

**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA**



**PREVALENCE OF STRESS, ANXIETY AND DEPRESSION AMONG
MEDICAL DOCTORS AT THE CAPE COAST TEACHING HOSPITAL**

BY

EBENEZER OWUSU WIREKO

10703045

**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF
GHANA, LEGON, IN PARTIAL FULFILMENT OF THE
REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC
HEALTH DEGREE**

AUGUST, 2019

DECLARATION

I, Ebenezer Owusu Wireko, declare that, except for reference to other people's works, which have been properly acknowledged, this dissertation is my own and that it has not been submitted anywhere either in part or in whole for another degree.

.....

Ebenezer Owusu Wireko

(Student)

.....

(Date)

.....

Dr. Uri Mackakpo

(Date)

DEDICATION

I dedicate this study to the LORD Almighty, my KEEPER and my STRENGTH.

To my family, for their love, prayers and encouragement.

ACKNOWLEDGEMENT

I am very much grateful to my supervisor, Dr. Uri Mackakpo, for his time and guidance. This study would not have been completed without him. I am also grateful to the lecturers of the School of Public Health for their contributions and positive criticism during seminar presentations.

I also wish to thank the Medical Director of Cape Coast Teaching Hospital for allowing me to use the hospital as an area of study. Again, I owe much gratitude to the management and staff of Cape Coast Teaching Hospital for accepting to take part in this study.

I also appreciate my family for their love, prayers and encouragement throughout the course of this study. I wish to also say 'lots of thanks' to everyone who helped me in various ways to finish this research. ABOVE ALL, to the LORD Almighty, my KEEPER and my STRENGTH. Without Him I couldn't have come this far.

TABLE OF CONTENTS

DECLARATION	
DEDICATION	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF APPENDICES	vii
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ACRONYMS	x
ABSTRACT	xi
CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Background	1
1.2 Problem Statement	3
1.3 Research Questions	4
1.4 General Objective	4
1.5 Specific Objectives	5
1.7 Conceptual Framework	5
1.6 Justification for the Study	6
1.8 Definition of Concepts	7
CHAPTER TWO	8
2.0 LITERATURE REVIEW	8
2.1 Introduction	8
2.2 Stress, Anxiety and Depression	8
2.3 Stress, Anxiety and Depression among Health Care Workers in Ghana	11
2.4 Factors that Contribute to Stress, Anxiety and Depression	11
2.5 Prevalence of Stress, Anxiety and Depression among Medical Doctors	12
2.6 Effect of Stress, Anxiety and Depression among Medical Doctors	15

CHAPTER THREE	16
3.0 METHODS	16
3.1 Introduction	16
3.2 Research Design	16
3.3 Study Area.....	16
3.4 Study Population.....	17
3.5 Variables	17
3.5.1 Dependent variables	17
3.5.2 Independent Variables	17
3.6 Sampling Technique	17
3.7 Instrument for Data Collection.....	18
3.8 Data Collection Procedure	19
3.9 Data Analysis	19
3.10 Ethical Issues	20
3.10.1 Access to Study Area.....	20
3.10.2 Informed Consent and Consenting Procedure	20
3.10.3 Anonymity and Confidentiality.....	20
3.10.4 Voluntary Participation.....	21
3.10.5 Funding	21
CHAPTER FOUR.....	22
4.0 RESULTS	22
4.1 Introduction	22
4.2 Socio-Demographic Characteristics of Respondents.....	22
4.3 Proportion of Medical Doctors Living with Stress.....	24
4.4 Proportion of Medical Doctors Living with Anxiety	24
4.5 Proportion of Medical Doctors Living with Depression.....	25
4.6 Factors that Contribute to Stress, Anxiety and Depression	26
4.7 Association between Stress and Independent Variables	26
4.8 Association between Anxiety and Independent Variables.....	27
4.9 Association between Depression and Independent Variables.....	28
CHAPTER FIVE.....	29
5.0 DISCUSSION OF RESULTS	29
5.1 Introduction	29
5.2 Socio-Demographic Characteristics	29

5.3 Proportion of Medical Doctors Living Stress, Anxiety and Depression	30
5.4 Factors that Contribute to Stress, Anxiety and Depression among Medical Doctors ...	30
5.5 Association between the Prevalence of Stress, Anxiety and Depression among the Different Professional Ranks and Gender	31
5.7 Limitations of the Study.....	34
CHAPTER SIX	35
6.0 CONCLUSION AND RECOMMENDATIONS	35
6.1 Introduction	35
6.1 Conclusion.....	35
6.2 Recommendations for Solutions to Stress, Anxiety and Depression among Medical Doctors.....	35
6.3 Recommendations for Future Studies.....	36
REFERENCES.....	37

LIST OF APPENDICES

Appendix A Questionnaire	41
Appendix B Respondent Consent Form.....	46
Appendix C Ethical Approval Letter.....	49
Appendix D Multivariate Analyses.....	50

LIST OF TABLES

Table 3.1	Ratings and Scores of DASS-21	188
Table 4.1	Socio-Demographic Characteristics of Respondents	23
Table 4.2	Association between Stress and Independent Variables	26
Table 4.3	Association between Anxiety and Independent Variable	27
Table 4.4	Association between Depression and Independent Variable	28
Table 5.1	Summary of Results	33

LIST OF FIGURES

Figure 1.1 Conceptual Framework of the Prevalence of Stress, Anxiety and Depression6

Figure 4.1 Proportion of Medical Doctors Living with Stress24

Figure 4.2 Proportion of Medical Doctors Living with Anxiety.....25

Figure 4.3 Proportion of Medical Doctors Living with Depression.....25

LIST OF ACRONYMS

AOR	Adjusted Odds Ratio
APA	American Psychological Association
CCTH	Cape Coast Teaching Hospital
COR	Crude Odds Ratio
DASS	Depression Anxiety Stress Scale
ENT	Ear, Nose and Throat
HSE	Health and Safety Executive
ILO	International Labour Organisation
O&G	Obstetrics and Gynaecology
SAD	Stress, Anxiety and Depression
USA	United States of America
WHO	World Health Organisation

ABSTRACT

Generally, medical doctors' psychological health is left unnoticed not just by the people in society but by the doctors too. In developed countries like the USA, a lot of work has been done to assess doctors' psychological or mental status, however developing nations like Ghana significantly fall behind. The aim of the study was to determine the prevalence of stress, anxiety and depression among medical doctors at the Cape Coast Teaching Hospital.

A quantitative cross-sectional design was employed. Population census data was used to select all the 125 medical doctors at Cape Coast Teaching Hospital into the study. However, 111 were available and participated in the study. A structured questionnaire and a modified DASS-21 was used to measure the prevalence of stress, anxiety and depression, while data was analysed with STATA version 15. The study showed that medical doctors experience stress, anxiety and depression. Further enquiries revealed that workload was a major determinant of stress. Although the study sought to determine the association between stress, anxiety and depression and the different professional ranks and gender, the findings were statistically insignificant; other independent variables such as marital status, department and work experience were rather found to be significantly associated with stress, anxiety and depression. "Doctors are not immune" to stress, anxiety and depression. This should prompt measures which would help improve their psychological health, which would in turn improve on patient care.

Key Words: stress, anxiety, depression, prevalence, medical doctors

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Work-related stress at present, is normally recognised as a worldwide problem that has an effect on every career and every employee in low and middle income countries as well as in industrialised countries (ILO, 2016). It is worth mentioning that, the workforce is the most important asset of any organisation (DeNisi and Griffin, 2015). Therefore, the health and wellbeing of the workforce are essential for optimum performance and productivity of organisations (Alhassan and Poku, 2018). In the absence of ‘health at work’, an individual cannot make contributions to his or her society and to his or her own welfare. Whenever ‘health at work’ is jeopardised, productive work and socio-economic growth become difficult to attain. Mental ill-health is extremely important. It has an effect on people’s wellbeing by cutting down wages, and as a result affecting the finances of families’ and the productivity of enterprises, and also producing great costs, both direct and indirect to the economy (ILO, 2016). According to the Health and Safety Executive (2018), stress, depression or anxiety is more predominant in the public sector work like teaching and healthcare. In other words, professions that are demanding have been related to poor psychological or mental health because of several factors including working for long hours and evening shift (Yahaya et al., 2018).

Medicine is one such profession recognised as stressful, which time and again have a negative impact on the psychological, social and physical health of doctors and their performance as a whole. Medical doctors face numerous emotional states and challenges in conversion from insecure house officers to young well-informed medical officers before progressing in life to become consultants. Concerns are emerging about emotional distress in

the medical field which usually begins during the training of medical doctors while they are in medical schools (Fawzy and Hamed, 2017).

Stress in medicine has become a relevant subject, partially because medical care includes dealing with the lives of people and errors can be very expensive and at times irrevocable. Accordingly, it is anticipated that medical doctors, nurses and other health care workers have to be in a “perfect state of mind devoid of morbid worries and anxiety”, so that they can take care of the enormous healthcare responsibility that is required of them. There is substantial proof that, health care associated stress affects healthcare workers negatively (Yeboah et al., 2014). These negative effects may include prescription errors, lack of team work, absenteeism, alcohol and drug abuse, depression and anxiety and even suicide (Shapiro et al., 2000).

Depression is a common ailment which is characterised by persistent sadness and a loss of interest in the activities that one usually love to do (WHO, 2017a). It normally occurs due to a combination of factors such as stress, personal life, and demands of work and workload of a physician. Globally, it is estimated that over 300 million people suffer from depression; this is equal to 4.4% of the world’s population. Almost the same number is also believed to suffer from anxiety, since many people experience both conditions at the same time. Depression and anxiety affect the feelings of affected people and can be diagnosed (WHO, 2017b).

Every individual experiences anxiety at some point in his or her life. According to Shiel Jr. (2018) anxiety is a feeling of fear characterised by symptoms such as trembling, worrying and feelings of stress. Anxiety makes people nervous, afraid, uneasy, and distressful. These conditions have an effect on one’s feelings and demeanour and usually lead to physical and

emotional symptoms. Mild anxiety is indistinct and unnerving, whereas severe anxiety can badly have an effect on daily life. Research shows that medical doctors undergo personal distress during their medical training and later in their practical life (Roberts, 1991), and it may even get to the level of physician burnout (Willcock et al., 2004).

