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**SCHOOL OF PUBLIC HEALTH**

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**MENTAL HEALTH STATUS OF HEALTH CARE WORKERS IN SALTPOND  
GOVERNMENT HOSPITAL IN THE CONTEXT OF COVID-19**

**BY**

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## DECLARATION

I, Isaiah Ameyaw hereby declare that apart from references to other people's works which have been duly acknowledged, this research is as a result of my own independent work and has not been submitted for the award of any degree in any institution.



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Supervisor



## **DEDICATION**

I dedicate this thesis to my family. A special feeling of gratitude to my loving wife, Faustina Grant and children, Gabriella A. Ameyaw, and Wilfred Ameyaw whose words of inspiration pushed me to complete this work.



## ACKNOWLEDGEMENT

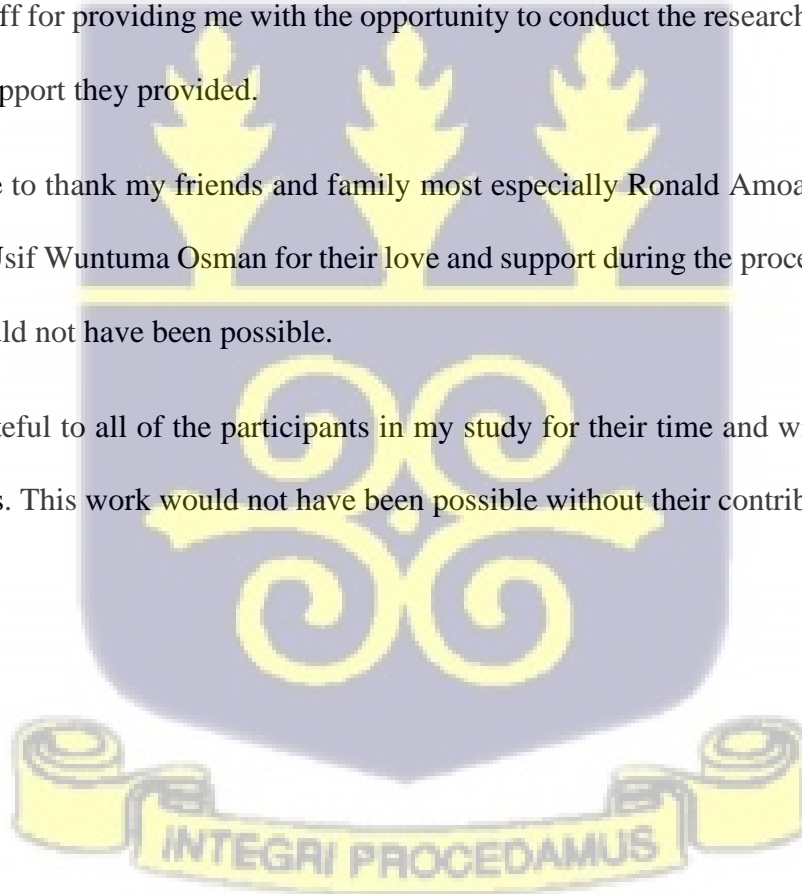
I thank the almighty God for his guidance, protection and direction throughout my stay in this university.

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## ABSTRACT

Title of study: Mental health status of health care workers in Saltpond government hospital in the context of COVID-19.

Background: The COVID-19 pandemic has had a significant impact on public mental health. During a pandemic, healthcare workers (HCWs) are exposed to many stresses that predispose them to psychological disorders. To learn more about these issues, this study was conducted to assess the mental health status of health care workers in a selected government hospital in Ghana. The outcome of this study is expected to inform strategies to improve mental health status of health workers in such situations.

Method: This study used a cross-sectional analytic design with a simple random sampling method and a close-ended structured questionnaire to collect data. Chi square and fisher exact tests and multiple logistic regression were used to identify and test the association between dependent and independent variables. A total of 296 healthcare workers in Saltpond Government Hospital were involved in the study.

Results: Among healthcare professionals, depression, anxiety, and stress was prevalent. Approximately 55(20.27%) health workers were depressed, 44(15.07%) anxious, and 76(22.79%) stressed. The study found that depression, anxiety, and stress were significantly associated with socio-demographic characteristics such as marital status and gender. About 169(57.24%) had “excellent knowledge” and 102(34.48%) had “good knowledge” of COVID-19 among the participants.

Conclusion and Recommendations: A significant proportion of health workers in the study area were found to be depressed, anxious, and stressed. Mental health services should be strengthened

by the Ghana Health Service (GHS) to reduce the prevalence of depression, anxiety, and stress among healthcare workers. Periodic screening should be conducted among hospital staff. The counseling and public health education units of GHS should be strengthened to enhance awareness among healthcare workers the signs and symptoms of depression, anxiety, and stress and relevant coping strategies.



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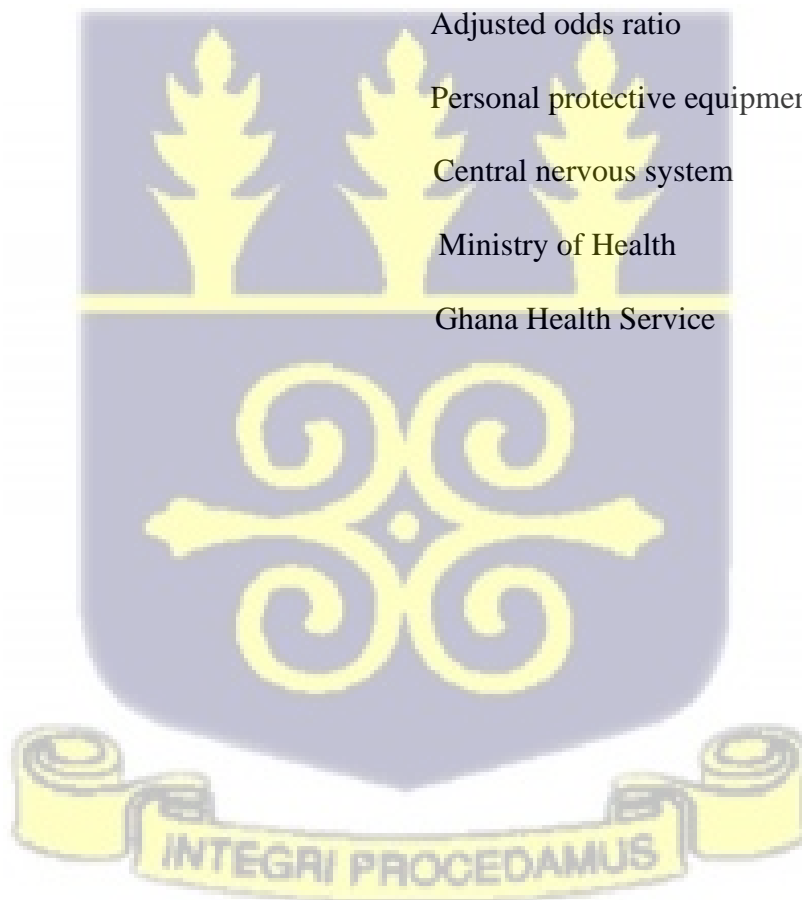
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### LIST OF ABBREVIATIONS

Acronym	Meaning
W.H.O	World Health Organization
HCWs	Health care workers
DASS21	Depression anxiety stress scale
PTSS	Post traumatic stress symptoms
COR	Crude odds ratio
AOR	Adjusted odds ratio
PPEs	Personal protective equipment
CNS	Central nervous system
MoH	Ministry of Health
GHS	Ghana Health Service



## DEFINITION OF TERMS

Anxiety (DASS21-A) – considered as either Normal, Mild, Moderate, Severe and extremely severe depending on the persons score

Depression – considered as either Normal, Mild, Moderate, Severe and extremely severe depending on the score

Stress - considered as either Normal, Mild, Moderate, Severe and extremely severe depending on the persons score

Knowledge – was considered excellent knowledge (80-100% score), “good knowledge” (59 – 79% score), and “poor knowledge” (0-58% score)

Mental health status – depressed, anxiety and stress.



## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 BACKGROUND

Coronavirus disease (COVID-19) is an infectious disease caused by newly discovered coronavirus (W.H.O 2020). It was first identified in December 2019 in Wuhan, China, and has since spread globally, resulting in an ongoing pandemic (Chen et al, 2020). As of 10th October 2022, about 620 million cases have been reported across about 190 countries that resulted in over 6,543, 138 deaths and 604 million recoveries (WHO 2022). In Africa at least 11,586,000 cases have been confirmed with death rate of 251,000 (WHO, 2022). In the case of Ghana 160,775 have been confirmed with 1445 mortalities. Ghana recorded its first case of COVID-19 on the 12<sup>th</sup> March 2020 and it was imported one. As a result of the huge number of health-related cases with its attendant associated death toll that came with the epidemic, healthcare workers around the globe were subjected to heavy workload and psychological stress, thereby putting a strain on the health-care system resulting social effects (Dubey et al., 2020).

The staff of the healthcare system were closely involved in the handling and care of COVID patients on a daily basis. On average, huge amount of time was spent by healthcare personnel on a daily basis to care and nurture for COVID-19 infected patients (Huang and Zhao, 2020). Furthermore, the rising number of confirmed and suspected cases, the depletion of personal protective equipment, the lack of specific drugs available for COVID-19 treatment, and feelings of being under supported by health-care administration are assumed to be contributory factors to health-care workers' mental burdens (Elkholly et al., 2020). The mental health issues which affect healthcare workers differ depending on the

individual and the circumstances, showing the impact of the COVID-19 emergency response on healthcare workers. This pandemic has been a difficult scenario for health care workers, particularly those who work in hospitals caring for suspected or confirmed COVID-19 patients, because it does not only put them at the risk of becoming infected, but it also makes these healthcare workers fearful of contaminating their loved ones with the virus (Xiang et al., 2020). Furthermore, as a result of COVID-19 global pandemic, mental health of healthcare personnel has become a critical and an emerging issue of concern. Depression, anxiety as well as stress were some mental health issues that were common among health workers during the peak of the COVID-19 outbreak. The term "mental health" refers to an individual's mental, behavioral including emotional well-being (Timothy, 2020). It all comes down to how people think, feel, and act. The word "mental health" is occasionally used to refer to the absence of a mental disease. Mental health is also defined by the World Health Organization (WHO) as a condition of well-being in which an individual appreciates his or her ability to cope with practical life encounters, work productively and play his or her role in the development of the community.

Mental health, according to the World Health Organization, is "more than just the absence of mental diseases or disabilities." Generally, Stress, depression, and anxiety are all active conditions that can impair an individual's daily routine including his or her mental health.

Mental illness is more common than cancer or diabetes and even more than heart disease, with nearly 26% of all adults in the United States meeting the conditions for mental illness (National Institute of Mental Health, 2011). According to WHO assessment, the global cost of mental illness was averaging about 2.5 trillion dollars in 2010, with a projected cost expected to exceed 6 trillion dollars by 2030.

WHO reported that, approximately halve of the population of the world is challenged by mental illness, which subsequently influences their self-esteem and relationships thereby hindering their ability to

function fully in their everyday routine (Storrie et al., 2010). Historically, mental health is an overlooked issue in Africa's health development, and policy agendas. This may be due to the severity of other diseases like including poverty and conflict plus other health challenges like maternity and infant mortality (Lund, 2018). Despite the enormity of the issues there is a norm of lack of treatment for persons with mental challenges in Africa. According to Crick Lund (2018), the treatment gap ranges from 75% to 90%.

Additionally, WHO preliminary analysis report indicated that 650,000 people in Ghana suffer from serious mental disorders, while another 2,166,000 suffer from modest disorders against a treatment gap of about 98 percent of the total population represent the mental situation of the country (Ministry of Health, Ghana 2002). "Good mental health can increase the quality of life, whereas poor mental health can damage it," say Richards, Campania, and Muse-Burke (Richards et al., 2010).

In Ghana, mental health care is offered at all levels of health care system. However, the bulk of these mental health care service is given by specialist mental hospitals that serve only a small percentage of the Ghanaian population. After going through a major health attack (heart, cancer, and chronic ailment) it's natural to feel depressed or frustrated. Such health challenges may result impairment of victims' abilities and further raise concerns about treatment outcomes and the future. Infectious infections have long been known to cause mental health problems (O'Neil et al., 2008). During the influenza epidemic in 1890, one of the early founders of contemporary psychiatry (Emil Kraepelin), recorded 11 cases of psychiatric problems that came with it various symptoms such as low disposition, paranoid and hallucinating condition, and so on (Kraepelin, 1890). Infectious disease plays a role in psychiatric problems, according to Kraepelin. Infections are widely known for causing numerous psychiatric disorders and affecting mental health (Kraepelin, 1890).



