PREVALENCE OF BURNOUT SYNDROME AND ITS ASSOCIATED FACTORS AMONG MUHAS RESIDENT DOCTORS IN TERTIARY TEACHING HOSPITALS DAR ES SALAAM, TANZANIA

Happiness Charles Sway (MD)

Mmed (Anaesthesiology and Critical Care) of the

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

Happiness Charles Sway

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Masters of medicine (Anaesthesiology and Critical Care) of the Muhimbili University of Health and Allied Sciences.

October, 2021.

CERTIFICATION

The undersigned certify that they have read and hereby recommends for acceptance by the Muhimbili University of health and allied sciences a dissertation entitled; "**Prevalence of burnout syndrome and its associated factors among MUHAS resident doctors in tertiary teaching hospitals Dar es salaam, Tanzania**" in partial fulfillment of the requirements for the degree of Masters of Medicine in Anesthesiology and Critical Care of Muhimbili University of Health and Allied Sciences.

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Dr. Asha Abdullah (MD,MMed)

(Supervisor)

Date;_____

_____

Dr. Edwin Lugazia(Md, Mmed,)

(Co-supervisor)

Date; _____

DECLARATION AND COPYRIGHT

I, Happiness Charles Sway, 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: ……………………

ACKNOWLEDGEMENT

DEDICATION

I would like to dedicate this thesis to my beloved mother– a woman who loves me immensely and unconditionally

I dedicate this work to my late father. He showed me that one could travel very far in life if one dreamed about it first and then carefully charted the route. He taught me so many things in life beyond his limited education. Continue resting in peace Dad.

I dedicate this dissertation to my loving husband Dr. Godlisten and our lovely daughters Gracious and Giovanna. I love you all.

I dedicate this dissertation to my older sister Judith. She has played a very big role in my MMed degree journey.

ABSTRACT

Background

Burnout syndrome among both doctors in practice and training has reached epidemic levels, with prevalence near to or exceeding 50%. However, uncertainties exist about the prevalence of burnout syndrome among resident doctors in our settings. In addition, associations between burnout and gender, age, specialty, and geographical location of training remain unclear.

The objective of the study: To determine the prevalence of burnout syndrome and its associated factors among MUHAS resident doctors at tertiary teaching hospitals in Dar es Salaam.

Methodology; A cross-sectional study of 398 resident doctors from the Muhimbili University of Health and Allied Sciences (MUHAS) practicing at tertiary teaching hospitals. Data was collected using a printed structured questionnaire which had two sections: Section one; Socio-demographic and professional characteristics and section two a validated instrument Maslach Burnout Inventory (MBI) for burnout evaluation. The obtained data were analyzed by Statistical Package of Social Science (SPSS) version 23. Continuous variables were summarized using the mean and standard deviation or median and interquartile range depending on their spread. Categorical variables were summarized using proportion and percentage. The chi-square test and multivariate logistic regressions were used to find the association between independent variables and the dependent variable. A p-value of less than 0.05 was considered statistically significant.

Results: 398 residents participated in this study. The prevalence of burnout syndrome was 33.7%. Our study found that inadequate support from residency program supervisors, work-family related conflicts, stressful call perception, and each added year of study to be independently associated with burnout with odds ratios of (OR=1.97, 95%CI [1.23,3.14]; p=0.005), (OR=3.2; 95% CI [1.35,7.71]; p=0.008), (OR=3.31; 95% CI [1.90,5.76] p<0.001) and, (OR=1.5; 95% CI[1.23.3.14]; p=0.011) respectively. However, no

significant association was found between burnout and age, marital status, specialty, year of experience, or number of call duty.

Conclusion and Recommendation; Burnout syndrome prevalence is high among resident doctors in our setting and several factors such as poor support from residence program supervisors, year of residence are associated with it. Considering the high prevalence and its consequences there is a need for directing preventive and intervention measures in the residency training program. However, studies providing information on the state of burnout and its correlates among Tanzania residents are still very limited, hence more research are needed, to make a strong policy.

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LIST OF ABBREVIATIONS

CI   Confidence interval

DP   Depersonalization

ECDs   Early career doctors

EE   Emotional exhaustion

ICD   International Classification of Diseases

LMIC   Low and Middle -Income Countries

MBI   Maslach Burnout Inventory

MBI-HSS   Maslach Burnout Inventory-Human Health Services

MNH   Muhimbili National Hospital

MOI   Muhimbili Orthopaedic Institute

MUHAS   Muhimbili University of Health and Allied Sciences

ORCI   Ocean Road Cancer Institute

PA   Personal Accomplishment

SPSS   Statistical Package of Social Science

SU   Surgical/Urgency

WHO   World Health Organization

DEFINITION OF TERMS

Burnout- According to the WHO International Classification of Diseases (ICD 11), burnout (coded as "Z73.0, Problems related to life management difficulty") is defined as a "syndrome resulting from chronic work stress that has not been successfully managed." It is a "state of vital exhaustion" and it includes mental and physical exhaustion related to stress at work.

Residents -Are early career doctors (ECDs) who possess basic medical degrees undergoing supervised specialty medical training.

Emotional exhaustion (EE)- Refers to workers' inability to give emotionally to the recipients of their services.

Depersonalization (DP), commonly known as cynicism, refers to exhibiting unfeeling and inhumane responses towards recipients of one's service. It makes a person put distance between themselves and the recipients of the service, actively ignoring the qualities that make them unique individuals, causing a sense of alienation and indifference towards others.

Low Personal Accomplishment(PA) is a state where a worker feels inadequate, ineffective, making him/her underestimate his/her efforts, and in the end fails to achieve his/her goals in the professional field. Leaving the person feeling that very little has been achieved and what is accomplished is worthless.

1.0 INTRODUCTION

1.1 Background

Burnout is a state of physical, mental, and emotional exhaustion arising from a continued response to chronic interpersonal stressors while at work, which in turn affects the working efficiency of a person (Maslach and Leiter, 2016). The term was first introduced by Freudeberger and Maslach who independently studied the social issues faced by underprivileged citizens in the 1970s and 1974 it was described among health care professionals (Dhusia et al., 2019). This sentence is not clear. Fredeunberger had stated that burnout was primarily seen in the industrial workers but later became more common in occupations engaging in human services directly and especially in the medical field (Jadin, 1982). It is not a sign of weakness, mental illness, or inability to cope with life and it can be treated, overcome, and prevented (Shanafelt et al., 2003)

Burnout syndrome among health care professionals has become a serious health problem and the mental health of doctors is an issue of growing concern all over the world as it frequently interferes with their professional training and responsibilities (Rothenberger, 2017). Among practicing physicians, it has reached epidemic levels with a prevalence that approximates 50% (Shanafelt et al., 2015).

The condition is also well associated with negative physiological, cognitive, psychological, and behavioral manifestations which creates severe pressure on the whole health care system threatening patients' care and safety. Examples of such consequences are: quitting one's job, job dissatisfaction, lack of marital and familial harmony, decrease in self-esteem, difficulty in concentrating, social isolation, (Demir et al., 2003; Shanafelt et al., 2003). Aside from that it is associated with factors such as absenteeism, reduced effectiveness at work, and impaired productivity, which further reduce the capacity of doctors to deliver optimal care. Other health challenges that come with burnout include: poor mental health and physical morbidity, loss of libido, headache, cold, gastrointestinal problems, sleep disorders, and alcohol and drug abuse.

Burnout appears to be quite prevalent in both developing and developed countries and probably represents considerable economic, social and psychological costs to employees and employers in these countries. The problem of residents' burnout is widely recognized with diverse solutions implemented across the developed countries. However, there is a lack of clarity about the global prevalence of burnout among medical residents, in, addition workplace environment, ethics and culture vary across the countries, and there is limited evidence on residents' burnout in low-income and middle-income countries (LMIC). This affects interventions to prevent and reduce residents' burnout as most of the studies of sufficient quality have only been done in high-income countries (West et al., 2016). Also, residency is a particularly stressful time, as they are tasked with a tremendous responsibility of consistently providing high-quality care while learning and integrating new skills. Adapting to these job demands has a direct consequence on one's emotional and intellectual reserve, and the ability to establish a healthy home–work interface (Bruschini et al., 2018).

