# MENTAL DISTRESS AND ASSOCIATED FACTORS AMONG NURSES AT MUHIMBILI NATIONAL HOSPITAL IN DAR ES SALAAM

**Peter Gamba, MD**

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**Department of Psychiatry and Mental Health**

# MENTAL DISTRESS AND ASSOCIATED FACTORS AMONG NURSES AT MUHIMBILI NATIONAL HOSPITAL IN DAR ES SALAAM

**By**

**Peter Gamba**

**A Dissertation Submitted in (Partial) Fulfilment of the Requirements for the Degree of Master of Medicine (Psychiatry and Mental Health) of**

**Muhimbili University of Health and Allied Sciences**
**October, 2024**

## CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Science, a dissertation titled: **Mental distress and associated factors among nurses at Muhimbili National Hospital in Dar es Salaam**, in partial fulfillment of the requirement for the degree of Master of Medicine (Psychiatry and Mental Health) of Muhimbili University of Health and Allied Science (MUHAS).

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**Dr. Frank Masao – Senior Psychiatrist**

(Supervisor)

_____

**Date**

_____

**Dr. Iddi Nkya – Psychiatrist**

(Co-Supervisor)

_____

**Date**

## DECLARATION AND COPYRIGHT

I, **Peter Gamba** declare that this dissertation is my 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 ward.

**Signature**…… **Date**……..

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Dr. Peter Gamba, Psychiatry Resident, Class of 2024.

## DEDICATION

This work is dedicated to my family, starting with my wife Dr. Mary Kamuzora - Gamba, to my lovely son, and two daughters Melvin Gamba, Anne-Maria Gamba and Maria-Gabriella Gamba for the outstanding support they have shown me throughout my entire 3 years of study at MUHAS. I greatly appreciate it thank you.

## ABSTRACT

**Background:** Mental distress is a combination of abnormal thoughts, emotions, and behavior that significantly affects the lifestyle of individuals in areas of self-efficacy, self-autonomy, competence, and ability to realize one's own intellectual and emotional potential. It globally affects nearly a quarter of the population including nurses who are working at health facilities.

**Objectives:** The current study aimed at assessing the prevalence of mental distress and associated factors among nurses at Muhimbili National Hospital in Dar es Salaam, Tanzania.

**Materials and Methods:** This was a hospital-based cross-sectional analytical study conducted among nurses at Muhimbili National Hospital. Data collection tools were a semi-structured questionnaire, Minnesota Satisfaction Questionnaire –Short Form 20 to measure job satisfaction and Cut down Annoyed Guilt and Eye opener to measure use of alcohol obtain independent variables and General Health Questionnaire 12 for mental distress. Data was analyzed using computer software (SPSS-28). Descriptive statistics was used to analyze socio-demographics while a bivariate and multivariate logistic regression analyses were conducted to establish the association between mental distress and selected factors. Principal component factor analyses were conducted to elicit psychometric properties of the GHQ 12 tool in the study population. All associated factors with a p-value of less or equal to 0.05 were used as statistical significance associations between mental distress and associated factors. Ethical approval, permission, and informed consent to conduct the study were obtained from the MUHAS (IRB), Executive Director of MNH and participants consecutively.

**Results:** The study involved 342 participants, mainly aged 20-30 years 56.7% (n=194), mean age 31.73 (SD ±5.28) and median of 30 years. The majority were male 63.5% (n=217), married 59.4% (n=203), and enrolled nurses 51.8% (n=117) with 1-5 years of working experience 64.6% (n=221). The prevalence of mental distress among participants was 63.1% (n=342) while job satisfaction was 65.7% (n=342). The multivariate logistic regression analysis showed that the odds of mental distress was significantly higher amongst participants

who reported job dissatisfaction [AOR = 1.58, 95% CI (1.43, 1.75), $p < 0.001$] and who were ranked as enrolled nurses [AOR = 1.31, 95% CI (1.15, 1.49), $p < 0.001$].

**Conclusion:** The prevalence of mental distress among participants in this study sample is high and the risk associated with it is significantly increased amongst participants who reported job dissatisfaction and ranked as enrolled nurse which is the lowest cadre in nursing profession.

**Recommendations**: There is a high need to improve mental health awareness and wellbeing amongst nurses including regular screening to identify severely affected individuals for interventions. Further research is recommended to explore additional factors associated with level of job satisfaction among nurses so as to strategize best approach to improve.

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## LIST OF ABBREVIATIONS

| | |
|---|---|
| AOR | Adjusted Odds Ratio |
| CAGE | Cut down, Annoyed, Guilt, and Eye opener |
| CI | Confidence Interval |
| COR | Crude Odds Ratio |
| GAD - 7 | Generalized Anxiety Disorder version 7 |
| GHQ - 12 | General Health Questionnaire version 12 |
| MNH | Muhimbili National Hospital |
| MoH | Ministry of Health |
| MSQ-SF-20 | Minnesota Satisfaction Questionnaire Short Form Version 20 |
| MUHAS | Muhimbili University of Health and Allied Sciences |
| PHQ - 9 | Patient Health Questionnaire version 9 |
| SD | Standard Deviation |
| SPSS-28 | Statistical Package for Social Science Version Twenty-Eight |
| T | T-test |
| TZS | Tanzanian Shillings |
| WHO | World Health Organization |
| β | Beta |
| $\chi 2$ | Chi-square |

## DEFINITION OF TERMS

This research defined the following terms that were used in methodology as follows:

1. **Mental distress:** Defined by questions of the GHQ-12, as a combination of abnormal thoughts, emotions and behavior which significantly affects normal life style of nurses in which a score of six or more indicated a positive mental distress (1).
2. **Biological factors:** Factors that is associated with mental distress (2). These include age, sex and use of substances.
3. **Psychosocial factors:** Psychological and social factors that will either directly or indirectly lead to mental distress when nurses are potentially exposed to them (3). Psychosocial parameters that were assessed included job satisfaction, supervisor social support, coworker social support, marital status, years of working, monthly income, rank categorization, managerial/ administrative/supervisor role.
4. **Use of substance:** Consumption of substances such as alcohol, tobacco, cannabis, valium etc. (4), for recreational or non-medical purposes. Parameters that were assessed included alcohol, tobacco and others, which are also considered among factors contributing to mental distress at working place among nurses.
5. **Nurse/nursing staff:** A person trained in the scientific basis of nursing, meeting certain prescribed standards of education, clinical competence and also provides services that are essential to or helpful in the promotion, maintenance, and restoration of health and well-being (5). For the current study nurses were categorized from enrolled nurses with certificate, assistant nursing officers with a diploma and nursing officers with bachelor degree or above.

# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background

Mental distress is broadly defined as a state of emotional suffering characterized by symptoms such as depressed mood, loss of interest, restlessness and feeling tense (6,7). It is also characterized by other somatic symptoms like insomnia, headaches and lack of energy that are likely to vary across different areas. Different studies showed that the incidence and prevalence of mental distress in the working population is getting increased in the last decades from 15 to 25 percent of the current working population globally (8). Mental distress also contributes a greater negative impact on global economy by affecting human resources through increasing absenteeism from work, sick leave, compensations and by other different reasons (9,10). It is the most common problem among nurses working in health care facilities due to psychosocial challenges, high job-related stressors and other socio-economic factors.

Other reported factors that contribute to mental distress includes excessive working hours, time limited for nurses families, conflict with other staffs and clients, poor chances for advancement (promotion) and verbal or physical harassment from superiors and clients as well as health and safety risks (11). Additionally, poor working conditions, lack of communication skills between a nurse and client as well as low levels of income are found to be highly associated with the occurrence of mental distress among nurses (10,11). Failure to purchase adequate food, clothing and other services has led some nurses to consider quitting their jobs due to low ability to solve the stressful conditions.

Furthermore, exposure to emotional demands has also been associated with an increased risk for mental distress. These include feeling of not being appreciated, insecurity, or feeling of not being a part of community (12). Furthermore, job demands as defined by recurrent changes in the work environment of nurses such as changing colleagues, supervisors, workplaces, working hours and tasks are among the factors that are highly associated with mental distress among the nurses (13).

## 1.2 Problem Statement

Globally, mental distress affects 15 up to 25 percent of working population (14). Mental distress due to stressful working conditions is the second most compensated case to employees following musculoskeletal disorders in Australia (15). Though mental distress is documented as common in many settings, women seem to be more affected than men. This phenomenon is exemplified by a study conducted among 5041 nurses in the University of Sydney Australia during 2017 which showed that, the prevalence estimates for mental distress were higher for female nurses by 35.5% to 29.9% compared to male nurses (15). The existing information in Asia and Sub-Saharan Africa suggests that mental distress among nurses is high and on the upsurge. In the year 2005 and 2009 reports showed that the prevalence of mental distress among nurses were 32.8% and 36.2% respectively (16), this observation is also supported by the studies conducted in Nigeria and Nepal in the year 2012 and 2019 which revealed that mental distress among nurses had risen from 34.7% to 44.1% respectively (17,18).

Some of the studies conducted in East Africa also showed that mental distress among nurses is high as reported in a study conducted in Kenya and Tanzania which were published in the years 2020 and 2023 respectively. The Kenyan study (19) showed that prevalence of mental distress among nurses was 66% (n= 1923). There are scarce of studies that investigated the magnitude of mental distress and associated factors among nurses in Tanzanian public hospitals that include MNH as well. Therefore, absence of such kind of studies has created an information gap which this study aimed at leveraging the information.

### 1.3 The Conceptual Framework

The Biopsychosocial model which has been used and studied for many years by various scientists was used as a conceptual frame work to guide this research. The model was first proposed in United States by George Engel (21), during the year 1977. According to Engel there is a connection of societal and molecular constructs through biological, psychological as well as social events which are found to have mutual interconnection and reciprocal influences. The biopsychosocial theory considers that biological, psychological and social factors play a role in the understanding of the well-being and management of the disease. These biopsychosocial factors show their influences at different levels, including predisposing, precipitating, and maintaining or protecting against mental distress occurrence, as summarized in figure 1.

The adaption of the biopsychosocial model was used in the understanding the interaction between biological factors like age, sex, the use of substances like alcohol and occurrence of mental distress. Mental distress can lead a person to use substances while consistent use of substances can influence the occurrence of symptoms of mental distress while age and sex can only influence the occurrence of symptoms of mental distress and not vice versa. Psychological factor such as job satisfaction at working place and social factors like supervisor and coworkers support and marital status can directly lead to mental distress meanwhile the occurrence of symptoms of mental distress can as well subject the nurses to experience these factors. Other social factors such as years of working, monthly income, rank categorization and managerial/ administrative/supervisor role can directly influence the occurrence of symptoms of mental distress.

