated in this study include: age, gender, marital status, number of children (dependents), speciality, years at work, shift hours, and number of night shifts, use of alcohol and cigarette and practice of regular physical exercise.

1.4 Rationale

In LMIC, burnout is a relatively new concept. However, the few studies that have been done, show a very high magnitude of burnout among our health care workers rather than being completely absent in these countries. In East Africa, the literature review has revealed only a few studies on burnout that concentrated on nurses alone. No study has been published on burnout in healthcare workers at tertiary hospitals in Tanzania. Understanding the burden of burnout and associated factors is fundamental for any successful implementation of contextualized interventions.

This study aimed at assessing the magnitude, severity, and associated factors for burnout among HCWs in acute care settings who are among the extremely at-risk workforce in the hospital setting for burnout. The study findings will help in raising awareness of the burnout problem and associated factors in our settings. The findings and recommendations will also inform the appropriate intervention measures to be instituted.

This will ultimately translate into improved staff welfare, increased efficiency in patients' care, a better quality of services provided in already understaffed settings, and increased customer satisfaction. Furthermore, this study will be a baseline for further research and interventions in the country and the region.

1.5 Research Questions

What is the prevalence of burnout among health care providers in acute care settings at a tertiary teaching hospital in Dar es salaam from January to March 2021?

What are the associated factors for burnout in health care providers in acute settings at a tertiary teaching hospital in Dar es salaam from January to March 2021?

1.6 Objectives

1.6.1 Broad objective

To determine the prevalence and factors associated with burnout among health care providers in acute care settings at a tertiary teaching hospital in Dar es Salaam.

1.6.2 Specific objectives

To determine the prevalence of burnout among health care providers in acute care settings at MNH from January to March 2021.

To determine the prevalence of burnout subscales among health care providers in acute care settings at MNH from January to March 2021.

To determine work-related factors associated with burnout among health care providers in acute care settings at MNH from January to March 2021.

To determine social and demographic related factors associated with burnout among health care providers in acute care settings at MNH from January to March 2021.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Prevalence of Burnout among Health Care Providers

A study from rural British Columbia with a response rate of 66%, whereby 131 out of 198 surveys were returned, and excluded the physicians who were on leave. The study found that self-reported burnout was 55%, with the Maslach Burnout Inventory showing 80% of physicians suffering from moderate-to-severe emotional exhaustion, while 61% suffered from moderate-to-severe depersonalization, with 44% who had moderate-to-low feelings of personal accomplishment. (18)

The 2018 Medscape National Physician Burnout and Depression Report found that 42% out of 15,543 physicians reported burnout. Specialities of critical care and neurology reported the highest prevalence (48%), while the lowest prevalence among specialities was reported by plastic surgery, dermatology, and pathology (32%). The prevalence of burnout in anaesthesiology was 38% with anaesthesiologists representing 6% of all respondents. (19)

A study in the United States (US), looking at the change in burnout prevalence and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. Of the 35,922 physicians who received an invitation-only 19.2% completed the surveys. When assessed using the MBI, 54.4% of the physicians reported at least 1 symptom of burnout compared with 45.5% in 2011 ($P < .001$). After pooled multivariate analysis that adjusted for age, sex, relationship status, and hours worked per week, physicians were found to be at an increased risk of burnout (odds ratio, 1.97; 95% CI, 1.80-2.16; $P < .001$) and were less likely to be satisfied with work-life balance (odds ratio, 0.68; 95% CI, 0.62-0.75; $P < .001$). (23).

The European General Practice Research Network (EGPRN) study, which aimed to determine the prevalence of burnout, and associated factors, amongst family doctors in European countries, distributed 3500 questionnaires in 12 European countries, with a response rate of 41%. Forty-three percent of respondents scored high for EE burnout, 35% for DP, and 32% for PA, with 12% scoring high burnout in all three dimensions. Just over one-third of doctors did not score high for burnout in any dimension. (24)

A study done in South Africa in 2013, used the MBI to assess burnout in 42 doctors working in rural hospitals. The response rate was 85.7%, with findings of burnout in 31% of the participants when all three subscales were used to diagnose burnout, although burnout was found as high as 81% when using only one subscale. Eighty-one percent of participants had high EE or DP levels, which independently could be used as a measure of clinically significant burnout. The study showed all doctors to have moderate to high levels of burnout in all three subscales. (25)

A cross-sectional study conducted on 403 health care providers at a tertiary hospital in Nigeria using Copenhagen's burnout inventory tool, found 36.7% of health care providers with above the mean level of burnout, with nurses having the overall highest prevalence (82.8%). The study found a history of physical illness, low interest in the profession, poor relationship status with managers, and worry of contracting infections as predictors of burnout (26).

A Nigerian study looking into burnout and its associated factors among health professionals working at the University College Hospital, recruiting 260 health care providers from; Theatre/Intensive Care Unit (ICU), Accident and Emergency, Oncology, Dentistry, and General Outpatients Department. Participants included a total of 104 nurses and 83 doctors among other cadres. Using the Maslach Burnout Inventory (MBI) the study indicated that nurses steadily had higher scores on all measures of burnout when compared with other health professionals (27).

A systematic review on burnout in Nigeria among medical practitioners, where out of 4 studies reviewed, three (75%) were carried out in Lagos, while the remaining one (25%) was carried out in Plateau State, North-central zone of Nigeria. The prevalence of 23.6% to 51.7% burnout was reported among physicians in the reviewed studies.