1.1.1 Sub- dimensions of Burnout

Emotional exhaustion is the inability of the workers to give emotionally to the recipients of their services and results from a decrease or loss of self-confidence and interest in one's profession as well as feelings of fatigue and weakness. Workers feel they are no longer able to give of themselves at a psychological level as their emotional resources are depleted (Demir et al., 2003; Maslach et al., 1996). A common symptom for the individual is to see with dread the prospect that the next day will have to go to his work again.

Depersonalization refers to the negative and cynical confrontation of recipients of one's services. A typical example of such behavior is the inclination to refer to patients not with their names but with the number of their bed /room, or the disease. This dehumanized perception of others can lead staff to view their clients as to somehow deserve their sufferings. This happens with prolonged emotional exhaustion and few resting hours, with little social support and recreational activities. This is well 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. The growth of this impersonal behavior towards patients, their co-workers, and the organization make the worker feel inadequate, ineffective, make them underestimate their efforts and in the end, makes him/her failure to achieve his/her goals in the professional field and it is the point where feelings of low personal accomplishments start to appear, especially when work doesn't ensure positive feedback and remuneration (Maslach et al., 1996).

A feeling of low personal accomplishments has been the major recent concern. It is this symptom that has led to increased global awareness on burnout, as it has been shown to greatly impact patients' care and safety. It refers to negative self-evaluation particularly with regards to one's work with clients. 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 shortly (Demir et al., 2003; Maslach et al., 1996)

1.1.2 Risk factors for residents' burnout

For medical professionals, the seeds of burnout may be planted as early as medical school. To date, the literature seems to support the notion that there are various factors during medical school life that contribute to burnout in physicians, and that burnout is a phenomenon that develops cumulatively over an extended period (Dahlin and Runeson, 2007; Dyrbye et al., 2006)

Although the factors that contribute to residents' burnout are unclear, several studies have explored possible reasons for burnout in residency training. In these studies, residents report that time demands, workload, practice setting, lack of control over time management, work planning, work organization, specialty choice, inherently difficult job situations, sleep deprivation problems with work-life balance and interpersonal relationships are stressors that may contribute to burnout (Cohen and Patten, 2005; Nyssen et al., 2003; Shanafelt et al., 2002; Thomas, 2004).

Other factors cited in the literature include age, gender, marital status and parenting responsibilities. Concerning gender, the previous speculation had led to the hypothesis that women residents are more prone to stress and be at a greater risk of burnout as a result of conflicts between traditional gender roles and professional practice and because of the climate of medical education which is competitive and oriented towards masculine tradition (Geurts et al., 1999; Whitley et al., 1991). On marital status, having the support of a spouse might be expected to protect against burnout in residents, and this may be due to the role of social support in buffering the effects of adverse life events(Whitley et al., 1991) .

These combinations of factors makes residents vulnerable to the development of burnout, leading to interference with the individual's ability to sort through diagnostic dilemmas, establish rapport, as well as work through complex treatment decision-making and diagnosis (IsHak et al., 2009; Thomas, 2004). There might therefore be a high prevalence of burnout amongst residents which could have consequences for patient outcomes and health institutions in our country due to the potential aforementioned risk factors which are more prevalent in our setting. However, there is to my knowledge and search no published study on burnout amongst residents in Tanzania.

1.2 Problem Statement

The mental health of doctors is an issue of growing concern all over the world as it frequently inters plays with their professional training and responsibilities. Globally, burnout rates among both doctors in practice and in training are reported to range from 25-75%, and reports suggest that health workers working in African countries have the highest burnout burden(Ogunsuji et al., 2019; Rodrigues et al., 2018; Shanafelt et al., 2015). In clinical settings, evidence shows that burnout causes prescription errors and reduces the quality of medical services, potentially affecting inter-professional relationships, and increasing rates of depression, and substance abuse among medical professionals (Rosenstein and O'Daniel, 2006). It is also one of the most common mental health issues faced by resident doctors.

There is an established notion that the prevalence of burnout syndrome is lower in professionals with less experience and the majority of studies exclude resident doctors or new graduates from the calculations. This notion may be false, especially in public sector hospitals in low-income countries, where the doctor-to-patient ratio is very low compared to the recommended ratio(Dhusia et al., 2019; Dyrbye et al., 2006; Maslach and Leiter, 2016). Other factors such as high workload and poor work environment like lack of equipment and supplies among others, seen in developed countries are more prevalent in low- and middle-income countries (LMICs). But there is scarcity of research on the experience of burnout among resident doctors in LMICs (Ogboghodo and Edema, 2020) and as far as my search and knowledge are concerned, there is no published data from Tanzania which looked into burnout syndrome in residents. This study aims to determine the prevalence rate of burnout syndrome and its contributing factors among resident doctors in Tanzania.

1.3 Rationale

Studies show that psychological distress and chronic exposure to high levels of stress during medical training can result in a "burnout syndrome" with the potential for multiple detrimental consequences that not only harm the doctors but also reduce their ability to serve the patients and the community effectively (Amir et al., 2018)**. Considering that the number of doctors are fewer than needed, burnout will have big consequences in our setting and we cannot afford it.**

Identification of the syndrome and introduction of interventions targeting unsuccessful coping strategies and complications related to burnout, form the core of managing burnout syndrome and may offer an opportunity to improve residents well-being and mental health as well as improving medical services(Bhugra et al., 2008; Maslach et al., 1996). However, not much has been done in a poorly resourced country like Tanzania. There is a dearth of information on this subject matter, hence the need for this study.

As this study will look into contributing factors and the prevalence of burnout, the results of this study will help to estimate the prevalence of burnout in our setting. It may assist

researchers as it will point the direction of future research, It could also help inform administrators and policy makers, and raise an awareness that maybe encourage programmes to reduce burnout among residents in our setting, improving the working environment of residents and consequently their ability to provide better services.

This study is also part of partial fulfillment of my MMed in Anesthesiology training requirement

1.4 Literature review

1.4.1 Prevalence of burnout among residents

Burnout syndrome is a psychological state characterized by symptoms that broadly fall under the three distinct domains of emotional exhaustion, depersonalization or cynicism, and reduced professional efficacy (Korczak et al., 2010). Reports from among the largest study done in the US showed a range of 27-75% burnout rates among resident doctors from different specialties, with over 50% meeting the criteria for burnout (Martini et al., 2004). The high prevalence of burnout syndrome among resident doctors is alarming as it does not only take a toll on the physical and mental health of the medical practitioners but also reduces their working efficiency and motivation.

A study done in the Netherland to assess the burnout rates and potential determinants of burnout in a sample of medical residents showed that 31% of residents met the Maslach Burnout Inventory (MBI) criteria for burnout (Ringrose et al., 2009). Another study done to identify burnout syndrome prevalence among orthopedic surgery residents from different levels in different training centers of Saudi Arabia results indicated that more than 56.3% of the sample had positive scores (scored positive)for burnout syndrome(Alsheikh et al., 2019)

A meta-analysis study done in Brazil reported a burnout prevalence for all specialties to be 35.7% and burnout categories, it estimated a high Depersonalization (DP) from all specialties to be 43.6%, followed by the overall prevalence rate of high emotion exhaustion(EE) of 38.9% and an overall value for low Personal Accomplishment (PA) of 34.3% (Rodrigues et al., 2018). Another study done in Brazil to determine the prevalence of burnout syndrome among resident physicians of various specialties and to evaluate associated factors reported the a prevalence of 27.9%(Feteh et al., 2017) A study done to determine prevalence of occupational burnout among resident doctors working in public sector hospitals in India revealed that 56.66% of all respondents, showed scores that indicate burnout (Dhusia et al., 2019). A systematic review done in Iran which was to estimate a more precise prevalence of burnout among residents of obstetrics and

gynecology found overall prevalence of burnout to be 44% (Moradi et al., 2015). A meta-analysis study done in Singapore, to determine the prevalence of burnout in medical and surgical residents, found the aggregate prevalence of burnout to be 51.0% (Low et al., 2019)

A study done in Syria to determine the prevalence of burnout syndrome among resident physicians showed the levels of emotional exhaustion, depersonalization, and personal are as follows, (77.9%) of the sample has a high level of (EE), (54.6%) has a high level of (DP), and (13.7%) has a low level of (PA). (19.3%) of the residents included in this study have a high level of burnout in all three domains of the index, and (93.75%) have a high level in at least one of the three (Alhaffar et al., 2019). A systematic review done in Nigeria (Ogunsuji et al., 2019) reported a prevalence of burnout ranging from 23.6% to 51.7% among physicians across the four studies included in their review.