### 1.4 Study Rationale and Justification

In Tanzania, limited studies were previously conducted to establish the prevalence of mental distress, among university students and another one conducted among caregivers of children with mental illness. However, there was a lack of information and researches on mental distress among nurses working to provide health care services at various hospitals.

The fact that nurses contribute a major role in the provision of care for the patients in every health institution within twenty-four hours a day and seven days a week, assessing for the prevalence of mental distress and associated factors in a public hospital including Muhimbili National Hospital, Dar es salaam might be helpful for management team to increase the awareness and provide the timely interventions and in turn reduce the prevalence of mental distress amongst nurses at MNH**.**

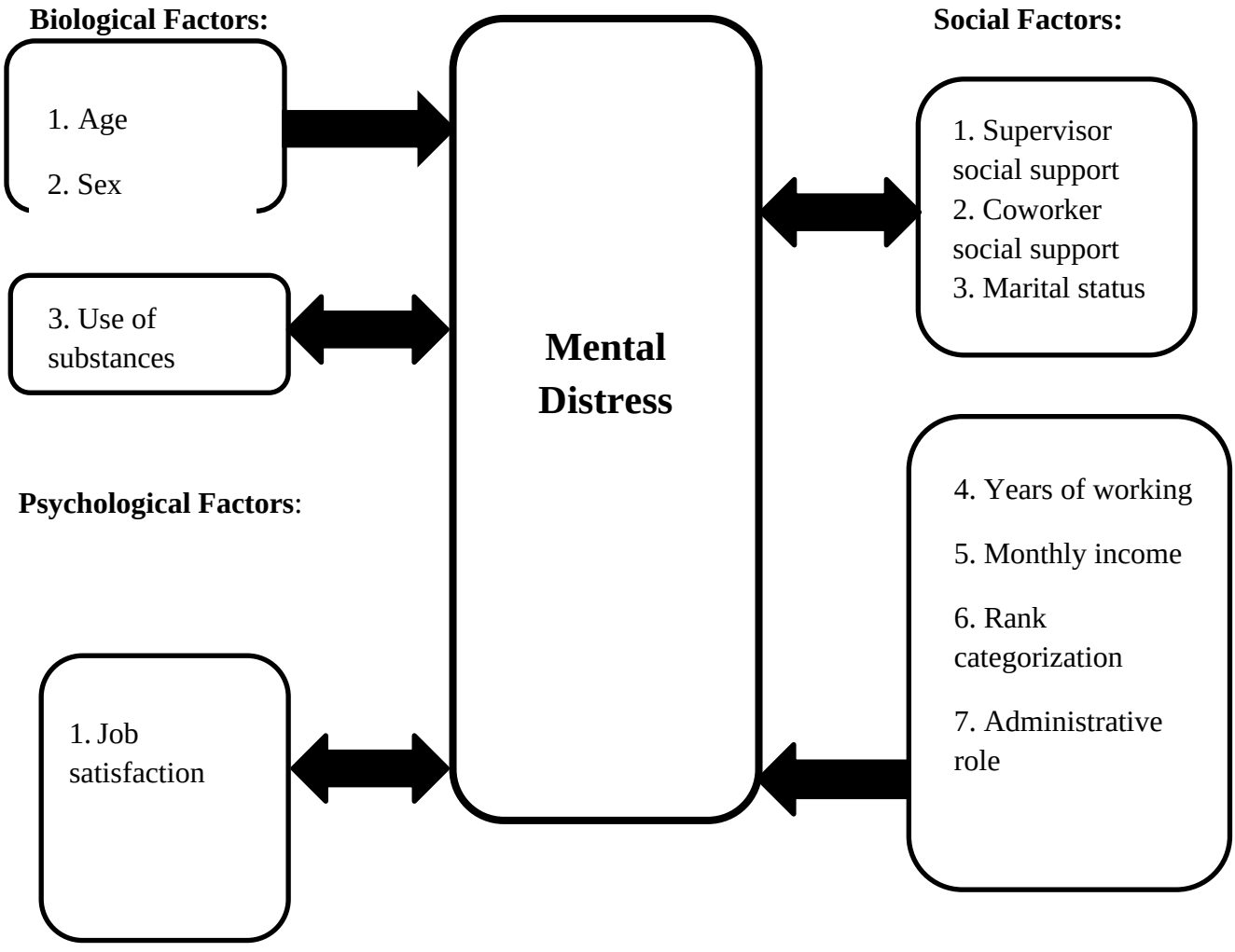



**Figure 1: Adapted Biopsychosocial Model Illustrating the Interaction between Mental Distress and Associated Factors among Nurses**

## 1.5 Study Objectives

### 1.5.1 Hypothesis of the Study

#### 1.5.1.1 Null Hypothesis

Mental distress among nurses working at MNH was not prevalent and that there were no biological psychological and social factors that have effects on their mental distress

### 1.5.2 Research Questions

Broad and specific questions are outlined below as follow;

#### 1.5.2.1 Broad Question

What is the prevalence of mental distress and associated factors among nurses at MNH?

#### 1.5.2.2 Specific Questions

What are the factors that are associated with mental distress among nurses at MNH?

### 1.5.3 Broad Objective of the Study

To determine the prevalence of mental distress and associated factors among nurses at MNH

### 1.5.4 Specific Objectives

1.5.4.1 To determine the prevalence of mental distress among nurses at MNH

1.5.4.2 To determine the association between mental distress and biological factors among nurses at MNH

1.5.4.3 To determine the association between mental distress and psychosocial factors among nurses at MNH

# CHAPTER TWO

## 2.0 LITERATURE REVIEW

Several studies have been conducted to explore the prevalence of mental distress and associated factors among nurses. However limited studies have been conducted in Tanzania to determine the prevalence and the associated factors among nursing staff.

### 2.1 Prevalence of Mental Distress among Nurses

The burden of mental distress is globally increasing. According to O'Connor and his colleagues working in collaboration with World Health Organization (WHO), during the year 2018, an estimated 1.8 million nurses in Great Britain were suffering from an illness which they believed was caused or made worse by work as either a new or longstanding, which was equivalent to a rate of 53.9% of working nurses (22). Furthermore, a systematic review and meta-analysis of the nursing study published in the year 2021, reported that mental distress amounted to nearly one-third of disability worldwide (23); in which the lifetime prevalence of mental distress in both developed and developing countries was estimated as 25% among working nurses.

A survey was conducted by World Health Organization (WHO), in the United States of America (USA), during the year 2004, to assess the prevalence of mental distress among nurses working in a state public hospital of Chicago. That study which used a self-report questionnaire version 20 (SRQ-20) for data collection, showed a prevalence of mental distress to be 25.6% (n = 282) among 282 eligible nurses with mean age of 26.81 (SD = 7.04) years (24). A similar study which was published in Western Europe during the year 2019 at the University of Minho Portugal, utilized a convenience sample of 2203 registered nurses working in public hospital and collected data through an online platform using the General Health Questionnaire version 12 (GHQ-12). The results of that study showed that the prevalence of mental distress was 79.3% (n=2203) in a sample mean age of 33.7 (SD = 9.39) years old; in which clinical symptoms, showed a worse psychological profile and social

dysfunction, than nurses without clinical symptoms due to personal and professional characteristics **(**25).

Bazazan and colleagues (26) from the Middle East country of Iran published an article in 2018 that evaluated the psychological distress and the role of personal and professional characteristics among nurses working in a public hospital of Tehran. The study used a convenience sample of 699 nurses which was assessed by using the General Health Questionnaire version 12 (GHQ-12) in which a score of 4 or higher was reported as mental distress. Overall results showed that the prevalence of mental distress among working nurses in a public hospital was 29.1% (n=699) which was concluded as relatively higher compared to other similar studies (26).

Similar three studies in African regions were conducted within Sub-Saharan African countries among nurses working in public hospitals to establish the prevalence of mental distress and were published in Ethiopia by Kabito and colleagues (27) between the years 2015, 2020, and 2021. The studies used different tools that included self-report questionnaire version 20 (SRQ-20) for the first two studies and a standardized 10-item Kessler Scale instrument for the third study. The findings of the three studies showed that the prevalence of mental distress among nurses was also on the rise by exhibiting the prevalence of 29.9% (n = 100), 37.7% (n = 417), and 44.4% (n = 185) respectively.

A meta-analysis was conducted by Owuor and colleagues (19) in one of the East African countries (Nairobi-Kenya) and published a report during the year 2020. That analysis which assessed the prevalence of burnout among nurses working in public hospitals, involved ten studies that used the Maslach Burnout Inventory (MBI) as an assessment tool. The study results concluded that the prevalence of burnout among working nurses was 66% (n=1923) showing that in an African context, the prevalence is on the up surge as well (19).

### 2.2 Factors Associated with Mental Distress among Nurses

By the use of the biopsychosocial model, the current study explored factors that are associated with mental distress among nurses. The biological factors that were studied included age, sex, and use of substances while psychosocial factors were job satisfaction, supervisor social support, coworker social support, marital status, duration (years) of working, monthly income, rank categorization, and managerial/ administrative/supervisor role. These factors are among the ones that have been studied and found to be associated with mental distress among nurses in several different studies (1, 6, 33).

#### 2.2.1 Biological Factors Associated with Mental Distress among Nurses

Age, sex, and use of substances are among the biological factors that have been reported to be associated with the occurrence of mental distress amongst nurses in two different studies which were conducted in Nigeria and Ethiopia (28, 29).

A study conducted by Okwaraji and colleagues (28), in West Africa and published during the year 2014 aimed at determining the prevalence of burnout and psychological distress among nurses in a Nigerian tertiary health institution. The study involved 210 participants with a response rate of 100% and assessed burnout and psychological distress by the use of the Maslach Burnout Inventory (MBI) and the General Health Questionnaire version 12 (GHQ-12) respectively. The age range of the respondents was 25 to 50 years (mean age was 35.5±8.34 years), while 57.7% were less than 35 years of age. The results showed that the odds of having high levels of psychological distress (scoring 6 and above on the GHQ-12 scale) were significantly higher among individuals who were less than 35 years of age with [$\chi 2 = 125.19$, $p < 0.01$] and in females that were not married [$\chi 2 = 65.88$, $p < 0.01$] with the 95% confidence interval (28).