1.2 Problem Statement

Aside, doctors being impacted by similar factors that impose stress on the populace, they are additionally susceptible to stress due to the distinctiveness of their work and the expectation of the society in general (Yeboah et al., 2014). Doctors by virtue of their work which is inundated with stress are at peculiar danger of carrying psychological health problems which might lead to anxiety and depression or worsen it (Atif et al., 2016). Studies show that the prevalence rates of stress, anxiety and depression are high among medical doctors (AlFahhad, 2018; Dave et al., 2018; Caplan, 1994). In industrialised countries like the USA and Canada, a lot of work has been done to assess the psychological or mental position of doctors, yet low and middle income countries significantly fall behind (Erdur et al., 2006). Little research exists on the rates of depression and anxiety in Africa and especially in Ghana. Although a number of research has been done on the stress of nurses in Ghana (Adzakpah, 2017; Dorcoo, 2016; Egungwu, 2015; Dapaah, 2014) and among health care workers in general (Yeboah et al, 2014; Abdulai, 2011) there is still a dearth of research on the prevalence of stress, anxiety and depression among medical doctors in Ghana. Besides, in Ghana, the public health sector is among the sectors in which much has not been done concerning formulating policies on the management of stress amongst its workers whether medical or paramedical. Although Teaching and Regional hospitals, more or less have introduced policies to help workers cope with stress, continuous research is still necessary to examine the main factors of stress among the diverse groups of the workforce (Yeboah et al., 2014).

A typical first year house officer is usually faced with a huge workload every day. The number of doctors are not enough for the huge number of patients. Also, there are usually no counselling sessions for house officers or doctors amid the sleepless nights and dealing with relatives of patients who had passed on. Most house officers are stressed out and anxious with some having the intention to quit their jobs after their housemanship. Based on the foregoing, it is highly conceivable that most medical doctors in healthcare facilities in Ghana may be facing these problems.

It is against these backgrounds that this study attempted to assess the prevalence of stress, anxiety and depression among medical doctors at the Cape Coast Teaching Hospital with a view to proposing measures to combat them.

1.3 Research Questions

1. What is the proportion of medical doctors who are living with stress, anxiety and depression at the Cape Coast Teaching Hospital?
2. What are the factors that contribute to stress, anxiety and depression among medical doctors at the Cape Coast Teaching Hospital?
3. What is the association between the prevalence stress, anxiety and depression and the different ranks and gender of medical doctors at the Cape Coast Teaching Hospital?

1.4 General Objective

To determine the prevalence of stress, anxiety and depression among medical doctors at the Cape Coast Teaching Hospital.

1.5 Specific Objectives

1. To assess the proportion of medical doctors who are living with stress, anxiety and depression at the Cape Coast Teaching Hospital.
2. To identify the factors that contribute to stress, anxiety and depression among medical doctors at the Cape Coast Teaching Hospital.
3. To determine the association between the prevalence of stress, anxiety and depression and the different professional ranks and gender of medical doctors at the Cape Coast Teaching Hospital.

1.7 Conceptual Framework

Figure 1.1 below presents the conceptual framework developed for the study.

The relationship between Stress, Anxiety and Depression (SAD) are such that depression may be both a cause and an effect of psychological stress and anxiety. In some reports, stress is seen as a start point which then leads to anxiety and depression (ILO, 2016, Kinicki and Williams, 2011). For instance, the ILO (2016) reports that when stress levels are high, it can lead to health-related problems such as psychological and behavioural conditions like anxiety, depression, exhaustion, burnout etc. From Figure 1.1 below, the causes of stress may include workload, inadequate material and financial resources, long working hours, little control over the job such as dealing with emergency situations, socio-demographic features like sex and age; family issues, financial strain and many other factors. The causes of SAD are influenced by individual differences like perceptions of SAD or coping strategies. Increased levels of SAD are expressed in 3 main symptoms – physiological, psychological and behavioural; but the study focused on the psychological symptoms. These symptoms may as a consequence affect the productivity and performance of medical doctors.

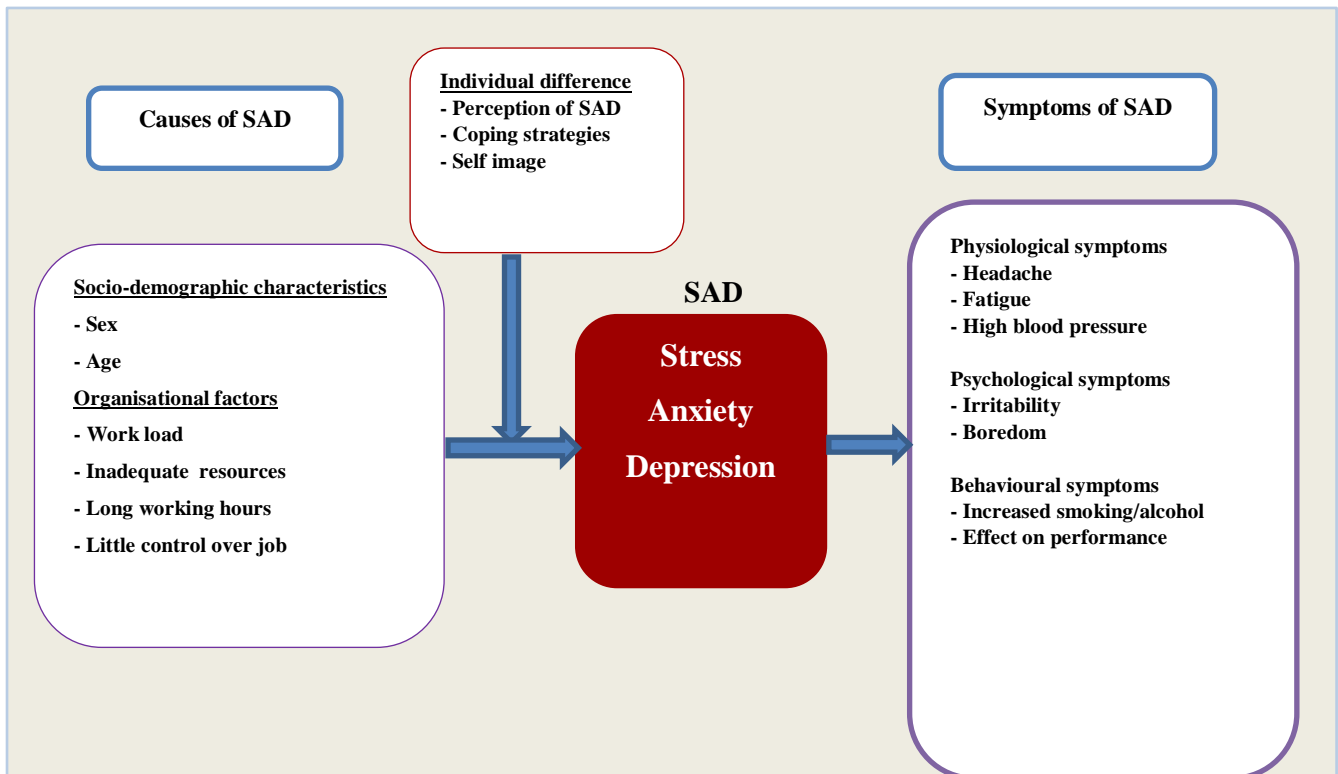


Figure 1.1: Conceptual Framework of the Prevalence of Stress, Anxiety and Depression among Medical Doctors at the Cape Coast Teaching Hospital

1.6 Justification for the Study

Medical doctors' physical and mental health care in recent times, have been a subject area for concentration of researchers globally. A lot of doctors are under stress as a result of various factors such as over work, job dissatisfaction, financial difficulties, etc. The aforementioned factors do not merely influence the health of doctors physically but also psychologically (Nisar et al., 2012). Symptoms of stress, anxiety and depression are important to assess especially among medical doctors as they have a delicate job that deals with the preservation of human lives. Increased levels of stress, anxiety and depression among doctors can lead to physical and emotional ailments, poor job performance and negativity in terms of attitudes and behaviour towards patients and other staff of the hospital (Harris et al., 2006). They also lead to medical errors, reduced capability to manage work-related stress, discontinuation of postgraduate medical training, problems in personal lives, and suicide are also prevalent

(Joules et al., 2014). The study would provide evidence-based data which would enhance knowledge on stress, anxiety and depression among medical doctors. In addition, it would provide information on factors related to the psychological or mental health of medical doctors at the Cape Coast Teaching Hospital and generally in Ghana. Since stress, anxiety and depression could lead to low productivity and poor work performance which drain health institutions and the country's economy as a whole, data generated from this research would serve as a resource for formulation of policies to deal with stress, anxiety and depression among medical doctors. This research would furthermore aid in developing appropriate health and safety regulations, add up to data on knowledge of stress, anxiety and depression among medical doctors in Ghana and serve as a baseline for further studies on the subject.

1.8 Definition of Concepts

The key concepts used in this study are defined as follows:

- **Stress:** A state of the mind that occurs when job demands do not correspond with or surpass the abilities, resourcefulness, or wants of the employee (ILO, 2012a).
- **Anxiety:** It is a feeling of fear characterised by symptoms such as trembling, worrying and feelings of stress (Shiel Jr., 2018).
- **Depression:** It is a psychological ailment which is characterised by persistent sadness and a loss of interest in the activities that one usually love to do (WHO, 2017a).

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

In this chapter, existing literature on stress, anxiety and depression are reviewed. Studies on stress, anxiety and depression among healthcare workers within the Ghanaian context are also reviewed. Additionally, literature on the factors of stress, depression and anxiety as well as the prevalence of stress, anxiety and depression are reviewed. Finally, literature on the effects of stress, anxiety and depression on healthcare workers are reviewed.