Prevalence of the burnout in individual domains/sub-dimensions

A study done in Nigeria showed that overall, 93 (45.6%) respondents reported burnout in the dimension of emotional exhaustion, 118 (57.8%) in the dimension of depersonalization, and 126 (61.8%) in the dimension of reduced personal accomplishment (Ogundipe et al., 2014)

1.4.2Comparison of the prevalence of residents' burnout across the medical specialties

A meta-analysis study done in Brazil compared the proportion of residents presenting burnout among all types of specialties. This study showed that surgical/urgency (SU) specialties; (general surgery, anesthesiology, obstetrics and gynecology, and orthopedics) have a high prevalence of 42.5%; followed by a group formed by internal medicine, plastic surgery, and pediatrics, with a moderate prevalence of 29.4%; and finally a group including otolaryngology and neurology, with a low burnout syndrome prevalence of 23.5% (Rodrigues et al., 2018), Concerning sub-dimensions of burnout, the highest DP values were found in cardiology, otolaryngology with 53.3% and obstetrics and

gynecology with 50.6%. The specialties showing the highest percentages of low DP were plastic surgery, radiology (50.8%), and family medicine (50.6%). High EE presented in general surgery (54.8%), otolaryngology (47.3%), and radiation oncology (48.9%). In contrast, plastic surgery (63.5%), and family medicine (58.3%) exhibited the highest percentage values for low EE. Internal medicine (59.2%); plastic surgery (46.1%) and urgency and emergency (46.1%) had the residents with the lowest personal accomplishment (PA) values. However, radiation oncology (68.9%), and cardiology (51.4%) were the specialties with the highest personal accomplishment (PA) values(Rodrigues et al., 2018).

A study done in the US shows the variation of percentage of burnout across specialty, ranging from 27% to 75% (Martini et al., 2004). Another meta-analysis study done in Singapore to determine the prevalence of burnout in medical and surgical residents found that radiology 77.16%, neurology 71.93%, and general surgery 58.39%, are the top three specialties with the highest prevalence of burnout. In contrast, Psychiatry 42.05%, Oncology 38.36%, and Family medicine 35.97% have the lowest prevalence of burnout. In addition, more than 50% of residents experienced burnout in Internal medicine 57.11%, Orthopedics 55.63%, Dermatology 51.89%, Obstetrics and Gynecology 52.84%, and Neurosurgery 52.02%. However, there is no statistically significant difference in prevalence rates among various specialties (Low et al., 2019).

In a study done in Egypt represents, the highest prevalence of burnout was found among internal medicine physicians followed by surgeons (Kotb et al., 2014) while in the study done in Nigeria, there is no significant inter-departmental difference in the prevalence of burnout among the resident doctors in the area of emotional exhaustion and depersonalization. However, this is not so in the area of reduced personal accomplishment where there are significant interdepartmental differences. The highest prevalence of burnout is found amongst residents in the surgery department (77.8%) and closely followed by paediatrics residents (70.6%) (Ogundipe et al., 2014).

1.4.3 Factors associated with residents' burnout

Several studies have been done to try to establish the factors associated with burnout. Different studies found that high levels of work-family conflict, little work-related autonomy, perception of call duty as stressful, low work-engagement and inadequate support from management are associated with burnout (Ogundipe et al., 2014; Ringrose et al., 2009). A study done in the US reported that personal stress and dissatisfaction with faculty are among the factors significantly associated with burnout However burnout is not statistically significantly higher among those who worked more than 80 hours per week(Martini et al., 2004).

The effect of gender on burnout showed conflicting results. Some studies showed that male residents scored significantly lower than female residents on the depersonalization subscales, emotional exhaustion, and personal accomplishment sub scales(Alhaffar et al., 2019; Low et al., 2019) whereas other found the opposite (Dhusia et al., 2019; Shanafelt et al., 2002)

Concerning age data are also conflicting. Some show older age is the risk factor(Alhaffar et al., 2019),others show it is protective (Kotb et al., 2014), while other studies report young age a strong predictor for burnout (Ogundipe et al., 2014; Ogunsuji et al., 2019). On the association of year of residence and the burnout, results from studies are controversial. Some studies showed the increasing year of residency is associated with the highest percentage of high EE and DP and low PA (Alhaffar et al., 2019; Dhusia et al., 2019),while others (Kotb et al., 2014; Martini et al., 2004) showed the first year of residency is significantly associated with burnout.

 (McCraine et al., 1988; Lemkau et al., 1988, 2018; Ogundipe et al., 2014) in their study found no difference in the scores of the Maslach Burnout Inventory based on marital status while (Kotb et al., 2014; Martini et al., 2004)shows that there was a statistically significant relationship between burnout and marital status as burnout was higher single, divorced, or unmarried residents met the criteria for burnout compared with married residents. (Martini et al., 2006; Shanafelt et al., 2002) research has shown that parenting

can act as a protective factor against burnout. (Ogunsuji et al., 2019) in Nigeria found that residents that reported support from hospital management are significantly less likely to have burnout. (Ogundipe et al., 2014) reported the same factor of inadequate support from supervisors to be significantly associated with burnout syndrome in the area of reduced personal accomplishment.

A study done in Egypt found there was an inverse statistically significant relationship between burnout and both practicing exercise and smoking in the studied physicians. The prevalence of burnout was lower in physicians practicing exercise (22%) compared to (61.5%) in those who did not practice exercise while burnout was more prevalent in non-smokers (60.1%) compared to (18.2%) in smokers(Kotb et al., 2014)

There are limited studies in Africa on the prevalence of burnout syndrome among residents and to the best of my knowledge no published study on burnout has been done in Tanzania.

1.5 Conceptual framework
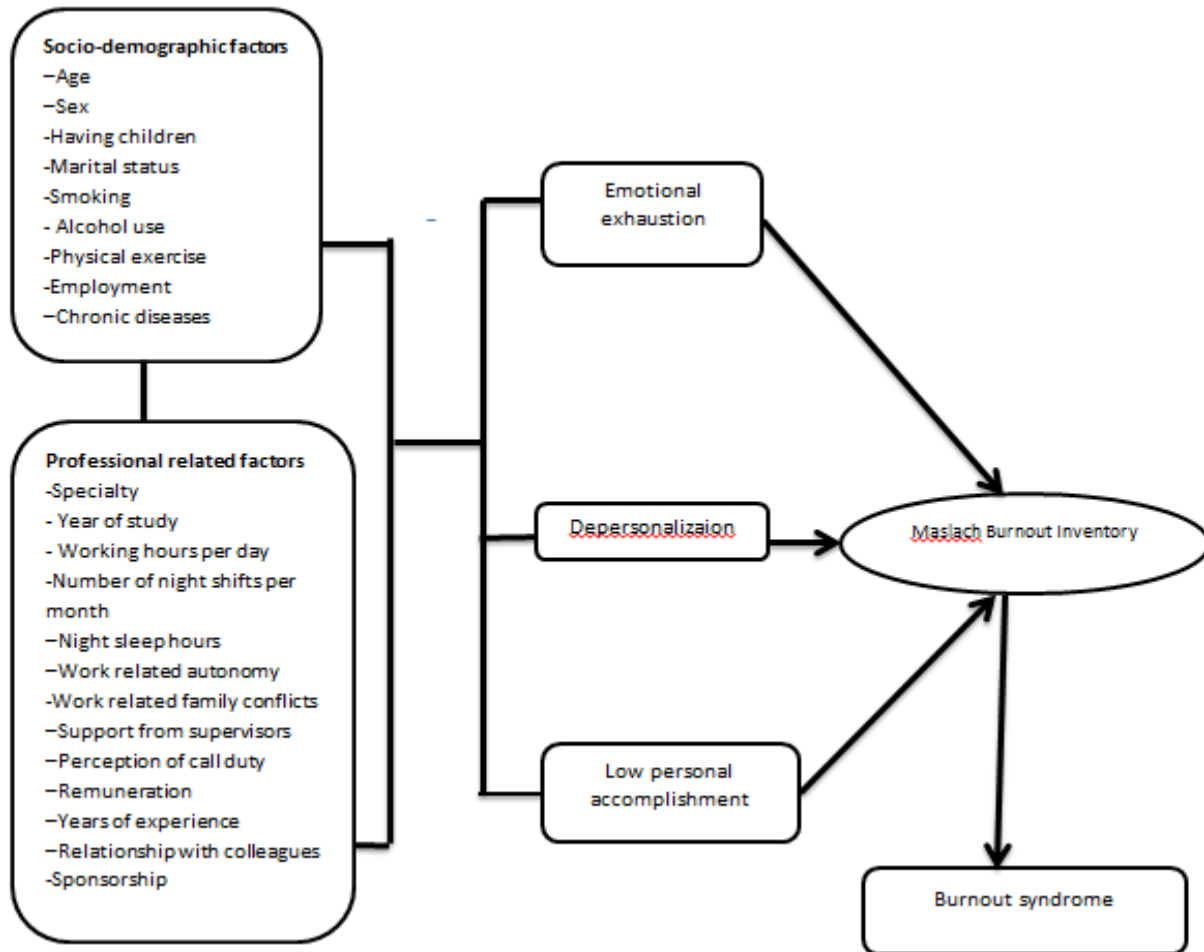
Prepared by Happiness Sway 2020.

Figure 1: Narration of conceptual framework.