The study also found a higher prevalence of Depersonalization (DP) among the three subscales of burnout in all the four studies that were reviewed. (28)

In a systematic review looking for a proportion of burnout among sub-Saharan nurses, 12 studies were reviewed. Six of the studies were from South Africa, two from Nigeria, and one each from Ethiopia, Senegal, and Uganda, one study recruited nurses from Kenya, Uganda, and Tanzania. The twelve reviewed studies had a total of 2543 nurses. For the studies (seven) that used the MBI, the prevalence of EE was 66%, 60% for DP, and 49% for low PA. The three studies that used the Professional Quality of Life Scale found a higher prevalence of burnout 87%. The one study using the Copenhagen Burnout Inventory reported a prevalence of 51%. (29)

A study to establish the prevalence rate of and factors associated with burnout syndrome among medical workers done in Kenya that recruited 345 medical practitioners and nurses with six or more months of work experience at Kenyatta National Hospital, found the prevalence rate of burnout was 95.4%. Both sociodemographic and work environment-related factors were found to be strongly contributing to medical practitioners and nurses burnout syndrome. The burnout syndrome prevalence for sociodemographic factors was over 95.0%. Patients and their relatives contributed 40.5% while the work environment contributed the largest proportion (55.5%) of the total scores for burnout intensity. (20)

Caution does need to be exercised in sketching far-reaching conclusions from these studies which have reported variable prevalence across countries, specialities, and settings because they have principally reported associations and not causation. Understanding risk factors that are associated with burnout may help advance both, preventative and therapeutic remedies against burnout among health care workers.

2.2 Factors associated with health providers burnout

Several demographic factors have been cited to be associated with an increased risk for burnout among health care workers. These include age, gender, marital status, and duration of working hours(30). Although in most studies female gender has been linked with increased risk for burnout especially in America and in the Middle East(31,32), a European study reported that male gender is associated with increased risk for burnout among health care workers. (24).

Health care workers with a young age have been reported to have increased risk for burnout in comparison to other age groups(32,33), some suggesting this may be due to less work experience, and fewer tactics for coping with tension and anxiety in the health care profession, however, this relationship has been somehow controversial and variable as there are only a few numbers of studies demonstrating this(30)(34).

Burnout has also been associated with multiple workplace factors, such as working long hours especially for doctors who work more than 40 hours per week, who were found to have higher levels of burnout(35). Similar findings are found on medical residents who are working for more than 80 hours per week and having more than eight on-calls shifts per month(36).

Years of practice, work duration, workload, shift rotations, and duty times have also been reported to be associated with higher levels of burnout among all health care cadres. (37–39)

In most studies done worldwide burnout has been associated with some social behaviours, which includes high association with substance abuse, particularly of alcohol and tobacco(22,24,40), although some studies have cited substance abuse being a coping mechanism for the effects of burnout rather than its cause (41).

Lack of regular physical activity and exercise is another factor that has been associated with health care workers burnout, as most health care personnel are too busy to have regular physical activities thus presenting with higher rates of burnout(42). Several authors recommend having routine physical activities and exercise plans as effective means to reduce burnout. These could be imposed even at workplaces to have dedicated areas for workers to perform physical exercises(43).

A shorter duration of nighttime sleep has been associated with burnout in all professions (44). Among health care personnel, those who slept fewer hours at night have been shown to have higher rates of burnout. As the hours of sleep per night increased the levels of burnout dropped significantly(45), although some authors have argued severe burnout could also lead to sleep deprivation affecting not only hours slept, but also the quality of sleep, and affecting the circadian cycle and leading to increasing daytime somnolence(46).

Being aware of these risk factors may enable health care workers, leaders, and institutions to provide more support for doctors and nurses, who are at greater risk, and assist in screening the “at-risk” population. The room for mitigating outlined and all known risk factors for adjusting the onset of burnout is limited and undoubtedly not easy.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

This was an analytical cross-sectional study.

3.2 Study duration

The study was conducted from January 2021 to March 2021

3.3 Study setting

The study was conducted at Muhimbili National Hospital (MNH). MNH is a National Referral Hospital, Research Centre, and University Teaching Hospital with a 1,500-bed facility, attending 1,000 to 1,200 outpatients per day, admitting 1,000 to 1,200 inpatients per week. It has 2500 employees of which 300 are doctors and specialists, 900 registered & enrolled nurses and the rest are supporting operations employees.

The EMD has the main unit with triage, treatment, and resuscitation areas, mass causality area, and an emergency operating theatre. The main unit has a total of 50 nurses, 5 Registrars, 7 Emergency medicine specialists. The anaesthesia department has a total of 50 personnel, with 8 anaesthesiologists, 4 registrars, and 40 nurse anaesthetists. There are four ICU wards at MNH each with an average of 20 enrolled and registered nurses and 2 registrars.

3.4 Study population

All health care providers working at Muhimbili National Hospital in the Emergency Medicine Department, Anaesthesia Department, and Intensive Care Units during the duration of the study.

3.5 Inclusion and exclusion criteria

3.5.1 Inclusion criteria

Nurses, registrars, residents, and specialists working in the said departments.

3.5.2 Exclusion criteria

Health care provider's refusal

New recruits in respective departments who have less than 6 months of service.

Interns rotating in selected departments

3.6 Sample size and sampling technique

The sample size was obtained through this formula for finite population

$$n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2}$$

then inserting n

$$n' = \frac{n}{1 + \frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2 N}}$$

Where:

z is the z score for 95% confidence interval; 1.96

ε is the margin of error; 0.005

N is population size; 200 health care providers in the studied departments

\hat{p} is the population proportion; 0.5

The minimum sample size required for the study was 130 health care workers.

Convenience sampling was used to recruit the participants at their respective departments. To have maximum representation and increase the response rate, all health care workers who met inclusion criteria were recruited in this study, with a total of 174 questionnaires issued.

3.7 Data collection methods, tools, and procedure

3.7.1. Data collection methods

Data were collected by the principal investigator with help of one trained research assistant. The research assistant was a Medical Doctor (registrar) working at Muhimbili National Hospital and was trained on the way to collect data.