2.2 Stress, Anxiety and Depression

Stress

The word stress is utilised “in numerous ways today describing everything from feeling ill in the morning to anxiety leading to depression” (ILO, 2016). According to HSE (2018), “stress is a harmful reaction people have to undue pressures and demands placed on them at work”. The ILO (2012a) explains it as the “harmful physical and emotional response caused by an imbalance between the perceived demands and perceived resources and abilities of individuals to cope with those demands”. To Kinicki and Williams (2011), “stress is what people feel when enduring extraordinary demands or opportunities and are not sure how to handle them. It is the feeling of tension and pressure”. Thus according to Lazarus (1999) stress can be understood as any occurrence that places tension on a person’s coping ability. The meaning of stress has shifted over the years. It was coined and foremost utilised by Hans Selye in 1936, who defined stress in “biological terms as a non-specific response of the body to any demand of change” (American Institute of Stress, 2017; ILO, 2016). According to Kinicki and Williams (2011), Selye also made the differentiation between bad stress (which he termed as “distress”), where the effect of the factor of stress can be anxiety and illness,

and good stress (which he called “eustress”), which can motivate one to cope and adapt well, for instance doing well on a test.

Recently, globalisation and technological advancement have changed the domain of work by bringing in modern kinds of work establishment, working associations and work practices. These transformations have led to the increase of work-related stress and its related disorders (ILO, 2016). With regard to globalisation, even though it has led to an appreciable innovative possibilities for economic growth, it has also led to the menace of worldwide competitive procedures; this therefore place force on working condition and respect for fundamental rights (ILO, 2015). Furthermore, technological advancement as well as the coming forth of the internet have given rise to several changes and improvements in work operations, as a result making it increasingly difficult to key out the limits between work and personal life (Barber and Santuzzi, 2014 In ILO, 2016).

Today, stress is mostly recognised as a worldwide issue that affect all occupations and all employees in both industrialised and unindustrialised countries (ILO, 2016). However, the health care profession is reported to be more stressful (AlFahhad, 2018; HSE, 2018; Hassan et al., 2014). Frontline healthcare workers like doctors are exposed to infectious diseases such as HIV and tuberculosis, in their day to day activities. A lot of doctors also witness ghastly injuries and cope with patient deaths, some expected and others unexpected. When doctors are routinely exposed to these events, they may show signs of ‘Post-Traumatic Stress Disorder’ including nightmares, irritability and the like (Gundersen, 2015). Hassan et al., (2014) thus affirmed that medicine is without doubt a stressful occupation involving extended working periods, moral issues and patients who are hard to manage. When stress levels are high, it can lead to health-related problems such as psychological and behavioural conditions

like fatigue, anxiety and depression in addition to other bodily damages like cardiovascular illness and musculoskeletal conditions (ILO, 2016).

Anxiety

It is a feeling of fear characterised by symptoms such as trembling, worrying and feelings of stress (Shiel Jr., 2018). These conditions influence how we feel and behave. According to Gundersen (2015), due to stigmatisation (whether feared or real), overworking and denial of vulnerability, lots of doctors do not take good care of themselves. However, doctors are not immune to stress or the conditions they come across in the execution of their day to day duties, irrespective of their specialisation. Conditions relating to anxiety are unusually common in the populace and likewise among doctors. Though not all anxiety is diseased, when incidents of anxiety turn out to be serious and protracted, it becomes diseased. It affects one's productivity at work as well as the quality of person's life (Gundersen, 2015).

Depression

It is a common ailment which negatively affect our feelings, thinking and acting, and it is often characterised by feelings of sadness, worthlessness, fatigue, loss of sleep and appetite and lack of concentration (WHO, 2017b; American Psychiatric Association, 2013). Atif et al., (2016) examined the prevalence of anxiety and depression among doctors in Lahore, Pakistan, and found out that there is a substantial relationship between anxiety and depression. In others words, anxious people tends to be depressed and vice versa. In the study 34% of medical doctors had mild to moderate anxiety whereas 24% of doctors had mild to moderate depression.

Across the globe, psychological or mental health disorders are abnegated because people are afraid they will be stigmatised. Due to that, a lot of people, even the healthcare workers are not prepared to be screened or treated for health care issues. Doctors, by virtue of their work, run higher risk of conveying psychological health problems and this may well lead to depression and anxiety (Atif et al., 2016).

2.3 Stress, Anxiety and Depression among Health Care Workers in Ghana

A number of studies have explored stress among healthcare workers within the Ghanaian context. Some of these studies focus on stress among nurses (Alhassan and Poku, 2018; Adzakpah, 2017; Dorcoo, 2016; Egungwu, 2015; Dapaah, 2014), among radiographers (Ashong et al., 2016) and among health care workers in general (Yeboah et al, 2014; Abdulai, 2011). According to Yeboah et al (2014) workload handled every day, work pattern and how it is designed and the work environment are the major causes of stress found among healthcare staff. Research by Dorcoo (2016) to assess the prevalence and causes of stress among nurses recorded high levels of stress. The study also found that the main factors of stress at the workplace include poor interpersonal relationship, badly defined work roles, requirements at work and low level of control.

2.4 Factors that Contribute to Stress, Anxiety and Depression

The majority of the drivers of stress are often related with mental and social problems that are linked to individual as well as work lives (Yeboah et al., 2014). Findings from previous studies shows that the factors that contribute to stress include heavy workload (Dave et al., 2018; HSE, 2018; Yeboah-Kordee et al., 2018; Abdulai, 2011; Kinicki and Williams, 2011); long working hours, little control over the work (for example the inability to decide how to complete responsibilities due to emergencies), clinical specialties, relocation from other areas

of the country, lack of constructive coping plans such as a hobby (Dave et al., 2018); absence of support from management, structural modifications, role ambiguity, that is lack of clearness regarding one's work or unclear about what one is supposed to do (HSE, 2018). Hassan et al (2014) investigated the perceived stress and stressors among house officers and found that the topmost five stressors ranked by house officers were phone calls at night time, amount of work, time pressure, performing duties without help and dealing with diagnostic uncertainty. According to Abdulai (2011) government hospitals in developing nations like Ghana normally have low staff to patient proportions and inadequate professional resources which create more stress.

Anxiety among doctors is not an individual issue, but then to some degree, it is constructed into the work role of doctors as professionals and therapists. The factors that contribute to anxiety in doctors comprise of "moral overtones" which are related to the possibility of failing to accomplish a required social role. Although uncertainty is an integral part of the work of doctors, it is something they cannot ward off. This is because patients have higher anticipation from their doctors in terms of diagnoses, treatment, etc. (Gundersen, 2015). The factors that cause anxiety and depression include long working hours, inadequate resources (Al Hosis et al., 2013; Khuwaja and Qureshi, 2004), low salaries (Erdur et al., 2006), difficult patients (Khuwaja and Qureshi, 2004) and short breaks (Al Hosis et al., 2013).

2.5 Prevalence of Stress, Anxiety and Depression among Medical Doctors

Gender

The way male and females account to and deal with stress are diverse (ILO, 2016). Females, in most societies continue primarily to perform unpaid housework such as food preparation, housecleaning and childcare; hence, they perform a dual work when hired (ILO, 2012b). In many cases, balancing their formal jobs and domestic duties leads to stress, depression and

fatigue (WHO, 2011). Researches have shown that women are at a higher risk of developing stress, anxiety and depression than males (HSE, 2018; WHO, 2017; Atif et al., 2016). On the contrary, a study by Dave et al., (2018) and AlFahhad (2018) reported that the rates of depression and anxiety were higher among males than among females.

Professional Rank

In the United Kingdom, studies by Caplan showed that senior medical staff suffered from substantial amounts and possibly higher than anticipated rates of stress and anxiety (Caplan, 1994). However other studies found junior doctors to be more stressed than their senior counterparts. A study by Dave et al., (2018) however publicised that junior doctors have more stress than the seniors and the possible motive might be unequal work distribution.

Age

According to the World Health Organisation there is no substantial difference in the prevalence rates of anxiety between diverse age brackets, even though it has been observed that the older age brackets have lower prevalence rates (WHO, 2017). Research by Erdur et al., (2016) presented a u-typed connexion between the age of doctors and depression and anxiety. Depression and anxiety were higher among doctors in the young (20 – 35 years) and old (>45 years) age ranges but were low in the 36 – 45 years range. In a study by Dave et al (2018), the prevalence of depression was considerably high (> 0.01) among respondents who were 30 years or more. The rationality behind this could be that resident doctors who were 30 years and more might be married and may be pursuing their postgraduate degrees, thereby increasing their load at work and in their personal life. On the other hand, when anxiety and stress levels were associated, no statistically significant difference was found although the difference was considerably high.

Work Experience

The number of years one has spent in service influence rates of anxiety and depression. Researches had found that as doctors work experiences increased, depression and anxiety levels also decreased, in other words doctors with little work experience have high depression and anxiety rates (Atif et al., 2016; Erdur et al., 2006).

Marital Status

In relation to marital status, it has no substantial relationship with stress, anxiety and depression (Dave et al., 2018; Atif et al., 2016; Erdur et al., 2006). According to Erdur et al., (2006) even though monetary issues and added duties as a result of family life may increase the likelihood of having negative effects on married medical doctors in one way or the other, the social support provided by the family appear to be at work in avoiding depression and anxiety. On the contrary, statistically significant (p -value = 0.05) relationship was found between marital status and depression rates in studies by AlFahhad (2018). The unmarried were found to have higher levels of depression than the married.

Department

To some extent, the department within which a doctor works, may determine his or her stress, anxiety or depression level. A study conducted by Nisar et al., (2012) to determine the “prevalence of anxiety and depression in doctors undergoing various postgraduate training courses” discovered that depression and anxiety rates were very high in Anaesthesia and Ear, Nose and Throat (ENT) departments. Also, when surgical and non-surgical departments of a health facility was compared it disclosed that even though the prevalence of stress, anxiety and depression was statistically insignificant, the difference was remarkably great. The

reason may perhaps be heavy workload which includes “procedures as well as routine and emergency surgeries” (Dave et al., 2018).

2.6 Effect of Stress, Anxiety and Depression among Medical Doctors

All organisations require strong and safe workforce for the organisation’s performance and overall output. The healthcare section is not excluded, in the sense that it comprises various professionals who are exposed to work-related health menaces at different points in time (Alhassan and Poku, 2018). Although the notion of occupational health and safety is not something which is novel to the world of work, the evaluation of it till recently was restricted just to the manufacturing and processing industries which were sensed to present higher risks to workers. The service sectors like health were totally not given attention, particularly in third world countries (International Council of Nurses, 2007). But then, just recently, there are alterations in management practices and occupation health and safety, because employers are also taking interest in the welfare of employees and not only for their productivity in organisations (ILO, 2016).