The figure above demonstrates the socio-demographic and professional-related factors that are associated with residents' burnout syndrome. Burnout is defined by WHO in ICD-11 as, having the following dimensions: emotional exhaustion, depersonalization, and low personal accomplishment. In this study all these dimensions was assessed using the Maslach Burnout Inventory to determine burnout.

1.6 Research question

1.6.1 Overall research question

What are the prevalence and associated factors of burnout syndrome among MUHAS residents at tertiary teaching hospitals in Dar es Salaam Tanzania from August-December 2020?.

1.6.2   Specific questions

2   What is the prevalence of burnout syndrome among MUHAS residents at tertiary teaching hospitals in Dar es Salaam Tanzania from January -March 2021?

3   What are the factors associated with burnout syndrome among MUHAS residents at tertiary teaching hospitals in Dar es Salaam Tanzania from January -March 2021?

1.7 Objectives

1.7.1. Broad objective

To determine the prevalence and associated factors of burnout syndrome among MUHAS residents at tertiary teaching hospitals in Dar es Salaam, Tanzania from January -March 2021.

1.7.2   Specific objectives

i.   To determine the prevalence of burnout syndrome among MUHAS residents at tertiary teaching hospitals in Dar es Salaam Tanzania from January-March 2021

ii.   To identify associated factors of burnout syndrome among MUHAS residents at tertiary teaching hospitals in Dar es Salaam Tanzania from January-March 2021.

2.0 METHODOLOGY

2.1 Study design

This was an analytical cross-sectional **prospective** study carried to determine the prevalence rate of burnout syndrome and its contributing factors among MUHAS resident doctors at tertiary teaching hospitals in Dar es Salaam.

2.2 Study duration

The study was carried out from January-March 2021.

2.3 Study setting

The study was conducted at Muhimbili National Hospital (MNH), Muhimbili Orthopaedics Institute (MOI), Jakaya Kikwete Cardiac Institute (JKCI) and Ocean Road Cancer Institute (ORCI) where the MUHAS resident doctors who are pursuing clinical training do their daily rotations.

Muhimbili National Hospital (MNH) is a tertiary level consultant Hospital as well as the MUHAS teaching hospital and Research Centre located at Ilala district Dar es Salaam with 1,500-bed facility, attending 1,000 to 1,200 outpatients per day, admitting 1,000 to 1,200 inpatients per week.

Muhimbili Orthopaedics Institute (MOI) is also a tertiary level consultant hospital as well as a teaching hospital located at Ilala district Dar es Salaam. It is the institute which deals with orthopaedic and neurological patients.

Ocean Road Cancer Institute (ORCI) is a public, specialized, tertiary care medical facility. It is the largest comprehensive cancer care center in the country. The facility is located in Ilala District Dar es Salaam. ORCI is a cancer treatment, research, and teaching center, affiliated with the Muhimbili University of Health and Allied Sciences and with Muhimbili National Hospital, the teaching hospital of the university.

2.4 Study population

The study population consisted of MUHAS Resident doctors hereafter referred to as residents, 1st -3rd years, practicing at MNH, MOI, and ORCI Tertiary teaching hospitals

2.5 Inclusion and exclusion criteria

2.5.1 Inclusion criteria

All MUHAS resident doctors practicing in the following deperments Orthopaedics, Anaesthesia, General Surgery, Urology, EMD, Paediatrics, Obstetrics and Gynecology, ENT (otolaryngology), Ophthalmology, Internal Medicine, Hematology, Oncology, Radiology, Dental, Psychiatry and Pathology.

2.5.2 Exclusion criteria

Residents who have been in the departments for less than 6 months

Refusal to participate

Incomplete/missing data

2.6 Sample size calculation

A total of 420 residents were enrolled to participate in this study. The sample size was arrived at using the sample size calculation formula for cross-sectional studies. A prevalence of 55% burnout syndrome in residents obtained from a study done at Lagos University Teaching Hospital in Nigeria was used to calculate the sample size(Ogundipe et al., 2014).

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Where

'n' is the sample size,

'Z' is the Z statistic for a level of confidence, for the level of confidence of 95%, which is conventional, Z value is 1.96.

'P' is the probability that a resident will have burnout, $P = 0.55$

'd' is the precision of the study, which is 0.05.

$n = \frac{1.96^2 \times 0.55 \times (1-0.55)}{0.05^2} = 380$

Taking a non-response rate of 10% into consideration

N=n X 100% / (100%-10%)

  =380 X 100% / (90%)

 N=418 corrected sample size.

2.7 Sampling technique

Stratified proportionate allocation was used to determine the required number of residents per department and consecutive sampling was performed to get 420 residents using inclusion and exclusion criteria**.**

2.8 Study variables

2.8.1 Dependent Variable

Burn out syndrome

2.8.2 Independent variable

Socio-demographic factors including: age, gender, marital status, number of children, employment, smoking, physical exercise practice, chronic diseases and accommodation.

Professional factors such as: specialty, year of residency, number of working hours per day, number of night calls per month, working relationship with colleagues, average hours of sleep per night, night's sleep hours, support from supervisors, work-related family conflict, work autonomy, call perception, years of experience, sponsorship and remuneration.

2.9 Data collection methods, tools, and procedure

2.9.1 Data collection.

Data was collected by the principal investigator (PI). Once the residents agreed to participate and signed the consent, a printed questionnaire was handed to them, which they were asked to fill in at their convenience and handed back to PI. The questionnaire was in English, the language of instruction at the university. All residents were consecutively recruited until the minimum sample size was attained.

2.9.2 Data collection tools

Data was collected using a printed structured questionnaire, which comprised of two sections: Section one: Social-demographic and professional features including; age, marital status, having children, employment, smoking, physical exercise practice, any history of chronic diseases, accommodation, specialty, year of study, number of working hours per day, number of night calls per month, working relationship with colleagues, average night's sleep hours, support from supervisors, work-related family conflict, work autonomy, call perception, years of experience, sponsorship, and remuneration.

Section two: Assessed burnout using an adapted self-administered English version of Maslach Burnout Inventory-Human Services Survey (MBI-HSS) which is a reliable, widely used and a validated tool for assessment of burnout in African health care personnel and is regarded as the "gold standard" in measuring burnout. The MBI-HSS is a self-administered questionnaire consisting of 22 items that measure burnout in individuals working in human service institutions and health care occupations. It assesses three burnout dimensions: EE (e.g., *'I feel burned out from my work'*), DP (e.g., *'I worry that this job is hardening me emotionally'*), and PA (e.g., '*I feel very energetic*'). EE is measured by 9 items, DP by 5, and PA by 8. All Items are scored using a frequency scale in which the respondent answers according to their perceived frequency of occurrence, ranging from 0 (*Never*) to 6 (*Every day*) , Likert scale (0-6): 0 (never), 1 (once a year or less), 2 (once a month or less), 3 (a few times a month), 4 (once a week), 5 (a few times a week), and 6 (every day). The three main subsets—emotional exhaustion; depersonalization and lack of personal achievement—are scored separately. Each of these tenets of burnout is further categorized according to severity (low, moderate, or high level of burnout). The sub-dimensions cutoff points adopted are:—low EE ≤6, moderate EE 7-26, high EE ≥ 27; low DP ≤16, Moderate DP 17-12, high DP≥13 and low PA ≤31, moderate PA 32-38 and high PA≥39(Maslach and Leiter, 2016).