Informed consent was obtained from all participants who were offered a questionnaire that was used to collect data. The questionnaire was self-administered and had to be filled out and returned anonymously to a special collection box put at a nursing station in each studied department /unit nursing station or handed over to the principal investigator for data entry and cleaning.

3.7.2 Data collection tools

A two-part questionnaire adopted from Maslach Burnout Inventory (MBI) was administered to diagnose burnout. The MBI questionnaire is recognized as the leading measure of burnout, as it has been used in 88% of burnout research publications and validated by more than 35 years of extensive research. It measures burnout as defined by the World Health Organization (WHO).

The first part of the questionnaire was used to assess the associated risk factors of burnout among health care workers in the acute health care setting. This part included demographic data (age, gender, marital status, number of children) and work-related questions (number of night calls/shifts per week/ month, shift duration)

The second part was the MBI–Human Services Survey (MBI-HSS) tool. The 22-item MBI–Human Services Survey (MBI-HSS), is designed to measure feelings of burnout among individuals working in human services jobs, especially physicians and health care workers. The MBI-HSS questionnaire produces scores on 3 subscales: emotional exhaustion (scores range from 0-54), depersonalization (scores range from 0-30), and low personal accomplishment (scores range from 0-48). The permission to reproduce the tool was obtained from the appropriate authorities.

For this study, the diagnosis of burnout was defined as the presence of all three symptoms of burnout:

- i. A high score (27 or over) in emotional exhaustion
- ii. A high score in depersonalization (13 or over)
- iii. A low score in personal accomplishment (0-31)

3.8 Study variables

3.8.1 Dependent variable

The dependent variable was burnout syndrome as diagnosed by the MBI criteria.

3.8.2 Independent variables

The independent variables were age, place of work, shift hours, number of night shifts per week, marital status, number of children, years at work.

3.9 Pre-testing the tools

A pilot study was carried out in the study area a month prior, using the proposed methodology and tools, to find out areas of improvement preceding the final data collection process. Questionnaires were issued to a small number of health workers who were recruited using convenience sampling.

This assessed the feasibility of the questionnaire in the study area and if any adaptation needed to be done. A total of 15 health care workers who met the inclusion criteria were used in the pilot study.

The health care providers involved in the pilot study have been included in the final study sample.

3.10 Data processing and analysis

3.10.1 Data processing

Data was entered and processed using the Statistical Package for Social Sciences (SPSS) for windows version 22.0 (2013) Armonk, New York (NY), USA. Data were cleaned in terms of consistency, checking for outliers and missing data.

3.10.2 Data analysis

Categorical variables were summarized using frequencies and percentages. Burnout was modelled as a binary variable using the conventional and predetermined limits defined previously. Thus, each participant was assigned to one of the two reciprocally exclusive and exhaustive groups of burnout state. Variables were compared using logistic regression models to estimate the effect size of the risk factors by calculating odds ratios with 95% confidence intervals. All variables which were significant in the univariate analysis were included in a final multivariate model, fitted to obtain adjusted coefficients and to recognize variables that were independently associated with burnout, with a p-value of <0.05 being considered statistically significant.

3.11 Ethical consideration

Ethical approval for the study was attained from the Muhimbili University of Health and Allied Sciences (MUHAS) ethical committee. The permission to collect data from the study area was obtained from the Director of Research Services at MNH.

Participants were not identified by names or age to ensure their anonymity and job security. Each participant had offered informed consent before being administered the questionnaire and the initiation of the data collection procedure.

3.12 Dissemination of results

A copy of the final dissertation work will be shared for access at the Muhimbili University of Health and Allied Science repository for reference. A manuscript will be developed and submitted to a peer-reviewed journal for publication. Likewise, a copy will be shared with Muhimbili National Hospital for its involvement in this study.

CHAPTER FOUR

4.0 RESULTS

A total of 174 questionnaires were distributed in all the departments in which the study was conducted. The response rate of the completed questionnaires that were returned and used for analysis in this study was 135 (78%) as shown in figure 1 below.