In association to the COVID-19 outbreak, recent research including systematic reviews have indicated percentages of up to 46%, 71, 50.4%, and 39 % prevalence of anxiety, stress and depression among health workers, with a preponderance in females.

Recognizing the need to identify as well as resolve negative psychological consequences, the current study seeks to fill knowledge gaps about the presence and severity of COVID-19-related, depression, anxiety, and stress during and post pandemic era among Salt-pond Government Hospital healthcare workers, as these effects are more common. The clinical staff of the hospital constitutes 80% who were directly or indirectly involved in the treatment of COVID-19 patients. The study also seeks to assess whether they use coping strategies and how the strategies help to reduce stress, anxiety and depression among the healthcare workers at Salt-pond Government Hospital.

## **1.2 PROBLEM STATEMENT**

As the coronavirus epidemic spreads over the world, it is creating a widespread fear, and tension, all of which are legitimate and understandable reactions to the ever-changing and uncertain circumstances in which everyone finds themselves (Henri, 2020). Worldwide, confirmed cases of COVID-19 stand at 464,809,377 with 6,062,536 deaths. In Africa at least 11,586,000 cases have been confirmed with death rate of 251,000 (WHO, 2022). In the case of Ghana 160,775 have been confirmed with 1445 deaths. The sharp increase in cases has been a source of worrying for everyone. This has led to increase in psychological distress for most people especially the healthcare workers. The healthcare workers are confronted with the problem of how to proceed, manage and react to the stressful situations that are erupting.

Older individuals and those with underlying health conditions are recognized to be extremely vulnerable and can be incredibly frightening and fear inducing. The phenomenon has led to increase in anxiety, tension, depression, anger and its effect can be tough for those who are undergoing cognitive impairment and patients who visit the facility for healthcare.

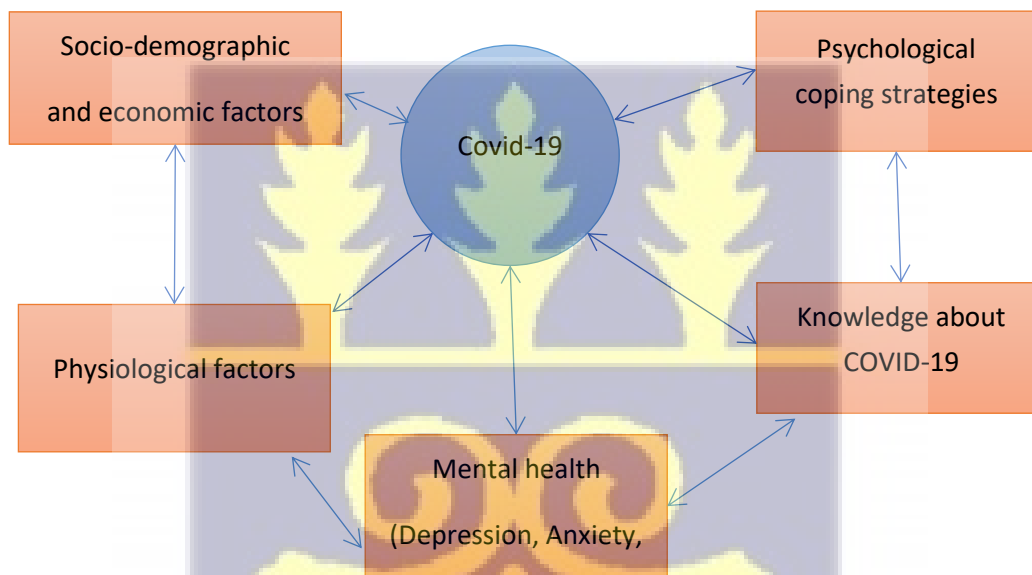
Again, some persons may already be lonely and in some cases socially isolated, which can exacerbate mental illness (WHO, 2020). The healthcare workers who treat COVID-19 patients stand a higher chance relative to the general population to have psychological discomfort and post-traumatic stress symptoms (PTSS) (Marialaura et al., 2020). This could lead to poor interpersonal relationships among health workers and patients who visit the facility in future.

Recent study conducted by Marialaura et al, (2020) shows that gender and age, were both found to be significant predictors of depressing symptoms and PTSS among healthcare specialists and staff working on COVID-19 patients. An unattached female was found to be linked to higher levels of depressive symptoms, while older females were associated with higher levels of PTSS.

Similar study indicates that there was high incidence of depression, anxiety, and stress among workers of the health system in three Municipalities at Ashanti Region of Ghana. The level of fear among healthcare workers was high in that study (Ofori Amanfo et al., 2021). The long effect could affect the quality of delivery at the facility. The healthcare workers may not be of sound mind to perform their duties as required. Although, the numbers of COVID-19 cases in the Mfantseman Municipality are low (250 cases to date), compared with hotspot areas, the incidence among healthcare workers to-date alone is about 50 cases (Mfantseman Municipal Health Directorate 2022). The relatively high incidence of covid-19 among health workers has ignited fear among health workers and could potentially lead to

increasing incidence of suicide, depression, frustration and anger among health workers. These sentiments are likely to impact the morale and performance of health care workers with repercussions extended to patients. Thus, this study seeks to investigate the mental health statuses of health care workers in the Saltpond government hospital in the context of COVID-19. The information obtained will inform appropriate strategies for maintaining the mental health status of health workers in similar situations.

### 1.3 CONCEPTUAL FRAMEWORK



**Fig.1:** Impact of COVID-19 pandemic on mental health

### CONCEPTUAL FRAMEWORK NARRATIVE

Health staff are typically at the forefront in epidemic crises and so represent a susceptible population with a higher chance of infection, stress, depression, and fear (Stuijzand et al., 2020). As a result, the framework attempts to explain mental health status of health workers within the milieu of the COVID-

19 epidemic. It can be argued that the pandemic is likely to have had a harmful effect on mental health status of health staff that can lead to psychological crises such as anxiety, depression, and stress.

The mental health status of health workers is likely to be influenced by the knowledge of the disease, physiological factors, psychological coping strategies, economic factors, and socio-demographic characteristics of the individual. Lack of the knowledge about the disease is likely to influence their mental health. That notwithstanding, a study in China, showed that individual's dread of the unfamiliar nature of the coronavirus may lead to some level of mental disorders (Shigemura et al., 2019). On the other hand, being younger or an older person influences an individual, since it has been reported that the virus affects and kills older people more compared to younger individuals. Again, where the individual resides or works, especially in 'hotspot' areas or centers are also likely to influence individuals' mental health. Mental health status is likely to be caused by physiological factors. The biological alternation like heightened inflammatory activation is linked with depression (Miller et. al., 2009). The hyperactivity of the hypothalamic-pituitary-adrenal axis could increase the risk of depression among health care workers. The activation of these physiological factors causes stress and depression among the health care workers. There is an association between microbiome and depression with the activation of the central nervous system (CNS).

Studies have shown that, in Ghana religious persons in the business of health service provision use faith and prayers as their tools for resilience and mechanism to alleviate stressors in health service situations and this enhances their ability to manage the psychological threats of their duties. Relying on family and social contacts will help healthcare workers improve their mental health status. The intervention of psycho-social support by psychologists in the hospital has high influence on their mental health outcomes. The use of PPEs will reduce the infection among the healthcare workers. Hence their mental

health status will improve. Considering how these factors influence health workers' mental health status, they may tend to take pragmatic steps that would help them in the situation. Hence, it is likely that, they would sort to adapting the psychological coping methods as well as quarantine.

#### **1.4 RESEARCH QUESTIONS**

1. What is the level of knowledge of COVID-19 among healthcare workers?
2. What is the prevalence of depression, anxiety, and stress among healthcare workers during the COVID-19 pandemic?
3. What are socio-demographic factors associated with depression, anxiety, and stress among healthcare workers?

#### **1.5 JUSTIFICATION**

The global pandemic has had a catastrophic effect on mental health (Mari & Oquendo, 2020). In Ghana, Healthcare workers in facilitates with more covid-19 cases suffered higher levels of distress, as well as lower levels of physical and mental health according to data from a study by Ofori Amanfo et. al., (2020) in Ghana.

Several mental health studies and projects have been conducted, but little attention is paid to healthcare workers mental health status during and post COVID-19 era in Ghana. Although it is evident that strong mental health is important in preventing stress, depression, and anxiety, no research has been done to analyze the influence of COVID-19 on mental health of healthcare workers in Salt-pond Government Hospital during and post era of the pandemic.

Therefore, this study aims at obtaining responses that will demonstrate the effects of the COVID-19 global pandemic on mental health of healthcare workers, and in form future strategies in similar contexts.

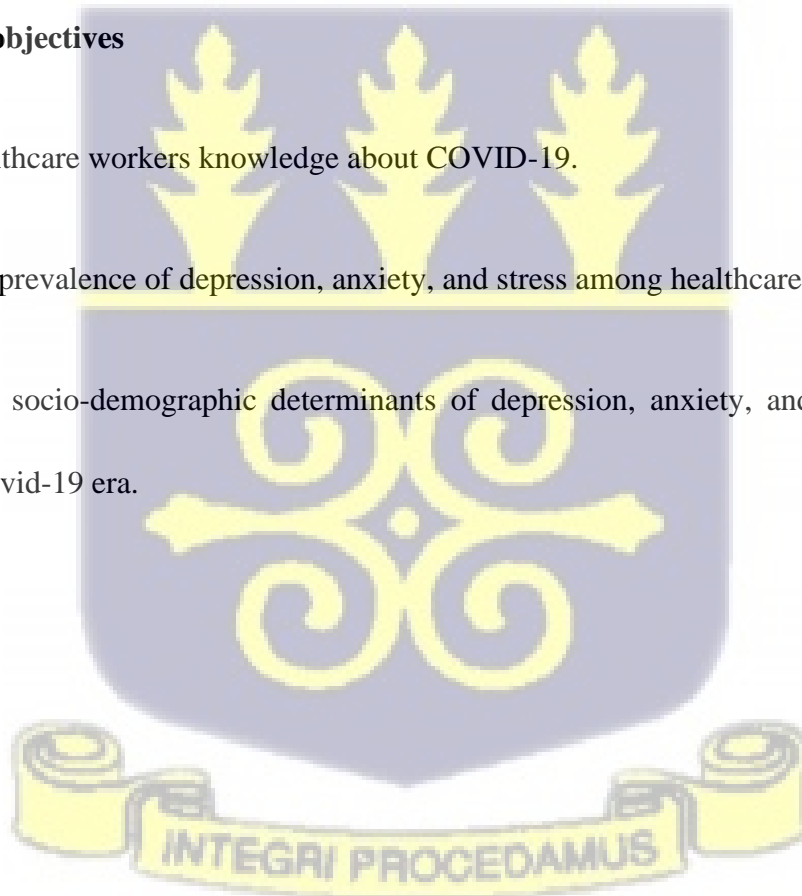
## **1.6 STUDY OBJECTIVES**

### **1.6.1 Main objectives**

The main objective of the study is to assess the mental health status of healthcare workers in Saltpond Government Hospital in the context of COVID-19.

### **1.6.2 Specific objectives**

1. To assess healthcare workers knowledge about COVID-19.
2. To determine prevalence of depression, anxiety, and stress among healthcare workers.
3. To assess the socio-demographic determinants of depression, anxiety, and stress among health workers in the covid-19 era.



## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 KNOWLEDGE ABOUT COVID-19

During the global COVID-19 pandemic, mental health of personnel of healthcare facilities have become a critical concern. Mental health issues like depression, anxiety, and stress were widespread among health care staff during the peak of the COVID-19 epidemic. The World Health Organization (WHO) labeled the COVID-19 outbreak as a global pandemic with exponential global spread on March 11, 2020. COVID-19 was once thought to be a respiratory disease that caused severe pneumonia in certain individuals, but it is now recognized as a complex multi-system disease with symptoms stretching from asymptomatic to lethal (Villar J. et al., 2021).