To determine the prevalence of burnout syndrome amongst resident doctors in this study, we used the tridimensional diagnosis criteria for Burnout Syndrome using MBI (emotional exhaustion, depersonalization and personal accomplishment). Accordingly,

those who scored high on both emotional exhaustion (score of $\geq$ 27) and depersonalization (score of $\geq$ 13) plus low personal/professional (score 0-31) domains of burnout, were considered to have burnout.

2.9.3 Pre-testing the tools

The data collection tool was first pilot-tested among 40 residents. This was to assess the applicability of the instrument and suitability of the study design and evaluated the resident's receptiveness to this study. The pilot study also aimed to identify the average time for questionnaire completion and questions that were frequently not answered due to comprehension difficulties.

2.9.4 Data processing and analysis

2.9.4.1 Data processing

Data were entered and processed using the Statistical Package for Social Scientists (SPSS) for Windows, Version 23.

2.9.4.2 Data analysis

Data were analyzed using SPSS for Windows, Version 23.0. Data were cleaned in terms of consistency, checking for outliers and missing data. Continuous variables were summarized using the mean and standard deviation or median and interquartile range depending on their spread. Categorical variables were summarized using proportion and percentage. The chi-square test and multivariate logistic regression were used to find the association between the independent variables and the dependent variable. The results were expressed as p-value and adjusted odds ratio, respectively. A p-value of less than 0.05 was considered statistically significant.

2.10 Ethical Considerations and ethical clearance.

Approval to conduct the study was obtained from the Senate Research and Publication Committee of MUHAS. Permission to conduct the study was obtained from respective authorities at MOI, MNH, JKCI, and ORCI. Each participant was required to sign an informed consent form before recruitment.

All ethical principles were observed during the conduct of this research and confidentiality was assured by the collection of anonymous data. The study information was stored in protected computer files and only study researchers had access to the information.

Enrollment was done after proper explanation to the residents about the study aim and when had fully understood and voluntarily consenting to take part in the study. Residents had the right to withdraw from the study at any time during the study. Information obtained from each were anonymous

2.13 Dissemination of Study Results

A dissertation will prepared and submitted to MUHAS Director of Postgraduate Studies and posted to MUHAS repositories and the director of the library. Findings will be presented at local conferences. The manuscript will be submitted to peer review journals for publication.

4.0 RESULTS

A total of 420 residents were enrolled in our study, from which 406 (96.6%) responded. Eight (2%) were excluded due to incomplete data. Data from 398 residents were analyzed. Figure 2.
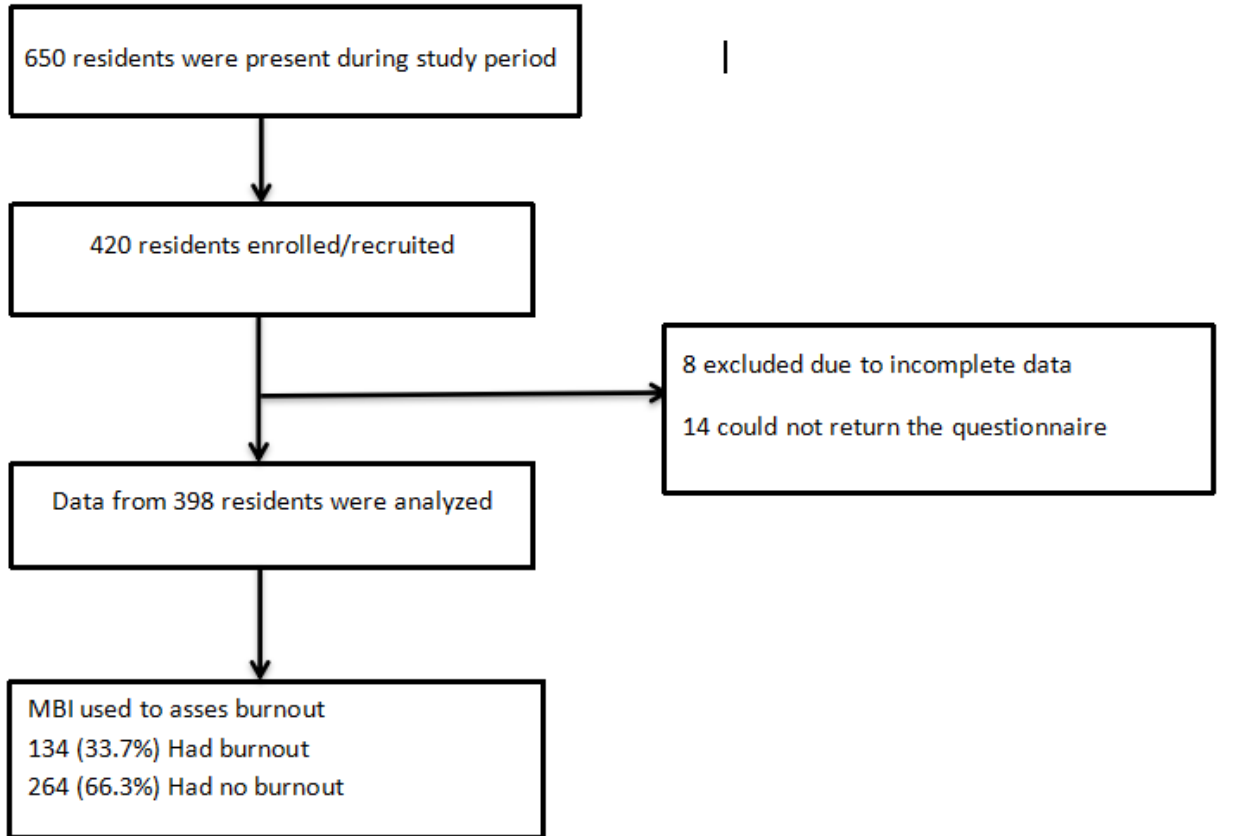
Figure 2: Schematic of residents' enrolment

Baseline characteristics

Concerning the socio-demographic profile of the residents, we found that; residents' age ranges between 24-50 years with a mean age of 35years and most were male 243(61.1%. The majority were married 256(64.3%), had children 256(64.3%), employed 325(81.7%), non-smokers 282(96%) and do not drink alcohol 286(71.9%). As for housing majority, 277(69.6%) of the residents were living outside the university campus. Table 1

Table 1: Social demographic characteristics of the residents (n=398)

Variable	Category	Frequency (n)	Percent (%)
Age group (years)	< 35	302	75.9
	>35	96	24.1
Median age in years (± range)		35 (24-50)	
Gender	Male	243	61.1
	Female	155	38.9
Marital status	Married	256	64.3
	Single	146	35.7
Having Children	Yes	256	64.3
	No	142	35.7
Employment status	Employed	325	81.7
	Not Employed	73	18.3
Smoking	Yes	16	4
	No	382	96
Alcohol use	Yes	112	28.1
	No	286	71.9
Exercise	Yes	260	65.3
	No	138	34.7
Chronic disease	Yes	30	7.5
	No	368	92.5
Accommodation	At University hostels	121	30.4
	Outside University hostels	277	69.6

Regarding the professional profile of the residents; the majority were in 1[st]year of residency 159(39.9%) and, the fewest were in 3[rd]year 100 (25.1%). We also found that most had; 5-10 years of experience Working as a health professional 1194 (48.7%), sponsorship for their studies 284(71.4%), inadequate night sleep hours 341(85.7%), inadequate remuneration 208(52%) and over half working more than >9hours per day 256 (64.3%). Two hundred and six (65.8%) of residents perceived call duty as stressful, 167(42 %) reported had inadequate support during their residency from their supervisors. Table 2

Table 2: Professional characteristics of the residents (n=398)

Variable	Category	Frequency (n)	Percentage (%)
Year of residency	1st year	159	39.9
	2nd year	139	34.9
	3rd year	100	25.1
Financial sponsorship for training	Sponsored	284	71.4
	Not sponsored	114	28.6
Night sleep hours	Adequate	57	14.3
	Inadequate	341	85.7
Number of Night shifts per month	< 5calls	234	58.8
	5-10 calls	121	30.4
	More than 10 Calls	43	10.8
Perception of being on call	Stressful	206	65.8
	Not stressing	136	34.2
Remuneration	Adequate	66	16.6
	Not adequate	208	52.3
	No remuneration at all	124	31.2
Support from supervisors	Adequate	222	55.8
	Not adequate	167	42
	No support at all	9	2.3
Years of experience	< 5	163	41.0
	5 – 10	194	48.7
	>10	41	10.3