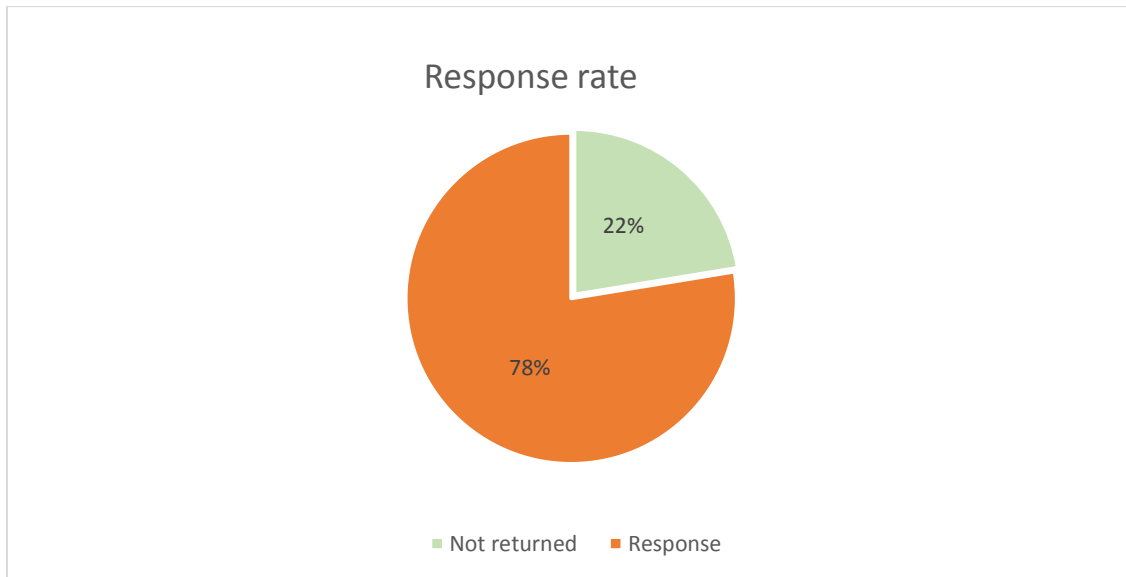


Figure 1: The response rate of the issued questionnaires

4.1 Demographic Characteristics

The study had a total of 135 participants, 35 (25.9%) from the Department of Anaesthesia, 41 (30.4%) from the Emergency Medicine Department, and 59 (43.7%) from the Intensive Care Unit. The majority of the participants in the study were female (63.7%). Most of the participants were aged between 31-40 years, followed by 41-50 years by (48.8%) and (19.3%) respectively. The majority of the participants were married (60.7%) with those who are single being (35.6%), divorced (2.2%) and widowed (1.5%).

Table 1: Demographic characteristics of health care providers in acute care setting

Variable	Frequency (n)	Percent (%)
Area of work		
Anaesthesia	35	25.9
EMD	41	30.4
ICU	59	43.7
Gender		
Male	49	36.3
Female	86	63.7
Age		
≤ 30	33	24.4
31-40	66	48.9
41-50	26	19.3
≥ 51	10	7.4
Designation		
Resident	7	5.2
Specialist	8	5.9
Nursing officer	43	31.9
Assistant Nursing Officer	56	41.5
Other	5	3.7
Registrar	16	11.9
Marital status		
Single	48	35.6
Married	82	60.7
Divorced	3	2.2
Widow	2	1.5

4.2 Prevalence of Burnout

Among the 135 health care providers, 84 (62%) of the participants met the criteria for diagnosis of burnout. The criteria for burnout diagnosis being having all the three symptoms of burnout, which are; high levels of emotional exhaustion (EE), high level of depersonalization (DP), and low levels of personal accomplishments (PA).

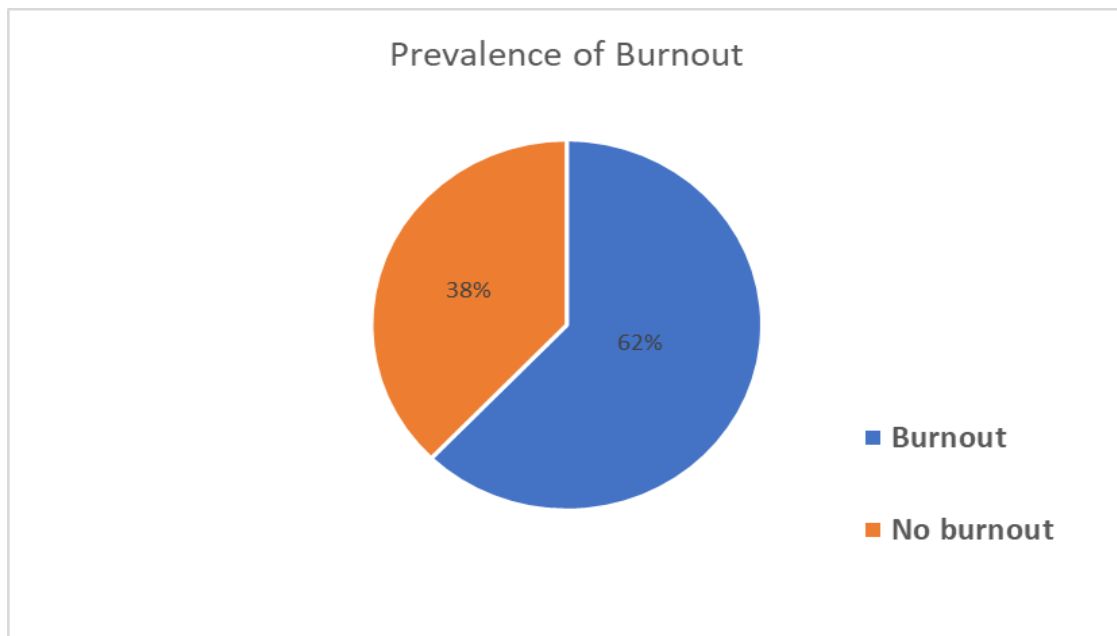


Figure 2: Prevalence of burnout among health care workers at acute health care

4.3 Burnout Symptoms

Among all the symptoms of burnout, the majority of the participants had high Emotion Exhaustion 122 (90.4%), followed by a high level of Depersonalization 88 (65.2%), while none of the participants had low levels of Emotional exhaustion and none had higher levels of Personal Accomplishment as shown in figure 3.