Stress, anxiety and depression have several negative effect on the practice of medicine. They do not just have an effect on the doctor’s health but might also have an effect on the care of patient (Hassan et al., 2014; Shapiro et al., 2000). Some of these negative effects are absenteeism (ILO, 2016; Shapiro et al., 2000), dissatisfaction, poor work performance (ILO, 2016; Kinicki and Williams, 2011; Moustaka and Constantinidis, 2010), errors in prescription, a lot of complaints from patients, alcohol and substance abuse and suicide (Shapiro et al., 2000).

From the literature review, much has not been done on the prevalence of stress, anxiety and depression among medical doctors in Ghana and the study seeks to fill the knowledge gap.

CHAPTER THREE

3.0 METHODS

3.1 Introduction

This chapter contains the methods used in obtaining information for the study. It discusses the study design, the study area, the target population, the sampling procedure, data collection instrument, data collection procedure, data analysis as well as ethical issues.

3.2 Research Design

The research design employed was quantitative cross-sectional.

3.3 Study Area

Cape Coast Teaching Hospital was the area of study for this research. It was formerly a Regional Hospital (Central Regional Hospital) and was the maiden ultra-modern Regional Hospital founded by the Ministry of Health. It began operating fully on 12th August, 1998 and was declared as the best Regional Hospital in 2003. However, it was converted into a Teaching Hospital with the commencement of the School of Medical Sciences in the University of Cape Coast. The hospital is presently a 400 bed capacity and it is also a referral hospital. It is located at the Northern part of Cape Coast, which is the capital of the Central Region of Ghana on 5.1333° N, 1.2661° W. Major departments in the hospital are the Out Patient Department, Pathology, Intensive Care Unit, Dietherapy, Dialysis, Physiotherapy, Biostatistics, Nursing Administration as well as Accident and Emergency. Services rendered at the hospital include general out-patient and specialist out-patient, child health, surgical, anaesthesia, accidents and emergency, ICU, obstetrics and gynaecology, laboratory, imaging, public health, mental health, amongst others (www.cctghana.org). The doctor – patient ratio

is 1 doctor per 200 patients a day. This put a heavy work burden on the doctors, which possibly leads to development of stress, anxiety and depression among them.

3.4 Study Population

The study population was all medical doctors at Cape Coast Teaching Hospital, who were available and willing to participate in the study. There are one hundred and twenty-five (125) doctors of which one hundred and one (111) took part in the study.

3.5 Variables

3.5.1 Dependent variables

- Stress
- Anxiety and
- Depression

3.5.2 Independent Variables

- Socio-demographic characteristics (sex, age, marital status, education, department, rank, years of experience)
- Organisational factors (work load, inadequate material and financial resources, long working hours, little control over the job)

3.6 Sampling Technique

There are only 125 medical doctors at the Cape Coast Teaching Hospital at the time of data collection. In view of this, no sampling was done, a population census was used to select all of them to participate in the study.

3.7 Instrument for Data Collection

A structured questionnaire together with a modified version of Depression, Anxiety and Stress Scale (DASS)-21, was used to obtain data from the study participants. The structured questionnaire had 2 parts (a copy is found in Appendix A). The first part contained a series of questions to collect socio-demographic information such as sex, age, marital status, position or rank, department and years of service. The second part consisted of a few questions to collect information on the factors of stress. The modified version of DASS-21 was used to assess stress, anxiety and depression among medical doctors. The DASS-21 is designed to measure depression, anxiety and stress simultaneously. So the researcher do not have to provide 3 sets of questionnaire to participants. DASS-21 has 3 self-reporting scales of depression, anxiety and stress. Each scale consist of 7 statements to which study participants selected responses as they applied to them over the past week. What this means is that each statement on DASS-21 measures either depression, anxiety or stress. There are also 4 Likert Scale answers ranking from 0 (did not apply to me at all) to 3 (applied to me most of the time). Scores are written off as “normal”, “mild”, “moderate”, “severe” and “extremely severe” (Lovibond and Lovibond, 1995). According to Tran et al., (2013), the English and non-English version of DASS-21 have a high internal reliability (Cronbach’s alpha scores >0.7). Table 3.1 below shows the ratings and scores of DASS-21.

Table 3.1: Ratings and Scores of DASS-21

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Source: Lovibond and Lovibond (1995).

In order to improve the validity of the questionnaire, it was pre-tested on 10 medical doctors at the La General Hospital in Accra. This was done to help remove questions that were not necessary and also to reword ambiguous ones. The questionnaire was revised and necessary changes were made before it was used in the actual data collection.

3.8 Data Collection Procedure

Data collection took place from 23rd of July, 2019 to the 2nd of August, 2019. The respondents were given a prior notice and this facilitated the data collection process. The questionnaire was self-administered and they were distributed at the place of work of the respondents. Doctors who participated in the study were those available during the time of the study and who gave informed consent. The objective of the study was communicated to the respondents and instructions were provided as to how questions were to be answered.

3.9 Data Analysis

For easy analysis, the questionnaire was organised and coded using STATA version 15.0. Data from each questionnaire were then entered into the STATA Statistical Software. In order to ensure the accuracy of the data entered, each entry made was cross checked after which the data was processed. Descriptive statistics was used to analyse data. Descriptive analysis of the demographic characteristics of respondents was carried out using frequencies and percentages; multivariate analysis which is also a type of descriptive statistics was used to test for the strength of the association between the independent and dependent variables. The results were summarised using statistical tables and charts. Results were categorised and discussed in relation to the study objectives and relevant inferences were drawn from the literature.

3.10 Ethical Issues

Ethical approval to conduct the research was obtained from the Ethics Review Committee of the Ghana Health Service (Appendix C). Approval was also sought from the management of Cape Coast Teaching Hospital, specifically from the Medical Director. In addition, informed consent (Appendix B) was obtained from the doctors and consenting procedure, anonymity and confidentiality and voluntary participation were all addressed before commencement of the study.

3.10.1 Access to Study Area

Usually, getting access to the study area and even persuading people to take part in the research can be very challenging (Cresswell, 2013). However, for access to the study area, an introductory letter was obtained from the Head of Department, School of Public Health, University of Ghana and sent to the Medical Director of Cape Coast Teaching Hospital for approval to conduct the study.

3.10.2 Informed Consent and Consenting Procedure

For the purpose of obtaining informed consent, information containing the scope and objective of the study, background of the researcher and the confidential treatment of information were included in the questionnaire. Moreover, respondents were asked to sign a written consent form before participating in the research.

3.10.3 Anonymity and Confidentiality

Respondents were assured of their anonymity, in that no personally identified data such as name, email, residential address, mobile or telephone number were collected. Furthermore, data gathered were held solely confidential and articles that would be published from this research would not have negative effect on the respondents since names, telephone or mobile numbers, residential address and other personal information that could easily give respondents' out were omitted from the questionnaire.

3.10.4 Voluntary Participation

Participation was voluntary and pulling out from the study at any point in time was allowed and there were not any adverse consequence for doing so.

3.10.5 Funding

With regards to funding, this research was in partial fulfilment of the requirement towards the award of a Master of Public Health (MPH) degree at the School of Public Health, College of Health Sciences, University of Ghana, Legon, there was no funding from anywhere; all cost were paid only by the researcher.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

Chapter four presents the findings of the study and it includes data on the socio-demographic characteristics of respondents, the proportion of medical doctors living with SAD, factors that contribute to SAD and the association between SAD and the independent variables.

4.2 Socio-Demographic Characteristics of Respondents

Table 4.1 below illustrates the socio-demographic characteristics of respondents of the study. About 72% (81/111) were males, while 27% (30/111) were females. The respondents' ages ranged from 25 to 55 years. Most of them, 82.8% (92/111) were between the ages of 25 – 34 years, 14.4% (16/111) were between the ages of 35 – 44 years and 2.7% (3/111) were between 45 – 54 years. With reference to marital status, 66.7% (74/111) were single while 33.3% (37/111) were married. In terms of education, 90% (100/111) of the respondents had bachelor's and 5.4% (6/111) of them had had their master's degree. With regard to the department, majority of the respondents 58% (64/111) were from surgery department, 17% (19/111) from paediatrics, 14% (16/111) from medical and 11% (12/111) were in Obstetrics and Gynaecology. Majority of the respondents 74.8% (83/111) were house officers, 16.2% (18/111) were medical officers and 7.2% (8/111) were specialists. However, resident and consultant had the lowest representation with 0.9% (1/111) each. Most of the respondents, 70.2% (78/111) have had less than one year working experience while only 0.9% (1/111) have had more than seven years working experience.

Table 4.1: Socio-Demographic Characteristics of Respondents

Socio-Demographic Characteristics	Frequency	Percentage (%)
Sex		
Male	81	72.9
Female	30	27
Total	111	100
Age		
25 – 34 years	92	82.8
35 – 44 years	16	14.4
45 – 54 years	3	2.7
Total	111	100
Marital Status		
Single	74	66.7
Married	37	33.3
Total	111	100
Education		
Bachelor's	100	90
Master's	6	5.4
Other	3	2.7
Non-Response	2	1.8
Total	111	100
Department		
Medical	16	14
Surgery	64	58
Paediatrics	19	17
Obstetrics and Gynaecology	12	11
Total	111	100
Professional Rank		
House officer	83	74.8
Medical officer	18	16.2
Resident	1	0.9
Specialist	8	7.2
Consultant	1	0.9
Total	111	100
Years of Service		
Less than 1 year	78	70.2
1 – 3 years	16	14.4
4 – 6 years	14	12.6
More than 7 years	1	0.9
Non-Response	2	1.8
Total	111	100

4.3 Proportion of Medical Doctors Living with Stress

Figure 4.1 below summarises the results of the analysis of data on the levels of stress among the doctors. The prevalence of stress was 53%. Forty-three percent (48/111) had extreme severe stress, 3% (3/111) had severe stress, 4% (4/111) had moderate stress while 3% (3/111) had mild stress. However, 47% (52/111) of the doctors mentioned that their stress levels were normal.