Prevalence of burnout

Through the MBI questionnaire (the assessment instrument for Burnout Syndrome) using tridimensional diagnosis criteria (high EE,DP and, low PA), burnout syndrome was found in 134 of the 398 residents, resulting in a prevalence of 33.7%. Figure 3
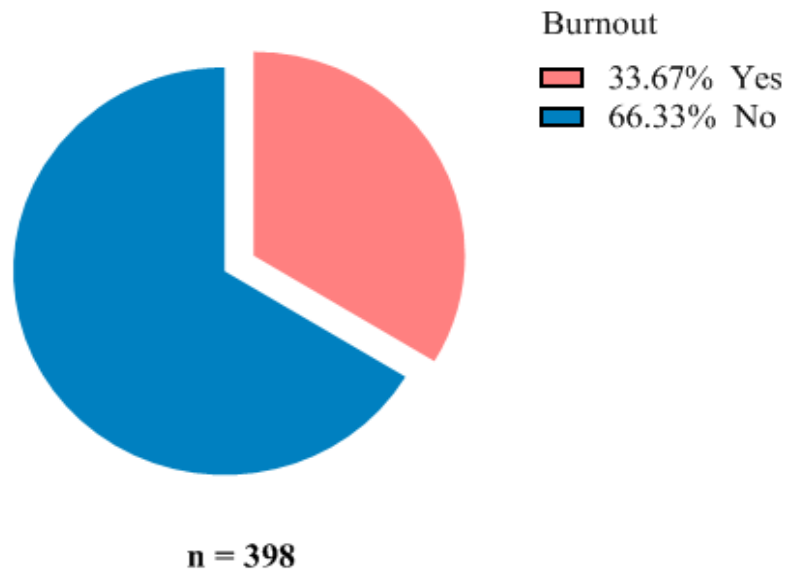
Figure 3. Proportional of residents with burnout.

Burnout domains

However, analyzing each sub-scale separately according to Maslach's categorization, 205(51.5%); 95% CI [46.5, 56.5] residents reported burnout in the dimension of emotional exhaustion, 177 (44.5%); 95% CI [39.5, 49.5] in the dimension of depersonalization, and 144 (36.2%) 95% CI [31.5, 41.1] in the dimension of reduced personal accomplishment. Figure 4
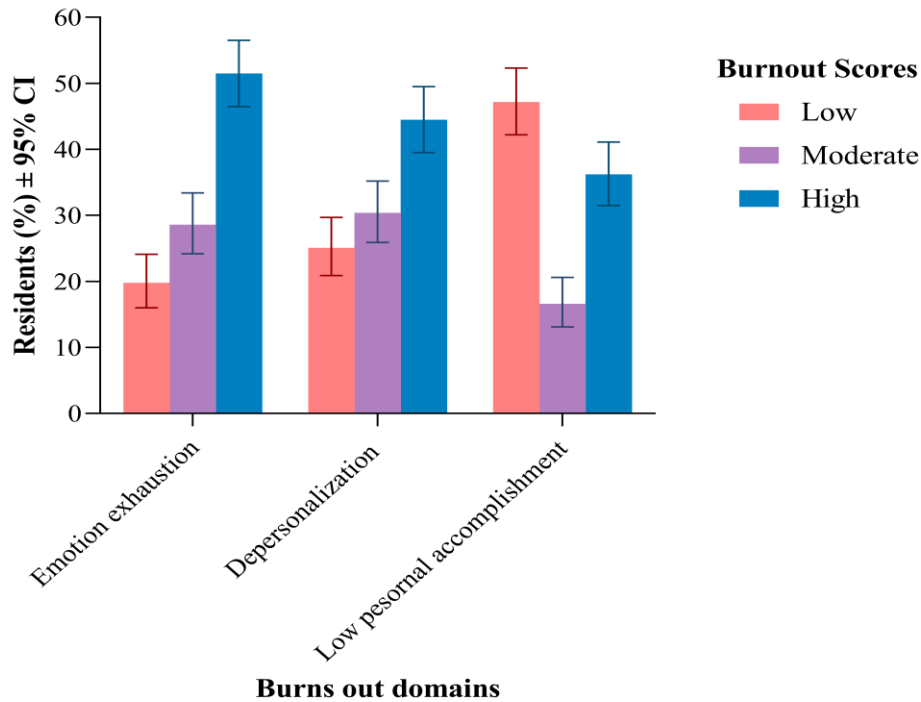
Figure 4: Burnout scores across burnout domains among residents

Risk factors associated with burnout

Table 3. Compares residents who met the criteria for burnout syndrome and those without the syndrome, illustrating the association with risk factors in the bivariate analysis using chi-square test of association. Having children was the only variable yielding $p<0.2$ and thus submitted to multivariate analysis to determine the extent to which it would predict burnout (dependent variable).

However other socio-demographic factors such as; older age, female gender, being married, drinking alcohol, chronic diseases and practicing of physical exercise were more prevalent in the burnout group but no significant association.

Table 3: **Socio-demographic factors associated with the Burnout among resident n=398**

| Variables | Category | Burn Out | | P – Value |
		Yes n (%)	No n (%)	
Age group (years)	≤ 35	98 (32.5)	204 (67.5)	0.362
	>35	36 (37.5)	60 (62.5)	
Gender	Male	81 (33.3)	162 (66.7)	0.856
	Female	53 (34.2)	102 (65.8)	
Marital status	Married	87 (34.0)	169 (66.0)	0.858
	Single	47 (33.1)	95 (66.9)	
Having children	Yes	93 (36.3)	163 (63.7)	0.132
	No	41 (28.9)	101 (71.1)	
Employment	Employed	109 (33.5)	216 (66.5)	0.908
	Not employed	25 (34.2)	48 (65.8)	
Smoking	Yes	5 (31.3)	11 (68.8)	0.834
	No	129 (33.8)	253 (66.2)	
Alcohol	Yes	40 (35.7)	72 (64.3)	0.589
	No	94 (32.9)	192 (67.1)	
Exercise	Yes	84 (32.3)	176 (67.7)	0.430
	No	50 (36.2)	88 (63.8)	
Chronic disease	Yes	13 (43.3)	17 (56.7)	0.244
	No	121 (32.9)	247 (67.1)	
Accommodation	University campus	42 (34.7)	79 (65.3)	0.771
	Outside campus	92 (33.2)	185 (66.8)	

Table 4.Shows the association between professional factors and burnout where;
supervisor's support, call perception, work-related home conflicts, work-related autonomy
year of study and working hours were the variables yielding p<0.2 and thus submitted to
multivariate analysis.

Table 4**. Professional factors associated with the Burn Out among resident student**

Variables	Category	Yes n (%)	No n (%)	P – Value
		Burn Out		
Year of study	First year	39 (24.5)	120 (75.5)	**0.001**
	Second year	48 (34.5)	91 (65.5)	
	Third year	47 (47.0)	53 (53.0)	
Sponsorship	Sponsored	99 (34.9)	185 (65.1)	0.428
	Not sponsored	35 (30.7)	79 (69.3)	
Autonomy	Little	87 (38.3)	140 (61.7)	**0.023**
	Much	47 (27.5)	124 (72.5)	
Conflicts	High	22 (59.5)	15 (40.5)	**< 0.001**
	Low	89 (35.5)	162 (64.5)	
	None	23 (20.9)	87 (79.1)	
Night shift (Calls)	< 5	76 (32.5)	158 (67.5)	0.592
	5 – 10	45 (37.2)	76 (62.8)	
	>10	13 (30.2)	30 (69.8)	
Call perception	Stressful	113 (43.1)	149 (56.9)	**< 0.001**
	Not stressing	21 (15.4)	115 (84.6)	
Remuneration	Adequate	17 (25.8)	49 (74.2)	0.283
	Not adequate	71 (34.1)	137 (65.9)	
	No remuneration	46 (37.1)	78 (62.9)	
Supervisors' support	Adequate	54 (24.3)	168 (75.7)	**< 0.001**
	Not adequate	78 (46.7)	89 (53.3)	
	No support at all	2 (22.2)	7 (77.8)	
Average of night sleep	Inadequate	117 (34.3)	224 (65.7)	0.507
	Adequate	17 (29.8)	40 (70.2)	
Working hours	≤ 9	42 (29.6)	100 (70.4)	0.198
	>9	92 (35.9)	164 (64.1)	
Experience (years)	< 5	49 (30.1)	114 (69.9)	0.447
	5 – 10	70 (36.1)	124 (63.9)	
	>10	15 (36.6)	26 (63.4)	

Table 5, associates burnout and specialties, where there was no statistical significant association between burn out and specialties.

Table 5. Association between specialties and burnout

Variable	Category	Burnout Yes n (%)	No n (%)	P – value
Specialties	Anesthesia	9 (45)	11 (5)	0 .948
	Dental surgery	6 (33.3)	12 (66.7)	
	Emergency Medicine	9 (37.5)	15 (62.5)	
	ENT	10 (35.7)	18 (64.3)	
	General surgery	9 (32.1)	19 (67.9)	
	Hematology	7(43.8)	9 (56.3)	
	Internal medicine	16 (36.4)	28 (63.6)	
	Obstetrics and gynecology	14 (33.3)	28 (66.7)	
	Oncology	8 (29.6)	19 (70.4)	
	Ophthalmology	4 (18.2)	18 (81.8)	
	Orthopedics	10 (30.3)	23 (69.7)	
	Pediatrics	9 (33.3)	18 (66.7)	
	Pathology	6 (37.5)	10 (62.5)	
	Psychiatry	4 (50)	4 (50)	
	Radiology	10 (33.3)	20 (66.7)	
	Urology	3 (20)	80 (80)	

Multivariate factors associated with burnout among residents

As shown in table 6. The following inferences were made from the regression analyses of predictors of burnout after control of covariates; residents who perceived call duty as stressful were found to be 3.3 times more likely to develop burnout compared to those who perceived it as not stressful, (OR=3.31; 95% CI [1.90,5.76]; p< 0.001. Burnout was about twice as prevalent in residents who reported inadequate support from their residency program supervisors (OR=1.97, 95% CI [1.23,3.14]; p=0.005), and three times more frequent in those who reported having high home work-related conflicts (OR=3.2; 95% CI

[1.35,7.71]; p=0.008). Each added year of study was found to be 1.5 more likely to be associated with burnout (OR=1.5; 95% CI [1.23, 3.14]; p=0.011).

Table 6. **Multivariate analysis of the factors associated with Burnout among residents.**

Variable	Category	aOR	95% Confidence Interval		P – value
			Lower	Upper	
Age group (years)	>35	1.03	0.59	1.82	0.910
	≤ 35	Ref			
Gender	Female	1.02	0.64	1.64	0.924
	Male	Ref			
Having children	Yes	1.21	0.72	2.03	0.470
	No	Ref			
Autonomy	Little	1.20	0.74	1.94	0.445
	Much	Ref			
Work-family conflicts	High	3.23	1.35	7.71	**0.008**
	Low	1.41	0.77	2.56	0.265
	None	Ref			
Year of study		1.49	1.10	2.03	**0.011**
Call perception	Stressful	3.31	1.90	5.76	**< 0.001**
	Not stressing	Ref			
Supervisors' support	Not adequate	1.97	1.23	3.14	**0.005**
	No support	0.47	0.09	2.44	0.366
	Adequate	Ref			
Working hours	>9	1.19	0.73	1.94	0.480
	≤ 9	Ref			

Key: aOR: Adjusted Odds ratio, Ref: Reference category

Lastly, logistic regression of predictor variables of burnout domains/subscales (high emotion exhaustion, high depersonalization, and low personal accomplishments) found that perception of call duty as stressful, inadequate residency program supervisors support and high work home related conflicts were factors independently associated with high emotional exhaustion, high depersonalization, and low personal accomplishment while the year of study was the only factor that was additionally associated with the reduced personal accomplishments domain.

5.0 DISCUSSION

This study determined the prevalence of burnout syndrome and its associated factors among MUHAS resident doctors'. A total of 398 residents with complete data were included in the final study analysis. Thus, giving an excellent response rate of 96.5% in our study. According to (Agrawal et al., 2009; Barclay et al., 2002) where studies among medical professionals with a reported response rate of 50% were described to be adequate and a response rate of greater than 70%, as very good. A burnout prevalence of 33.7% was found in our study.

Prevalence obtained from our study is within the global range (25-75%) as reported by (Franco et al., 2011; Martini et al., 2004) and that of a systematic review done in Nigeria (Ogunsuji et al., 2019), which reported a prevalence of the burnout ranging from 23.6% to 51.7%. Our findings are also compatible with a meta-analysis study done in Brazil, 35.7% (Rodrigues et al., 2018). In addition the prevalence of burnout (33.6%) found in our study was slightly different that of 27.5% and 31% reported from Brazil and Netherlands respectively (Feteh et al., 2017; Ringrose et al., 2009). This small difference could be attributed to the small sample sizes used in their study contrary to our study also the difference in geographical location/working environment between these studies.

Irrespective of these similarities in prevalence values with other studies,, (Low et al., 2019) reported a prevalence among medical and surgical residents to be 51.0%, the difference may be due to different assessment instruments as it was not stated clearly in their methodology the methods used to define burnout in the studies included in their meta-analysis and (Dhusia et al., 2019) in India reported a higher prevalence rate of 56.66%, this was attributed to the different burnout assessment tool (Copenhagen Burnout Inventory (CBI)) used in their study, contrary to our study which we used MBI. (Alsheikh et al., 2019) indicated a prevalence of 56.3%, the diversity observed from these studies thought to be attributed by two things; first the different criteria used to diagnose burnout between researches, the criteria used in their study is two-dimensional criteria which is less strict than the criteria used in our study (three-dimensional criteria), we used the

criteria recommended by the researcher who developed the assessment tool for Burnout Syndrome (MBI). If we would have used the two-dimension criteria our prevalence would be 44.2%, but the second reason for the diversity could be the fact that their study was done only on a single urgency specialty while ours on multiple specialties.

Although the results from our study showed that burnout prevalence among residents in Tanzania may be comparable to what is obtainable in the developed world, the low doctor-to-patient ratio in our setting may make the implication more serious. This is because resident doctors form the major part of health care delivery across the tertiary hospitals in Tanzania. Burnout is associated with absenteeism, reduced effectiveness at work and impaired productivity which will further reduce the capacity of the doctors to deliver optimal care. Other health challenges such as poor mental health and physical morbidity, which come with burnout, can further reduce the doctor-to-patient ratio in the country.

Surprisingly, the prevalence found in our study was not as high as expected, we would have expected higher prevalence rate due to high workload due to low doctor-patient ratio, poor working environment i.e. lack of equipment and supplies among others which are more prevalent to our setting and all these predisposes to residents' burnout, the reason is not clear but we think is due to the fact that the residents in our study are still junior in their carrier as majority had less than ten years of experience 257 (89.7%).

Burnout associated factors

The residency period is highly loaded with psychological stressors (Amir et al., 2018) and the addition of work-family conflict could lead to residents having a higher risk of becoming burned out. This was confirmed in our study by the fact that those who admitted having high work-family-related conflicts were significantly associated with burnout, the same factor was reported by (Feteh et al., 2017; Ogundipe et al., 2014; Ringrose et al., 2009).

The majority of the residents in our study reported their perception of support from their residency supervisors as being inadequate or no support at all, a factor found to be

significantly associated with burnout, (Ogundipe et al., 2014; Ogunsuji et al., 2019) reported the same association. This is an important modifiable finding and has a greater implication in the policy change

The current study also found that each added year of study was significantly associated with burnout, (Alhaffar et al., 2019; Alsheikh et al., 2019; Dhusia et al., 2019) reported the same finding in their studies. This can be explained by expectations and responsibilities which are given to senior residents in our settings and also by the period of data collection when 3rd years were working on their dissertations, combining all those, puts much pressure on them and may exacerbate the syndrome. Also as mentioned earlier that the seeds of burnout may be planted as early as the medical school and develops cumulatively over an extended period (Dahlin and Runeson, 2007).