COVID-19 has been viewed with a lot of dread and fear, inadequate information and above all unpreparedness since its emergence (Mertens G. 2020). The WHO has recommended numerous preventive measures against the spread of COVID-19, which were adopted by the governments of several countries, due to the rapid spread of COVID-19 and its severe detrimental impact on community health and socioeconomic situation. The success of these programs is heavily reliant on individuals receiving correct information about the outbreak. Healthcare specialist and general staff are at increased risk of getting infected with the disease. In healthcare workers, limited knowledge about COVID-19 signs, modes of transmission, risk status, and strategies to tackle the spread of COVID-19 infections can raise the risk of infection which can have negative consequences on their mental health. The World Health Organization (WHO) and other actors emphasized the importance of improving COVID-19

outbreak health information among the general community in order to improve their mental health status. The health-related information includes informational materials related to COVID-19 symptoms, means of transmission, awareness of high-risk groups, and procedures to prevent contracting COVID-19. Improved knowledge about COVID-19 among healthcare workers would have positive impact on their mental health.

## **2.2 PREVALENCE OF DEPRESSION, ANXIETY, AND STRESS AMONG HEALTH WORKERS**

In most epidemic situations, health workers are at the forefront, and they are a vulnerable demographic at danger of infection, stress, depression, and anxiety. Depression is the leading causes of disability in contemporary cultures' populations (Dong et al., 2020; Nuggerud-Galeas et al., 2020). As reported by Mak et al. (2009), Lee et al. (2018), Morganstein and Ursano (2018), and others, exposures to epidemics and/or natural catastrophes enhances communities' long-term depression rates and may also heightened future suicide rates (Cheung et al., 2008). More distressing life experiences and having trouble coping with them are additional risk factors for anxiety, stress, and depression (Zou et al., 2018). Experiencing epidemics or natural catastrophes increases long-term levels of depression in communities (Mak et al., 2009; Lee et al., 2018; Morganstein and Ursano, 2020), and may also increase future suicide rates (Mak et al., 2009; Lee et al., 2018; Morganstein and Ursano, 2020). Anxiety and stress as well as depression are all predicted by having more upsetting occurrences in life and finding it difficult to manage them (Zou et al., 2018). According to (Pappae et al., 2020), healthcare workers experience moderate to severe anxiety including stress and depression, with women and young people being the most impacted. The scientific literature has long highlighted the connections between stress, anxiety, and depression. The scientific evidence supports theoretical theories that link socio-environmental stress to internal



biological processes that drive depression etiology (e.g., Slavich and Irwin, 2014; Park et al., 2019).

Literature reveals that the variables anxiety and depression are related in highly stressful conditions (Daz et al., 2012).

### **2.2.1 THEORETICAL PERSPECTIVES ON DEPRESSION ANXIETY, AND STRESS**

Cognitive behaviorist argues that individuals become depressed due to distorted thinking. The cognitive behaviorist suggest that psychological issues are partially based on unhelpful thought and this induces self-created psychological problem based on the way they interpret their reality. Depression coupled with anxiety and stress are partially based on learned patterns of behavior. In the case of healthcare providers, their perception about COVID-19, the environment they work and the world around them may cause depression, anxiety and stress. According to Beck (1967), negative schemas, thinking pattern, and cognitive bias cause depression, anxiety, and stress which produce unbelievable cycle of negative thoughts. Healthcare providers who interact with suspected cases and non-COVID-19 patients may have negative thoughts surrounding the COVID-19.

Also, the thought about how society will stigma COVID-19 patients and healthcare providers fear of infecting their family with the disease will cause their depression, anxiety, and stress. In addition, women who have been previously infected may develop depression coupled with its associated anxiety and stress when exposed to COVID-19 as a result of fear that they may experience same issues again.

The physiological model believes that there is direct link with hereditary and depression. Family history could cause depression among healthcare providers. Wender et al., (1986) found out that there is a genetic link between family history and depression.

Healthcare providers are at risk of developing depression, anxiety, and stress during outbreak of epidemic such as COVID-19 due to high demand of dealing with public health emergency. Several literatures have reported that being female, a nurse, experiencing stigma, risk of contact or have contact with infected patients are the major factors of causing depression, anxiety and stress among healthcare workers (Fuschia & Janine, 2021). A recent study reported reasons such as long working hours, shortage of protective equipment, loneliness, physical fatigue, and separation from families are contributing factors of depression, anxiety, and stress in healthcare providers (Kang et., 2020).

### **2.3 DEMOGRAPHIC FACTORS ASSOCIATED WITH DEPRESSION, ANXIETY, AND STRESS**

According to Anderson and Horvath (2004), older persons are more likely to suffer a number of chronic illnesses, and many also experience cognitive and mood disorders, such as dementia and depression, which have a detrimental effect on their physical health (American Psychological Association, 2015). Cognitive and emotional issues are also more prevalent in older persons. Among adults 65 years of age and older, depression is a typical mood illness. An estimated 15% of older persons have symptoms of depression (Funnell, 2010).

Research conducted in Italy during the COVID-19 epidemic to assess the mental health of 145 healthcare professionals (including 72 doctors and 73 nurses) revealed that age, gender and marital status substantially predicted post-traumatic stress disorders (PTSS) and depressive symptoms in healthcare professionals dealing with COVID-19 patients (Di Tella et. al., 2020). Particularly, it was discovered that being a woman and single was linked to higher levels of depressive symptoms, whilst being a woman and older was linked to higher levels of PTSS (Di Tella et al., 2020b). Additionally, Liu

and colleagues' (2020) found that women were more likely than males to have PTSS in both the general population and among healthcare professionals. However youngest reported lowest degree of PTSS during the COVID-19 outbreak and that age was not a factor in predicting the development of PTSS (Liu et al., 2020).

However, the study did not account for the potential response bias, increase of errors, and chances of survey fraud using online survey form to collect data. Again, the researcher sought to use quality of life and health-related Visual Analogue Scale (VAS), State-Trait Anxiety Inventory Form Y1, Beck Depression Inventory (BDI-II), and PTSD checklist for DSM-5 (PCL-5) to investigate the presence of PTSS that may not be applicable within the local setting of the current study.

Many studies indicate that females in an infectious disease crisis are more likely to experience psychological effects (Cabarkapa et al., 2020, Lai et al., 2020). However, research conducted in Ghana by Ofori Amanfo and colleagues found no link between sex and COVID-19 fear, stress, or depression (Ofori Amanfo et al., 2021b). The reason for this, however, was unclear. There is a correlation between female healthcare workers (HCWs) and anxiety, according to a different study on mental health outcomes and mental hygiene in the COVID-19. Similar study supported this finding that having a feminine gender increases one's likelihood of experiencing specific kinds of psychological discomfort related to caring for COVID-19 patients. These psychological issues included symptoms of anxiety, sadness, sleeplessness, and compulsive behavior (Arthur-Mensah et al., 2022). Among HCWs, anxiety is said to be the most frequently reported psychological effect (Rossi et al., 2020, Fink-Miller & Nestler, 2018 & Kim et al., 2018).

Preliminary studies on the psychological impacts of COVID-19 among medical staff in Wuhan, the city that gave rise to the pandemic, revealed that mental discomfort was widespread among those tending to COVID 19 patients (Kan et al., 2020). It's interesting to note that young ladies seemed to be most affected psychologically by COVID-19. Zhang et al. discovered that working as a female HCW increased the chance of experiencing some types of psychological discomfort when taking care of COVID-19 patients (Zhang & Li, 2020). These psychological distresses included sleeplessness, obsessive-compulsive symptoms, despair, and anxiety. However, the study used Patient Health Questionnaire (PHQ) to measure depression, Chinese version of General Anxiety Disorder Scale (GAD-7) that may not be applicable for the current study.

#### **2.4 SOCIO-ECONOMIC FACTORS ASSOCIATED WITH DEPRESSION, ANXIETY AND STRESS**

Socio-economic factors affect how well and how long one lives. Low socio-economic factors status is associated with high prevalence of depression and anxiety. The factors include income, nature of work, education, and social support. The level of education and knowledge about COVID-19 could influence healthcare worker's ability to cope with psychological stress. People with good knowledge about the disease is likely to be less depressed compared with no knowledge. Health worker with high knowledge is likely to adhere to the safety protocols. The income level and ability to afford medical care and provision of insurance when one is infected with the virus could impact the mental state of the health worker. Social support is a situation that involves interactions of people which could have important role in their mental health. There is a strong association between social support and depression (Afrooz Q, and Taghizadeh 2014). Health workers who do not receive social support when they are infected with the virus are likely to be depressed compared with those who will receive support. There is

evidence that having financial difficulty is correlated with psychological stress. When health worker is faced with economic crisis it could negatively influence his/her performance at work. The psychological stress could cause anxiety and depression. These conditions are associated with increase in the number of attempted suicides, premature death, and alcohol consumption. However, it has not been established that change in socio-economic status leads to change in depression.



## CHAPTER THREE

### 3.0 METHODS

#### 3.1 STUDY DESIGN

The study used quantitative techniques for data collection and the study was analytic cross-sectional in nature. An association between exposure and outcome variables was assessed using the cross-sectional study design, which was useful to determine prevalence and explore questions that will be helpful for future research

#### 3.2 STUDY LOCATION

The study was conducted at the Saltpond Government Hospital. Saltpond is located in the Mfantseman Municipality in the Central Region, Ghana. Mfantseman Municipal Assembly is a cosmopolitan area which is close to Accra one of the hot spots of COVID-19. People move in and out on daily basis for business and other reasons. Saltpond Government Hospital is the main referral hospital in the municipal and health workers are exposed to COVID-19 and non-COVID-19 patients on daily basis. There are 2233 health workers working in Mfantseman Municipal with Saltpond Government Hospital alone having 1900 staff. The Mfantseman Municipal has an estimated population of 168, 905 with Saltpond as the administrative capital.

It has a geographical coordinate of 5°12'11" to the North, 1°3'25.2" to the West. There are 37 health facilities which provide health care to the entire population of the Mfantseman Municipal with two

referral hospitals. The Saltpond Government Hospital at Saltpond and Mercy Women Catholic Hospital at Mankessim.

### 3.3 STUDY POPULATION

The study population was healthcare workers who are staff of the Saltpond government hospital and treat COVID-19 and non-COVID-19 patients.

#### 3.3.1 Inclusion criteria

Health workers, eighteen years old and above caring for patients at the Saltpond Government Hospital who agreed to participate in the study and signed the consent form were included in the study.

#### 3.3.2 Exclusion criteria

Health workers who were critically ill and those who refused to give their consent to participate in the study were excluded.

### 3.4 SAMPLE SIZE

Cochran formular was used to calculate for the sample size with  $N = z^2pq/d^2$

Z = z score for 95% confidence interval, P = estimated prevalence, q = complement of estimated prevalence, d = precision (fixed at 5%).

Assuming prevalence 21.0% of depression among health workers from the previous study (Ofori Amanfo et. al., 2021)

$$1.96^2 \times 0.21 \times 0.784 / 0.05^2 = 253$$

Allowing for a non-response rate of 5%, the sample size becomes:

$$253.0 + (0.05 \times 253) = 253 + 13.0 = 266$$

Approximately 266 (minimum) participants were recruited for the study.

### **3.5 SAMPLING METHOD**

A simple random sampling method was used to recruit participants for the study. A sampling frame technique was used. The list of all staff and their units they work in Saltpond hospital was obtained from the administration. The sampling frame was 1900 of the health workers. Each health worker was assigned a consecutive number from 1 to 1900. For each unit, 40% of the staff were selected randomly using the lottery technique. All the consecutive numbers were kept in a container and staff were called randomly to select them. Those who were consented and agreed to take part in the study were interviewed.

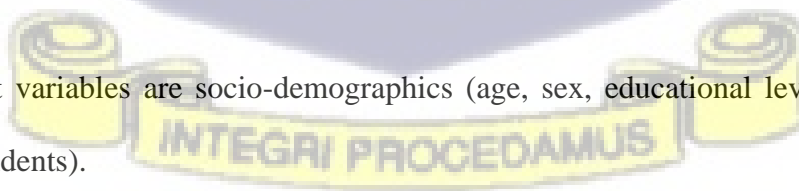
### **3.6 VARIABLES**

#### **3.6.1 Dependent variables**

The outcome variables of interest in this study are stress, depression, and anxiety.

#### **3.7.2 Independent variables**

The independent variables are socio-demographics (age, sex, educational level, marital status, number of dependents).