Hajure (29), in his research which was published in the year 2020, also studied factors that influenced mental distress among healthcare workers including nurses in Mettu town, Ethiopia. The study was conducted among 127 nurses who were assessed by using the Impact of Event Scale-Revised (IES-R) to identify the presence or absence of psychological distress.

The results in the multivariate logistic regression analysis showed that the odds of psychological distress were higher among those who reported to be current users of tobacco [AOR = 6.76, 95% CI (2.15, 21.2)], current users of khat [AOR = 5.74, 95% CI (1.83, 18.1)], and [AOR = 6.28, 95% CI (2.03, 19.5)] current users of alcohol (29).

### 2.2.2 Psychological Factors Associated with Mental Distress among Nurses

Psychological factors such as job satisfaction have been seen to associate with the occurrence of mental distress amongst nurses as reported by Emmanuel Olatunde and his colleagues (30), in their research findings that aimed at assessing the prevalence and correlates of job satisfaction and psychological well-being among mental health nurses at the Neuropsychiatric public Hospital, Ogun State in Nigeria. The study used the Minnesota Satisfaction Questionnaire (Short Form) version 20 among 110 nurses while psychological well-being was evaluated using the General Health Questionnaire (GHQ- 12). The participants were selected using a systematic random sampling technique and the mean age of respondents was 36.7 years, with ages ranging from 20 to 54 years (30). The results reported in the logistic regression analysis showed that job satisfaction had a positive significant relationship with psychological well-being [$\chi 2$ =15.13, df=2, p=0.001], of which 60% had low job satisfaction, 5.5% and 34.5% reported average and high level of job satisfaction respectively. The reasons for the high percent of low job satisfaction were lack of concern by employers for staff welfare, lack of input into discussions regarding ways to improve work output, punishment for inappropriate work-related behavior including verbal and written warnings as well as lack of job description when first employed (30).

A Palestinian sample of 152 nurses was selected by Abushaikha and colleagues (31), in a survey that aimed at investigating job satisfaction and burnout among nurses working at Augusta Victoria Hospital in Jerusalem, using the Minnesota Satisfaction Questionnaire and the Maslach Burnout Inventory respectively. The studied population which showed a low response rate of 59.6%, had an age range from 24 to 58 years with a mean age of 30.9 (SD = 7.1) years of which the majority were female 73.7% (n=152) and married 61.8% (n=152). The results showed that most nurses 84.2% (n =152) reported moderate job satisfaction while

moral values 55.9% (n =152), and social services 55.9% (n =152) were associated with high satisfaction levels. The results further reported that low satisfaction level was associated with company advancement/promotion 41.4% (n =152), and company policies/practices 28.9% (n=152). The results of logistic regression analysis additionally showed significant differences between nurses who reported adequate and inadequate incomes on advancement/promotion [t= 2.60, p = 0.01], company policies and practices [t = 2.72, p < 0.01], compensation [t = 3.77, p < 0.01], responsibility [t = 2.18, p = 0.03], working conditions [t = 2.15, P = 0.03] and [t = 2.14, P = 0.03] of general job satisfaction (31).

### 2.2.3 Social Factors Associated with Mental Distress among Nurses

Social factors such as supervisor and coworker social support have also been significantly associated with the occurrence of mental distress among nurses as reported in Chinese and Indonesian studies (32, 33). A study conducted among Chinese nurses in China during the year 2019, was designed to assess the prevalence of moderating role of self-esteem between perceived organizational support and subjective well-being among 606 participants. The self-reporting questionnaire that included questions about job conditions, the index of well-being, Survey of Perceived Organizational Support (SPOS), and Rosenberg's Self Esteem Scale (RSES) were used as tools to attain the study objectives. The results of that study in the hierarchical multiple regression analysis were applied to examine the association between perceived organization support (POS), self-esteem, and subjective well-being (SWB) in which POS was significantly and positively related to SWB [$\beta = 0.426$, $p < 0.01$] at 95% confidence interval (32).

A cross-sectional study which was conducted in southern Asia and published in 2023, aimed at assessing the relationship between social support, fear, and psychological distress among frontline nurses during the COVID-19 pandemic. Job Stress Scale and Perceived Social Support Questionnaire were used to collect data among 211 nurse participants with a mean age of 47.6 (SD= 13.14) years ranging between 21 to 53 years of age (33). The results of that study showed that having greater coworker social support was significantly associated with lower psychological distress [$\beta = -0.454$, $p < 0.001$].

# CHAPTER THREE

## 3.0 METHODOLOGY

### 3.1 Study Design

The current study was a hospital-based cross-sectional and analytical research that employed the quantitative data collection approach. In a cross-sectional study, either the entire population or a subset thereof is selected and from these individuals, data were collected to help answer research questions of interest (34).

Furthermore, it was called cross-sectional because you cannot determine the direction of the causality of the information that was gathered at only one point in time. Data was collected from a sample of the target population at a specific point in time and everyone in the sample was assessed in the same way (34).

### 3.2 Study Area and Setting

The study was conducted at Muhimbili National Hospital (MNH). The hospital has two campuses namely Upanga and Mloganzila which are located in Ilala and Ubungo Districts respectively within Dar es Salaam Region. Dar es Salaam which was the former capital city of Tanzania until 2018 is currently the economic center and fastest growing city in Tanzania with 10,775,865 populations by August 2022 as per the National Census report (35). MNH is a National and tertiary referral hospital, research center, and University Teaching Hospital with 2,108 bed capacity (1,500 and 608 for Upanga and Mloganzila campuses respectively) and attending 2,500 outpatients per day (2,000 and 500 for Upanga and Mloganzila respectively). It has 3,500 employees (2,800 and 700 from Upanga and Mloganzila respectively, of those employees, 1,309 are nurses (36). It has several directorates, departments and units which are involved in providing services including medical, surgical, nursing, housekeeping, clinical support services, information communication and technology, technical services, finance and planning units, as well as cooperate communication, legal advice, research as well as human resource entities.

The Upanga campus has 16 blocks (buildings) that are supported by 1,009 working nurses (572 nurses in medical wards, 277 under surgical wards, and 191 working in outpatient clinics) as per the MNH staff database (36).

### 3.3 Study Duration

The anticipated study duration was 22 months from October 2022 to August 2024, in which proposal development was done from January 2023 to May 2023. Data collection and cleaning was conducted during the period of August 2023 to January 2024. Data analysis, report writing, and submission were prepared from February to May 2024 and defense for final University examination is anticipated in August 2024.

### 3.4 Study Population

The study population was nursing staff/nurses working at Upanga campus of MNH, Dar es Salaam, Tanzania.

### 3.5 Study Inclusion Criteria

3.5.1 Nurses working at Upanga campus of MNH for more than one year prior to the time of data collection (1), in order to acquire work experiences that are needed for data in the study

3.5.2 Nurses who were present at Upanga campus at a time of data collection

3.5.3 Nurses at Upanga campus that consented to participate

### 3.6 Exclusion Criteria

3.6.1 Nurses at Upanga campus who were on sick, annual, maternity or family leaves during the study period they will be determined from the duty roster

3.6.2 Nurses at Upanga who were physically or mentally debilitated to participate they will be determined from the duty roster.

### 3.7 Sample Size Estimation

The minimum sample size (n) estimates in the current study were calculated by using the Slovene formula (37), which was best to estimate the sample size when the study population was known while the previous prevalence of mental distress among nurses at MNH was not known.

From the Slovene' formula: $n = N/[1+Ne^2]$ whereby;

n = minimum study sample size estimates,

N = available study population which is 1,009 as per the MNH staff database (36).

E = margin of error (standard p value of 0.05) at 95% confidence interval.

Therefore: n = 1009 /1 + 1009 x 0.05 x 0.05 = 286 participants

Adjusting for non-response which is projected to be 10% (n=31) of the estimated sample size;

n = 286+31 = 317

Therefore, the minimum estimated sample size for this study was 320. To accommodate potential non-responders and those who could refuse to participate, this study targeted participants requirement at 350. From this sample size, the ratio of participants from medical wards, surgical wards (which have high number of participants), and outpatient clinics that were selected in a 2:1:0.5 ratio, meaning 60% (200 participants), 30% (100 participants), and 10% (50 participants) respectively.

### 3.8 Sampling Procedure

A multistage cluster sampling procedure with 3 sampling units was selected using a convenient sampling method in which three major directorates of nursing service provisions at MNH namely surgical wards, medical wards, and outpatient clinics were selected in the first stage for good representations of study participants as summarized in figure 2. Convenient sampling method was applied to identify study participants. Identification of cluster unit was from MNH staff database records that showed there are 28 and 16 wards for medical and surgical wards respectively and a total of 8 outpatient clinics (36).

In the first stage, the selection came from the total sample size of 350 (n), using a Probability Proportional to Size (PPS) sampling technique. The PPS method is a sampling procedure under which the probability of a unit being selected is proportional to the size of the ultimate unit, giving larger clusters a greater probability of selection and smaller clusters a lower probability (38). Therefore, a sample of 20 medical wards, 10 surgical wards, and 5 outpatient clinics was selected by convenient sampling method from a list of 28 medical wards, 16 surgical wards, and 8 outpatient clinics. In the second stage, random selection was used to select 10 nurses from each ward/clinic that is 20 and 10 wards for both medical and surgical respectively, and 5 clinics.