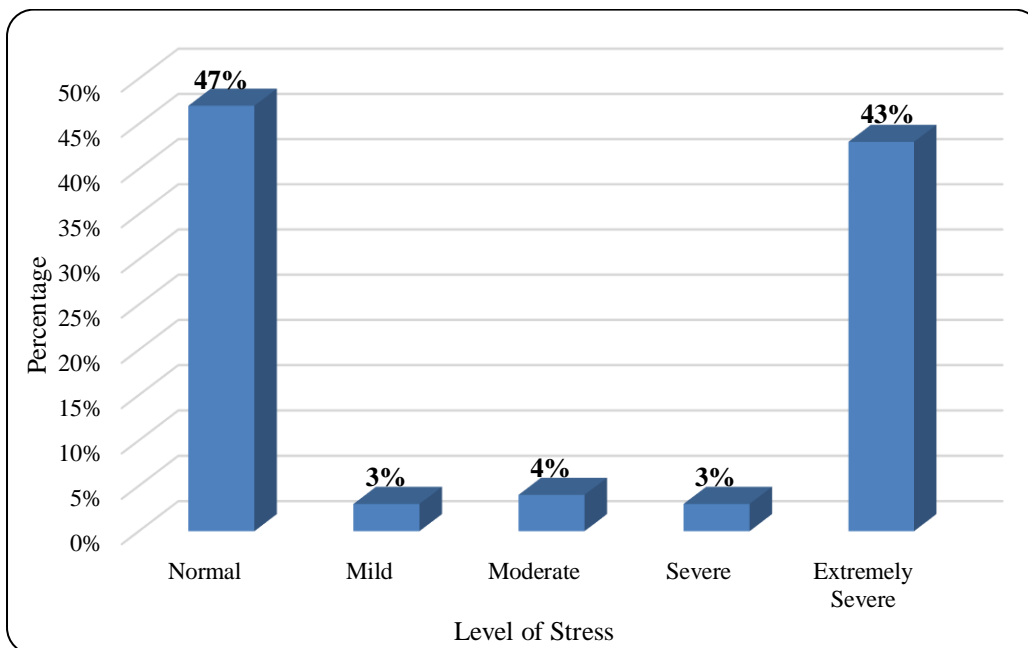


Figure 4.1: Proportion of Medical Doctors Living with Stress

4.4 Proportion of Medical Doctors Living with Anxiety

The prevalence rate of anxiety was 38%. Out of this, 7% (8/111) had mild anxiety, 10% (11/111) had moderate anxiety, 4% (4/111) had severe anxiety while 17% (19/111) had extreme severe anxiety. However, 62% (69/111) of the respondents had normal anxiety. This is shown in Figure 4.3 below.

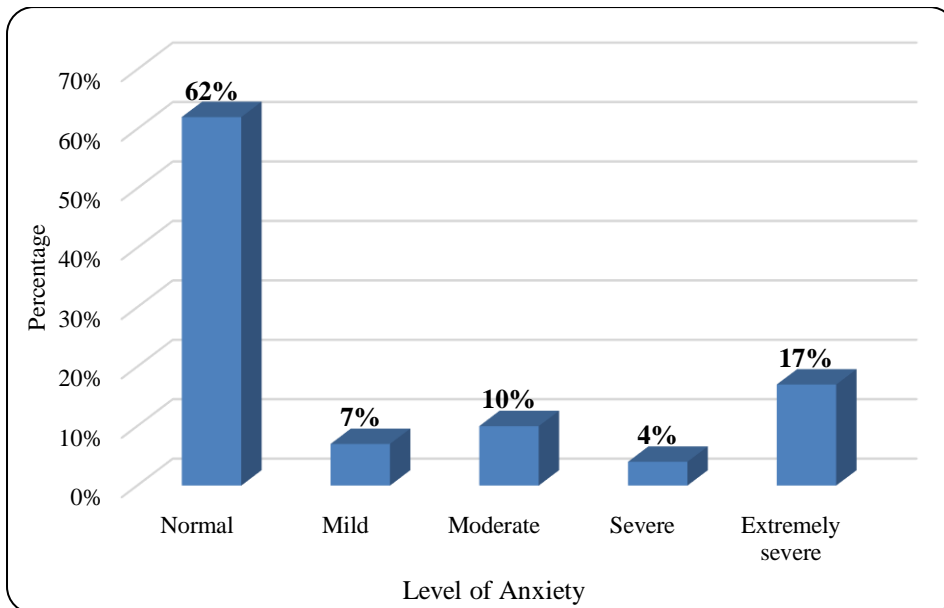


Figure 4.2: Proportion of Medical Doctors Living with Anxiety

4.5 Proportion of Medical Doctors Living with Depression

The prevalence rate of depression among the doctors was 36%. Out of this number, 16% (18/111) had mild depression, 5% (6/111) had moderate depression, 3% (3/111) had severe depression while 12% (13/111) of the respondents had extreme severe depression. However 64% of the respondent had normal depression. This is shown in Figure 4.3 below.

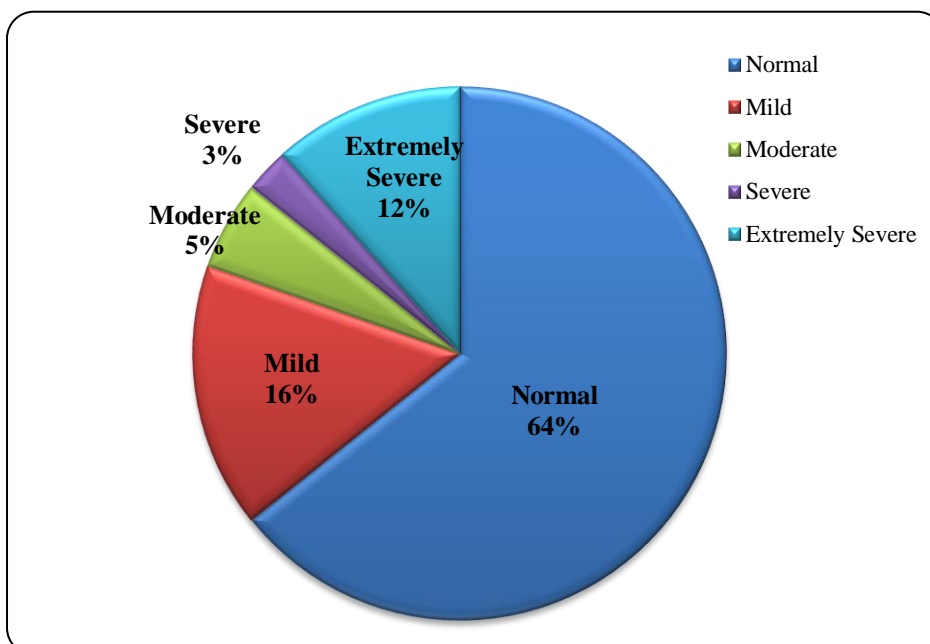


Figure 4.3: Proportion of Medical Doctors Living with Depression

4.6 Factors that Contribute to Stress, Anxiety and Depression

With reference to the factors of stress, anxiety and depression, a univariate and a multivariate analysis were performed but since multivariate analysis often provides stronger significant associations, its findings were emphasised in this study. The major cause of stress was work load with an Adjusted Odds Ratio (AOR) of 6.2 and a p-value of <0.01 (Appendix D, Table 1). However there was no statistically significant association between anxiety and the factors that contribute to anxiety as well as depression and the factors of depression.

4.7 Association between Stress and Independent Variables

Tables 4.2 below shows the association between stress and the independent variables. Workload was the only independent variable that was significant with an AOR of 6.2 and a p-value of <0.01. This indicates that respondents whose workload were high were 6.2 times more likely to develop stress compared to respondents who had no workload.

Table 4.2: Association between Stress and Independent Variables

Socio-Demographic Characteristics	COR	P-value	AOR	P-value
Department				
Medical	1.46	< 0.01	1	
Surgery			0.89	0.86
Paediatrics			0.30	0.19
O&G			N/A	
Work experience				
Less than a year				
1 – 3years	2.10	< 0.01	1	
4 – 6years			N/A	
More than 7			0.81	0.79
Workload				
No			2.19	0.58
Yes	3.88	<0.01	6.20	<0.01*
Inadequate resources				
No				
Yes	2.56	0.02	2.58	0.08

N/A: Not available because a cell has no response * : statistically significant

4.8 Association between Anxiety and Independent Variables

Table 4.3 below presents the association between anxiety and the independent variables. Marital status was significantly associated with anxiety. Respondents who were married had about 91% (AOR= 0.09, p-value=<0.01) reduced risk of being anxious as compared to those who were single. Nine people were less susceptible to anxiety as compared to those who were single.

Department was also statistically significantly associated with anxiety. Those who worked at the surgery department had a reduced risk of 85% (AOR= 0.15, p-value= 0.04) compared to those who worked at the medical department. Also those who worked at the paediatric department had a reduced risk of about 97% (AOR= 0.03, p-value= 0.02) as compared to respondents in the medical department.

Table 4.3 : Association between Anxiety and Independent Variables

Socio-Demographic Characteristics	COR	P-value	AOR	P-value
Marital status				
Single	0.32	0.01*	1	
Married			0.09	< 0.01*
Department				
Medical	0.94	< 0.01*	1	
Surgery			0.15	0.04*
Paediatrics			0.03	0.02*
O&G			0.47	0.59
Work experience				
Less than a year	0.80	< 0.01*	1	
1 – 3years			2.50	0.34
4 – 6years			N/A	
More than 7			N/A	

N/A: Not available because a cell has no response

* : statistically significant

4.9 Association between Depression and Independent Variables

Table 4.4 below shows the multivariate analysis between depression and the independent variables. The paediatric unit had an AOR of 0.12 and a p-value of 0.02. It had a decrease AOR of 88% compared to that of the medical unit.

With reference to work experience, 1 – 3 years had an AOR of 5.25 and a p-value of 0.04.

The respondents who had 1 – 3 years’ work experience were 5.3 times more likely to be depressed than those who had worked for less than a year.