**Table 1:** Exposure variables and their measurement

Independent Variable	Characteristic	Categories
Age	Interval	e.g 20-24; 25-29, 30-34 etc
Sex	Nominal	M=1, F=2
Educational status	Ordinal	Primary, JHS/SHS, Tertiary, etc
Marital status	Nominal	Single =1, Married=2
Number of dependents	Ratio	1, 2, 3, 4, etc

### 3.7 QUALITY CONTROL

The study questionnaire was pretested at the Mercy Women Catholic Hospital, Mankessim to determine its suitability. Necessary corrections were made after it has been pretested. To ensure uniformity, research assistants were trained so that they could administer the questionnaire in a standard form throughout the study. Data cleanup was done, arranged and uncompleted ones were discarded.

### 3.8 DATA COLLECTION AND ANALYSIS

Trained interviewers administered the questionnaire in English and “Fante” languages to the respondents. Structured questionnaire was used to collect the data. The questions were cross checked coded and put into Stata version 17. The data on demographics was analyzed using descriptive statistics (frequency, table, histogram etc.). Chi square test was deployed to test the association between dependent and independent variables. Also, multiple logistic regression was

used to assess the strength of association between variables that were significant at the bivariate level using the chi square test. The results were presented as p values, odds ratios, and confidence intervals. A p value of  $< 0.05$  was indicated statistical significance.

The questionnaire was in three (3) different parts. The first part was captured as ‘demographic characteristics’ of age, sex, educational status, and marital status. The second part assessed mental health status of staff using Depression, Anxiety, and Stress Scale-21 (DASS-21). The DASS-21 was used because of its validity and reliability. A study conducted by (Huong Le 2017) found high validity and reliability of the use of DASS-21 instrument in a sample of Vietnam adolescents. The third part was based on the literature review of “knowledge” about Covid-19. Each question had multiple choices that the respondent chose from options A - D. For some questions, the respondent selected all that applied. The response to each score was tabulated and scored. Respondents who scored 80-100% had excellent knowledge, the score between 59-79% was considered as “good knowledge”, and those who scored 0-58% had “poor knowledge” about the disease. The University of Ghana, Legon grading system was adopted and amended to suite the study. The DASS-21 is made of three self-report scales designed to measure the level of depression, anxiety, and stress. It had been used in the Ghanaian population with high reliability and validity. The 21- item scale had three sub-scales: Depression (DASS-21D), Anxiety (DASS-21A), Stress (DASS-21S). Each sub-scale had seven items and responses were graded to show the severity of each item. The response to each item was graded as; 0 (Do not apply to me at all), 1 (apply to me to some degree or some of the time), 2 (apply to me to a considerable degree or some of the time), and 3 (apply to me very much or most of the time). Each score was multiplied by 2 to calculate the final grade from 0 to 42 in each sub-scale.

**Table 2:** The DASS-21 Scale and interpretation of scores

Type of scale	Level of disorders	Total score
Depression (DASS21-D)	Normal	0-9
	Mild	10-13
	Moderate	14-20
	Severe	21-27
	Extremely severe	28+
Anxiety (DASS21-A)	Normal	0-7
	Mild	8-9
	Moderate	10-14
	Severe	15-19
	Extremely severe	20+
Stress (DASS21-S)	Normal	0-14
	Mild	15-18
	Moderate	19-25
	Severe	26-33
	Extremely severe	34+

### **3.9 STRENGTH AND LIMITATION OF THE STUDY**

This study has contributed to attain some determinants of depression, anxiety, and stress among healthcare workers at Saltpond government hospital. Like most research is not without limitation. Response bias could have affected the study findings. Some respondents might have given false responses (income level).

### **3.10 ETHICAL CONSIDERATION**

Permission was obtained from the GHS Ethics Review Committee with reference number GHS-ERC: 040/11/22. Every data obtained was kept privately. Only the research team had access to the data. No one had access to the data if you were not directly involved in the research and it was solely for academic. The main objectives, procedures, and risk/benefits linked with participating in this study was explained to participants in English or local language before they were recruited into the study. A written informed consent was sought from the eligible staff study participants. Participants who agreed to take part in the study and met the inclusion criteria answered the questions. A permission was sought from the staff and those who consented a questionnaire was administered to each respondent. Participants were told of their right to participate or redraw during the interview. Form for each respondent was kept under lock and key.



## CHAPTER FOUR

### 4.0 RESULTS

The chapter four shows the results outcome of this research. The outcomes are shown in tables and figures continue to the yarn.

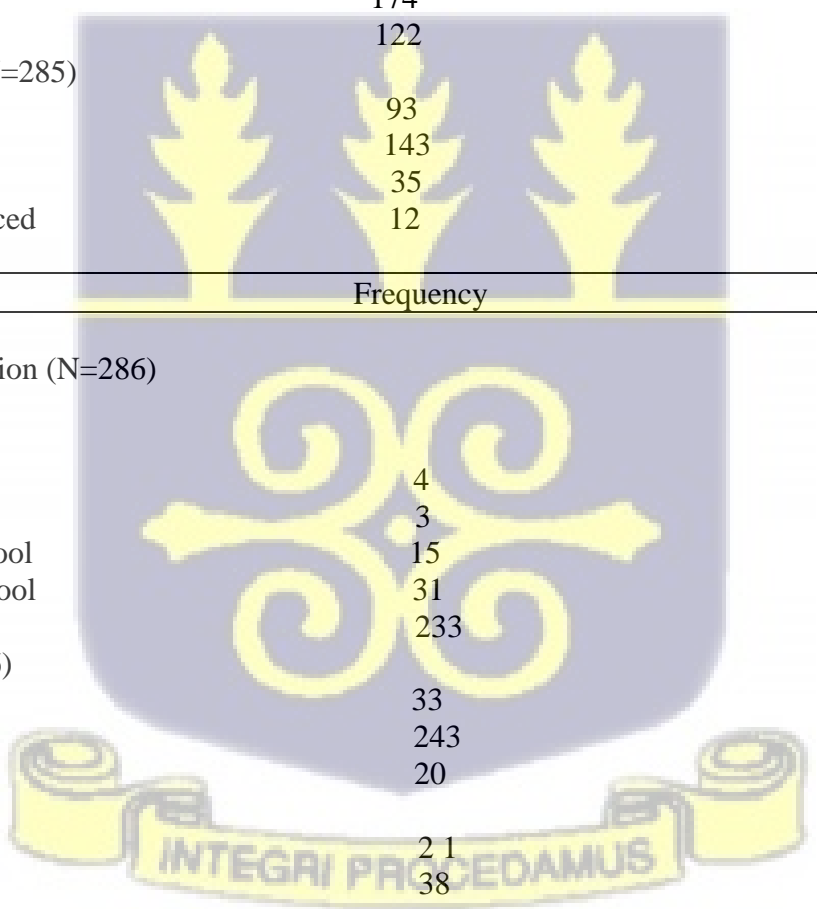
#### 4.1 DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS

A total of 296 health workers took part in the study with their age range of 18-59. Most of the participants were within the ages of 48.46%, followed by 28.67%, and above 17.41%. The least group were within the ages of 5.46%. Majority of the respondents were Akan 61.15%, 13.18% were Ga/Adangme, 8.76% were Ewe, 6.76% were Mole/Dagomba, 5.76% were Guan, and were others 4.39%. About 58.78% of the health workers were males, 41.22% were females. Approximately 50.18%, 33.33% were married and single respectively, cohabitating 12.28% and widowed/divorced 4.21%

Most of the respondents had tertiary level education 81.47%. Only 10.84% had attained senior high education with 5.24% having completed junior high school. Approximately 1.40% had never attained level of education and 1.05% had primary education. The majority of the respondents were Christians 84.97%, 11.54% being Muslims and Traditionalist 3.50%. About 49.83% had average income from all sources above 1000 Ghana Cedis, 12.88% of the respondents had between 500-1000 Ghana Cedis and 7.21% had average income less than 500 Ghana Cedis. The differences in the total number of respondents who answered questions was as a result of some of them refusing to answer some question.

**Table 3: Socio-demographics of the participants**

Variable	Frequency	(%)
Age group in years (N=296)		
18-25	16	5.46
26-33	84	28.67
34-41	142	48.46
Above 41	51	17.41
Ethnicity (N=296)		
Akan	181	61.15
Ga/Adangme	39	13.18
Ewe	26	8.76
Mole/Dagomba	20	6.76
Guan	17	5.76
Other	13	4.39
Sex (N=196)		
Male	174	58.76
Female	122	41.22
Marital status (N=285)		
Single	93	33.33
Married	143	50.18
Cohabiting	35	12.28
Widowed/Divorced	12	4.21
Variable	Frequency	Percentage
Level of education (N=286)		
None	4	1.40
Primary	3	1.05
Junior High School	15	5.24
Senior High School	31	10.84
Tertiary	233	81.47
Religion (N=296)		
Muslim	33	11.54
Christian	243	85.0
Traditional	20	3.50
Income (N=295)		
Less than 500	21	7.12
500-1000	38	12.88
Above 1000	147	49.83
No response	89	30.08



#### 4.2. Knowledge about COVID-19

Guided by scale of assessing the level of knowledge on COVID-19, out of 296 respondents who took part in the study 169(57.24%) had excellent knowledge about covid-19. Only 102(34.48%) of the respondents had good knowledge and 25(8.28%) had poor knowledge about covid-19.

**Table 4 Knowledge about COVID-19**

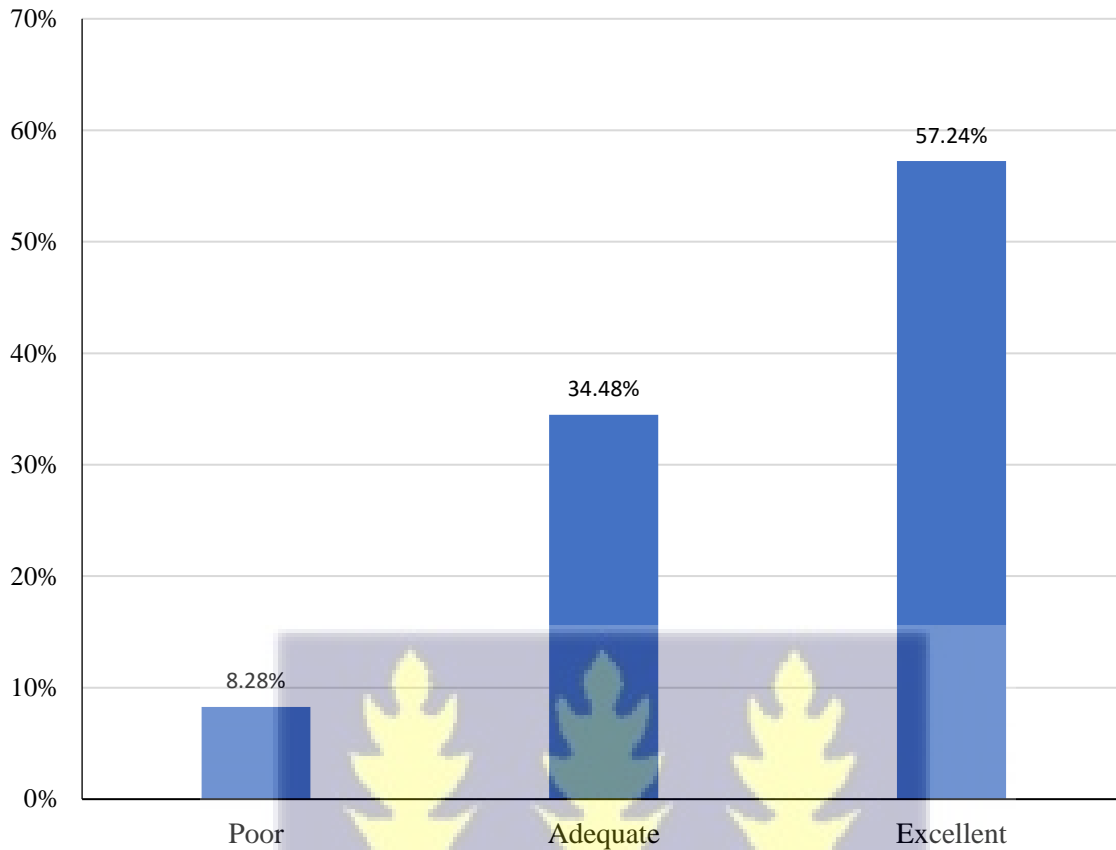
Variable	Frequency (N)	Percentage (%)
Knowledge about covid-19 (N 296)		
Poor	25	8.28
Good	102	34.48
Excellent	169	57.24

A total of 296 participants responded to knowledge about covid-19 questionnaire. On origin of COVID-19 questionnaire, 76% said that COVID-19 is cause by bat. Only 18.30% of them said that the source of covid-19 is human whereas 5.08% believe that the source is unknown and 0.67% did not know the source of covid-19 disease. Also, about 41.41% of the interviewees answered that Ghana recorded its first case of COVID-19 on 12<sup>th</sup> March 2020 with 12.12% saying that it was 2th February 2020. Only 8.75% of the participants said that it was 30<sup>th</sup> March 2020 whiles 5.39% responded 1<sup>st</sup> April 2020. About 32.32% did not know.