In this study those who perceived call duty as being stressful was statistically significantly associated with burnout. Our results were in line with a systematic review done in Nigeria by (Ogunsuji et al., 2019) which reported perception of call duty as stressful to be positive predictors of burnout among resident doctors and a possible explanation would be the fact that during the night call the workload especially the emergencies are more with a very few manpower. Although we failed to establish relationship between burnout and the number of calls, but due to cross-sectional nature of our study, it is difficult to make strong conclusions hence more studies are needed.

 However though most (83.5%) residents reported that they were not adequately or not remunerated at all, this was not a source of burnout for them in our study. The possible explanation is that although Tanzanian doctors earn much lower than what is obtained elsewhere in the world, yet they are one of the best-paid groups of a government employees in the country. (Ogundipe et al., 2014) found the same results that there was no association between burnout and remuneration.

In line with the result of (McCraine et al., 1988; Lemkau et al., 1988, 2018; Ogundipe et al., 2014) our study found no difference in the scores of the Maslach Burnout Inventory based on marital status. Our results can be added to those which challenge the idea that

marriage is a buffering factor against resident burnout. However, we could not rule out that the single residents in our sample who had relationships such as long-term committed, supportive relationships that provided a function that marriage may provide.

Lastly it is often hypothesized that residents who are in surgical specialties experience greater stress and harassment during their training due to emergency nature of their work, leading to high levels of burnout. However, in our study no significant relation was found between that variable and burnout levels hence supportive efforts and policy to address the burnout should be addressed equally in both specialties. The same results reported by (Alhaffar et al., 2019; Low et al., 2019; Ogundipe et al., 2014).

5.1 STUDY STRENGTH AND LIMITATIONS

5.2 STUDY STRENGTH

This was the first study to be conducted in Tanzania tackling the prevalence rate of burnout syndrome and its associated factors among resident doctors.

The standard MBI-HSS was used in our study.

Our study had a good response rate which gives power of generalizing the results.

5.3 STUDY LIMITATIONS

The cross-sectional design used in our study is a limitation because we could not establish a causal relationship among the associations we identified and it could not allow us to study the variation of burnout throughout their entire 3-year study period in residency program. Additionally, the loss of those residents who refused to participate in the study or who provided incomplete data, made us to consider the possibility that the most serious cases of burnout may have been among them. Thus, we may have underestimated the prevalence of residents with burnout in this study.

Being conducted at tertiary hospitals it may therefore, be difficult to generalize findings to residents across the country due to different working environment, which we would expect even higher rate of burnout given worse doctor patient ratios and equipment and supplies at other hospitals.

Recall bias at the time of data collection.

Despite these limitations, we have presented significant data suggesting that the mental health of resident doctors may begin deteriorating early in their training. The findings from this study give attention to the recognition that resident doctors who major part of health care delivery across the tertiary hospitals in Tanzania constitute an important population to whom mental health as well as support services should also be directed.

6.0 CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The study has shown that burnout is prevalent among resident doctors in our setting and it has illuminated some factors that influenced burnout among resident doctors in residency training, inadequate support from residency program supervisors, work family related conflicts and stressful call duty were some of factors associated with burnout in our study. All these can impact their role thus help needs to be available to them. However the information on the state of burnout among Tanzania residents is still very limited. More studies are needed to make strong policy.

6.2 RECOMMENDATION

Considering the high prevalence of burnout among residents, our results indicates that there is a need for directing mental health as well as support services to residents. Such services should take into consideration stigma, which is one of the important reasons why doctors may not seek medical intervention. Burnout can also be prevented when residents are encouraged to form small educational groups where support can be rendered to one another thereby reducing isolation. In addition identifiable work related stressors should be addressed, for instance; inadequate support from residency program supervisors. .

Our study had a cross-sectional design therefore, longitudinal studies are necessary to establish which variables show true causal relationships with Burnout Syndrome in our population.

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APPENDICES

Appendix I: Consent Form

Introduction

Greetings; I am Dr. Happiness Charles Sway, a researcher from Muhimbili University of Health and Allied Sciences (MUHAS). I am conducting a study titled Prevalence of burnout syndrome and its associated factors among resident doctors at tertiary teaching hospitals in Dar es salaam, Tanzania. This study aims to determine residents' **prevalence rate of burnout syndrome and its contributing factors.**

You are kindly requested to participate in this study. If you accept to participate in this study your particulars/information will be taken and used for the purpose of this research and this will certainly not bother you or cause any discomfort to you. Your participation in this study will involve completion of the questionnaire and it should take approximately 20 minutes to fill out.

Confidentiality

You are strongly assured of the confidentiality of the information obtained that will only be used for the purpose of this research and anonymity will highly be observed when collecting data and compiling report. To assure you, even your name will not be required to appear in the questionnaire.

Risk to participant

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

Right of participation in the study. Your participation is absolutely voluntary and there is no penalty for refusing to participate. You are free to ask any question and you may stop to participate in this study any time.

Benefits

Participation of you in this study will help to know whether residents in our setup have burnout and its determinants. Also the information from this research will be useful in raising an awareness to administrators and policy makers that may instigate Programme to reduce burnout, improving the working environment of residents and consequently their ability to provide better services.

Contact Person

The principal investigator DR HAPPINESS CHARLES SWAY (0752 955 102), is a key contact person with regard to any queries about this study. If you have any questions/concerns about your rights as a participant you may contact. The chairman of the university senate research and publications, MUHAS P.O.BOX 65001 Telephone: 2552152489 Dar es salaam. And Dr. Asha who is the supervisor of this study, Phone: 0624408493.

Signing of the consent

If you agree to participate in this study please sign in this consent form.

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

Signature of interviewee ....…………Date...

Signature of interviewer ....Date …………………………

Appendix II: Questionnaire

PREVALENCE OF BURNOUT SYNDROME AND ITS ASSOCIATED FACTORS AMONG DOCTORS IN RESIDENCY TRAINING AT TERTIARY TEACHING HOSPITALS IN DAR ES SALAAM.

Serial number: _____

PART I: Socio- demographic and professional characteristics

1.   Age   ……… (years)

2.   Gender

☐ Male   ☐ Female

3.   Marital status

☐Married   ☐Single ☐Widowed Separated

4.   Do you have children?

☐Yes   ☐ No

5.   Employment status

☐Employed   ☐Not employed.

6.   Do you smoke?

☐Yes   ☐ No

7.   Do you take alcohol?

☐No   ☐yes

8.   Practice of physical exercise

☐Yes ☐ No

9.   History of any chronic disease?

☐Yes ☐ No

10.   Accommodation status

☐At MUHAS hostels   ☐Outside MUHAS hostels

11.   Year of study

☐1st year   ☐ 2nd year   ☐3rd year

12.   Speciality /Department ……………………..

13.   Studies sponsorship

☐ Sponsored (Government/Private)   ☐Not sponsored (Self sponsorship)

14.   Work related Autonomy?

☐Little   ☐Much

15.   Work /studies related family conflicts

☐High   ☐Low   ☐none

16.   Relationship with co-workers/colleagues

☐Good   ☐Bad

17.   Average working hours per day……..

18.   Average night's sleep hours…….

19.   Number of days on calls per month

☐Less than 5   ☐ 5-10   ☐more than 10

20.   How do you perceive call duties?…………….

☐ Stressful ☐Not stressing

21.   How is your remuneration?

☐ Adequate ☐ Not adequate   ☐No remuneration at all.

22.   Perception of support from the supervisors

☐Adequate   ☐Not adequate   ☐No support at all.

23.   Number of years working in the health care

profession………………………

PARTII;

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 many my recipients feel about things
5. _____ I feel 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 unsympathetic 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 the 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 very happy 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

Appendix III: Ethical clearance

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR - RESEARCH AND

PUBLICATIONS

In reply quote:

Ref. No.DA.282/298/01.C/   Date: 22/12/2020

MUHAS-REC-12-2020-443

Happiness Charles Sway,
MMed. Anesthesiology,
School of Medicine
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED:
PREVALENCE OF BURNOUT SYNDROME AND ITS ASSOCIATED
FACTORS AMONG RESIDENT DOCTORS IN TERTIARY TEACHING
HOSPITALS 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: 22/12/2020
EXPIRATION DATE OF APPROVAL: 21/12/2021

STUDY DESCRIPTION:
Purpose:
the purpose of this cross-sectional study is to determine the prevalence rate of
burnout syndrome and its contributing factors among resident doctors at tertiary
teaching hospitals in Dar es salaam.

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-%20225.pdf and in
the MUHAS archives.