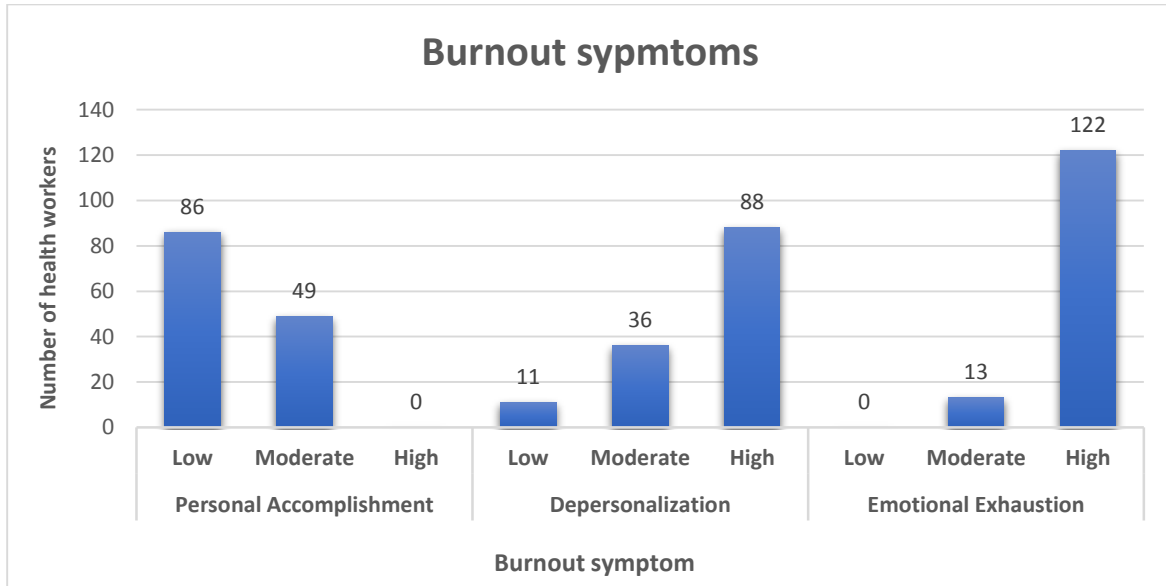


Figure 3: Frequency of burnout symptoms among health care workers

The figure above presents the prevalence of burnout symptoms (subscales) among the health workers with 122 (90.4%) of participants were found to have high Emotional Exhaustion. Thirty-eight (31.2%) health workers had high emotional exhaustion but failed to meet the criteria for burnout diagnosis in this study, as shown in Table 2 below.

Table 2: Burnout symptoms in relation to burnout diagnosis

Burnout subscale	Burnout Diagnosis	
	Burnout (%)	No burnout (%)
Emotional Exhaustion		
Moderate	0 (0.0)	13 (100)
High	84 (68.8)	38 (31.2)
Depersonalization		
Low	0 (0.0)	11 (100)
Moderate	0 (0.0)	36 (100)
High	84 (95.5)	4 (4.5)
Personal Accomplishment		
Moderate	0 (0.0)	49 (100)
Low	84 (97.7)	2 (2.3)

4.4 Factors Associated With Burnout

Table 3: Factors associated with burnout among health workers in acute care setting

Variable	Burnout State		OR (CI 95%)
	Burnout (%)	No burnout (%)	
Area of work			
Anaesthesia	20 (57.1)	15 (42.9)	1
EMD	27 (65.8)	14 (34.2)	1.44 (0.57-3.67)
ICU	37 (62.7)	22 (37.3)	1.85 (0.54-2.96)
Gender			
Male	33 (67.3)	16 (32.7)	1.42 (0.67-2.96)
Female	51 (59.3)	35 (40.7)	1
Age			
≤ 30	21 (63.6)	12 (36.4)	1
31-40	44 (66.7)	22 (42.3)	1.14 (0.48-2.74)
41-50	15 (57.7)	11 (42.3)	0.77 (0.27-2/23)
≥ 51	4 (40.0)	6 (60.0)	0.38 (0.08-1.62)
Designation			
Resident	5 (71.4)	2 (28.6)	1
Specialist	6 (75.0)	2 (25.0)	1.2 (0.12-11.87)
Nursing officer	25 (58.1)	18 (41.9)	0.56 (0.09-3.19)
Assistant Nursing Officer	31 (55.4)	25 (44.6)	0.49 (0.08- 2.78)
Other	3 (60.0)	2 (40.0)	0.6 (0.05-6.79)
Registrar	14 (87.5)	2 (12.5)	2.8 (0.3-25.52)
Marital status			
Single	31 (64.6)	17 (35.4)	1
Married	51 (62.2)	31 (37.8)	0.9 (0.43-1.90)
Divorced	2 (66.7)	1 (33.3)	1.09 (0.09-12.99)
Widow	0 (0.0)	2 (100.0)	

Table 3 above, shows that working in ICU increases the odds of burnout but with no statistical significance. Gender, age, and marital status all had no statistically significant relationship to the diagnosis of burnout.

Those working shifts that were longer than 12 hours were ten times more likely to have burnout compared to participants who had 8-12 hours per shift (95% CI 1.39-85.00). Having more than two nightshifts per week also had greater odds of having burnout with statistical significance. Not having a good working relationship with coworkers had five times greater odds of burnout when compared to those with a good relationship with coworkers. Factors like remuneration, workplace autonomy, and years as a healthcare professional had no statistically significant association with burnout. (**Table 4**).

Table 4: Factors associated with burnout among health care workers in acute care setting

Variable	Burnout Diagnosis		OR (CI 95%)
	Burnout (%)	No Burnout (%)	
Duration of single day shift			
8 - 12 Hours	69 (57.9)	50 (42.1)	1
More than 12 Hours	15 (93.7)	1 (6.3)	10.87 (1.39-85.00)
Night shifts per week			
0	1 (20.0)	4 (80.0)	1
2	36 (49.3)	37 (50.7)	3.99 (0.41-36.51)
3	46 (82.1)	10 (17.9)	18.4 (1.85-18.27)
4	1 (100.0)	0 (0.0)	
Remuneration			
Adequate	12 (100.0)	0 (0.0)	
Not adequate	72 (58.5)	51 (41.4)	
Workplace autonomy			
Yes	72 (65.4)	38 (34.6)	2.05 (0.85- 4.93)
No	12 (48.0)	13 (52.0)	1
Good relationship with co-workers			
Yes	81 (65.8)	42 (34.2)	1
No	3 (25.0)	9 (75.0)	5.79 (1.49-22.51)
Years working in the health care profession			
0 - 5 years	26 (63.4)	15 (36.6)	1
6 - 10 years	34 (60.7)	22 (39.3)	0.89 (0.39- 2.05)
11 - 20 years	22 (62.9)	13 (37.1)	0.97 (0.38-2.48)
20+ years	2 (66.7)	1 (33.3)	1.15 (0.09-1.15)