On incubation period of COVID-19, 2.02% responded less than 2 days whereas 13.13% said it was between 2-4 days. About 58.92% of the health workers chose the incubation period of covid-19 to be between 5-15 days and 8.75% responded don't know.

Furthermore, on covid-19 prevention protocols, 96.60% responded as one of preventive protocols. Additionally, 96.98% responded that face mask usage can protect one from contracting the virus. Only 96.60% of the respondents responded that the use of hand sanitizer can help prevent one from contracting covid-19 while 12.83% responded that the use of alcohol is one of the preventive protocols of the disease. About 97.74% responded that social distancing is one of the preventive protocols and the rest was hand washing 79%. Additionally, on symptoms of covid-19, 99.25% of respondents responded that coughing is one of the symptoms whereas 96.27% responded chills as a symptom. Only 87.69% responded sore throats and 28.73% responded liver disease as a symptom. The health workers 94.78% responded to loss of smell/taste and 92.91% responded to runny nose. In responding to the risk of covid-19 infection, 88.10% health workers responded that not vaccinating could increase your risk while 97.77% responded to the persons with morbidities have high risk of contracting the disease. Only 87.36% respondents responded that aged persons are at risk of contracting covid-19. The health workers 70.63% believe that being a child increases the risk of contracting the disease. Again, the health workers responded to questions on the cure of covid-19. Most of the health workers 89.15% believe that vaccination is the cure for covid-19 while 8.47% said that herbal medicine can cure the disease. Only 1.02% of the health workers believe that drinking alcohol can cure for covid-19 and 1.36% was not sure of the responses. Lastly, on the test available for covid-19 detection 32.88% health workers believe that molecular test can be used to detect the disease while on antigens 37.07% responded to it as the available test. Again 153.93% of the health workers selected serology test and only 14.34% were not sure about the responses.





**Figure 2:** Knowledge of COVID-19 among health workers in Saltpond Hospital

#### **4.3 PREVALENCE OF DEPRESSION, ANXIETY, AND STRESS AMONG HEALTH WORKERS IN THE CONTEXT OF COVID-19**

The 21-items of the Depression, Anxiety, and Stress Scale (DASS-21) were added up to give new variable to be 63. The 21-items were put into sub-scales; depression (DASS-21), anxiety (DASS-21), and stress (DASS-21). Each of the sub-scales was put into two categories; depressed and not depressed, anxious and not anxious, and stressed and not stressed. Scores more than or same as 10 was used as benchmark for presence of depression and no depression otherwise. Scores more than or same as 8 was used as benchmark for presence of anxiety and no anxiety otherwise. Additionally,

above or equal to 15 scores was used as indicator for existence of stress and no stress otherwise. As a result, 20.27% of the health workers were depressed compared with 79.73% who were not depressed while 15.07% were anxious and 84.93% were not anxious. Additionally, 22.79% of the health workers were stressed and 77.21% were not stressed.

#### 4.3.1 PREVALENCE OF DEPRESSION AMONG HEALTH WORKERS

From table 5 most of the health workers 232(79.73%) had normal level of depression with 21(7.22%) having mild depression. Out of 292 respondents who responded to the depression questions 17 (5.82%) had moderate depression while 6(2.05%) respondents had severe depression. Only 4(1.37%) of the health workers were extremely depressed.

**Table 5: Prevalence of depression among health workers**

Variable	Frequency	Percentage
Level of depression (N=292)		
Normal	232	79.73
Mild	21	7.22
Moderate	24	8.25
Severe	6	2.05
Extremely severe	4	1.37

#### 4.3.2 PREVALENCE OF STRESS AMONG HEALTH WORKERS

From table 6, a total of 292 health workers responded to stress scale questions. Most of them 248 (84.93%) had normal level of stress with 17(5.82%) being mild. Only 17(5.82%) of the respondents had moderate stress level. The health workers who had severe stress level were 6(2.05%) whereas 4 (1.37%) of them had extremely severe level of stress.

**Table 6: Prevalence of stress among health workers**

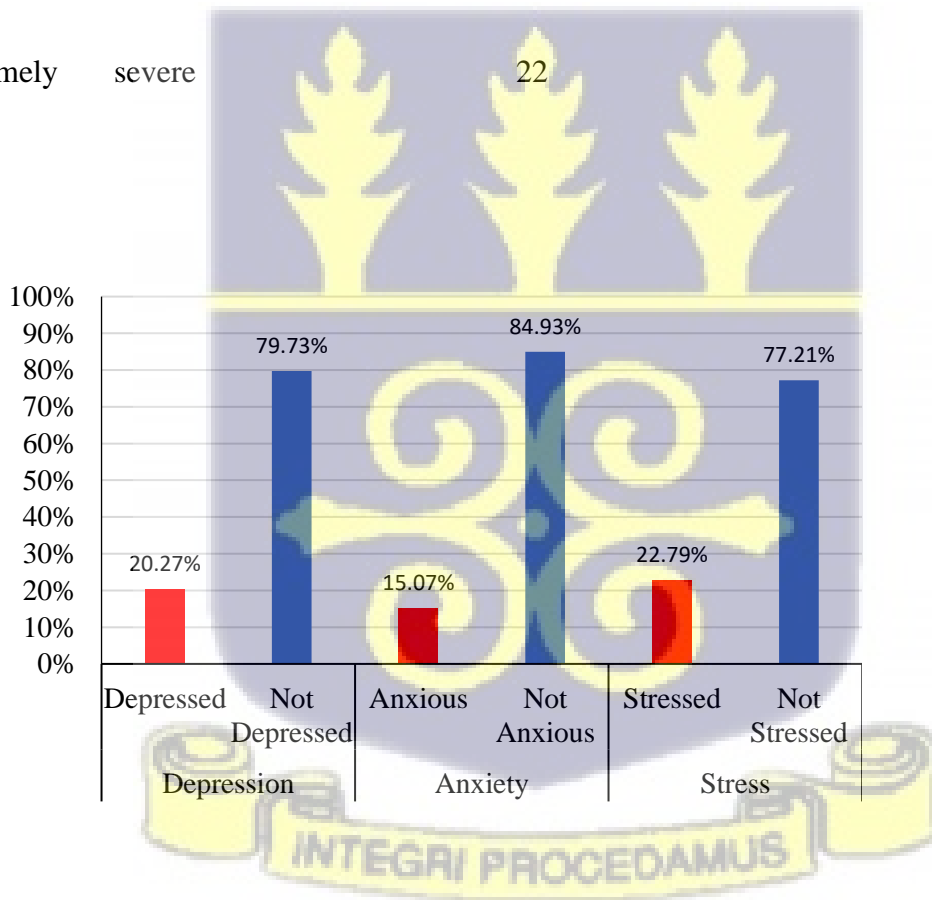
Variable	Frequency	Percentage
Level of stress (N=292)		
Normal	248	84.93
Mild	17	5.78
Moderate	17	5.78
Severe	6	2.05
Extremely severe	4	1.37

#### 4.3.3 PREVALENCE OF ANXIETY AMONG HEALTH WORKERS

A total of 294 health workers responded to the anxiety questions. Most of the respondents 227 (77.21%) anxiety levels was normal whiles 3(1.02%) had mild anxiety. Only 23(7.82%) of the respondents had moderate anxiety. About 19(6.46%) and 22(7.48%) were severe and extremely severe respectively.

**Table 7: Prevalence of anxiety among health workers**

Variable	Frequency	Percentage
Level of anxiety (N=294)		
Normal	227	77.21
Mild	3	1.02
Moderate	23	7.82
Severe	19	6.46
Extremely severe	22	7.48



**Figure 3:** Bar chart showing distribution of depression, stress, and anxiety scores among health workers at Saltpond Hospital.

#### 4.4 PREDICTORS OF DEPRESSION AMONG HEALTH WORKERS AT SALTPOND HOSPITAL

From table 8, the socio-demographics such as level of education of health workers ( $p - value < 0.01$ ), monthly income from all sources of health workers ( $p - value < 0.01$ ), marital status of health workers ( $p - value 0.02$ ), ( $p - value 0.02$ ), knowledge about covid-19 ( $p - value 0.02$ ) were predictors of depression among health workers at Saltpond Hospital.

**Table 8: Socio-demographic characteristics association with depression**

Variable	Category	Health workers Depression		$X^2$	P-value
		No (%)	Yes (%)		
Educational level (N=281)	None	1(0.44)	3(5.3)	12.69	< <b>0.01*</b>
	Primary	2(0.9)	1(1.8)		
	Junior secondary	8(3.6)	7(13)		
	Senior secondary	23(10.2)	7(13)		
	Tertiary	191(85)	38(68)		
Income (N=290)	Less than 500	10(4.32)	10(16.94)	9.58	< <b>0.01*</b>
	500-1000	29(12.55)	8(13.55)		
	Above 1000	122(52.81)	23(38.98)		
	No response	70(30.30)	18(30.50)		
Marital status (N=280)	Single	82(36.93)	11(21.15)	8.23	<b>0.02*</b>
	Married	109(49.09)	32(61.53)		
	Cohabiting	24(10.81)	10(19.23)		
Knowledge about covid-19 (N=285)	Poor	16(7.07)	7(59)	8.23	<b>0.02*</b>
	Good	86(38.05)	11(18.6)		
	Excellent	124(54.86)	41(69.4)		

\*P< 0.05, #No depression, #Yes depression

#### 4.5 PREDICTORS OF ANXIETY AMONG HEALTH WORKERS AT SALTPOND HOSPITAL

From table 9, there were significant predictors between socio-demographic characteristics such as level of education (p-value <0.01), and income level (p-value <0.01) and anxiety among health workers.

**Table 9: Socio-demographic characteristics association with anxiety**

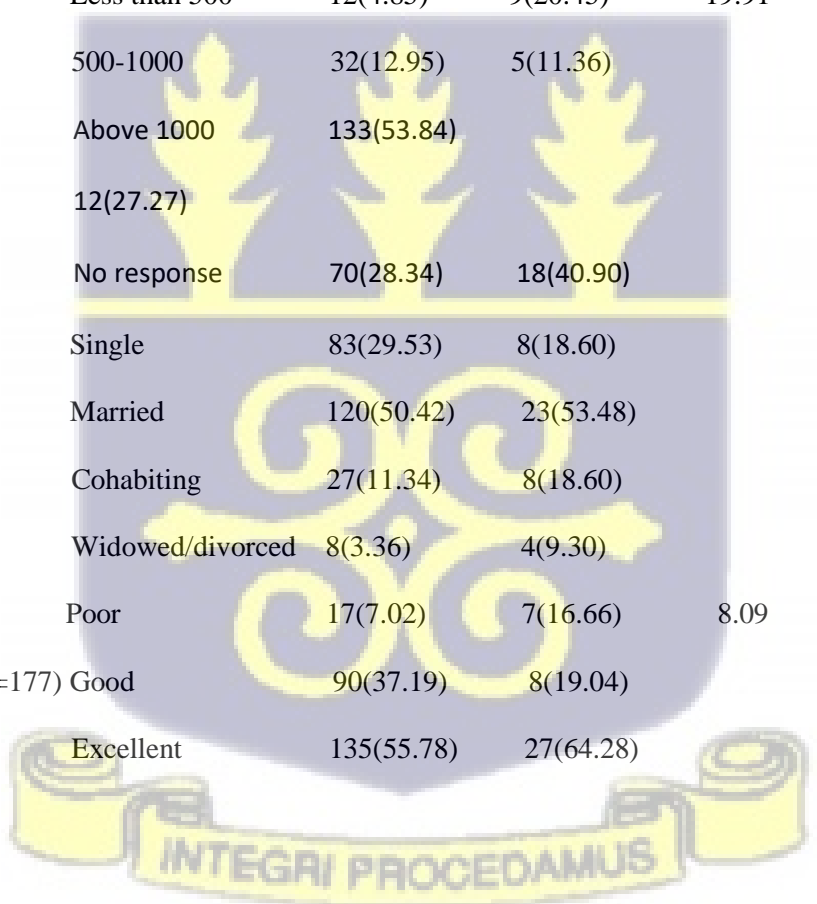
Variable	Category	Health workers anxiety		X <sup>2</sup>	p-value
		Yes	No		
Level of education (N=284)	None	3(1.11)	1(2.56)	13.89	<0.01*
	Primary	2(0.81)	1(2.56)		
	Junior secondary	8(3.26)	7(17.94)		
	Senior secondary	24(9.79)	7(17.94)		
	Tertiary	208(84.89)	23(58.97)		
Income (N=293)	Less than 500	13(5.15)	8(19.51)	13.89	<0.01*
	500-1000	32(12.69)	5(12.19)		
	Above 1000	133(52.77)	13(31.70)		
	No response	74(29.36)	15(36.58)		

#### 4.6 PREDICTORS OF STRESS AMONG PARTICIPANTS AT SALTPOND HOSPITAL

From table 10, socio-demographics such as level of education (p-value <0.01), income (p-value <0.01), marital status (p-value 0.04), and knowledge about COVID-19 (p-value 0.02) were significant predictors of stress among health workers.