Table 4.4: Association between Depression and Independent Variables

Socio-Demographic Characteristics	COR	P-value	AOR	P-value
Department				
Medical	1.06	0.04*	1	
Surgery			0.34	0.09
Paediatrics			0.12	0.02*
O&G			0.41	0.39
Work experience				
Less than a year	0.91	<0.01*	1	
1 – 3years			5.25	0.04*
4 – 6years			0.32	0.18
More than 7			N/A	
Inadequate resources				
No	2.30	0.04*	1	
Yes			2.39	0.06

N/A: Not available because a cell has no response

* : statistically significant

CHAPTER FIVE

5.0 DISCUSSION OF RESULTS

5.1 Introduction

This chapter presents the discussion of the findings. The first part is a discussion on the socio-demographic characteristics of the respondents. The ensuing parts are discussed in relation to the study objectives.

5.2 Socio-Demographic Characteristics

Out of the 111 medical doctors who participated in the study, more than half of the respondents (73%) were males. This proposes that males dominate or continue to dominate females in the medical field. The findings of this study is consistent with the finding by Atif et al., (2016) where most of their respondents were male doctors in their research which assessed the prevalence of anxiety and depression among doctors.

There were more doctors between the age brackets of 25 – 34 years. In terms of professional rank, most of them were house officers. This explains why majority of the respondents were in the young age bracket or range. It also explains why majority had less than three years of work experience. Again, most of the respondents had had their bachelor's degrees which corresponds with the young age range. A lot of the respondents were single. Within the age range of 24 – 34 years, it is expected that medical students might have successfully completed their first or bachelor's degrees and may be practicing medicine, where they first start as house officers; explaining the reason why less than one year and 1 – 3 years' work experience were higher.

5.3 Proportion of Medical Doctors Living Stress, Anxiety and Depression

One specific objective of the study was to assess the proportion of doctors' living with stress, anxiety and depression. The study found that the prevalence of stress is high among medical doctors. The findings in this study thus conforms with Atif et al., (2016) assertion that the work of medical doctors is inundated with stress and they are at an increased risk of carrying psychological health problems and this may well lead to depression and anxiety. The finding also supports the results by Yeboah et al., (2014) who reported that stress is high among doctors and nurses because they shoulder a lot of the duties of providing health care. It is worth noting that, if these high rates of stress among medical doctors continue, physiological, psychological and behavioural symptoms might result as it appears in the conceptual framework; this may lead to negative effects like prescription errors, patient complaints, depression and anxiety (Shapiro et al., 2000), which could jeopardize healthcare delivery. It is therefore imperative that drastic measures are put in place to reduce the prevalence of stress among medical doctors or prevent its occurrence in general.

From the study, the proportion of medical doctors living with anxiety and depression were also relatively high. In a study by Atif et al., (2016) it was also found out that there is a substantial relationship between anxiety and depression.

5.4 Factors that Contribute to Stress, Anxiety and Depression among Medical Doctors

The main factor found to contribute to stress among medical doctors was workload. This implies that doctors whose workload were high were more likely to develop stress than those whose workload were less. In this study it was deduced that house officers constituting the majority of the respondents corroborates with workload as a major determinant of stress. This is because house officers and doctors in general are usually faced with a huge workload every day, this is perhaps as a result of the poor doctor to patient ratio in Ghana. In addition, night

shifts and calls, working alone, less free time outside of their work etc. put a heavy burden on doctors which leads to the development of stress.

However the fact that there was no statistically significant association between anxiety depression and their causes could be due to the influence of other confounding factors including smoking and alcoholism which however were beyond the scope of this study and therefore were not investigated.

5.5 Association between the Prevalence of Stress, Anxiety and Depression among the Different Professional Ranks and Gender

The third objective of the study determined the association between the prevalence of SAD and the different professional ranks and gender of the medical doctors. Findings from the study showed no statistically significant association between SAD and the different professional ranks and gender. Similar to the findings in this study, Dave et al (2018) research on depression, anxiety and stress did not find any statistically significant difference in the rates of stress between males and females. The study also corroborates with findings by Atif et al., (2016) who reported that there was no significant effect of gender of respondents on the levels of depression. On the contrary, findings of this study did not agree with ILO (2016) assertion that males and females account to and deal with stress in diverse ways.

Even though professional rank and gender turned out to be statistically insignificant, other independent variables of the study were found to be significantly associated with stress, anxiety and depression. Workload was statistically significantly associated with stress. The discussion has already been done under section 5.4 above.

With reference to depression, department in which the doctors' work was significantly associated with it. In this study, doctors working in the paediatric unit have a decreased risk of developing depression compared to their colleagues working in the medical department. Doctors face high depression in the medical department probably because of the intensity of the work which has to do with diagnosis, treatment and care, etc. The study supports findings by Nisar et al., (2012) who in their study found that depression rates were extreme in some departments such as Anaesthesia than in others.

Work experience or the number of years a doctor has worked is also associated with depression. Often it is expected that as a person's work experience increases, stress, anxiety and depression will decrease because he or she acquires more skills and knowledge which make them experts in what they do. However in this study, doctors with less work experience (less than one year) had low depression. In initial days of work, employees may not be accustomed with the nature of the work and even with the work environment. Due to that they may not feel its stressful nature which might lead to depression. But one year onwards they become aware and begin to experience the stress or pressure and this is where if care is not taken depression might set in.

Marital status has a statistical significant association with anxiety. Respondents who were married had reduced risk of being anxious as compared to those who were single. Anxiety may be high among single doctors because of lack of informal social support mechanisms. According to Erdur et al., (2006) even though monetary issues and added duties as a result of family life, may increase the likelihood of having negative effects on married medical doctors in one way or the other, the social support provided by the family appear to be at work in avoiding depression and anxiety.

Department was also statistically significantly associated with anxiety. Surgery and paediatrics were significantly associated, meaning that there is reduced risk of developing anxiety in these departments. The risk of developing anxiety may be quite high in the medical department than other departments because of the reduced risk of exposure to stressors. This finding corroborates with the finding by Nisar et al., (2012). In their research, association existed between department and anxiety. Rates of anxiety were for instance high in ENT than in other departments.

Table 5.1: Summary of Results

Objective	Result
1. Proportion of medical doctors living with stress, anxiety and depression	SAD were prevalent among doctors. Prevalence rate for stress – 53%, anxiety – 38% and depression – 36%
2. Factors that contribute to stress, anxiety and depression	Major factor of stress was workload
3. Association between stress, anxiety and depression and professional rank and gender	<p>No association was found but association existed between SAD and other independent variables</p> <p>Workload was associated with stress</p> <p>Marital status and department were associated with anxiety</p> <p>Department and work experience were associated with depression</p>

5.7 Limitations of the Study

1. The study was carried out in only one teaching hospital in Ghana, even though there are a number of them and other regional hospitals. For this reason the results from this study could not be generalised to employees of the entire healthcare sector in Ghana.
2. With the use of self-administered questionnaire, it was difficult to probe responses. If other research instruments like interview had been combined with the questionnaire, the researcher could have delve more into the factors of stress, anxiety and depression.
3. Another limitation was that, stress, anxiety and depression are associated with certain health related impairments such high blood pressure and heart diseases. SAD are also influence by factors including smoking and alcoholism but due to the time frame for the study they could not be investigated.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter covers the conclusion drawn from the findings of the study, recommendations and recommendations for future studies.

6.1 Conclusion

Medical doctors experience stress, anxiety and depression; department, the years of experience and workload play a major role. A whopping 53% of medical doctors were stressed, 38% experienced anxiety and 36% were depressed which are high and must be of major concern. The prevalence of stress, anxiety and depression in this study is also high enough to warrant interventions, because mistakes made by medical doctors with regard to patient care are most often irrevocable, they can hardly be reversed or reconstructed.

The results affirm the demand to help medical doctors to be aware when they are in emotional or psychological suffering and seek help through psychiatric counselling and support services. This is likely to improve upon their wellbeing and also improve on service delivery or care of patient which may in the long run result in better work output.

6.2 Recommendations for Solutions to Stress, Anxiety and Depression among Medical Doctors

The following recommendations have been made based on the findings of the study:

1. The study found high prevalence of stress, anxiety and depression among medical doctors. It is therefore recommended that counselling sessions be made available for doctors especially during the house job period. Besides, the education and training of

doctors should inculcate information on the nature of their profession and the challenges that come with it. Furthermore, the Ghana Health Service, medical directors and administrators, governmental and non-governmental organisations' and all stakeholders involve must intensify or make compulsory mental health screening for doctors on regular basis.

2. The study revealed that workload was the main determinant of stress among medical doctors while work experience was found to be associated with depression. The study recommends task sharing among medical doctors. Similarly, duties and roles should be well defined and should be well-matched with work experiences and abilities of doctors. Since the work of doctors is a learning process, they must be given the opportunity to learn and improve as time goes on.
3. In the hospital setting, all departments perform important work, but it seems work in some departments are more demanding than others. For instance, findings from the study show that working in the medical department is associated with high risk of developing anxiety and depression as compared to working in the Paediatric and Surgery departments. It is recommended that more doctors be assigned to such departments in order to lessen workloads.

6.3 Recommendations for Future Studies

1. The prevalence of SAD among medical doctors at CCTH is high. The findings from this study should be researched further in future studies to find out the factors of stress leading to these results. Also, future studies can investigate the association between stress and competency on a regional and national scale so that they can be addressed.
2. Future studies can as well replicate this study in all major regional and teaching hospitals across the country.