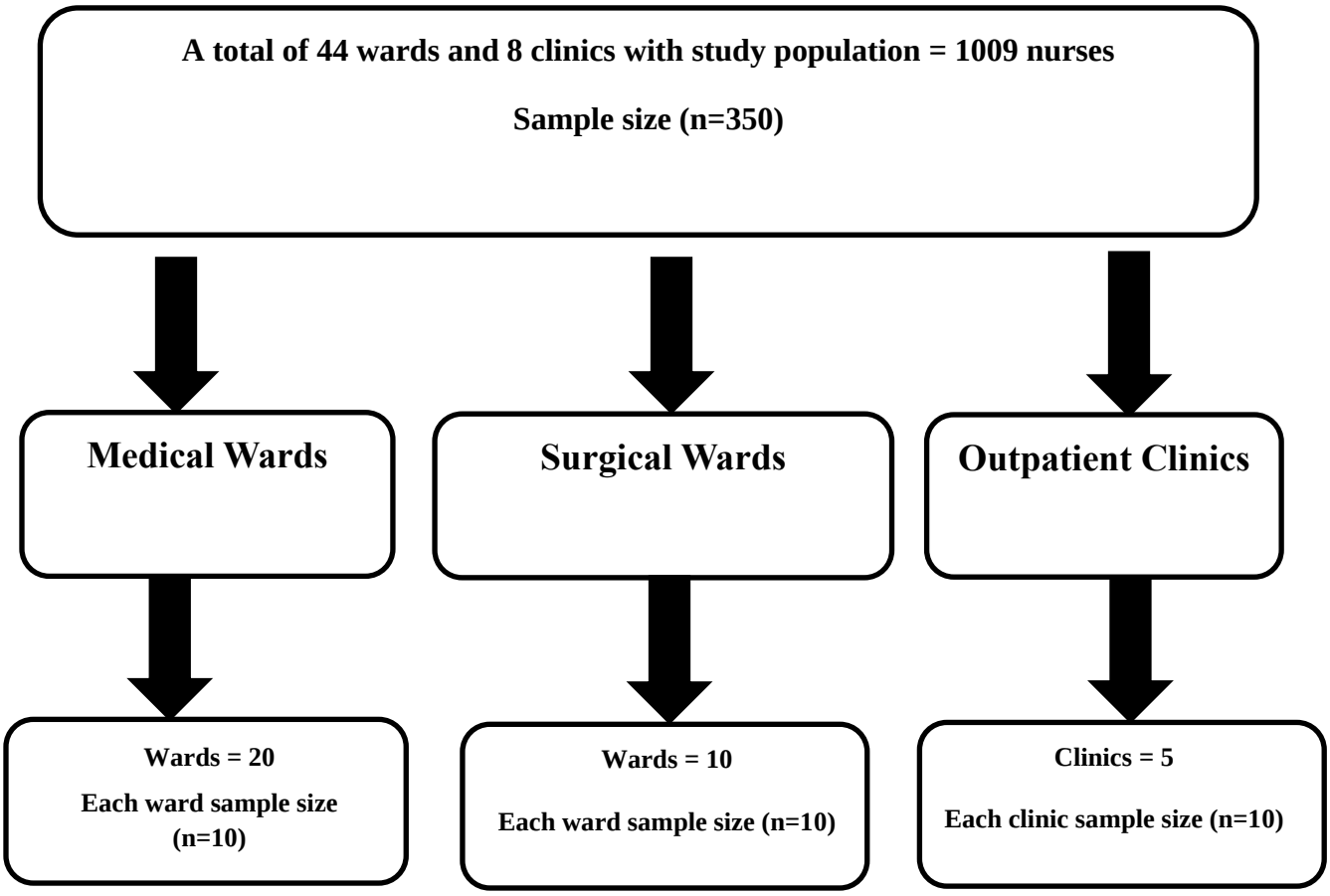



**Figure 2: Sketch summary of multistage cluster sampling procedure for the study population**

### 3.9 Variables

#### 3.9.1 Independent Variables

These are variables that are firm and unaffected by the other study variables in measurements. In this model, the independent variables are those that are recognized to support the nurturing or the occurrence of the dependent variables. In the current study the variables included were biological factors (age, sex and use of substances) and psychosocial factors (job satisfaction, supervisor social support, coworker social support, marital status, years of working, monthly income, rank categorization, managerial/ administrative/supervisor role).

#### 3.9.2 Dependent Variables

These are the variables that are determined by other factors or elements that are measured. These variables are anticipated to change as a result of an experimental influence of the independent variable or variables. For this study, the dependent variable was mental distress.

### 3.10 Data Collection Tools

Data collection tools for the current study comprised four different sections namely, a semi-structured socio-demographic information questionnaire (SDIQ) for assessing basic socio-demographic data, a General Health Questionnaire version 12 (GHQ-12) for assessing mental distress, Cut down, Annoyed, Guilty, and Eye-opener (CAGE tool) for assessing the hazardous use of alcohol for those reported use of alcohol and Minnesota Satisfaction Questionnaire Short Form Version 20 (MSQ-SF 20) for assessing psychological associated factors. The only used tools in the current study that were previously validated in Tanzania include MSQ-SF 20 and CAGE (39, 40). All the questionnaires were developed in English and then translated into Swahili.

#### 3.10.1 Semi-Structured Socio-Demographic Information Questionnaire

This questionnaire was developed by the researcher in order to facilitate the required data acquisition, which is not available in structured tools. It was intended to assess socio-demographic characteristics of participants. For the current study, the demographic characteristics of the participants included age, sex, marital status, level of education, monthly

income, rank categorization of the nurses, years of working, and use of substances. For those who responded yes to the use of alcohol, further screening assessment for hazardous use of alcohol was done by using the CAGE tool (section 3.10.3).

### 3.10.2 General Health Questionnaire Version 12 (GHQ-12)

The General Health Questionnaire (GHQ) is a well-known instrument for screening symptoms of mental distress among the general population which was first introduced by Goldberg and Hiller in 1979, however, it is not a tool used for indicating a specific diagnosis (41). The questionnaire was originally developed as a 60 items instrument but at present a range of shortened versions of the questionnaire including the GHQ-30, GHQ-28, GHQ-20, and the GHQ-12, are available and the tools have consistently shown the Cronbach's alpha coefficients of 0.78 - 0.94 indicating satisfactory internal consistency (42). When using the GHQ-12, the questionnaire asks whether the respondent has recently experienced a particular symptom or behavior. Each item is rated on a four-point Likert (0-1-2-3) scale whereas 0 means strongly agree, 1 means agree, 2 means disagree and 3 means strongly disagree; hence giving a range score of 0 to 36 based on the selected responses and those who score six or more indicated presence of mental distress (1).

The index GHQ-12 was assessed by the researcher for reliability (internal consistency) utilizing Cronbach's alpha and construct validity using component factor analysis method. Factor analysis was performed on this scale using principal component analysis with varimax rotation to extract the components that statistically emerged from the scales with Eigen values of more than 1 for interpretation of constructs. Items with component matrix rotation scores of 0.1 or higher in all the constructs were considered relevant for describing dimensions of being mentally healthy in all components of the scale. The mean scores of the constructs as well as their patterns of distribution were examined to determine their utility as continuous or ordinal variables for further analysis. The GHQ-12 measures were further dichotomized into mentally health or unhealthy.

The psychometric properties of the GHQ-12 scale in this study population are indicated in Table 1. The principal components analyze of the 12 items on GHQ scale cumulatively explained 78.69% of the variance in the general health of the study participants. Three components (constructs) were extracted with Eigen values greater than 1, with all items factor scores of above 0.1. The first component (factor 1) described the perceived self-efficacy construct while the second component (factor 2) explained the presence of depressed mood construct. The third component (factor 3) described experiences of anxiety. On the bases of the factor analysis results and the shape of the scree plot (skewed on the left), the use of a single 12 items GHQ scale was deemed appropriate to measure the general health of the study population. The psychometric properties with all 12 items of GHQ scale included in this population showed the scale mean score of 1.24 (range from 0.31 to 1.74) and SD of 6.42 with a strong acceptable internal consistency (reliability) as evidenced by a Cronbach's alpha of 0.84.

**Table 1: Component Factor Analysis and Reliability Test of the General Health Questionnaire (GHQ) Scale among Study Participants at MNH (N=342)**

| GHQ items* | Loadings** | Mean ± SD*** |
|---|---|---|
| **Factor 1: Perceived self-efficacy construct; Explains 47.99% of variance (6 items). (Eigen Value 5.759)** | | |
| Felt capable of making decisions about things? | 0.89 | 0.36 ±0.56 |
| Felt that you are playing a useful part in things? | 0.91 | 0.35±0.57 |
| Been able to concentrate on what you're doing? | 0.42 | 0.30±0.63 |
| Able to enjoy your normal day to day activities? | 0.81 | 0.73±0.66 |
| Been feeling reasonably happy, all things considered? | 0.52 | 0.86±0.70 |
| Been able to face up to your problems? | 0.87 | 0.37±0.71 |
| **Factor 2: Depressed mood construct: Explains 29.84% of variance (4 items). (Eigen Value 3.58)** | | |
| Been losing confidence in yourself? | 0.94 | 1.43±1.27 |
| Been thinking of yourself as a worthless person? | 0.94 | 1.49±1.32 |
| Felt you couldn't overcome your difficulties? | 0.95 | 1.77±0.84 |
| Been feeling unhappy and depressed? | 0.94 | 1.79±0.87 |
| **Factor 3: Experienced Anxiety construct; Explains 7.17% variance (2 items) (Eigen value 0.860)** | | |
| Lost much sleep over worry? | 0.95 | 1.27±1.23 |
| Felt constantly under strain? | 0.89 | 1.64±0.85 |

** Cronbach's alpha =0.84*

***Principal component factors analyses loading with varimax rotation*

****The scales mean score was 1.24; Standard deviation (SD) 6.42, and range 0.31 to 1.74*

### 3.10.3 Cut down annoyed guilt and eye opener scale

The CAGE questionnaire, the name of which is an acronym for its four questions, is a widely used screening test for problem drinking and potential alcohol problems. The CAGE questionnaire which asks for craving and withdrawal etc. was developed in 1968 at North Carolina Memorial Hospital to combat the paucity of screening measures to detect problem drinking behaviors (42).

The questionnaire takes less than one minute to administer and is often used in primary care or other general settings as a quick screening tool rather than as an in-depth interview for those who have alcohol use disorder. The CAGE questionnaire does not have a specific intended population and is meant to find those who drink excessively and need treatment. The CAGE questionnaire is reliable and valid; however, it is not valid for diagnosis of other substance use disorders, although somewhat modified versions of the CAGE questionnaire have been frequently implemented for such a purpose. For screening measures such as the CAGE, diagnostic accuracy, and discriminating validity are probably the most useful ways of looking at its validity (42). Additionally, the psychometric properties related to CAGE, are coefficients of Cronbach's alpha ($\alpha = 0.82$), convergent validity (0.73), divergent validity (-0.06), and criterion validity (0.87).

The CAGE is designed as a self-report questionnaire. It is obvious to the person what the questions are about. Because talking about drinking behavior can be uncomfortable or stigmatized, people's responses may be subject to social desirability bias. The honesty and accuracy of responses may improve if the person trusts the person doing the interview or interpreting the score. Responses also may be more honest when the form is completed online, on a computer, or in other anonymous formats. It has been used in Tanzania (43), which showed a Cronbach's alpha ($\alpha = 0.76$).

### 3.10.4 Minnesota Satisfaction Questionnaire Short Form Version 20 (MSQ-SF-20)

The Minnesota Satisfaction Questionnaire Short Form was developed in 1967 by Weiss to measure intrinsic and extrinsic job satisfaction. Intrinsic job satisfaction is how people feel

about the nature of the job tasks themselves, whereas extrinsic job satisfaction is how people feel about aspects of the work situation that are external to the job tasks or work (44).

This tool has been shown to be valid and reliable. It has 20 questions that have three scores on general satisfaction, intrinsic and extrinsic parameters that can be assessed in a maximum of 20 minutes. It has the following 20 variables:

1. Workload
2. Independence
3. Variable
4. Social status
5. Supervision (Human relation)
6. Supervision (technical)
7. Moral value
8. Security
9. Social service
10. Authority

11. Ability to utilize
12. Policy and practices
13. Compensation
14. Advancement
15. Responsibility
16. Creativity
17. Working conditions
18. Coworkers
19. Recognition
20. Achievement

For general level of satisfaction, a Likert item scale with 5 points was used from “very satisfied” (5) to “very dissatisfied” (1), and all 20 items were included. A mean of the means of all the 20 factors was regarded as the cut-off point. Therefore, the mean item responses of 3.06 or more represented “satisfied” and a mean score of less than 3.06 were considered as “dissatisfied” (45). The psychometric properties of MSQ-SF-20 have the Cronbach’s alpha measure of 0.819 and this was shown in a study published in Portugal by Martins and colleagues during the year 2012, among healthcare workers in which nurses were included (45).

### 3.11 Pre-testing of the Data Collection Tool

To determine the effectiveness of the study-collecting tool, it was necessary to pretest it before the actual data collection. This was used to help determine the strengths and weaknesses of the questionnaire regarding the format, wording, and clarity of the questions and language used. A total of 20 questionnaires were pretested among 20 participants of the study population and the results of the pilot study were used to help modify the items according to the challenges that were raised as well as helping the estimated time required for each questionnaire. Furthermore, pretested questionnaires were not included in the data analysis.

### 3.12 Research Assistants Recruitment and Training

The current study recruited and trained two research assistants on how to use research tools and the best way to achieve successful data collection. The principal investigator also participated in data collection. Training for data collection was done one week prior the initiation of data collection. The training was focused on the study objectives, data collection tools, how to distribute the questionnaire to specific selected wards under the supervision of the ward in charge and lastly data collection process as well as ethical procedures.

### 3.13 Data Collection Procedure

The principal investigator and 2 research assistants were involved in data collection. Every day early in the morning and late evening during the working hours, questionnaires were distributed and self-administered to specific selected work stations by investigator and research assistants and they were collected the next day by the investigator and research assistants during the same timing. Strategies to capture study participants who were on night duty were also emphasized during participant's selections and questionnaires distribution as well as during collections. The study participants were expected to complete filling the questionnaire within an hour.

The participants were reached either individually or in groups depended on the organization of the specific ward/clinic. In situations where the participant was not responding to all or part of the questions, depending on the reason, the participant was either given more time, 24 hours to

respond or a word of thanks and returned the questionnaire to either the principal investigator/research assistant. In-case the participant wanted clarification or faced any challenges regarding the questionnaire, the investigator/research assistant provided/described any clarification/challenge that was raised during the process of information filling of the questionnaire.

### 3.14 Data Processing and Analysis Plan

Data entry and cleaning was done by the principal investigator to ensure quality and consistence. The collected data was entered into the computer and analyzed by using Statistical Package for Social Science (SPSS for windows version 28), for checking and cleaning for completeness and accuracy. The total score of all items of the GHQ-12 for each participant was calculated. Participants scored six or more indicated presence of mental distress while those scored below six were categorized as having no mental distress.

Psychological associated factors were assessed using Minnesota Satisfaction Questionnaire Short Form version 20 and a mean of the means of all the 20 factors was regarded as the cut-off point with mean item responses of 3.06 or more represented “satisfied” and a mean score of less than 3.06 was considered as “dissatisfied.” Principal component factors analysis was conducted in order to elicit the psychometric properties of the MSQ-SF 20 tool in the study population and showed Cronbach’s alpha of 0.84. Problematic use of alcohol Cut down, Annoyed, Guilty and Eye opener (CAGE) tool was used in which a score of more than two indicated hazardous use of alcohol.

### 3.15 Descriptive Statistics

Descriptive statistics data was collected, planned and summarized in univariate analysis then interpreted through tables using means, frequencies, standard deviation and ranges for each variable studied. To determine the association between variables on participants with mental distress, chi-square test was performed. All statistically significant association values were indicated as p-value $\leq 0.05$.

### 3.15.1 Bivariate Analysis

This was done to explore the presence and strengths of association between independent variables and dependent variable and calculated for the crude odds ratios, p-value with 95% CI to summarize the strength of associations with significance. All items with p value of less than 0.2 in bivariate analyses were included in multivariate logistic regression analyses (27).

### 3.15.2 Multivariate Analysis

Multiple logistic regression analysis was conducted to the selected independent variables which were found to be statistically significant and those associated with dependent variable at p-value < 0.2 during bivariate analysis. Then after multivariate analysis the independent variables with p-value ≤ 0.05 were considered statistically significant associated with dependent variable. AORs with confidence interval of 95% were used to measure the strength of association between independent and dependent variables.

## 3.16 Ethical Considerations

Ethical approval for the current study was obtained from the Muhimbili University of Health and Allied Sciences, Institution Review Board. Permission to conduct the study was requested from Executive Director of MNH and Head of Department of Psychiatry and Mental Health. To foster privacy and confidentiality, identity of the study clients was not disclosed anywhere during data collection and during report writing. Numbers were appointed to questionnaires and only these numbers were used in references to each of the questionnaires. Information obtained and recorded was not shared or disseminated to any individual except for only research purpose and without exposing the identity of the questionnaires. The consenting process occurred during the time of filling of the questionnaire, meaning the participant was required to fill out the consent form before starting to respond to the questions. Information and consent forms are attached in appendix 1, which has the introduction and an invitation note to participate from the principal investigator. It also has the purpose of the research, participant information, confidentiality, risks, and benefits to participate, contacts of whom to communicate with in case of challenge, clarification or need for mental health care while filling the questionnaire and lastly written consent with a witness. Appreciations in terms of

words of thanks for those who accepted and to those who refused to participate were offered while the word of apology was extended to those who accepted to participate but were not eligible.

# CHAPTER FOUR

## 4.0 RESULTS

This study enrolled 350 participants; however, during data collection 6 questionnaires were misplaced by the participants and couldn't be located. During data entry using SPSS-28 computer software, 2 more questionnaires were not qualified to be part of the analysis, hence a total of 342 questionnaires were analyzed for this research and results summarized.

### 4.1 Socio-Demographic Characteristics of the Study the Participants

Descriptive statistics of the socio-demographic characteristics of the study participants are indicated in Table 2. The majority of study participants were male 63.5% (n=217), aged between 20-30 years 56.7% (n=194), with a mean age of 31.73 (SD±5.28) and a median of 30 years. Approximately two-thirds of them were married 59.4% (n=203) and had 1-5 years of working experience 64.6% (n=221) while nearly three-quarters of the participants 73.7% (n=252) earned 1,000,000/= TZS or less as an average monthly income. More than a half of the participants were enrolled nurses 51.8% (n=177) while the remainder were assistant nurse officers 27.8% (n=95) and nurse officers 20.5% (n=70). Administrative roles were relatively uncommon constituting only 7.6% (n=26) of study participants. Furthermore, the vast majority of participants denied engaging in the use of alcohol 93.9% (n=321), tobacco 95.0%, and 97.1% (n=332) other substances.

**Table 2: Descriptive Statistics of the Socio-Demographics of the Study Participants (N=342)**

| Variables | Frequency (n) | Percent (%) |
|---|---|---|
| **Age (Years)** | | |
| 20-30 | 194 | 56.7 |
| 31-40 | 121 | 35.4 |
| 41+ | 27 | 07.9 |
| **Sex** | | |
| Male | 217 | 63.5 |
| Female | 125 | 36.5 |
| **Working Years (Years)** | | |
| 1-5 | 221 | 64.6 |
| 6-15 | 98 | 28.7 |
| 16+ | 23 | 06.7 |
| **Marital Status** | | |
| Single | 117 | 34.2 |
| Married | 203 | 59.4 |
| Divorced/Separated | 22 | 06.4 |
| **Average Monthly Income (TZS)** | | |
| 1,000,000 or less | 252 | 73.7 |
| More than 1,000,000 | 90 | 26.3 |
| **Rank Categorization** | | |
| Enrolled Nurse | 177 | 51.8 |
| Assistant Nurse Officer | 95 | 27.8 |
| Nurse Officer | 70 | 20.5 |
| **Administrative role** | | |
| Yes | 26 | 07.6 |
| No | 316 | 92.4 |
| **Use of Substance (< 12 months)** | | |
| **Alcohol** | | |
| Yes | 21 | 06.1 |
| No | 321 | 93.9 |
| **Tobacco** | | |
| Yes | 17 | 05.0 |
| No | 325 | 95.0 |
| **Others** | | |
| Yes | 10 | 02.9 |
| No | 332 | 97.1 |

### 4.2 Prevalence of Mental Distress among Study Participants

The study aimed to determine the prevalence of mental distress using GHQ 12 and associated factors among nurses at Muhimbili National Hospital. Mental distress was determined based on biological and psychosocial factors. Participants responded to 12 items and a score of 6 or more were categorized as mentally distressed individuals. This study hence revealed that the overall prevalence of mental distress among participants found to be 63.1% (n=342).

### 4.3 Descriptive Statistics of Job Satisfaction

The study assessed nurses' job satisfaction levels using MSQ-SF 20. A mean of the means of all the 20 factors was regarded as the cut-off point. Therefore, the mean item responses of 3.06 or more represented "satisfied" and a mean score of less than 3.06 were considered as "dissatisfied" unveiling that nearly three quarters 65.7% (n=342) of the participants were satisfied with their job.

### 4.4 Results of Analysis on Factors Associated with Mental Distress among Participants

Factors associated with mental distress that were analyzed among participants revealed several associations as indicated in Table 3. Participants aged 41 and above [$\chi^2 = 7.90$, $p = 0.019$], those who were divorced/separated [$\chi^2 = 38.30$, $p < 0.001$] and had low income of TZS 1,000,000 or less [$\chi^2 = 37.13$, $p < 0.001$] were found to be statistically significant associated with mental distress. Similarly, statistically significant association was also found between mental distress and amongst participants who were categorized as enrolled nurses [$\chi^2 = 18.94$, $p < 0.001$] and reported job dissatisfaction [$\chi^2 = 69.56$, $p <0.001$]. In contrary, sex [$\chi^2 = 0.74$, $p = 0.390$], administrative roles [$\chi^2 = 0.40$, $p = 0.52$] and participants who did not report problem drinking alcohol [$\chi^2 = 1.09$, $p = 0.396$], did not demonstrate a statistically significant association with mental distress.

**Table 3: Factors Associated with Mental Distress (N=342)**

| Variables | Mental distress | | $\chi^2$ | P-Value |
|---|---|---|---|---|
| | Yes (%) | No (%) | | |
| **Age (Years)** | | | | |
| 20-30 | 112(57.7) | 82(42.3) | 7.90 | 0.01 |
| 31-40 | 83(68.6) | 38(31.4) | | |
| 41+ | 22(81.5) | 5(18.5) | | |
| **Sex** | | | | |
| Male | 134(61.8) | 83(38.2) | 0.74 | 039 |
| Female | 83(66.4) | 42(33.6) | | |
| **Working Years (Years)** | | | | |
| 1-5 | 134(60.6) | 87(39.4) | | |
| 6-15 | 65(66.3) | 33(33.7) | 3.28 | 0.19 |
| 16+ | 18(78.3) | 5(21.7) | | |
| **Marital Status** | | | | |
| Single | 95(81.2) | 22(18.8) | | |
| Married | 102(50.2) | 101(49.8) | 38.30 | <0.00 |
| Divorced/Separated | 20(90.9) | 2(9.1) | | |
| **Average Monthly Income (TZS)** | | | | |
| 1,000,000 or less | 136(54.0) | 116(46.0) | 37.13 | <0.00 |
| More than 1,000,000 | 9(10.0) | 81(90.0) | | |
| **Rank Categorization** | | | | |
| Enrolled Nurse | 131(74.0) | 46(26.0) | | |
| Assistant Nurse Officer | 53(55.8) | 42(44.2) | 18.94 | <0.00 |
| Nurse Officer | 33(47.1) | 37(52.9) | | |
| **Administrative role** | | | | |
| Yes | 15(57.7) | 11(42.3) | 0.40 | 0.52 |
| No | 202(63.9) | 114(36.1) | | |
| **Cage Score** | | | | |
| Have a problem drinking alcohol | 13 (72.2) | 5(27.8) | 1.09 | 0.39 |
| Have no problem drinking alcohol | 3 (100.0) | 0 (0.0) | | |
| **Level of Satisfaction** | | | | |
| Satisfied | 47 (20.9) | 178(79.1) | 69.56 | <0.00 |
| Not Satisfied | 78(66.7) | 39(33.3) | | |

### 4.5 Results of Bivariate Analysis on Factors Associated with Mental Distress among Study Participants

In the bivariate logistic regression analysis, several factors were significantly associated with mental distress as summarized in Table 4. Individuals aged 31-40 years had significantly lower chances of experiencing mental distress compared to those aged 20-30 years [COR = 0.31, 95% CI (0.11,0.85), p = 0.023], likewise, participants who were divorced/separated also showed significantly lower likelihood of reporting mental distress [COR = 0.10, 95% CI (0.02, 0.44), p = 0.002] compared to their counterparts. Conversely, participants earning TZS 1,000,000 or less per month had significantly higher probability of experiencing mental distress as compared to those reported higher income per month [COR = 0.13, 95% CI (0.06, 0.27), p = 0.000]. Additionally, being an enrolled nurse [COR = 3.19, 95% CI (1.79, 5.69), p = 0.000] and reporting job dissatisfaction [COR = 7.57, 95% CI (4.59, 12.50), p = 0.000] were significantly associated with increased likelihood of reporting mental distress as compared to other cadres of nurses and those reported job satisfactions respectively.

### 4.6 Results of Multivariate Analysis on Factors Associated with Mental Distress among Study Participants

After controlling for confounders in multivariate logistic regression analysis, only two factors namely rank categorization and level of satisfaction among study participants were significantly associated with mental distress as reported in Table 4. Being an enrolled nurse was statistically significant associated with higher odds of mental distress [AOR = 1.31, 95% CI (1.15, 1.49), p < 0.001] compared to other cadres. Furthermore, reporting job dissatisfaction had significantly higher risk of reporting mental distress than those who had high level of job satisfaction [AOR = 1.58, 95% CI (1.43, 1.75), p < 0.001].

**Table 4: Results of Bivariate and Multivariate Analysis on Factors Associated with Mental Distress of the Study Participants. (N=342)**

| | Bivariate Analysis | | Multivariate Analysis | |
|---|---|---|---|---|
| **Factors** | **COR (95% CI)** | **P-Value** | **AOR (95% CI)** | **P-value** |
| **Age (Years)** | | | | |
| 20-30 | | | | |
| 31-40 | 0.31(0.11-0.85) | 0.023 | 0.79(0.67-0.93) | 0.01 |
| 41+ | 0.49(0.18-1.41) | 0.189 | 0.88(0.74-1.04) | 0.13 |
| **Marital Status** | | | | |
| Single | | | | |
| Married | 0.43(0.09-1.99) | 0.281 | 0.91(0.79-1.04) | 0.17 |
| Divorced/Separated | 0.10(0.02-0.44) | 0.002 | 0.67(0.58-0.77) | 0.10 |
| **Average Monthly Income (TZS)** | | | | |
| 1,000,000 or less | 0.13(0.06-0.27) | 0.000 | 0.69(0.64-0.76) | 0.11 |
| More than 1,000,000 | | | | |
| **Rank Categorization** | | | | |
| Enrolled Nurse | 3.19(1.79-5.69) | 0.000 | 1.31(1.15-1.49) | <0.00 |
| Assistant Nurse Officer | 1.42(0.76-2.63) | 0.272 | 1.09(0.94-1.27) | 0.27 |
| Nurse Officer | | | | |
| **Level of Satisfaction** | | | | |
| Satisfied | | | | |
| Not Satisfied | 7.57(4.59-12.50) | 0.000 | 1.58(1.43-1.75) | <0.00 |

# CHAPTER FIVE

## 5.0 DISCUSSION

The prevalence of mental distress among nurses at MNH, is recognized as one of the prevalent mental health conditions associated with symptoms such as depressed mood, loss of interest, restlessness and feeling tense. It is also characterized by other somatic symptoms like insomnia, headaches and lack of energy that are likely to vary across different areas. Different studies showed that the incidence and prevalence of mental distress in the working population is getting increased in the last decades among working population globally. However, there are limited studies locally that have explored this problem. To the best of authors' knowledge, this is the first study conducted among nurses at MNH that aimed at determining the prevalence and factors associated with mental distress.

### 5.1 Descriptive Statistics

The prevalence of mental distress among nurses at MNH examines the demographic and related characteristics of nurses at Muhimbili National Hospital and explored the prevalence of mental distress among them. The study reveals that majority of the nurses surveyed were male, young adults aged 20-30 years, married, and had limited work experience. Despite the high prevalence of mental distress, the majority of the nurses reported high job satisfaction. This study found high prevalence of mental distress among nurses which is consistent with global research. However, it reports a notably close similar prevalence of mental distress among nurses compared to a study conducted in Great Britain (22). Furthermore, the current study showed lower prevalence of mental distress compared to studies conducted in Kenya and Portugal (19, 25). This highlights the necessity for focused interventions to tackle mental distress in this group. Moreover, the prevalence of mental distress in this study was twice as high as those in similar studies conducted among nurses in Chicago (2004), Iran (2018) and Sub-Saharan African public hospitals between, 2015, 2020 and 2021. The difference is due to social-cultural factors, methodological approaches and timing of study.

### 5.2 Bio-Psychosocial Factors Associated with Mental Distress

The present study did not establish biological factors that were associated with mental distress however, it unveiled significant associations between mental distress and key psychosocial factors namely, rank categorization and level of job satisfaction. Rank categorization is significant in predicting mental distress among MNH nurses, with enrolled nurses experiencing more distress than assistant nurse officers and nurse officers. The odds of having mental distress were higher among enrolled nurses compared to assistant nurse officers and nurse officers. This suggests that rank categorization influences stress levels and mental health outcomes. Enrolled nurses, the lowest cadre with potentially less experience and authority, may face unique challenges such as increased workload and decision-making autonomy, contributing to their vulnerability to mental distress. This is in keeping with some literature exemplified by a study conducted by Negi and colleagues (2015); and another one which showed that the rate of burnout was associated with nurses who had lower ranks and who were more subjected to heavy work (46).

Level of job satisfaction in the index study further showed significant links to mental distress. These findings suggest that, participants reporting job dissatisfaction had significantly higher odds of experiencing mental distress compared to their satisfied counterparts. This factor emerged as a robust predictor of mental distress. This finding resonates with extensive literature emphasizing the protective role of level of job satisfaction in mental health outcomes among healthcare professionals. Studies by Emmanuel and colleagues (30), as well as Abushaikha and colleagues (31), have underscored the positive impact of level of job satisfaction on reducing burnout and promoting mental well-being. However, the current findings are contrary to the study conducted in a tertiary hospital in Malaysia by R. Siti Hajar and colleagues (47), which showed an association between burnout and job satisfaction. Its results indicated that participants who reported job satisfaction had significantly lower odds of experiencing burnout compared to their dissatisfied counterparts. This finding underscores the critical role of workplace factors in shaping mental health outcomes among nurses and highlights the importance of prioritizing interventions aimed at improving level of satisfaction and fostering supportive work environments.

### 5.3 Study limitation and Mitigations

Despite its positive contributions to the prevalence and factors associated with mental distress amongst nurses, our study is not without limitations. Firstly, the cross-sectional design prevents the establishment of causal relationships between variables. Secondly, the reliance on self-reported measures, such as the assessment of mental distress and level of satisfaction, may introduce response bias and underreporting. Additionally, the study sample was limited to nurses at MNH, which may limit the generalizability of our findings to other healthcare settings. Although the study designed aimed to minimizing the identified limitations, future similar research endeavors should intent to address these limitations by employing longitudinal designs, utilizing objective measures of mental health outcomes, and expanding the study sample to include nurses from diverse healthcare settings across Tanzania.

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# CHAPTER SIX

## 6.0 CONCLUSION AND RECOMMENDATIONS

### 6.1 Conclusion

The prevalence of mental distress among participants in this study sample is reported high. The risk associated with high prevalence of mental distress is significantly increased amongst participants who reported job dissatisfaction and ranked as enrolled nurse which is the lowest cadre in nursing profession compared to their counterparts.