**Table 10: Socio-demographic characteristics link with stress**

Variable	Category	Health workers stress		$\chi^2$	P-value
		No (%)	Yes (%)		
Level of education		No (%)	Yes (%)		
(N=282)	None	3(1.25)	1(2.38)		<0.01*
	Primary	2(0.83)	1(2.38)		
	Junior secondary	23(9.58)	7(16.67)		
	Senior secondary	23(9.58)	7(16.66)		
	Tertiary	204(85)	26(61.90)		
Income (N=291)	Less than 500	12(4.85)	9(20.45)	19.91	<0.01*
	500-1000	32(12.95)	5(11.36)		
	Above 1000	133(53.84)	12(27.27)		
	No response	70(28.34)	18(40.90)		
Marital status	Single	83(29.53)	8(18.60)		0.04
(N=281)	Married	120(50.42)	23(53.48)		
	Cohabiting	27(11.34)	8(18.60)		
	Widowed/divorced	8(3.36)	4(9.30)		
Knowledge level	Poor	17(7.02)	7(16.66)	8.09	0.02
on COVID-19 (N=177)	Good	90(37.19)	8(19.04)		
	Excellent	135(55.78)	27(64.28)		



#### 4.7 Logistic regression of predictors of depression, anxiety, and stress among health workers in Saltpond hospital

In the bivariate analysis, 7 variables were found to be associated with demographic factors, knowledge level of COVID-19 and depression, anxiety, and stress among health workers. Additionally, simple logistic regression was performed on the 7 variables to test the strength of associations. The results are presented in table 11.

It was shown that the odds of depression for health workers who were females were 2.07 equated with males. Additionally, the odds of depression for married health workers were 2.61 matched with singles. The odds of depression were 6.02 for widowed/divorced compared with health workers cohabiting. However, they were not significant.

Furthermore, it was found that the odds of anxiety for health workers females were 2.79 collated with males. The odds of anxiety for married were 4.05 collated with single. However, this was not significant. Lastly, the odds of stress for health workers married were 2.86 compared with single. Additionally, the olds of stress for widowed/divorced were 7.71 matched with cohabiting among health workers. However, this was not significant.

**Table 11: Logistics Regression of predictions of depression, anxiety, and stress among health workers at Saltpond hospital**

Predictors	Crude		Adjusted	
	OR	CI	OR	CI
<b>Depression</b>				
<b>Gender</b>				
Male	Ref			
Female	1.78	1.01 – 3.15	<b>2.07</b>	<b>1.04 - 4.11</b>
<b>Level of education</b>				



None	Ref			
Primary	0.17	0.01 – 4.51	0.35	0.01-11.81
Junior Secondary	0.29	0.02 – 3.48	0.75	0.04 - 12.82
Senior Secondary	0.10	0.01 – 1.14	0.26	0.02 -3.75
Tertiary	0.07	0.01 – 0.65	0.20	0.02 -2.73
<b>Income</b>				
Less than 500	Ref			
500 – 1000	0.28	0.09 – 0.89	0.51	0.12- 2.13
Above 1000	0.19	0.07 – 0.50	0.33	0.08 -1.47
No response	0.26	0.09 – 0.71	0.59	0.13 – 2.61
<b>Marital status</b>				
Single	Ref			
Married	2.19	1.04 – 4.60	<b>2.61</b>	<b>1.13 – 6.03</b>
Cohabiting	3.11	1.18 – 8.19	2.41	0.77 – 7.52
Widowed/Divorced	5.32	1.44 – 19.71	<b>6.02</b>	<b>1.10 – 32.85</b>
<b>Level of knowledge about covid-19</b>				
Poor	Ref			
Good	0.29	0.10 – 0.87	0.40	0.10 – 1.59
Excellent	0.76	0.29 – 1.97	1.57	0.45 – 5.50
<b>Anxiety</b>				
<b>Gender</b>				
Male	Ref			
Female	2.83	1.43 – 5.62	<b>2.79</b>	<b>1.25 – 6.22</b>
<b>Level of education</b>				
None	Ref			
Primary	1.50	0.06 – 40.63	1.20	0.04 – 38.73
Junior Secondary	2.63	0.22 – 31.34	2.27	0.14 – 35.94
Senior Secondary	0.88	0.08 – 9.79	0.83	0.06 – 11.98
Tertiary	0.33	0.03 – 3.32	0.28	0.02 – 3.96
<b>Income</b>				
Less than 500	Ref			
500 – 1000	0.25	0.07 – 0.92	0.35	0.07 – 1.62
Above 1000	0.16	0.06 – 0.45	0.38	0.08 – 1.88
No response	0.33	0.12-0.93	1.11	0.23 – 5.41
<b>Marital status</b>				
Single	Ref			
Married	2.35	0.97 – 5.74	<b>4.05</b>	<b>1.43 – 11.49</b>
Cohabiting	2.54	0.79 – 8.18	2.91	0.72 – 11.78
Widowed/Divorced	6.14	1.48 – 25.57	<b>3.97</b>	0.71 – 22.25
<b>Stress</b>				
<b>Level of education</b>				
None	Ref			
Primary	1.50	0.06 – 40.63	5.67	0.15 – 210.12
Junior Secondary	2.63	0.22 – 31.35	14.0	0.72 – 272.57
Senior Secondary	0.91	0.08 – 10.23	4.42	0.27 – 72.96
<b>Income</b>				
Less than 500	Ref			

500 – 1000	0.21	0.06 – 0.75	0.35	0.08 – 1.61
Above 1000	0.12	0.04 – 0.34	0.27	0.54 – 1.32
No response	0.34	0.13 – 0.94	1.28	0.27 – 6.14
<b>Marital Status</b>				
Single	Ref			
Married	1.99	0.85 – 4.66	<b>2.86</b>	<b>1.06 – 7.77</b>
Cohabiting	3.07	1.05 – 8.98	2.91	0.81 – 10.51
Widowed/Divorced	5.19	1.28- 21.09	<b>7.71</b>	<b>1.21 – 48.97</b>
<b>Level of Knowledge about covid-19</b>				
Poor	Ref			
Good	0.22	0.07 – 0.67	0.17	0.04 – 0.76
Excellent	0.52	0.20 – 1.37	1.03	0.29 – 3.69

#### 4.8 Summary of results

The findings of the research indicated that socio-demographic factors such as marital status, and sex were significantly associated with depression, anxiety, and stress. The prevalence of depression was 20.27%, anxiety was 15.07%, and stress was 22.79% among healthcare workers.



## CHAPTER FIVE

### 5.0 DISCUSSION

#### 5.1 INTRODUCTION

This chapter discusses the results from chapter four. The discussion is a summary of the results and comparison with other studies done elsewhere. Additionally, the chapter highlights the implications as well as strength and limitations of the study.

#### 5.2 SUMMARY OF FINDINGS

The aim of the study was to assess the knowledge of Covid-19, determine the prevalence of depression, anxiety, and stress, and the socio-demographic facts associated with depression, anxiety, and stress among healthcare workers at Saltpond Government Hospital.

From the results, about 20.73% health workers were depressed as 79.73% were not depressed. Additionally, 15.07% health workers were anxious whereas 84.93% were not anxious. The results revealed that approximately 22.79% of the participants were stressed collated with 77.21% who were not stressed. The knowledge level of health workers on covid-19 shows that approximately 8.28% had poor knowledge while 34.48% had good knowledge. The results also revealed that 57.24% of the health workers had excellent knowledge about covid-19.

The bivariate analysis findings of the research showed that socio-demographic factors were associated with depression, anxiety, and stress. The study revealed that females were likely to be depressed compared with males (AOR=2.07, CI=1.13-6.03). Additionally, the study revealed that married health workers were likely to be depressed matched with single (AOR=2.61, CI=1.10-

32.85). The widowed/divorced were likely to be depressed compared with single (AOR=6.02, CI=1.10-32.85). However, there were no associations between level of education, income, and knowledge about COVID-19 and depression in the bivariate analysis.

The study again revealed that females were likely to be anxious collated with males (AOR=2.79, CI=1.25-6.22). The health workers who were married were likely to be anxious compared with single (AOR=4.05, CI=1.43-11.49). However, there were no associations between level of education, income and anxiety. Finally, there was association between marital status and anxiety. The health workers who were married were likely to be stressed matched with single (AOR=2.86, CI=1.06-7.77). The widowed/divorced were likely to be anxiety compared with single (AOR=7.71, CI=1.21-48.97). However, there were no associations between level of knowledge about covid-19, income, and marital status of the health workers.

### **5.3 CONSISTENCY WITH PREVIOUS RESEARCH**

The study enquiry showed 20.27%, 15.02% and 22.79% prevalence of depression, anxiety, and stress respectively among healthcare workers in Saltpond Government Hospital. There was no study found within Africa context where covid-19 is no more a public health concern for many people. This current study reported a prevalence of depression of 20.27% similar to 20.27% that was reported by Ofori-Amarfo (et. al 2021). The occurrence of anxiety 15.02% however was lower compared with 27.8% reported in the same studies. The present studies showed high prevalence of 22.79% collated with 8.2% reported in that study. A study conducted in China reported 16.5% depressive symptoms, 28.8% anxiety, and 8.1% stress matched with the current study (Wang et al., 2020). Comparing with this study, Aly et al., (2020) reported 94% depression, anxiety 90.5%, and stress 98.5% among health workers facing covid-19 in Egypt in their study. The results are

way higher than the current. The disparity in the current findings and Aly et al., (2020) may be largely due to differences in time, location, and tools used for the study. This study referenced was conducted at the peak of covid-19 and the current study was conducted a year after the fourth wave of the pandemic. It also adopted online google form where respondents had to fill themselves and thus some data might have been lost unlike the current study which used self-administered tool.

Over this time, a lot of interventions have been put in place. These interventions include vaccination against the disease, provision of personal protective equipment (PPE), and public education and awareness about the disease. The interventions put in place by the government could have influenced the findings of the current study. Recent study conducted in Ghana by Mohammed (et al., 2023) showed 73.6% of health professionals have accepted the COVID-19 vaccine. The high acceptability of the covid-19 vaccine could have affected the results of the current study since most of them might have been vaccinated and may not fear of contracting the COVID-19.