REFERENCES

- Abdulai, T. I. (2011). "Occupational Stress in Health Care Workers: The Case of the Goaso Government Hospital". An Unpublished Thesis Submitted to the School of Business Kwame Nkrumah University of Science and Technology, in Partial Fulfilment of the Requirement for the Degree of Commonwealth Executive Master of Business Administration.
- Adzakupah, G. (2016). "Occupational Stress among Nurses in a Hospital in Ghana". Clin Case. Rep Rev 1 Doi:10.15761/CCRR.1000207
- AlFahhad, N. M. (2018). "Prevalence and Factors Associated with Depression among Health Care Workers in National Guard Hospital in Riyadh, KSA". *International Journal of Medicine in Developing Countries*. 2(3): 92-96
- Alhassan, R. K. and Poku, K. A. (2018). "Experiences of Frontline Nursing Staff on Workplace Safety and Occupational Health Hazards in Two Psychiatric Hospitals in Ghana". *Occup Med Health Aff*. 6:274 Doi:10.4172/2329-6879.1000.274
- Al Hosis, K. F.; Mersal, F. A. and Keshk, L. I. (2013). "Effects of Job Stress on Health of Saudi Nurses Working in Ministry of Health Hospitals in Qassim Region". *Life Sci J*. 10(1):1036-1044
- American Institute of Stress (2017). "What is Stress?" <https://www.stress.org/what-is-stress>
- American Psychiatric Association (APA) (2013). *Diagnostic and Statistical Manual of Mental Disorder, 5th ed*. Accessed: 12/10/2019
- Ashong, G. G. N. A.; Rogers, H.; Botwe, B. O. and Anim-Sampong, S. (2016). "Effects of Occupational Stress and Coping Mechanisms Adopted by Radiographers in Ghana" *Radiography*. 22(22):112-117.
- Atif, K.; Khan, H. U.; Zia-Ullah, M.; Shah, F. S. and Latif, A. (2016). "Prevalence of Anxiety and Depression among Doctors: the Unscreened and Undiagnosed Clientele In Lahore, Pakistan". *Pak J Med Sci*. 32(2):294-298
- Barber, L.K. and Santuzzi, A.M. (2014). "Please Respond ASAP: Workplace Telepressure and Employee Recovery" in ILO (ed) *Workplace Stress: A Collective Challenge*" World Day for Safety and Health at Work, 28th April, 2016. Geneva: International Labour Office.
- Cape Coast Teaching Hospital: Working Together For Health. www.cctghghana.org
Date Accessed: 05/02/2019
- Caplan, R. P. (1994). "Stress, Anxiety and Depression in Hospital Consultants General Practitioners and Health Service Managers". *BMJ: British Medical Journal* 309(6964):1261-1263. Accessed 24/01/2019

- Cresswell, J. (2013). *Qualitative Inquiry and Research Design: Choosing among Five Approaches*, 3rd ed. Los Angeles: SAGE.
- Dapaah, A. K. (2014). "Causes of Stress among Nurses in the Greater Accra Region". *International Journal of Research in Social Sciences*. 3(8):74-81
- Dave, S.; Parikh, M.; Vankar, G. and Valipay, S. K. (2018). "Depression, Anxiety and Stress Among Resident Doctors of a Teaching Hospital". *Indian Journal of Social Psychiatry*. 34(2):167-171.
- DeNisi, A. and Griffin, R. (2015). *HR3*. 3rd ed. Boston: Cengage Learning.
- Dorcoo, K. C. Jr. (2016). "Determinants of Workplace Stress in the Health Sector: A Case Study of Nurses in the Tema General Hospital". A dissertation Submitted to the University of Ghana, Legon in partial Fulfilment of the Requirement for the Award of Master of Science in Occupational Hygiene Degree. <http://ugspace.ug.edu.gh>
- Egungwu, C. C. (2015). "Work-Related Stress and Hypertension among Nurses at Ridge Hospital, Accra, Ghana". Unpublished Dissertation Submitted to the University of Ghana, Legon in Partial Fulfilment for the Award of Master of Public Health Degree.
- Erdur, B.; Ergin, A.; Turkcuer, I.; Parlak, I.; Ergin, N. and Boz, B. (2006). "A Study of Depression and Anxiety among Doctors Working in Emergency Units in Denizli, Turkey". *Emerg Med J* 23(10):759-763
- Fawzy, M. and Hamed, S. A. (2017). "Prevalence of Psychological Stress, Depression and Anxiety among Medical Students in Egypt". *Psychiatry Research*. 255:186-194
- Gundersen, D. C. (2015). "Anxiety among Physicians". *Newsletter of the Colorado Physician Health Program*. Vol 11 Issue 1.
- Harris, L. M.; Cummings, S. R. and Campbell, A. J. (2006). "Stress and Psychological Well-being among Allied Health Professionals". *Journal of Allied Health*. 35(4): 198-207
- Hassan, M.; Hussain, T.; Ahmed, S. M.; Fraz, T. R. and Rehmat, Z. (2014). "Perceived Stress And Stressors among House Officers". *Indian Journal of Occupational and Environmental Medicine*. 18(3): 145-149
- Health and Safety Executive (2018). "Work Related Stress, Depression or Anxiety Statistics in Great Britain, 2018". *Annual Statistics*, Pages1-10.
- International Council of Nurses (ICN) (2007). "Guidelines on Coping with Violence in the Workplace" *Geneva: International Council of Nurses*.
- International Labour Organisation (2016). "Workplace Stress: A Collective Challenge". World Day for Safety and Health at Work, 28th April, 2016. *Geneva: International Labour Office*.

- International Labour Organisation (2015). “Report of the Director-General, Report I: The Future of Work Centenary Initiative” in ILO (ed) *Workplace Stress: A Collective Challenge*” World Day for Safety and Health at Work, 28th April, 2016. Geneva: International Labour Office.
- International Labour Organisation (2012a). “SOLVE: Integrating Health Promotion into Workplace OSH Policies – Trainer’s Guide. *Geneva: International Labour Office*.
- International Labour Organisation (2012b). “Global Employment Trends for Women”. *Geneva: International Labour Office*.
- Joules, N.; Williams, D. M. and Thompson, A. W. (2014). “Depression in Resident Physicians: A Systematic Review”. *Open J Depress*. 3:89-100
- Khuwaja, A. K. and Qureshi, R. (2004). “Prevalence and Factors Associated with Anxiety and Depression among Family Practitioners in Karachi, Pakistan” *J Pak Med Assoc* 11:190-191
- Kinicki, A. and Williams, B. K. (2011). *Management: A Practical Introduction, 5th ed.* McGraw Hill: Boston.
- Lazarus, R. S. (1999). *Stress and Emotion: A New Synthesis*. New York: Springer Publishing Company.
- Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety & Stress Scales*. 2nd ed. Sydney: Psychology Foundation.
- Moustaka, M. and Constantinidis, T. (2010). “Sources and Effects of Work Related Stress in Nursing”. *Health Science Journal*. 4:210-216.
- Nisar, K.; Khan, K. H. and Shah, M. (2012). “Anxiety and Depression in Doctors undergoing Postgraduate Training courses at Armed Forces Postgraduate Medical Institute Rawalpindi”. *Journal of Ayub Medical College Abbottabad*. 24:3-4.
- Roberts, J. (1991). “Junior Doctors’ Years: Training, not Education”. *BMJ*. 302: 225-256
- Shapiro, S. L.; Shapiro, D. E. and Schwartz, G. E. (2000). “Stress Management in Medical Education: A Review of Literature”. *Acad Med*. 75(7):748-759.
- Shiel Jr., W. C. (2018). “Medical Definition of Anxiety”. <http://www.medicinenet.com.art>
Accessed: 10/10/2019
- Tran, T. D.; Tran, T. and Fisher, J. (2013). “Validation of the Depression Anxiety Stress Scales (DASS) 21 as a Screening Instrument for Depression and Anxiety in a Rural Community-Based Cohort of Northern Vietnamese Women”. *BMC*. 13:24
- Willcock, S. M.; Daly, M. G.; Tennant, C. C. and Allard, B. J. (2004). “Burnout and Psychiatric Morbidity in New Medical Graduates”. *Med J Aust*. 181 (7): 357-360
- World Health Organisation (2017a). “Mental Health”. www.who.int.management
Accessed: 12/10/2019

- World Health Organisation (2017b). “Depression and Other Common Mental Disorders: Global Health Estimates” Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO.
- World Health Organisation (2011). “Gender, Work and Health”. In ILO (ed) *Workplace Stress: A Collective Challenge*” World Day for Safety and Health at Work, 28th April, 2016. Geneva: International Labour Office.
- Yahaya, S. N.; Wahab, S. F. A.; Yusoff, M. S. B.; Yasin, M. A. M. and Rahman, M. A. A. (2018) “Prevalence and Associated Factors of Stress, Anxiety and Depression among Emergency Medical Officers in Malaysian Hospitals”. *World Journal of Emergency Medicine*. 9(3):178-186.
- Yeboah, M. A; Ansong, M. O.; Antwi, H. A.; Yiranbon, E.; Anyan, F. and Gyebil, F. (2014). “Determinants of Workplace Stress among Healthcare Professionals in Ghana: An Empirical Analysis”. *International Journal of Business and Social Sciences*. 5(4):140-151.
- Yeboah-Kordee, N. S; Amponsah-Tawiah, K.; Adu, I. N. and Ashie, A. A. (2018). “An Investigation of the Impact of Occupational Stress on Employee Performance: Evidence from the Ghanaian Banking Sector” *International Journal of Academic Research in Business and Social Sciences*. 8(9): 150-169

APPENDICES

Appendix A: Questionnaire

SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA- LEGON

I am conducting a research on “Prevalence of stress, anxiety and depression among medical doctors at Cape Coast Teaching Hospital”. The research is in partial fulfilment of the requirement for the award of Master of Public Health Degree. I will be appreciative if you can devote a little of your time to complete this questionnaire. Whatever information you provide will be treated confidentially and will be utilised for non-other reason except for academic. Thank you for participating in this study.

SECTION A: DEMOGRAPHIC INFORMATION

Please in this section provide the information requested below by circling [O]

1. Sex:

- A. Male
- B. Female

2. Age bracket:

- A. 25 years – 34 years
- B. 35 years – 44 years
- C. 45 years – 54 years
- D. 55 years and above

3. Marital status:

- A. Single
- B. Married
- C. Other please specify.....

4. Education:

- A. Bachelors
- B. Masters
- C. PhD
- D. Other please specify.....

5. Department:

- A. Medical
- B. Surgery
- C. Paediatrics
- D. Theatre
- E. O & G
- F. Allied

6. Rank/position:

- A. House officer
- B. Medical officer
- C. Resident
- D. Specialist
- E. Consultant

7. How many years have you spent at CCTH?

- A. Less than 1 year
- B. 1-3 years
- C. 4 - 6 years
- D. More than 7 years

SECTION B: FACTORS AND THE IMPACT OF STRESS, ANXIETY OR DEPRESSION

Please kindly fill the following by circling [O].

8. Do you experience stress at work?

- A. Yes I do
- B. No I do not
- C. I'm not sure.

9. If yes, what causes you to experience stress at work? Select all that apply.

- A. Workload
- B. Inadequate resources
- C. Long working hours
- D. Low control over the job

Other please specify.....
.....
.....
.....

10. Does stress affect your job performance?

- A. Yes it does
- B. No it does not
- C. I'm not sure

11. If yes, how does stress affect your job performance?.....

.....
.....
.....

12. If no, give your reason(s)

.....
.....

.....
13. How do you manage stress?.....

.....
.....
.....

14. What do you do when you feel anxious?.....

.....
.....
.....

15. How do you manage depression?.....

.....
.....
.....

SECTION C

DASS21

July, 2019

Kindly read every statement and circle the number (0, 1, 2, and 3) which specify the manner in which each applied to you **over the past week**. There are no correct or incorrect responses. Spend less time on each statement.

Below is the rating scales:

- 0 Did not apply to me at all
 1 Applied to me to some degree, or some of the time
 2 Applied to me to a significant degree
 3 Applied to me most of the time

1 (s)	I found it difficult to relax	0	1	2	3
2 (a)	I knew that my mouth was dry	0	1	2	3
3 (d)	I was having negative feelings	0	1	2	3
4 (a)	It was hard for me to breathe (e.g. quick breaths, Breathing difficulty without much physical work)	0	1	2	3
5 (d)	It was hard to develop the inventiveness of doing things	0	1	2	3
6 (s)	I had the tendency to act irrationally to circumstances	0	1	2	3
7 (a)	I went through shivering (e.g. in my hands)	0	1	2	3
8 (s)	I found that I was making use of excess energy	0	1	2	3
9 (a)	I was nervous about conditions in which I may get frightened and behave in a foolish way	0	1	2	3
10 (d)	I sensed that there was not any thing to hope for	0	1	2	3
11 (s)	I felt very disturbed or restless	0	1	2	3
12 (s)	I discovered it was hard for me to rest	0	1	2	3
13 (d)	I felt very dispirited	0	1	2	3
14 (s)	I was illiberal to anything that distracted me	0	1	2	3
15 (a)	I felt I was so near to terror	0	1	2	3
16 (d)	I was incapable to get excited concerning anything	0	1	2	3
17 (d)	I sensed I fall short of my worthiness as an individual	0	1	2	3
18 (s)	I sensed that I had become hypersensitive	0	1	2	3
19 (a)	I was conscious of my heartbeats without physical work (e.g. my heart skipping a beat)	0	1	2	3
20 (a)	I sensed that I get frightened without proper reasons	0	1	2	3
21 (d)	I felt that being alive was pointless	0	1	2	3

Appendix B: Respondent Consent Form

School of Public Health

College of Health Sciences

University of Ghana

Research Topic: Prevalence of Stress, Anxiety and Depression among Medical Doctors at the Cape Coast Teaching Hospital

Introduction: My name is Ebenezer Owusu Wireko and I am a student pursuing a Master of Public Health Degree in the School of Public Health, University of Ghana, Legon. I am the principal investigator and together with my research assistants, we are conducting a study on “Prevalence of Stress, Anxiety and Depression among Medical Doctors at the Cape Coast Teaching Hospital”.

Research Background: The general objective of this study is to examine the prevalence of stress, anxiety and depression among medical doctors at the Cape Coast Teaching Hospital (CCTH) so as to understand the pressure that medical doctors are exposed to and to find appropriate measures to remedy them. The specific objectives of the study include to assess the proportion of medical doctors at the CCTH who are living with stress, anxiety and depression and to identify the factors that contribute to stress, anxiety and depression. At the end, the study is expected to provide valuable data which will enhance our knowledge of the prevalence of stress, anxiety and depression among medical doctors as well as the factors related to the psychological health of medical doctors, generally in Ghana and in the CCTH, to be specific. In addition, it will help in developing appropriate health and safety regulations. You are being invited to join in this research. This consent form comprises facts about the research and in order to ensure your understanding about participating, you are being encouraged to go through this consent form very cautiously and inquire about anything you don't understand beforehand you sign. If you approve to take part in this research, you will be

asked to complete a questionnaire which asks questions about yourself and your work; which will take about 15 to 20 minutes of your time to fill it out.

Risks and Benefits

The study poses no serious risk to any participant, except that some of the questions relating to your job may be sensitive. There may be no direct benefit to participant, on the other hand, data generated could be used to develop strategies to reduce or handle stress, anxiety and depression in the healthcare sector which could be beneficial in the future.

Compensation

Participants who agree to take part in the study will not be given any monetary and nonmonetary compensation.

Answers will be Confidential

Information provided will be kept private and articles that will be published from the study will not have negative effect on the respondents since names, telephone or mobile numbers, residential address and other personal information that will easily give respondents' out will be omitted from the questionnaire.

Voluntary Participation

Joining in this research is wholly voluntary. You can jump any question you do not wish to provide response. Also, you are permitted to pull out from the research whenever you wish; there will be no consequence whatsoever for doing that.

Ethical Approval

This study will be re-examined and given approval by the Ghana Health Service Ethical Review Committee. The committee is there to ensure that you are safe from harm and your rights are respected during participation in this research.

Statement of Consent

I have gone through the information above, I have fully understood it and I have been provided answers to all my inquiries. I give my consent to participate in this research voluntarily.

Respondent Signature..... Date.....

I certify that the risks and benefits of participating in this research have been explained to the respondent whose signature appears above.

Researcher's Signature..... Date.....

Mobile Number: 0244633050

Email Address: docwreks@gmail.com

Your rights as a Participant

If you have any inquiry concerning your rights a respondent in this research, you can get in touch with the Administrator of the GHS Ethical Review Committee at the following address:

Hannah Frimpong

GHS-Ethical Review Committee
Research and Development Division, Ghana Health Service
P. O. Box MB 190
Accra.

Office Number: 0302 681 109

Mobile Phone: 024 323 5225 or 050 704 1223


Email: Hannah.Frimpong@ghsmail.org

APPENDIX C

Ethical Approval Letter

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
P. O. Box MB 190
Accra
GPS Address: GA-030-3303
Tel: +233-302-681109
Fax: +233-302-683424
Email: ghserc@gmail.com
23rd July, 2019

MyRef: GHS/RDD/ERC/Admin/App/19/332
Your Ref. No.

Ebenezer Owusu Wireko
La General Hospital
PMB, Accra

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

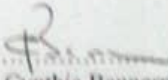
GHS-ERC Number	GHS-ERC 070/04/19
Project Title	Prevalence of Stress, Anxiety and Depression among Medical Doctors at the Cape Coast Teaching Hospital
Approval Date	23 rd July, 2019
Expiry Date	22 nd July, 2020
GHS-ERC Decision	Approved

This approval requires the following from the Principal Investigator

- Submission of 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.
- 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. Cynthia Bannerman
(GHS-ERC Chairperson)

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

APPENDIX D

Multivariate Analyses

Table 1: Strength of association between Stress and independent variables

Variables	Category	COR	p-value	AOR	P-value
Department	Medical	1.46	< 0.01	1	
	Surgery			0.89	0.86
	Paediatrics			0.30	0.19
	O&G			N/A	
Work experience	Less than a year	2.10	< 0.01	1	
	1 – 3years			N/A	
	4 – 6years			0.81	0.79
	More than 7				
Experience stress	No	0.39	< 0.01	N/A	
	Yes			1	
	Not sure			0.19	0.07
Work load	No	3.88	<0.01	2.19	0.58
	Yes			6.20	<0.01*
Inadequate resources	No	2.56	0.02	2.58	0.08
	Yes				

N/A: Not available because a cell has no response

* : statistically significant

Table 2: Strength of association between Depression and independent variables

Variables	Category	COR	p-value	AOR	P-value
Department	Medical	1.06	0.04*	1	
	Surgery			0.34	0.09
	Paediatrics			0.12	0.02*
	O&G			0.41	0.39
Work experience	Less than a year	0.91	<0.01*	1	
	1 – 3years			5.25	0.04*
	4 – 6years			0.32	0.18
	More than 7			N/A	
Inadequate resources	No	2.30	0.04*	1	
	Yes			2.39	0.06

N/A: Not available because a cell has no response

* : statistically significant

Table 3: Strength of association between Anxiety and independent variables

Variables	Category	COR	p-value	AOR	P-value
Marital status	Single	0.32	0.01*	1	
	Married			0.09	< 0.01*
Department	Medical	0.94	< 0.01*	1	
	Surgery			0.15	0.04*
	Paediatrics			0.03	0.02*
	O&G			0.47	0.59
Work experience	Less than a year	0.80	< 0.01*	1	
	1 – 3years			2.50	0.34
	4 – 6years			N/A	
	More than 7			N/A	

N/A: Not available because a cell has no response

* : statistically significant

Table 4: Socio-demographic characteristics

VARIABLE	CATEGORY	FREQUENCY	PERCENTAGE
Gender	Male	81	72.97
	Female	30	27.03
Age	25 – 34	92	82.88
	35 – 44	16	14.41
	45 – 54	3	2.70
Marital Status	Single	74	66.67
	Married	37	33.33
Education	Bachelors	100	91.74
	Masters	6	5.50
	Others	3	2.75
Department	Medical	15	13.64
	Surgery	64	58.18
	Paediatrics	19	17.27
	Others	12	10.91
Rank	House officers	83	74.77
	Medical officers	18	16.22
	Resident	1	0.90
	Specialist	8	7.21
	Consultant	1	0.90
Work Experience	Less than a year	78	71.56
	1 – 3years	16	14.68
	4 – 6years	14	12.84
	More than 7	1	0.92
Experience stress	Yes	89	79.46
	No	19	16.96
	Not sure	4	3.57
Stress affects work	Yes	76	71.03
	No	21	19.63
	Not sure	10	9.35
CAUSE OF STRESS			
Work load causes stress	Yes	69	61.61
	No	43	38.39
Inadequate resources	Yes	47	41.96
	No	65	58.04
Long working hours	Yes	55	49.11
	No	57	50.89
Low control over job	Yes	4	3.57
	No	108	96.43