### 6.2 Recommendations

Addressing the mental well-being of nurses at Muhimbili National Hospital in Dar es Salaam, Tanzania requires a multi-layered approach informed by the findings and implications of this study. Based on the conclusions drawn, several recommendations emerge to support nurses' mental health. There is a high need to improve mental health awareness and wellbeing amongst nurses including regular screening to identify severely affected individuals for interventions. Additionally, further research is recommended to explore additional factors that are associated with level of job satisfaction among nurses so as to strategize best approach to improve and validation of the tools.

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# APPENDICES

## Appendix 1: Information and Consent Form – English

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES**

**SCHOOL OF MEDICINE**

**DEPARTMENT OF PSYCHIATRY AND MENTAL HEALTH**

**STUDY TITLE: PREVALENCE OF MENTAL DISTRESS AND ASSOCIATED FACTORS AMONG NURSES AT MUHIMBILI NATIONAL HOSPITAL IN DAR ES SALAAM**

**Introduction:** My name is Dr. Peter Gamba, a resident in the Department of Psychiatry at Muhimbili University of Health and Allied Sciences (MUHAS) in Dar-es-Salaam. I am conducting a study on the prevalence of mental distress and associated factors among nurses at MNH in Dar es Salaam

You are invited to participate in this study, kindly read this form and understand the content before agreeing to participate. Any queries you may have or words that you don't understand shall be answered. If you have questions, please ask me.

**Purpose of the research:** The purpose of this research is to determine the prevalence of mental distress and associated factors among nurses at MNH in Dar es Salaam.

**Participant information:** Your participation in this research is entirely voluntary. Whether you choose to participate or not, nothing will change. You may change your mind later and stop participating even if you agreed earlier.

**Confidentiality:** Information about you that will be collected during the research will be kept confidential and no one but the researchers will be able to see it. We will not be sharing the identity of those participating in the research.

**Risks:** By participating in this research, you will not be subjected to any risk. Work from all research participants' stations shall continue with no interruption from the principal investigator or assistants.

**Benefits:** The benefits will be participation in a study that will lead to early identification of features suggestive of mental distress and further expert evaluation and management will follow thereafter at the institution level and those who will need mental health care after the participation will channel to the appropriate mental health department.

**Contacts and Complaints:** If you have any questions related to this study, or your health you can contact the principal researcher Dr. Peter Gamba 0766-159-460 or my supervisor Dr. Frank Masao 0754- 288-673 and my co-supervisor Dr. Iddi Nkya 0713- 775-884. You can also contact the chairperson of the Research Senate and Publication Committee, Dr. Nahya Salim Masoud - at 0713-250-074, P.O. Box 65001 Dar es Salaam in case of any complaints or research violations.

**Consent**

I have read the above information, or it has been read to me. I have had the opportunity to ask questions and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Signature of Participant _____

Date _____

**Appendix 2: Fomu ya ridhaa Kwa mgonjwa**

**CHUO CHA AFYA NA SAYANSI SHIRIKISHI CHA MUHIMBILI**

**SHULE YA TIBA**

**IDARA YA AFYA NA MAGONJWA YA AKILI**

**KICHWA CHA HABARI: UTAFITI KUHUSU MSONGO WA MAWAZO MIONGONI MWA WAUGUZI WANAOFANYA KAZI KATIKA HOSPITALI YA TAIFA MUHIMBILI**

**Utangulizi:** Habari, naitwa Dkt. Peter Gamba mwanafunzi wa shahada ya uzamili ya udaktari wa magonjwa na afya ya akili katika Chuo cha Afya na Sayansi Shirikishi cha Muhimbili.

Tunafanya utafiti kuhusu msongo wa mawazo miongoni mwa wauguzi wanao fanya kazi katika hospitali ya taifa muhimbili. Nitakupa maelezo nakukualika kushiriki katika utafiti huu, kabla ya kuamua unaweza kuongea na mtu yeyote kupata maelezo ya kutosha, kama kuna maneno hujaelewa vizuri unaweza kuniuliza.

**Lengo la huu utafiti:** Lengo kuu ni kujua ukubwa wa msongo wa mawazo miongoni mwa wauguzi wanao fanya kazi katika hospitali ya taifa Muhimbili.

**Taarifa za mshiriki:** Kushiriki kwako nikwahiari na baadae ukiamua kujitoa kwenye utafiti utaruhusiwa.

**Usiri wa taarifa:** Taarifa zote zitakazopatikana katika utafiti huu zitabaki kuwa ni siri. Tutatumia namba ya utambulisho ya utafiti kwaajili ya kuwatambua washiriki wa utafiti, hakuna majina ya takayo tumika katika utafiti huu au katika machapisho yoyote yakiutafiti yatakayotokana na utafiti huu hapo baadaye.

**Madhara ya kushiriki:** Kwa kushiriki kwenye utafiti huu hautapata madhara yeyote.

Je, nitalipwa kwa ushiriki? Kushiriki kwenye utafiti ni hiari. Hakutakuwa na malipo kwa kushiriki kwako kwenye utafiti. Pia hautahitajika kulipia chochote ili ushiriki katika utafiti.

**Faida:** Utafiti huu utasaidia kufahamu mapema dalili za msongo wa mawazo na kusaidia kupata matibabu mapema.

**Mawasiliano na Malalamiko:** Kama una maswali zaidi ambayo ungependa kuuliza kuhusiana na utafiti huu, tafadhali wasiliana na mtafiti mkuu Dkt. Peter Gamba 0766-159-460 au msimamizi wangu Dkt Frank Masao 0754-288-673 au msaidizi wa msimamizi wangu Dkt Iddi Nkya 0713-775-884 au pia Dkt. Nahya Salim Masoud 0713-250-074 ambaye ni mwenyekiti wa kamati ya utafiti na machapisho ya Chuo Kikuu cha afya Muhimbili wa S.L.P. 65001 Dar es salaam, Tanzania

**Tamko la ridhaa:**

Nimesoma yaliyomo kwenye hii fomu ya ridhaa,au nimesomewa yaliyomo kwenye hii fomu ya ridhaa. Maswali yangu yote yamejibiwa. Ninakubali kwahiari yangu mwenyewe kushiriki katika utafiti huu

Saini ya mshiriki …….

Tarehe: …….

**Appendix 3: Questionnaire – English Version**

**I. DEMOGRAPHIC CHARACTERISTICS OF STUDY RESPONDENT**

Fill or circle the correct answer appropriately:

1. Age of the interviewee in years……

2. Years of working …….

3. Sex of the respondent
    a. Male
    b. Female

4. What is your current marital status?
    a. Single
    b. Married
    c. Divorced/ Separated

5. What is the average monthly income?
    a. TZS 1,000,000 or less
    b. TZS 1,000,001 or more

6. Rank categorization
    a. Enrolled nurse (EN)
    b. Assistant nurse officer (ANO)
    c. Nurse officer (NO)

7. Administrative/role
    a. Yes
    b. No

If the answer is yes (a) to the above question (7), then mention the position/role

……..

8. Have you been using any of these substances for the past 12 months?

a. Alcohol
b. Tobacco
c. Cannabis
d. Others.

If yes, on option (a) above then answer the following and if no then skip the questions below:

**II. CAGE Questionnaire Questions (Each of the 4 questions of the CAGE questionnaire can be answered with a simple yes or no response).**

9. Have you ever felt you should cut down on your drinking? …….

10. Have people annoyed you by criticizing your drinking? …….

11. Have you ever felt bad or guilty about your drinking? …….

12. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (eye-opener)? …….

**III. QUESTIONAIRE FOR ASSESSMENT OF MENTAL DISTRESS**

**INSTRUCTIONS: Tick on the appropriate letter.**

| S/N | Questions | Strongly agree (0) | Agree (1) | Disagree (2) | Strongly disagree (3) |
|---|---|---|---|---|---|
| 13. | Been able to concentrate on what you're doing? | | | | |
| 14. | Lost much sleep over worry? | | | | |
| 15. | Did you feel that you are playing a useful part in things? | | | | |
| 16. | Felt capable of making decisions about things? | | | | |
| 17. | Felt constantly under strain? | | | | |
| 18. | Did you feel you couldn't overcome your difficulties? | | | | |
| 19. | Able to enjoy your normal day-to-day activities? | | | | |
| 20. | Been able to face up to your problems? | | | | |
| 21. | Been feeling unhappy and | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | depressed? | | | | |
| 22. | Been losing confidence in yourself? | | | | |
| 23. | Been thinking of yourself as a worthless person? | | | | |
| 24. | Been feeling reasonably happy, all things considered? | | | | |

**Have you recently:**

## IV. QUESTIONNAIRE FOR ASSESSING JOB SATISFACTION

**Instructions:** There are 20 statements about job satisfaction, and each statement has Five alternatives with a five-point scale ranging from 1 (very dissatisfied) to 5 (very satisfied).

Read each item carefully and for each question, please circle one number that best expresses your feelings.

If you feel that your job gives you more than you expected, choose “very satisfied.”

If you feel that your job gives you what you expected, choose “satisfied.”

If you can’t make up your mind whether or not the job gives you what you expected, choose “neutral “(neither satisfied nor dissatisfied)

If you feel that your job gives you less than you expected, choose “dissatisfied.”

If you feel that your job gives you much less than you expected, choose “very dissatisfied.”

**How much are you satisfied with your job?**

| Code | Questions | Very Dissatisfied (1) | Dissatisfied (2) | Neutral (3) | Satisfied (4) | Very satisfied (5) |
|---|---|---|---|---|---|---|
| 25. | The way hospital policies are put into practice. | | | | | |
| 26. | My pay (salary) and the amount of work that I do. | | | | | |
| 27. | The chance to try my own methods of doing the job. | | | | | |
| 28. | Working conditions such as cleanliness of the workplace, healthy environmental conditions, and enough tools and supplies. | | | | | |
| 29. | The way my co-workers get along with each other. | | | | | |
| 30. | Being able to do things that don't go against my conscience. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 31. | The chance to do things for other people. | | | | | |
| 32. | The chance to do something that makes use of my abilities. | | | | | |
| 33. | How you work with your boss. | | | | | |
| 34. | How you're given guidance on work with your boss. | | | | | |
| 35. | The availability of your boss when you’re in need. | | | | | |
| 36. | The way your boss helps you in Fixing you’re Shortcomings. | | | | | |
| 37. | The compliments given by your boss when you're doing a good job. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 38. | The chance to do different things from time to time. | | | | | |
| 39. | The way my job provides a good working environment. | | | | | |
| 40. | The ability of your boss to make Decisions. | | | | | |
| 41. | The understanding of your boss of what's happening in your group. | | | | | |
| 42. | The freedom to use my own judgment. | | | | | |
| 43. | The chance for advancement on this job. | | | | | |
| 44. | The feeling of accomplishment I get from the job. | | | | | |

**Thank you for your cooperation and participation.**

**Appendix 4: Dodoso – Kwa Kiswahili**

I. TAARIFA BINAFSI ZA MSHIRIKI

Jaza au zungushia jibu sahihi

1. Umri wa mshiriki …….
2. Muda gani umekuwa ukifanya kazi ya uuguzi
3. Jinsia ya mshiriki
    a. Kiume
    b. Kike
4. Hali ya mahusiano
    a. Huna
    b. Umeolewa/umeoa
    c. Mmeachana/mmetengana
5. Wastani wa kipato kwa mwezi
    a. TZS 1,000,000 au chini
    b. TZS 1,000,001 au zaidi
6. Kada ya mshiriki
    a. Muuguzi wa cheti
    b. Afisa muuguzi msaidizi
    c. Afisa muuguzi
7. Je, una nafasi yoyote ya uongozi katika hospitali hii?
    a. Ndiyo
    b. Hapana

Kama jibu ni ndiyo (a) katika swali namba (7), taja nafasi yako ya uongozi ……

8. Je, umekuwa ukitumia vilevi vifuatavyo kwa muda wa miezi 12 iliyopita?
    a. Pombe
    b. Sigara
    c. Bangi
    d. Aina nyingine

Kama jibu la swali (8) hapo juu ni ndio (a) endelea kujibu maswali yafuatayo hapo chini na kama jibu ni hapana husijibu maswali hayo.

**II. DODOSO LA MATUMIZI YA POMBE**

**Jibu maswali yafuatayo "ndiyo" au "hapana". Weka alama ya "x" kwa hapana na alama ya vema "√" kwa ndiyo ("x" inawakilisha alama 0 na "√" inawakilisha alama 1)**

| Namba | Swali | Jibu |
|---|---|---|
| 9. | Umeshawahi kuhisi kuwa unapaswa kupunguza matumizi yako ya pombe? | |
| 10. | Umekuwa ukikerwa na tabia ya watu kukosoa matumizi yako ya pombe? | |
| 11. | Umeshawahi kujihisi vibaya au kujilaumu juu ya matumizi yako ya pombe? | |
| 12. | Umeshawahi kutumia pombe asubuhi mapema ili kuweza kutulia na kufanya kazi zako kuondoa madhara ya pombe ya jana (umewahi kuzimua)? | |

**III. DODOSO LA AFYA KWA AJIRI YA MSONGO WA MAWAZO**

**Maelekezo: Weka alama ya vema (√) chini ya jibu utakalochagua.**

**Hivi karibuni umeweza:**

| Namba | Swali | Nakubali kabisa (0) | Nakubali (1) | Nakataa (2) | Nakataa kabisa (3) |
|---|---|---|---|---|---|
| 13. | Kuwa makini katika kile unachokifanya? | | | | |
| 14. | Kukosa usingizi mwingi sababu ya wasiwasi? | | | | |
| 15. | Kujisikia/kuhisi kama unashiriki kiusanifu kwenye mambo mbalimbali? | | | | |
| 16. | Kuwa na uwezo wa kufanya maamuzi katika vitu kazini? | | | | |
| 17. | Kujisikia/kuhisi kama umeelemewa na mambo mengi kwa muda mwingi? | | | | |
| 18. | Kuwa uwezi kuzishinda changamoto/mambo magumu? | | | | |
| 19. | Kuwa unafurahia shughuli za kila siku? | | | | |
| 20. | Kuwa unaweza kukabiliana na matatizo uliyonayo? | | | | |
| 21. | Kukosa furaha au kuwa mnyongofu/kusononeka? | | | | |
| 22. | Kukosa kujiamini mwenyewe? | | | | |
| 23. | Kufikiria kuwa hauna thamani kama mtu mwengine? | | | | |
| 24. | Kuwa na furaha katika mambo yote? | | | | |

## IV. DODOSO LA KUHUSU NA KURIDHIKA KWA KAZI

Maelekezo: kuna taarifa 20 kuhusu kuridhika kwa kazi na kila kauli ina njia mmbadala tano zilizo na kiwango cha alama tano kuanzia 1 (Sijaridhika sana) hadi 5 (ninaridhika sana).

Soma kila kitu kwa uangalifu na kwa kila swali, tafadhali zungusha nambari moja ambayo inaonyesha hisia zako vizuri

Ikiwa unahisi kuwa kazi yako inakupa zaidi kuliko ulivyotarajia, chagua "ninaridhika sana."

Ikiwa unahisi kuwa kazi yako inakupa kile ulichotarajia, chagua "ninaridhika."

Ikiwa huwezi kufanya maamuzi katika swali chagua"wasio na upande wowote “sina jibu”

Ikiwa unahisi kuwa kazi yako inakupa kidogo kuliko ulivyotarajia, chagua "sijaridhika”.

Ikiwa unahisi kuwa kazi yako inakupa kidogo zaidi kuliko ulivyotarajia, chagua "sijaridhika sana”

Unaridhika na kazi yako kwa kiasi gani?

| Msimbo | Swali | Sijaridhika Sana (1) | Sijaridhika (2) | Sinajibu (3) | Ninaridhika (4) | Ninaridhika Sana (5) |
|---|---|---|---|---|---|---|
| 25. | Jinsi sera za hospitali zinavyowekwa kufanya kazi. | | | | | |
| 26. | Mshahara wangu na kiasi cha kazi ninayofanya. | | | | | |
| 27. | Nafasi ya kujaribu mbinu zangu mwenyewe za kufanya kazi. | | | | | |
| 28. | Hali ya kazi kama vile usafi wa mahali pa kazi, hali nzuri ya mazingira, zana za kutosha na vifaa. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29. | Jinsi wafanyakazi wenzangu wanavyoshirikiana na kila mmoja. | | | | | |
| 30. | Kuwa na uwezo wa kufanya mambo ambayo hayaendi kinyume na dhamiri yangu. | | | | | |
| 31. | Nafasi ya kufanya mambo kwa ajili ya watu wengine. | | | | | |
| 32. | Nafasi ya kufanya kitu ambacho kinatumia uwezo wangu. | | | | | |
| 33. | Jinsi ya kufanya kazi na bosi wako. | | | | | |
| 34. | Jinsi Unavyopewa Mwongozo wa Kufanya Kazi na Bosi Wako. | | | | | |
| 35. | Upatikanaji wa bosi wako wakati unahitaji. | | | | | |
| 36. | Jinsi bosi wako anavyokusaidia kurekebisha mapungufu yako. | | | | | |
| 37. | Hongera kutoka kwa bosi wako wakati unafanya kazi nzuri. | | | | | |
| 38. | Nafasi ya kufanya mambo tofauti mara kwa mara. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 39. | Jinsi kazi yangu inavyoleta mazingira mazuri ya kufanya kazi. | | | | | |
| 40. | Uwezo wa mkuu wako wa kazi katika kufanya maamuzi. | | | | | |
| 41. | Uelewa wa mkuu wako wa kazi juu ya kinachofanyika katika kundi lenu. | | | | | |
| 42. | Uhuru wa kutumia maamuzi yangu mwenyewe. | | | | | |
| 43. | Nafasi ya kujiendeleza katika kazi hii. | | | | | |
| 44. | Hisia ya mafanikio ninayopata kutoka kwa kazi. | | | | | |

**ASANTE SANA KWA USHIRIKIANO WAKO**

## Appendix 5: Approval of Ethical Clearance

**UNITED REPUBLIC OF TANZANIA**

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATION

Ref No DA 282/298/01.C/1857 Date 13/08/2023

MUHAS-REC-08-2023-1857
PETER AMON GAMBA
SCHOOL OF MEDICINE
MUHAS

**RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: MENTAL DISTRESS AND ASSOCIATED FACTORS AMONG NURSES AT MUHIMBILI NATIONAL HOSPITAL IN DAR ES SALAAM**

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: 13/08/2023
EXPIRATION DATE OF APPROVAL: 13/08/2024

**STUDY DESCRIPTION:**

**Purpose**

The purpose of this study is to assess the prevalence of mental distress and job-related associated factors among nurses at MNH

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-%2014380.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 https://drp.muhas.ac.tz/.

Dr. Nahya Salim Masoud,
**Chairperson, MUHAS Research and Ethics Committee**



**Appendix 6: Permission letters**

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

In reply quote;
Ref. No. HD/MUH/T.284/2020 24th August, 2023

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

**Re: INTRODUCTION LETTER**

We would like to inform you that the bearer of this letter is **Peter Amon Gamba** with Reg. No. HD/MUH/T.284/2020 is a student at Muhimbili University of Health and Allied Sciences (MUHAS) "pursuing **MMed. Psychiatry and Mental Health.**

As part of his studies, he will be doing an elective research titled: "***Mental Distress and Associated Factors Among Nurses at Muhimbili National Hospital.***" he is being supervised by Dr. Frank Massao from MUHAS and Dr. Iddi Nkya from MNH.

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.

*Ms. Victoria Mwanjwa*
**For: DIRECTOR, POSTGRADUATE STUDIES**

**c.c Peter Amon Gamba**

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH

**MUHIMBILI NATIONAL HOSPITAL**

*In reply please quote;*

Ref. No.: MNH/CRTCU/Perm/2023/484 Date: 01st September, 2023

Director of Nursing Services
**Muhimbili National Hospital**

BMS
The permission has been granted kindly assist him with all necessary support.
5.9.2023

**RE: PERMISSION TO COLLECT DATA AT MNH.**

| | |
|---|---|
| **Name of Student** | **Peter Amon Gamba** |
| **Title** | **"Mental Distress and Associated Factors Among Nurses at Muhimbili National Hospital".** |
| **Institution** | Muhimbili University of Health and Allied Sciences |
| **Supervisors** | Dr. Frank Massao (MUHAS) |
| **Co - Supervisor** | Dr. Iddi Nkya (MNH) |
| **Period** | 01st September, 2023 to 30th January, 2024 |

Approval has been granted to the above mentioned student to collect data at MNH. **A final study report should be lodged with Clinical Research, Training and Consultancy Unit.** Dissemination of study findings to MNH stakeholders shall be overseen by **Dr. Iddi Nkya** (MNH) Co – supervisor.

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

Sincerely,

**Dr. Jessie Mbwambo**
**Head of Clinical Research, Training and Consultancy Unit**

c.c Dr. Iddi Nkya
c.c **Peter Amon Gamba**