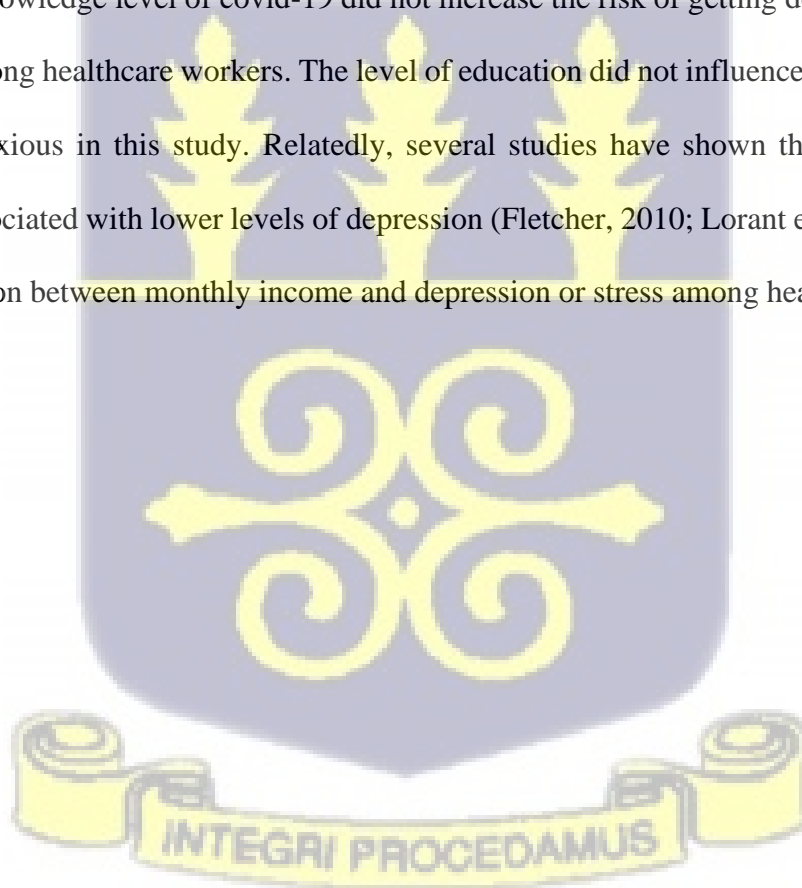
Also, the sampling method could have had effect on the findings of this study. The current study employed simple random technique from one study location with similar characteristics compared with Ofori-Amarfo (et. al 2021) that used multistage random technique where the study was carried out in three different hospitals in three different districts. The three different locations results were analyzed together without much consideration of their differences.

#### **5.4 IMPLICATIONS OF STUDY FINDINGS**

The current study recorded prevalence of depression, anxiety, and stress of 20.27%, 15.07%, and 22.79% respectively. This finding is lower than studies conducted elsewhere. This could be as a result of the difference in study tool used, method used and location. This study used Depression,

Anxiety, and Stress (DASS 21) scale to assess depression, anxiety, and stress in healthcare workers in the context of covid-19 compared with others that used Beck Inventory scale. For example, the availability of covid-19 vaccination could have influenced the prevalence of depression, anxiety, and stress among healthcare workers.

Additionally, being married increased your risk of getting depressed as well as widowed/divorced. The sex was also a determinant of depression. Being a female increased your risk of getting depressed, anxious, and stressed. This is similar to a study conducted by Stuijzand (2020) that perceived prevalence of depression to be 50.4%, 46% anxiety, and 71% stress in health workers. However, the knowledge level of covid-19 did not increase the risk of getting depressed, anxious, and stressed among healthcare workers. The level of education did not influence the risk of getting depressed or anxious in this study. Relatedly, several studies have shown that higher level of education is associated with lower levels of depression (Fletcher, 2010; Lorant et al., 2003). There was no correlation between monthly income and depression or stress among health workers in the study findings.



## CHAPTER SIX

### 6.0 CONCLUSION AND RECOMMENDATIONS

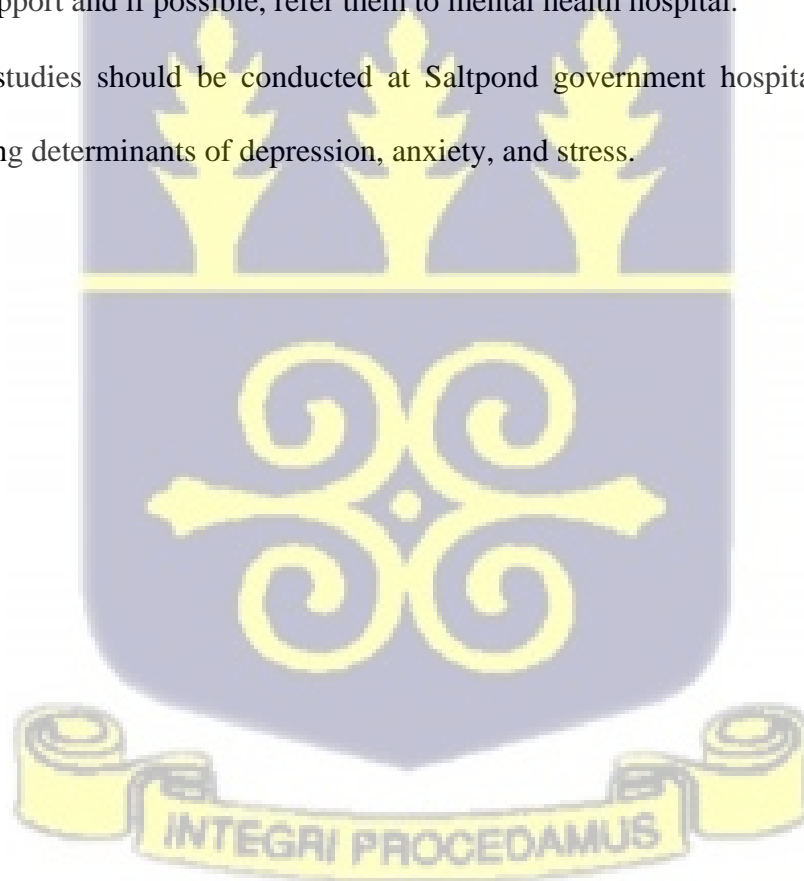
#### 6.1 CONCLUSION

While the healthcare system works tirelessly to save millions of lives every day, there is likely a possibility of a pandemic of undiagnosed mental health problems that might devastate the current mental health system. People's mental health must be managed in tandem with other strategies to manage and control the disease and the pandemic as a whole in order to deal with the COVID-19 pandemic's aftermath. There is unquestionably a need for professional psychological assistance. This study sought to find out knowledge about COVID-19, prevalence of depression, anxiety, and stress, and socio-demographic factors associated with depression, anxiety, and stress among healthcare workers in Saltpond government hospital in the context of COVID-19. To achieve the objectives, an organized based cross-sectional quantitative study was carried out among 296 health workers. Descriptive, bivariate and logistic regression analysis techniques were used to analysis and present the data.

The current study revealed that prevalence of depression was 20.27 as well as 15.07% of anxiety. Additionally, the study suggested 8.2% of stress among health workers. It was found out that Socio-demographic factors were associated with depression, anxiety, and stress. About 57.24% of the health workers had excellent knowledge about the disease. Only 8.28% of respondents had poor knowledge about covid-19.

## 6.2 RECOMMENDATION

- It was established that there is perceived prevalence of depression, anxiety, and stress among health workers in Saltpond government hospital. It is therefore important that the Ghana Health Service or medical superintendent strengthen the mental health services at the hospital. Periodic screening should be conducted on the hospital staff.
- The counseling and public health education units should provide support to healthcare workers who have signs and symptoms of depression, anxiety, and stress.
- Health workers who are depressed, anxious, and stressed should be provided with psychosocial support and if possible, refer them to mental health hospital.
- Further studies should be conducted at Saltpond government hospital to find out the underlying determinants of depression, anxiety, and stress.





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## APPENDICES

### APPENDIX I: PARTICIPANT INFORMATION

**Title of study:** Mental health status of healthcare workers in Saltpond Government Hospital in the context of COVID-19

#### Introduction

My name is Isaiah Ameyaw, the Principal Investigator for this study. I am currently studying for a Master's in Public Health degree at the School of Public Health, University of Ghana, College of Health Sciences, Legon. I reside in Saltpond. My telephone number is 0243294954. With an email address; [ameyawiza@gmail.com](mailto:ameyawiza@gmail.com) and my academic supervisor Prof. Juliana Yartey-Enos, email; [jenos@noguchi.ug.edu.gh](mailto:jenos@noguchi.ug.edu.gh) and tel. 0504229909

#### Background and purpose of the study

Healthcare workers mental health care receives very little attention in low- and middle-income countries. Priority is on promoting physical health. During the initial stage of the outbreak of the covid-19 pandemic, healthcare professional suffered from the emotional toll of the diseases, since they were the primary care givers and also bore the extra responsibility of being the first point of contact in their households, families and communities. The sheer burden of this pandemic is likely to have impacted their mental health status. This study is being done to determine the mental health status of healthcare workers at Saltpond Government hospital and the potential effect of the covid-19 pandemic on their mental health status.

#### Nature of the research

The research is a facility based, cross-sectional study, involving healthcare workers aged 18 and older working at the Saltpond Government hospital.

## **Participant involvement**

A maximum of 20 minutes will be required for each participant who agrees to participate in the study. At the initial stage of the study, participants will be given the informed consent form to read or read to those unable to read. Individuals who after reading consent to participate in the study will proceed with the study and those who refuse to consent will be withdrawn. A structured questionnaire is designed and will be used to collect the data through face-to-face interviews. The questionnaire is constructed based on the variables of the study to address the objectives of the study using closed ended questions. The questions are constructed in English and will be translated into Fanti (widely spoken language in the study area) for those who do not read English.

## **Risk and benefits:**

By participating in this research, any possible risk that may occur in the form of any distress will lead to the participants participation in the study being ended. A free psychological care will be provided to the individual, the cost of which will be borne by the researcher, if any. On the other hand, there are personal benefits to the participants in the study. Participants who are diagnosed with depression, anxiety, and stress will be given appropriate health care that will be sponsored by the researcher. Also, the results of the study are expected to help with the formulation of policies and programmes that will help improve the mental health status of healthcare providers in the Saltpond community.

**Costs:** There was no cost to the participant to participate in this study.

**Confidentiality:** Data and Information of participants will be kept confidential. The participants' information will not be shared with a third party except the research team. Your name, address or any records that may link you to the information you provide is not required.

**Voluntary participation/withdrawal:** Participation in this study is strictly voluntary devoid of coercion, or undue influence. Participants are reserve the right to withdraw from the study at any point in time without giving reasons, and there will be no punishment or penalty attached to such decisions.

**Outcome and feedback:** The results of the study will document the impact of the pandemic on the mental health of health professionals and make recommendations for policy makers. The study will also contribute to the literature on mental health studies.

**Funding information:** There are no sponsors for this study. Hence all costs involved is being financed by the Principal Investigator.

**Sharing of participants Information/Data:** All information or data from the study is the sole property of the Principal Investigator and will not be shared with any other entity.

### **Contact persons**

For any concerns, enquire or clarification, please contact the Principal Investigator, Isaiah Ameyaw, email: ameyawiza@gmail, tel. +233(0) 0243294954, or my Academic Supervisor: Prof. Juliana Yartey-Enos, Noguchi Memorial Institute for Medical Research, University of Ghana, Legon. Mobile number: +233(0)504229909 Email: jenos@noguchi.ug.edu.gh. tel.

GHS Ethics Review Committee administrator: Madam Hannah Frimpong, tel.+233(0)2681109/507041223

Or physical contact

GHS Ethics Review Committee

Research and Development Division

Adabraka Polyclinic Hospital (Now Ridge Hospital OPD)

Cathedral Square, Castle Road, Accra-Ghana.





**APPENDIX II: QUESTIONNAIRE**

My name is ..... from the School of Public Health, University of Ghana. We are asking for your help in carrying out an important scientific study on mental health status of healthcare providers in Salt-pond Government Hospital. Your participation is very important to the success of this study. All information that you give us will be treated with care and will not be released to anyone except researchers conducting the study. Confidential information will be stored in locked files accessible only to study staff for three months. Do feel free to skip any question on the questionnaire or stop at any point of the interview/procedure.

Please do you have any questions about the study?

Thank you for agreeing to participate in this important research project.

**A: General Information**

**Participant's Contact number**.....

Contact information of interviewer .....

Name of interviewer.....

Date of interview.....

Place of interview.....

**CONSENT FORM FOR HEALTHCARE WORKERS**

**PARTICIPANT STATEMENT AND SIGNATURE**

I certify that I voluntarily agree to participate in the study and that the study has been explained to me. All my questions have been answered satisfactorily. I understand I am free to discontinue participation at any time, if I so choose.

Signature or thumbprint of Participant .....

Date.....

**WITNESS STATEMENT AND SIGNATURE**

I testify that I have personally witnessed that the purpose of the study, risks and benefits of participation and all details have been explained satisfactorily to the respondent and the respondent has understood. He/she has agreed to participate in the study of their free will without any coercion.

Signature or thumbprint of witness.....