Table 5: Factors associated with burnout among health care workers in acute care setting

Variable	Burnout Diagnosis		OR (CI 95%)
	Burnout (%)	No Burnout (%)	
Number of children			
None	21 (65.6)	11 (34.4)	1
1-3 Children	52 (62.6)	31 (37.4)	0.87 (0.37-2.06)
3-5 Children	11 (55.0)	9 (45.0)	0.64 (0.20-2.01)
Work-family conflicts			
Yes	27 (71.1)	11 (28.9)	1.72 (0.77-3.87)
No	57 (58.7)	40 (41.3)	1
Physical exercise			
Yes	19 (48.7)	20 (51.3)	0.45 (0.21-0.97)
No	65 (67.7)	31 (32.3)	1
Tobacco			
Yes	14 (87.5)	2 (12.5)	4.9 (1.10 - 22.54)
No	70 (58.8)	49 (41.2)	1
Alcohol			
Yes	55 (58.5)	39 (41.5)	0.58 (0.26-1.28)
No	29 (70.7)	12 (29.3)	1
Chronic disease			
Yes	24 (50.0)	24 (50.0)	1
No	60 (68.9)	27 (31.1)	2.22 (1.08-4.59)
Sleeping Hours at night			
Less than 4 Hours	25 (92.6)	2 (7.4)	1
5 Hours	31 (70.7)	12 (29.3)	0.19 (0.03-0.94)
6 Hours	25 (49.0)	26 (51.0)	0.07 (0.02-0.36)
More than 6 Hours	3 (21.4)	11 (78.6)	0.02 (0.03-0.15)

Table 5 above shows; having more sleeping hours at night, and performing regular physical exercises reduced the odds of burnout statistically significantly. Those who were smoking tobacco had greater odds of burnout when compared to those who were not smoking (OR 4.9, 95% CI 1.10- 22.54). Other family and social-related factors had no statistically significant difference.

Table 6: Multivariate regression of factors with significant association on univariate model

Variable	Standardized Coeff. Beta	p-value	95% CI for B
Duration of single day shift	0.367	<0.001	0.36 - 0.74
Physical exercise	0.579	<0.001	0.44 - 0.75
Number of night shifts per week	0.140	0.065	-0.02 - 0.22
Sleeping hours at night	-0.955	<0.001	-0.59 - -0.42
Chronic disease	0.238	0.076	-0.11 - 0.61
Tobacco	-0.282	0.001	-0.67 - -0.18
Good relationship with co-workers	0.157	0.099	-0.02 - 0.18

Dependent variable being Burnout diagnosis, $R^2=0.609$, Adjusted $R^2= 0.587$

Table 6 above, represents a multivariate analysis of all factors that had a significant association with burnout diagnosis on the univariate model. Duration of a single day shift, regular practice of physical exercise, using tobacco, and sleeping hours at night were all found to have a statistically significant association with diagnosis of burnout among health care workers in acute care settings, while other factors such as having a good relationship with coworker and number of night shifts per week both had p-value >0.05.

CHAPTER FIVE

5.1 DISCUSSION

This was a cross-sectional study among health care workers working in an acute health care setting at a tertiary teaching hospital, Muhimbili National Hospital in Dar es Salaam, Tanzania, aimed at determining the prevalence of burnout, work, and family social factors that were associated with burnout.

The study had 174 questionnaires distributed and 135 (78%) were returned and used in the analysis. This response rate was slightly higher than in most studies, as studies that were done in British Columbia and Europe had response rates of 66% and 41% respectively(18,24), with the lowest response rate of 19.2% that was reported in the USA(23). The higher response rate in this study was because the questionnaires were handed out directly to participants, unlike the other studies that had electronic questionnaires emailed to participants.

5.1.1 Prevalence of Burnout

This study found the prevalence of burnout among healthcare workers in acute care settings at a tertiary teaching hospital in Tanzania to be 62%, with the presence of all three symptoms of burnout being used as the criteria for burnout diagnosis.

The study had higher burnout prevalence in comparison with other studies which have been done in developed countries, that have shown a lower prevalence of burnout among health care workers ranging between 42%- 55% (18,24,31), These studies used more than one subscale of burnout for diagnosis of burnout as in this study. However, all the studies were multicentered, that recruited health care workers from different facilities and multiple specialities.

This study showed a lower prevalence of burnout in contrast to other studies done in sub-Saharan Africa. A study done in South Africa found a prevalence of burnout of 81%, however, only one subscale of the MBI was used to diagnose burnout, and had only 37 participants recruited from multiple centres (25). In East Africa, a study from a tertiary hospital in Kenya similar to our study found a prevalence of burnout of 94% among health care workers (20). However, this

study used the Compassion Fatigue Self-Test (CFST) tool to diagnose burnout and recruited health personnel from all the departments in the hospital, rather than just acute care settings.

Among all symptoms of burnout, a high level of Emotional Exhaustion was the most prevalent symptom (subscale). A total of 122 (90.4%) of the participants had high EE. Whereas in other studies only one symptom of burnout was used for meeting the criteria for diagnosis of burnout, consequently this could have raised the prevalence of burnout in this study to 90.4% if such unidimensional criteria for diagnosis of burnout was used.

Dominant high EE among participants in this study was as similar as to most of the studies done worldwide on burnout among health care workers, that have found higher levels of EE to be more pronounced when MBI was used (18,25), with several studies done in sub-Saharan Africa showing it as the most prevalent of the three subscales by 66% (29)

5.1.2 Factors associated with Burnout

This study found several factors to be associated with burnout among health care workers in an acute care setting in a tertiary teaching hospital.

This study found that age, gender, and marital had no significant statistical association with the diagnosis of burnout among health care workers. This is different from other studies that have shown young health workers and those who are single to be more at risk of having burnout(30). Conflicting studies have separately found both male and female gender to be a risk factor for burnout (24,31,32), whilst some studies found no association between gender and burnout as in our study (47). However, most of the systematic reviews on burnout have concluded that age, gender, and marital status association to burnout was controversial(30,34).

Duration of a single day shift was significantly associated with burnout among health care workers in an acute care setting, although only 16 (12%) participants had reported working for more than 12 hours per shift. This was associated with ten times increased odds for burnout ($p < 0.001$). Similarly to other studies which have shown that long working hours and increased number of night shifts significantly increased the risk for burnout (35,36). However, there was

no statistically significant association found between an increased number of night shifts and having burnout when other factors were controlled for in the multivariate regression model.

Years of practice has been cited as being protective in developing burnout with veteran health care workers having low levels of burnout (37–39), this was not the case among health care workers in this study as there was no association.

Good working environment and relationship with coworkers as cited in several places as a predictor for burnout(26) was also found to have an association with burnout among health care workers in an acute setting, but there was no statistical significance to support the association upon running a multivariate regression model ($p= 0.099$).

Alcohol and tobacco use have both been associated with burnout in different pathways, some linking substance abuse as a coping mechanism to burnout (41). This study found a significant association between tobacco use and increased odds of having burnout when other factors were controlled for. This was similar to other studies that had found substance abuse to have an association with increased risk for burnout among health personnel (24,30,40).

Lack of regular physical exercise was found to have a significant association with increased risk for burnout, as those with regular exercise were 45% less likely to have burnout ($p=<0.001$). This was similar to other studies which have shown lack of physical exercise to be a strong determinant of burnout among health care workers (42), with some authors advocating for regular physical activity as an effective means to reduce burnout among health care workers (43).

Lack of adequate sleep especially during the night time has been found to have a strong association with burnout worldwide (44). In this study, the participants who slept more hours at night had lower odds of having burnout when compared to those who slept for less than 4 hours per night ($p=<0.001$). Although, sleep deprivation has been debated by most authors whether being the effect or cause for burnout (45,46).

5.2 STRENGTH AND LIMITATIONS

5.2.1 Study strengths

The study used a common and popular standardized tool for burnout diagnosis.

The study recruited all healthcare workers who were present in their working stations during the study period, this increased the response rate and the study sample size.

The study used tri-dimensional diagnosis criteria for burnout thus reducing the chance of exaggerating the prevalence of burnout.

5.2.2 Study limitations

This was a cross-sectional study that could only provide a snapshot of the current burnout situation among health workers and associated factors, and could not outline the causes of burnout in our settings.

The study might not be representative of all health care workers as the studied departments are also associated with having higher levels of burnout.

CHAPTER SIX

6.1 Conclusion

This study determined the prevalence and associated factors of burnout among health care workers in acute care settings at a tertiary teaching hospital in Tanzania. The prevalence of burnout among health care workers was found to be alarming high at 62%.

Work-related factors, such as working more than 12 hours per shift and social factors that included the lack of regular practice of physical exercise, lesser sleeping hours at night, and use of tobacco were significantly associated with having burnout among health care workers in acute care settings at a tertiary teaching hospital in Tanzania.

The high prevalence of burnout found in this study should raise an alarm in the whole health care system. This is very detrimental as the hospitals already have personnel shortages, and those few personnel have a frightening level of burnout as this study has shown. Consequently, worsening the situation that can lead to bad service delivery and poorer healthcare workers' wellbeing.

6.2 Recommendations

Stakeholders in the health sector should raise awareness to all health care personnel on the silent but rising problem of health care providers burnout.

All health care institutions should adopt and develop interventions aiming to reduce burnout among health care workers and improving their wellbeing.

Health care workers should practice more health-seeking behavior as burnout has been associated with the development of other clinical illnesses.

More studies should be done in the field of health care workers burnout and wellbeing, as this will help in identifying the causes and develop better interventions for our setting.

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APPENDICES

Appendix I: Informed Consent Form

Consent to Participate in a Study

Greetings! My name is Dr. Alex Lwiza; I am working on this research with the objective of determining the prevalence and associated factors of burnout among health care providers in acute care settings at a tertiary teaching hospital

What participation involves

If you agree to join the study, your participation will involve the completion of a questionnaire prepared for the study and you will be required to sign a consent form.

Confidentiality

I assure you that all the information collected from you will be kept confidential. Your name will not be written on any questionnaire or in any report/documents that might let someone identify you. Confidentiality will be observed and unauthorized persons will have no access to the data collected.

Risk to participant

No anticipated risk or harm may result from participating in this study.

Right to withdraw

Taking part in this study is voluntary. You can stop participating in this study at any time, even if you have already given your consent.

Benefit

The information you provide will help to evaluate the burden of burnout among health care workers, this will help in raising awareness of burnout in our setting and motivate relevant authorities in devising burnout coping mechanisms among their workers.

Whom to Contact

If you ever have questions about this study, you should contact the Principal Investigator, **Dr. Alex Lwiza** (0712393947) of MUHAS, P. O. Box 65001, Dar es Salaam.

Supervisor: Dr. Edwin Lugazia, Phone number: +255754283900

If you ever have questions about your rights as a participant, you may contact:

Director of Research and Publications, MUHAS. P.O.BOX 6500, Dar es Salaam Tel:
068527272

The signing of the consent

I (initials) have read and understood the contents in this form, and I have been given a satisfactory explanation with all my questions answered. I, therefore, agree to participate in this study.

Signature of participant: Signature of Interviewer:

Date of signed consent:

Appendix II: Questionnaire

**QUESTIONNAIRE ON BURNOUT: PREVALENCE AND ASSOCIATED FACTORS
AMONG HEALTH CARE WORKERS IN ACUTE HEALTH CARE SETTINGS AT A
TERTIARY TEACHING HOSPITAL IN DAR ES SALAAM.**

Questionnaire number:

1. Area of work:

1. Anaesthesia 2. D 3.

2. Age:

1. 18-25years 2. 26-30years 3. 31-40years 4. 41-50years
 5. 51-65years

3. Gender:

1. Male 2. Female

4. Marital status:

1. Single 2. Married 3. Divorced 4. Widow/Widower

5. Number of children:

1. None 2. 1-3 children 3. children 4. more than

6. Designation:

1. Resident 2. Specialist 3. Nurse officer
 4. Assistant Nurse officer 5. Other _____

8. Year of residency:

1. First year 2. Second year 3. d year

9. Number of years working in the health care profession:

10. Average number of night shifts/calls per week:

11. Duration of a single shift:

1. 6-8 hours 2. 8-12 hours 3. more than 12 hours

12. How is your remuneration?

1. Adequate 2. Not adequate 3. No remuneration at all

13. Workplace autonomy:

1. Yes 2. No

14. Work-family conflicts:

1. Yes 2. No

15. Good relationship with co-workers:

1. Yes 2. No

16. History of any chronic disease:

1. Yes 2. No

17. Practice of physical exercise:

1. Yes 2. No

18. Do you use alcohol:

1. Yes 2. No

19. Do you use tobacco:

1. Yes 2. No

15. Average night sleep hours per day


MBI Human Services Survey

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
How often 0-6	Statements:						
1. _____	I feel emotionally drained from my work.						
2. _____	I feel used up at the end of the workday.						
3. _____	I feel fatigued when I get up in the morning and have to face another day on the job.						
4. _____	I can easily understand how my recipients feel about things.						
5. _____	I feel I treat some recipients as if they were impersonal objects.						
6. _____	Working with people all day is really a strain for me.						
7. _____	I deal very effectively with the problems of my recipients.						
8. _____	I feel burned out from my work.						
9. _____	I feel I'm positively influencing other people's lives through my work.						
10. _____	I've become more callous toward people since I took this job.						
11. _____	I worry that this job is hardening me emotionally.						
12. _____	I feel very energetic.						
13. _____	I feel frustrated by my job.						
14. _____	I feel I'm working too hard on my job.						
15. _____	I don't really care what happens to some recipients.						
16. _____	Working with people directly puts too much stress on me.						
17. _____	I can easily create a relaxed atmosphere with my recipients.						
18. _____	I feel exhilarated after working closely with my recipients.						
19. _____	I have accomplished many worthwhile things in this job.						
20. _____	I feel like I'm at the end of my rope.						
21. _____	In my work, I deal with emotional problems very calmly.						
22. _____	I feel recipients blame me for some of their problems.						

Appendix III: Ethical Clearance

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF RESEARCH AND PUBLICATIONS.

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



Tel G/Line: +255-22-2150302/6 Ext:
1016
Direct Line: +255-22-2152489
Telefax: +255-22-2152489

Ref. No.DA.282/298/01.C/ 25th June, 2020

MUHAS-REC-6-2020-290

Alex Felix Lwiza,
MMed Anaesthesiology,
School of Medicine,
MUHAS.

**RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED
"BURNOUT PREVALENCE AND ASSOCIATED FACTORS
AMONG HEALTH CARE PROVIDERS IN ACUTE CARE
SETTINGS AT A TERTIARY TEACHING HOSPITAL IN DAR ES
SALAAM TANZANIA"**

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: 2020-06-18

EXPIRATION DATE OF APPROVAL: 2021-06-17

STUDY DESCRIPTION:

Purpose:
This analytical cross-sectional study, will be aiming to determine the prevalence of burnout and associated factors among health care workers at acute health care settings.

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-%202022.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. 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)
9. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
10. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website <http://drp.muhas.ac.tz/>

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. Emmanuel Balandya
Chairperson, Senate Research and Publications Committee



Appendix IV: Introduction Letter

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

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Ref. No. IID/MUH/T.14/2018

08TH September, 2020

The Executive Director,
Muhimbili National Hospital,
P.O. Box 65000,
DAR ES SALAAM.

Re: INTRODUCTION LETTER

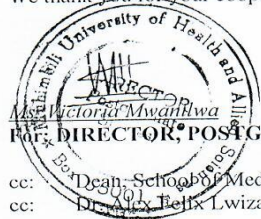
The bearer of this letter is Dr. Alex Felix Lwiza, a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MMed. Anaesthesiology.

As part of his studies he intends to do a study titled: *"Burnout Prevalence and Associated Factors Among Health Care Providers in "Acute Care Setting at a Tertiary Teaching Hospital in Dar es Salaam, Tanzania."*

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

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

We thank you for your cooperation.



For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Medicine, MUHAS
cc: Dr. Alex Felix Lwiza

Appendix III: Collection Data MNH



In reply please quote;

Ref. No.: MNH/TRCU/Perm/2020/108

Da: 06th October, 2020

Head of Department,
 - Emergency Medicine
 - Surgery
 - Anesthesia

Muhimbili National Hospital

RE: PERMISSION TO COLLECT DATA AT MNH.

Name of Student	Dr. Alex Lwiza
Title	"Burnout Prevalence and Associated Factors Among Health Care Providers in "Acute Care Setting at A Tertiary Teaching Hospital".
Supervisor	Dr Edwin Lugazia
Period	06 th October 2020, to 28 th February, 2021

Approval has been granted to the above mentioned student to collect data at MNH.

Kindly ensure that the student abide to the ethical principles and other conditions of the research approval.

Sincerely,
 P. O. Box 65000
 DAR-ES-SALAAM

[Signature]
 Dr. Faraja Chiwanga

Head of Teaching, Research and Consultancy Unit

c.c DSS
 c.c DMS
 c.c Dr. Alex Lwiza