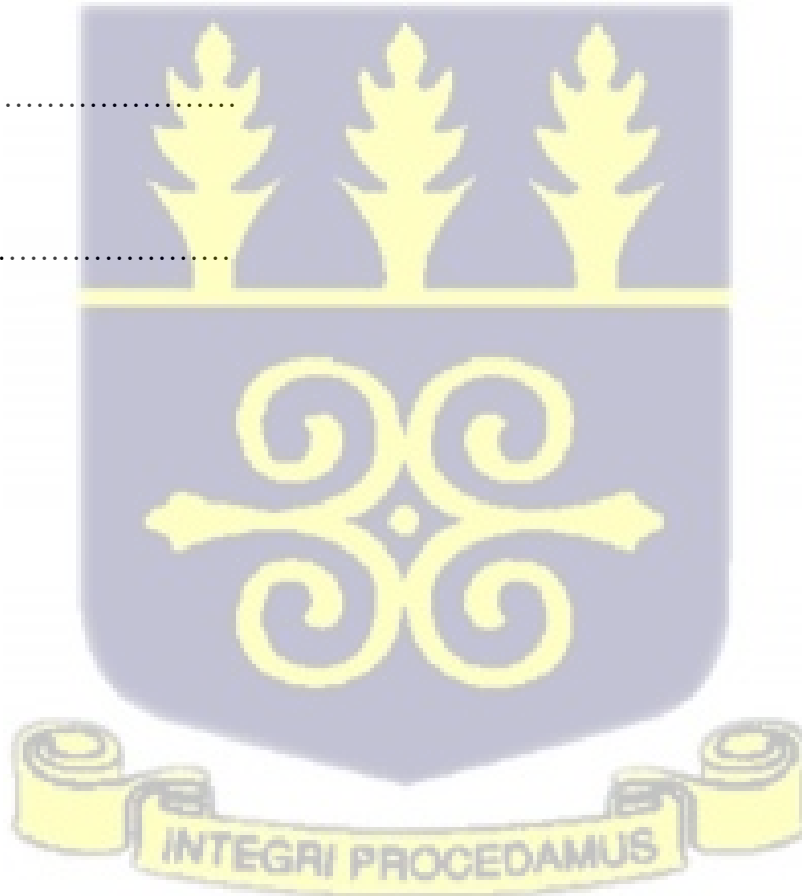
Date.....

**INVESTIGATOR STATEMENT AND SIGNATURE**

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Signature .....

Date.....



## QUESTIONNAIRE

The purpose of this research is to assess the prevalence of depression, anxiety, and stress among healthcare providers at the Saltpond Government hospital during the covid-19 era. These questions are about your background, knowledge about Covid-19, and the prevalence of depression, anxiety, and stress. Your response will be anonymous and your participation is absolutely voluntary.

### **Socio-demographic information**

(1) How old are you? (in years)

A) 18-25

B) 26-33

C) 34-41

D) 41 and above

E) Refused to answer

(2) What is your sex?

(A) Male

(B) Female

(3) What is your ethnic background?

(A) Akan

(B) Ga/Dangme

(C) Guan

(D) Mole/Dagomba

(E) Ewe

(F) Huasa

(G) Other (specify .....)



(H) Refused to answer

(4) What is your highest level of education?

(A) None

(B) Primary

(C) JHS/JSS

(D) Secondary/SHS

(E) Tertiary

(F) Refused to answer

(5) Over the past month what has been your total income? In Ghana cedis.

(A) Less than 500

(B) 500-1000

(C) Above 1000

(D) Refused to answer

(6) What is your religious affiliation?

(A) Muslim

(B) Christian

(C) Traditional

(D) Other (specify.....)

(E) Refused to answer

(7) What is your marital status?

(A) Single

(B) Married



- (C) Cohabitation
- (D) Widow/widower
- (E) Divorced/separated
- (F) Refused to answer

**Section B: Knowledge about Covid-19**

(8) What is the first source of the covid-19 infection?

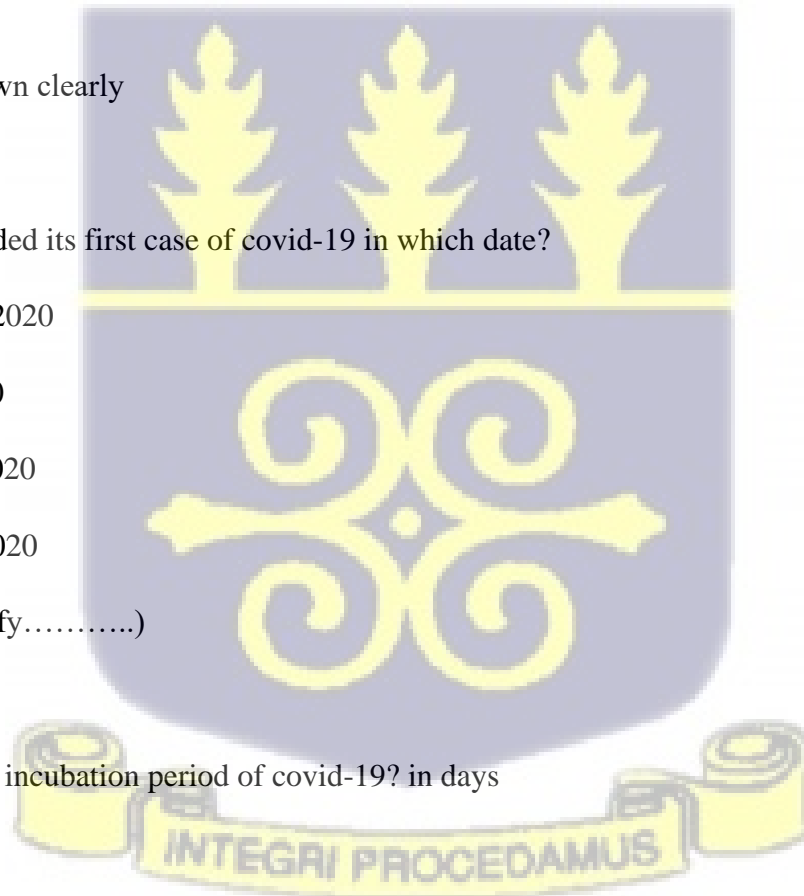
- (A) Bat
- (B) Humans
- (C) Camel
- (D) It's not known clearly
- (E) Don't know

(9) Ghana recorded its first case of covid-19 in which date?

- (A) February 2 2020
- (B) April 1 2020
- (C) March 12 2020
- (D) March 30 2020
- (E) Other (specify.....)
- (F) Don't know

(10) What is the incubation period of covid-19? in days

- (A) Less than 2
- (B) 2-4
- (C) 5-14



(D) 15 and above

(E) Don't know

(11) The covid-19 prevention protocols. Select all that apply

(A) Hand washing

(B) face mask

(C) Hand sanitizer

(D) Alcohol

(E) Social distancing

(12) Symptoms of covid-19. Select all that apply

(A) Cough

(B) Chills

(C) Sore throat

(D) Liver disease

(E) Loss of taste/smell

(F) Runny nose

(13) Risk factors

(14) Who is at greatest risk of serious illness of Covid-19? Select all that apply

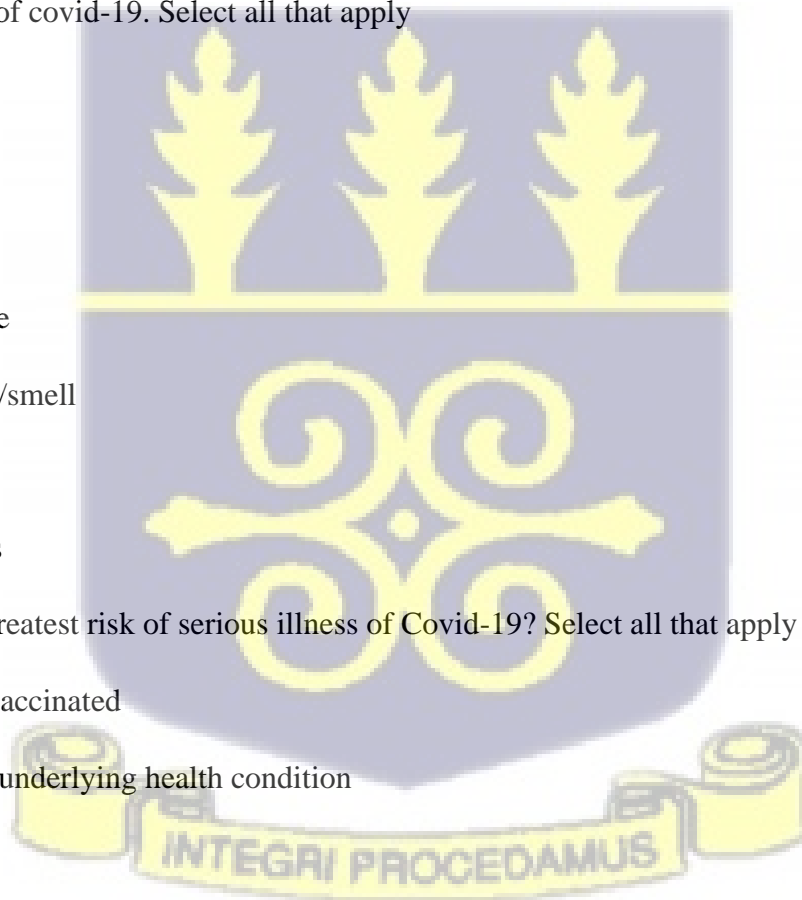
(A) Person not vaccinated

(B) Person with underlying health condition

(C) Aged

(D) Child

(15) The best cure for covid-19 is



(A) Herbal medicine

(B) Drinking alcohol

(C) Covid-19 vaccine

(D) Prayers

(E) Don't know

(16) What test are available to detect covid-19? Select all that apply.

(A) Molecular tests

(B) Antigens

(C) Antibody/serology tests

(D) Don't know

(17) What should I do if I test positive for covid-19? Select all the apply

(A) Stay home and isolate from others

(B) Wear a well-fitted face mask

(C) Use a separate bathroom

(D) Attend to patients but need to be careful

(E) Don't know

(18) When does variant occurs in covid-19?

(A) When the virus spreads fast

(B) When there have been several significant mutations to the virus

(C) When the mutations breakaway

(D) Don't know

**Depression Anxiety Stress Scales (DASS-21)**

Instructions:

Please each statement tick a response that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

Never - Did not apply to me at all

Sometimes - Applied to me to some degree, or some of the time

Often - Applied to me to a considerable degree, or a good part of time

Almost always - Applied to me very much or most of the time

	Never	Sometimes	Often	Almost Always
During the past week,				
I found it hard to wind down				
I was aware of dryness of my mouth				
I couldn't seem to experience any positive feeling at all				
I experience breathing difficulty (eg excessively rapid breathing, breathlessness in the absence of physical exertion)				
I found it difficult to work up the initiative to do things				
I tended to over-react to situations				
I experienced trembling (eg, in the hands)				
I felt that I was using a lot of energy				



I was worried about situations in which I might panic and make a fool of myself				
I felt that I had nothing to look forward to				
I found myself getting agitated				
I found it difficult to relax				
I felt down-hearted and blue				
I was intolerant of anything that kept me from getting on with what I was doing				
I felt I was close to panic another unclear one				
I was not enthusiastic about anything				
I felt I wasn't worth much as a person				
I felt that I was rather touchy				
I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)				
I felt scared without any good reason				
I felt that life was meaningless				

(Adopted from Lovibond et. Al., 1995)



**GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE**

*In case of reply the number and date of this Letter should be quoted.*



Research & Development Division  
Ghana Health Service  
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Email: [ethics.research@ghs.gov.gh](mailto:ethics.research@ghs.gov.gh)  
3<sup>rd</sup> March, 2023

My Ref. GHS/RDD/ERC/Admin/App 123/141  
Your Ref. No.

Isaiah Ameyaw  
Church of Christ,  
P.O. Box SE 2332,  
Atimatim-Kumasi

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	<b>GHS-ERC: 040/11/22</b>
Study Title	Mental Health Status of Healthcare Workers in Saltpond Government Hospital in the Context of COVID-19
Approval Date	3 <sup>rd</sup> March, 2023
Expiry Date	2 <sup>nd</sup> March, 2024
GHS-ERC Decision	<b>Approved</b>

**This approval requires the following from the Principal Investigator**

- Submission of a yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

**You are kindly advised to adhere to the national guidelines or protocols on the prevention of COVID -19**

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....

Dr. Naa-Korkor Allotey  
(Ag. Head, Ethics & Research Management Department)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra