

**SCHOOL OF PUBLIC HEALTH
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**PSYCHO-SOCIAL RISK FACTORS OF HYPERTENSION IN THE GA WEST
MUNICIPALITY, GHANA.**

BY

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AWARD OF MASTER OF PUBLIC HEALTH DEGREE.**

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DECLARATION

I hereby declare that excluding precise references which have been duly acknowledged, this work was done personally as a requirement dissertation towards the awards of my MPH degree. This work contains no published materials by any other person which has been accepted by any other University worldwide to the award degree.

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Date.....

DEDICATION

This work is dedicated to my lovely dear wife Dr. Mrs. Mary Penelope Halm, and my Children for their selfless support, care, love and maximum dedication with patience and understanding you gave to me during my one-year period of struggle and hard work under the MPH programme. Your advice and encouragement cannot be over emphasized. I say thank you all and may the Almighty God who blessed the nation Israel, bless you all. Amen.

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My Sincere appreciation goes to the management and staff of Amasaman municipal hospital for allowing me to use their hypertensive patients and their facility to carry out my data collection and the entire work. May God bless this facility and the entire staff.

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Last, but not least, I would like to thank my brothers for their support and encouragement. My wife Dr. Mrs. Halm and my lovely children for their unconditional love. May God bless you all.

ABSTRACT

Hypertension has become a common disease in the world. People all over the world today, irrespective of race, education, occupation or marital status stand a risk of developing pressure, which has significant health implications and may lead to death. Although there are several risk factors to developing hypertension, psychosocial risk factors are very prominent. The main objective of this study was to examine the Psycho-social risk factors (depression, perceived discrimination and financial stress) on hypertension in the Ga West Municipality of the Greater Accra region of Ghana. The study used a cross-sectional design with a quantitative method for data collection. A total number of 270 hypertensive patients from 18 to 60 years old were randomly selected from the Amasaman Municipal hospital to participate in the study. The results showed that formal education, employment status, marital status and male hypertensive patients had higher odds of being depressed compared to their counterparts who had some formal education, unemployed, single and females. Also 67 hypertensive patients (24.8%) did not report being depressed while 203 (75.2%) reported having minimal depression. Depression was significantly associated with hypertension ($p < 0.05$). About a third 72 (26.7%) of hypertensive patients had no financial stress while 38.1% and 35.2% had low and high financial stress respectively. About 50% of respondents had no perceived discrimination, while 21.1% had low perceived discrimination and 28.9% had high perceived discrimination. Financial stress and perceived discrimination did not have statistically significant association with hypertension ($p < 0.05$). Also financial stress was not significantly associated with hypertension ($p < 0.05$). Furthermore, financial stress and perceived discrimination were not significantly associated with hypertension. The Ghana Health service should consider

including psychotherapists or clinical psychologists as part of the team of health professionals involved in the management of hypertension and other chronic health conditions in order to effectively deal with psychosocial risk factors associated with hypertension.

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LIST OF ABBREVIATIONS

GHS- Ghana Health Service

WHO – World Health Organization

GWMA – Ga West Municipal Assembly

GSS – Ghana Statistical Service

GWMHD – Ga West Municipal Health Directorate

PHQ – Patient Health Questionnaire

CHAPTER ONE

1.1 INTRODUCTION

Hypertension has become a common disease in the contemporary world. Women, men, and young people all over the world, irrespective of race, education, occupation or marital status are faced with the agony of developing high blood pressure, which has significant health implications and may lead to death. High blood pressure is projected to cause 7.5 million deaths representing 12.8% of all deaths globally (WHO, 2010). Hypertension is the leading risk factor for mortality worldwide and all income groups are affected similarly but it is generally high in low-income populations (WHO, 2010).

Hypertension has become a public health burden in sub Saharan Africa (Addo, 2010). The prevalence rate however is comparatively lower than cases reported among Europe and North America origins (Hajjar, 2003). According to the Ghana Health Service, between 28% and 40% of Ghanaian adults' population have hypertension (GHS, 2014).

Studies have shown that psychosocial risk factors such as occupational stress, depression and financial stress are among the potential risk factors of hypertension (Agyei et al., 2014). Discrimination, anxiety and perceived depression are problems individuals are more likely to face in their day to day activities which are factors of chronic stressors that contribute to high prevalence of hypertension (Knipscher, 2007).

The Ga West district of the Greater Accra region in Ghana has a population of approximately 217,091 (GSS, 2010). Out of this, the total number of the inhabitants living in the study area with hypertension as at 2014 was 1890 representing 5.9% (GHS, 2014).

These prevalence of hypertension is alarming and hence health interventions are really needed to address the rate of increase (GWDA, 2012).

The need to determine the association between psychosocial risk factors and the development of hypertension is very vital to the majority of the inhabitants in the study area.

1.2 Statement of problem

According to the Ghana Health Service, one out of every five Ghanaian adults (20%) suffers from hypertension (GHS, 2014). Many individuals have been harboring hypertension for years and this gradually damages their brain, heart, the kidneys, arteries and other vital organs of the body.

In the Ga West municipality, hypertension is been consistently ranked fifth on the top ten list of diseases from 2010 to 2014 (GWHD, 2014). The prevalence of hypertension in the Ga West Municipality increased from 5.6% in 2012 to 5.9% in 2014 which is a worrying trend going into the future. The 2012 and 2014 hypertensive cases recorded in the Ga West Municipal Hospital was 1870 (5.6%) and 1890 (5.9%) respectively (GWMHD, 2014).

Some research studies have been conducted on the risk factors that influence hypertension but these studies focused on lifestyle, genetic and environmental factors (Addo et al., 2009; Amoah et al., 2003). Balog et al., (2012) found that the most common causes of hypertension in Ghana were obesity, ageing and diet. The prevalence of these health conditions and the capacity to cause morbidity and mortality usually have a deep root in psycho-social factors and the socio-demographic characteristic of the individual (Agyei, 2014). Little is known regarding the psycho-social risk factors that influence the

development of hypertension in the general population in Ghana. From a policy perspective, understanding the psycho-social risk factors that cause high blood pressure at the community level is crucial because policy is implemented at this level.

1.3 Conceptual Framework

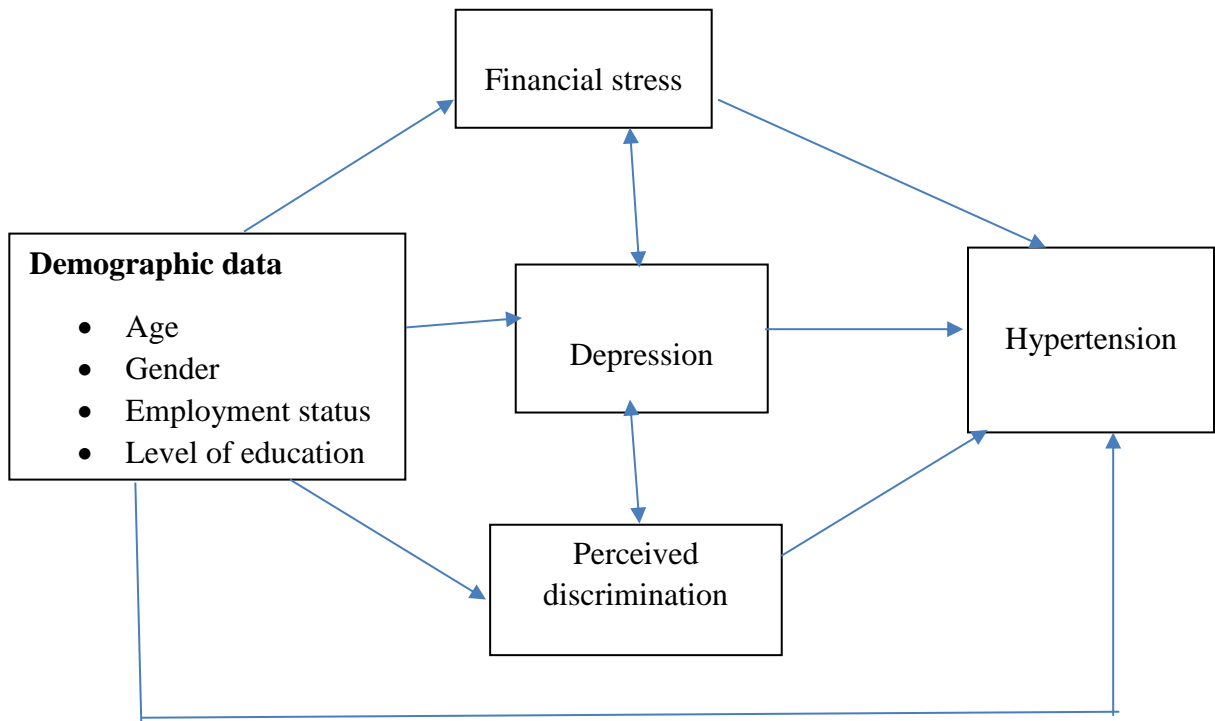


Figure 1 Conceptual framework

Source: Conceptualized by the researcher, 2016

1.3 Explanation of conceptual framework

Demographic characteristics such as age, gender, employment status and level of education of an individual may have direct effect on financial stress, depression, perceived discrimination and hypertension. An unemployed individual may develop financial stress

and depression which could lead to hypertension. Also, the model shows that financial stress, depression and perceived discrimination could independently have a direct effect on hypertension

1.4 Justification and significance of study

Hypertension is a major risk factor for heart failure, renal failure and stroke. The control of blood pressure is important in the management of hypertension therefore it is critical to strengthen public health awareness to reduce hypertension in Ghana and the Ga West Municipality in particular. Few studies have been conducted on psycho-social related risk factors such as perceived discrimination, depression and financial stress that contribute to hypertension.

The findings of this study would provide an important knowledge regarding the need to seriously consider psycho-social risk factors which significantly influence hypertension. Policy makers and stakeholders within the municipality would be able to formulate comprehensive policies to address psycho-social risk factors related to hypertension. Furthermore, the study would assist in the development and implementation of appropriate guidelines to enhance the health of people by taking into consideration psycho-social risk factors to compliment the environmental and genetic factors already known to cause hypertension.

1.6 Research questions

1. What is the influence of financial stress on hypertension?
2. What is the influence of depression on hypertension?
3. What is the influence of perceived discrimination on hypertension?

1.7 General Objectives

The main objective of the study is to assess the psycho-social risk factors of hypertension in the Ga West municipality.

1.7.1 Specific objectives

1. To determine the effect of financial stress on hypertension
2. To determine the effect of depression on hypertension.
3. To determine the effect of perceived discrimination on hypertension.

1.8 Hypothesis

1. Financial stress will have a positive effect on hypertension.
2. Depression will have a positive effect on hypertension.
3. Perceived discrimination will have a positive effect on hypertension

1.9. Structure of the dissertation

Chapter two involves the review of relevant literature in line with the study objectives and research questions. It involves the review of published scholarly articles on the psycho-

social risk factors of hypertension such as depression, financial stress and perceived discrimination. Chapter three involves the methodology of the study; it includes a brief description of the study area, study population, the study design, sample size selection, sampling technique, and data collection instrument, Data collection method and sampling procedure and data processing and analysis and ethical consideration. Chapter four involves the results and findings of the study, Chapter five involves the discussion of the results and links them to other relevant research work reviewed from literature. It discusses whether the findings are in consistent or not with other works. The last chapter is the conclusion and recommendation where the overall findings are clearly explained and their implications addressed, and the necessary recommendations proposed for effective action to be taken.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Chapter two consists of Global burden of hypertension, complications associated with hypertension, lifestyle and psycho-social risk factors of hypertension.

According to the WHO Global Burden of Disease, hypertension will be one of the top diseases that will need to be investigated worldwide by the year 2020 (WHO, 2012). The study of hypertension caused by traditional risk factors, and psychosocial risk factors in men and women will be important for better understanding, treatment and prevention. Traditional risk factors such as smoking, high cholesterol level, and obesity explain 40% in the prevalence of high blood pressure (Baranyai et al., 2012), compared to another study conducted by Janszky et al., (2011) which indicated that psychosocial risk factors such as depression, stress and perceived discrimination form 60% of hypertension. This suggests that, the effects of psychosocial risk factors on hypertension cannot be underestimated.

The traditional and psychosocial risk factors which play vital role in the development of hypertension are interrelated indicating that, studying the traditional risk factors without taking into consideration the study of the psychosocial risk factors may not be useful in efforts aimed at reducing the risk of hypertension

2.1 The Global Burden of Hypertension

Available data used from different regions of the world to estimate the overall prevalence of hypertension indicated that in 2000, about a quarter of the population worldwide adults

totaling one billion was reported having hypertension, which was estimated to increase to about 1.5 billion with 333 million in both economically developed and developing countries by 2025 (Kearney et al., 2005).

In West Africa, hypertension is common and is regarded as a major public health issue. There is a high level of hypertension, even in rural areas, but with low rates of detection, treatment, and control (Cappuccio et al., 2004). It was estimated that within the next 10-20 years, hypertension will continue to be a significant challenge in sub-Saharan. In various African communities, hypertension was found to be common and been higher in urban settlements than in rural communities. (Osamor and Owumi, 2010)

In Ghana, some population-based studies on hypertension have been carried out. In a study of two urban communities in the Greater Accra region and one rural community in the Eastern Region, the hypertension prevalence was 28.4% and 24.5% respectively (Addo et al., 2006). Amoah (2003) conducted a study to determine the prevalence of hypertension, and the extent to which it is treated and controlled. The study was conducted among 6300 adult Ghanaians, aged 25 years and older. The crude prevalence of hypertension was reported to be 28.3%. Of the 1337 subjects with hypertension, 34% were aware of their condition, 18% were treated, and 4% had it controlled. Another study conducted in 6 villages and 6 cities in the Ashanti region by Cappuccio et al., (2004) also showed an overall prevalence of hypertension of 28.7%. These prevalence rate are significantly higher and needs attention and effective measures to address them.

In Cappuccino's study, hypertension was more common in the peri-urban communities compared with the rural areas. Other studies also show a consistent increase prevalence rates with age in men and women in both rural and peri-urban communities (Cappuccio et al., 2004).

2.2 Complications Associated with Hypertension

There is the need to have a control programs on hypertension to improve the detection of the disease, and most importantly to address issues inhibiting the effective control and treatment of people suffering hypertension within the population (Addo et al., 2009). The adverse effects of hypertension affect the blood vessels, retina, nervous system, the heart and the kidney (Ike, 2009).

Amoah et al. (2003) conducted a study to determine the prevalence of hypertension and the extent to which it is treated and controlled among adult Ghanaians. The study revealed that hypertension is a major public health problem and is associated with relatively low levels of awareness, drug treatment, and blood pressure control. Cardiovascular and renal diseases which are complications of hypertension are important contributors to morbidity and mortality among acute medical admissions to large city hospitals in Ghana (Plange-Rhule et al., 2012).

Among out-patient hypertensive patients, renal disease is also an important complication, especially in those with more severe hypertension (Plange-Rhule et al., 2012). A study conducted in Nigeria which sought to find out about hypertension with its related mortality

at the University of Port Harcourt teaching Hospital indicated that stroke was responsible for 39.9% hypertensive complications, heart failure was found in 22% cases, while renal failure and encephalopathy also accounted for 9.4%. other complications accounted for 1.7% (Onwuchekwa and Chinenye, 2010).

Even though hypertension is common in Ghana, it is disturbing to acknowledge that hypertension detection, treatment and control is low (Cappuccio et al., 2010). The success of attaining a good blood pressure control is a good compliance to antihypertensive drugs. Poor medication-taking behavior has been identified as a major problem among hypertensive patients and this result in failure to achieve adequate control of blood pressure. Patients are therefore at risk of complications like stroke, heart failure, and kidney failure which may lead to premature death, hospital admissions and reduced productivity (Burnier, 2011). Treatment with appropriate medication is a key factor in the control of hypertension and reduction in associated risk of complications.

A study was conducted by Osamor and Owumi et al. (2011) to investigate self-reported compliance and the associated factors among hypertensive subjects in a poor urban community in south west Nigeria. The study revealed the greater proportion of the participants reported high adherence to treatment with drugs. Eighty six percent of the participants acknowledged keeping their appointments with doctors. Reasons given for compliance with treatment include fear of the complications of hypertension and the desire to control blood pressure. Noncompliance to the taking of antihypertensive drugs and hospital appointment affects the control of blood pressure (Burnier, 2011).

2.3 Known risk factors for hypertension

2.3.1 Age and sex

Age and sex are associated with high blood pressure. Onwuchekwa and Chinenye (2010) have found that systolic blood pressure is significantly lower in women than in men and turns to increase slightly with age.

2.3.2 Body mass index (BMI)

Body mass index have been reported to have significant association with the development of hypertension. Studies have found an independent positive association between BMI and hypertension in younger age groups (38-40yrs). Higher BMI is also associated with BP change for both men and women (Emaus et al., 2011)

2.3.3 Physical Activity

Physical activity has a relationship with high blood pressure. A meta-analysis of randomized, controlled trials has demonstrated that physical activity may reduce high blood pressure (Whelton et al., 2012). Nevertheless, in other studies, the relationship between physical activity and high blood pressure have not been confirmed in adolescents (Leary et al., 2008), A study have found out that higher socio-economic groups have a higher risk of developing hypertension due to inactive physical activity (Leary et al., 2008).

2.3.4 Alcohol consumption and smoking

Alcohol intake and high blood pressure have an association. Alcohol consumption has been related with higher blood pressure (Burnier, 2011). Alcohol consumption is associated with socio-economic gradient, for instance higher income and increased education level were

associated with higher alcohol consumption in both men and women in a study conducted in Norway (Leary et al., 2008).

Smoking has an association with blood pressure. A study from England has showed that a relationship existed between smoking and high blood pressure after adjustment for social class, age, and BMI and alcohol consumption. Studies have shown that socioeconomic deprivation may lead to smoking or make quitting very difficult (Emaus et al., 2011).

With respect to the above risk factors, studies have shown that they are other psychosocial environmental interpretations to explain the risk of developing hypertension. These interpretations suggest that psycho-social factors are very importance to be understood about their contribution as risk factors to the development of hypertension. According to this interpretation, health is influenced by income inequality through negative emotions such as shame and distrust that are translated into stress induced behavior like smoking. The psychosocial conditions that influence health are social support, social network, job demand and control, perceived discrimination, depression, and financial stress. These psycho-social conditions can play a role on the health of different groups along with other factors and significantly lead to increase in blood pressure levels (Jusof et al., 2010).

2.4 Depression

The World Health Organization (WHO, 2009) devised a mechanism for determining depressive symptoms of an individual and reported that when an individual is depressed, the following symptoms are more likely to happen; the individual has little interest or pressure in doing things, feel down or hopeless, trouble falling asleep, under sleeping or

over sleeping, over eating, under eaten, feeling bad about oneself and fear of failure. Addo et al. (2013) also reported that a depressed individual usually has trouble concentrating on things and they later become restless and move round more than usual.

Depression has been extensively studied and clearly linked to hypertension (Addo et al., 2013; Janszky et al., 2000). Study conducted in Nigeria showed that depression was found to be significantly associated with an increased risk of developing hypertension in three-folds during a 5 year follow up period among studied participants (Baranyai et al., 2012).

On the other hand, findings of a study conducted among women in Stockholm showed that depression was associated with an increase in the left ventricular mass index leading to an increase in blood pressure (Janszky et al., 2000).

Depression can be viewed as a result of psycho social stressor contributing to increase blood pressure, therefore the mediator between stress and hypertension. It is also reported to be among the commonly reported psycho-social risk factors which are associated with hypertension (Agyei, 2014).

2.5 Financial stress

Financial stress is determined using several techniques. Hayhoe et al. (2000) developed criteria for determining financial stress using reported financial stressors which included; not able to purchase clothing, not able to pay utilities, not able to save for emergencies, having financial concerns and challenges that affect relationships and inability to pay for one's medical bills.

The findings of a 5-year study revealed that financial stress has a negative effect on health through alterations in mood, anxiety and damaging behavior such as drugs, alcohol, obesity and excessive bad food consumption leading to development of hypertension (Kopp, 2011).

Although a vast literature on stress suggests that economic hardships leads to an increase in financial stress, knowledge is poor with respect to the associations of financial stress among other well psycho-social risk factors related to hypertension (Balog, 2012). It is reported that, in men financial stress was associated with an increased number of cigarettes smoked per day and alcoholism leading to an increased risk of developing hypertension (Raleigh, 2000). It has been reported that economic hardship and discrimination have contributed to financial stress among Ghanaians both at home and abroad leading to high blood pressure (Agyei et al., 2014).

2.6 Perceived discrimination

Perceived discrimination describes the events of things that might have happened in the daily life of participants which may have something to do with their general working life (Cuffee & Allison, 2012). Cuffee & Allison, (2012) reported that the methods for determining whether one is discriminated by using the following criteria; whether the participant is treated with less politeness compared to others, the participants is treated with less respect, the participants receive poor services from people, perception that the individual is not smart and whether the when an individual have low self-esteem or think others are better than them.

In exploring an association between discrimination and hypertension among African Americans, it was reported that discrimination contributes to an increased risk of developing hypertension. Cross sectional and cohort studies have revealed that there is an association between perceived discrimination and hypertension (Cuffee & Allison, 2012).

Another study conducted among men and women in Nigeria indicated that, men were significantly discriminated and depressed than women leading to hypertension. The findings show that there is a connection between discrimination and hypertension in both sexes. Moreover, multivariate model revealed significant gender differences with respect to the independent risk factor of hypertension (Onwuchekwa & Chinenye, 2010). Studies have shown that, there is an association between perceived discrimination and hypertension which was reported among African Americans to have contributed to increased risk of developing hypertension (Cuffee & Allison, 2012).

2.7 Conclusion of Literature review

This study sought to investigate the Psycho-Social risk factors of hypertension in Ga West Municipality. With the knowledge from other studies, it was evidently clear that most researchers have investigated and reported comprehensively on risk factors such as; genetic, lifestyle risk such as alcohol consumption and smoking, dietary patterns among other risk factors as closely associated with the development of high blood pressure. However, the researcher found little research work on psycho-social risk factors which have been known to contribute significantly to developing blood pressure such as depression, perceived discrimination and financial stress therefore creating a theory gap

and knowledge in literature. Further research on socio-cultural factors could also be ascertained to found out it association with hypertension.

CHAPTER THREE

METHODOLOGY

3.1 Description of Study site

The study area covers Ga West Municipality in the Greater Accra Region with Amasaman as its district capital. It was carved out of the original Ga District in 2004 as part of government decentralization program. The municipality was the third largest in the Greater Accra Region after the Tema Municipality. It was located in the Southern part of Ghana and shares boundaries with Awutu-Afutu-Senya districts to the West, Akwapim South District to the north, and Accra Metropolis to the South-East and the Atlantic Ocean to the south. It had a total land space of 710.2sq km with over 300 scattered communities. The population of the study area as at 2010 was 217,091 with a growth rate of 3.4%. Out of this, females were 49% while males were 51% (Ghana Statistical Service, 2010).

The area was predominantly peri-urban and urban settlement. The study population was heterogeneous, comprising with Gas, Akans, Ewes, and Hausa. The economic activities of the study site were Agriculture, Industry and Commerce. The agriculture production includes fishing, cassava and pineapple production. The industrial sector covers mineral water, aluminum products, mining and quarry for the construction industry within the municipality and beyond. On commerce, the municipality had telecommunication, banking facilities and tourist attractions (Ghana Statistical Service, 2010). The municipality had three government hospitals, five community initiated facilities with three CHPS compounds and some other private health facilities manned by doctors, midwives, nurses and medical assistants (GWDA, 2014).

3.1.1 Top ten cause of morbidity in the Ga West municipality

Table 1: Top ten cause of morbidity

No	2012			2014		
	Disease	Number	%	Disease	Number	%
1	Malaria	14825	39.9	Malaria	15859	39.5
2	Skin diseases	10326	27.9	Skin diseases	11551	28.7
3	Diarrhea	2986	8.0	Diarrhea	3484	8.7
4	Acute respiratory infections	3235	8.7	Acute respiratory infections	3325	8.3
5	Hypertension	1870	5.6	Hypertension	1890	5.9
6	Anemia	1345	5.0	Anemia	1544	4.7
7	Road traffic accident	870	2.5	Road traffic accident	810	3.9
8	Rheumatic and joints pains	590	1.6	Rheumatic and joints pains	790	2.0
9	Intestinal worms	724	1.95	Intestinal worms	644	1.97
10	Pneumonia	356	0.95	Pneumonia	280	0.69

3.2 Study design

The research adopted a facility-based quantitative cross-sectional design.

3.3 Study population

The study population was confirmed cases of individuals screened to be hypertensive in the Amasaman hospital in the Ga West Municipality.

3.4 Inclusion criteria

All individuals between the ages of 18 to 60 years who have been diagnosed to be hypertensive and attending the Ga West Amasaman government hospital were included in the study.

3.5 Sample Size Determination

The sample size for the study was calculated using the formula; $n = \frac{Z^2PQ}{D^2}$

Where: n = desired sample size

Z = Reliability coefficient for 95% confidence level usually set at 1.96

P = Proportion of the population estimated to be hypertensive 20% or 0.2 for this study

The current prevalence rate of 5.9% to calculate the sample size plus 10% margin of error was small so given that, there were many participants ready and willing to participate, 300 questioners were printed and 270 were returned. (GHS, 2014).

Q = 1-P

D = degree of accuracy desired set at 0.05 probability level.

$$n = \frac{1.96 \times 1.96 \times 0.20(1-0.20)}{0.05 \times 0.05}$$

Using the formula above a total sample size of 245.7 was obtained. 10% error margin was allowed for non-responses bringing the total sample size to be 270 participants.

3.6 Study design

The study used a quantitative data collection approach.

3.7 Sampling Technique

Patients diagnosed to be hypertensive in the Amasaman government hospital were selected by using a consecutive sampling technique. Study participants were recruited as and when they visited the hospital for care and after they had consented to part take in the study. Participants were selected in that order until the required sample size was obtained. This technique was used to obtain 270 participants from the Amasaman government hospital over a four-week period to constitute the desired sample size.

3.8 Data collection Technique and tools

An adapted standardized and validated structured questionnaire developed by WHO, Patient Health Questionnaire (PHQ-12), was used. Other relevant demographic data information like sex, age, marital status, education and employment were added. The questionnaires were administered to the patients at the Amasaman Government Hospital after getting approval consent from the participants. This exercise was done one at a time by engaging with the patients face to face and in their preferred language.

3.9 Study Variables

3.10 Dependent variable

The dependent variable measured in this study is hypertension and defined as systolic blood pressure ≥ 140 mmHg, or diastolic blood pressure ≥ 90 mmHg.

3.10.1 Independent variables

The independent variables considered for the study are information on the Demographic variables, Depression, Perceived discrimination and financial stress.

3.11 Data Analysis

Initial data collected was cleaned and entered into STATA software version 14 for statistical analysis. Descriptive statistics (means \pm SD), cross-tabulations, tables, frequency and percentages) was used to describe demographic characteristics of the study population. Chi square test statistics was used to determine association between demographic characteristics and psycho-social risk factors. Where one of the expected frequencies in a cell was less than 5, Fisher's exact test was used. Bivariate analysis was conducted to determine the effects of the independent variables on the dependent variables and factors found to be statistically associated at the bivariate level were subsequently analyzed with logistic regression. Odds Ratio (OR) was determined for each of the independent variables and statistical significance was accepted at a 5 % probability level ($p \leq 0.05$).

3.12 Measurement of variables

3.12.1 Perceived Discrimination

WHO Patient Health questionnaire (PHQ12) about things that may have happened in participants day to day life that they think might have had something to do with their ethnicity or general working life was questioned as follows:

The participant is treated with less politeness, are the participants treated with less respect, do the participants receive poor services, do people Perceive that you're not smart, do people feel you are dishonest, do people think they are better than you, do people call you names that you do not like and whether participants are threatened or harassed?

The participants chose the alternatives with respect to score rating (Likert scale) according to how the events had happened in their lives as listed below:

1) Never 2) Hardly ever 3) Not too often 4) Fairly often and 5) Very often.

The total scores were calculated for each participant. The scores above the total mean were classified as higher perceived discrimination; scores below the mean score was classified as low perceived discrimination and scores equal to the mean scores were classified as neutral (no discrimination) (Balog, 2006).

3.12.2 Measurement of depression

Patient Health Questionnaire (PHQ-12), 2002, a diagnostic and severity measure was used as the main tool to assess the level of depression among participant. A higher score indicates a higher depression severity. Depression was classified into 3 categories; minimal, mild, and severe according to the PHQ-12 depression severity criteria. Participants with a score from 5-9 was classified as having minimal depression, those with range between 10-14 was classified as mild depression, 15-19 score major depression and score above 20 was classified severe depression.

3.12.3 Measurement of Financial Stress

Financial stress was determined using a technique developed by Hayhoe et al. (2000). They measured financial stress using the number of reported financial stressors, which included:

1) Not able to purchase clothing, 2) Not able to pay utilities, 3) Not able to save for emergencies 4) Have financial concerns that affect relationships 5) No money for medical bills and 6) Not able to keep a car running.

The total score was calculated for each participant using a Likert scale. The scores above the mean scores were classified as having high financial stress; scores below the mean score were classified as low financial stress and scores equal to the mean scores were classified as having no financial stress (Neutral) (Hayhoe et al., 2000).

3.13 Quality assurance and control

Proper quality assurance procedures and precaution was taken to ensure the reliability and validity of the data. Research assistant who is a clinical psychologist with a public health background was recruited and given adequate training. The content of the training involved; the purpose and objectives of the study, data collection techniques and tools to be used, translation of questionnaires into various local languages, data collection ethical guidelines. The principal investigator was part of the team during the interviews to ensure that relevant information in line with the objectives of the study were collected. The questionnaire was checked for mistakes and completeness before final entry into appropriate software's for statistical analysis. Errors and omissions detected was discussed with the respective assistants and asked to make the necessary corrections.

3.14 Ethical considerations

Ethical clearance was obtained from the Ghana Health Service Ethical Review Committee with the approval reference number (GHS-ERC: 116/02/17). Permission was sought from the Ga West Municipal Health Directorate and the Amasaman hospital. Informed consent was also sought from the participants before the study was carried out.

3.15 Access and approval of study area

The principal investigator visited the study area personally to notify the management of the Amasaman Municipal hospital about the intention to conduct the study. An introductory letter was obtained from the Head of Department, School of Public Health, College of Health Sciences, and University of Ghana and sent to the head of the hospital and the Municipal Health Director of the Ga West Municipality for permission to conduct the study. Subsequently, a copy of the approval letter from the Ghana Health Service Ethical Review Committee was also sent to the authorities.

3.16 Study participants

The study subject included patients diagnosed to be hypertensive and attending clinic at the Amasaman municipal hospital.

3.17 Privacy and confidentiality

In order to ensure privacy and confidentiality, the questionnaires were coded and names of respondents were not required in filling out the questionnaire. The interview was conducted

in an isolated area with individual respondents so as to guarantee their privacy. Participants' names were also not mentioned in the report of the study and information gathered on participants was kept strictly confidential between the principal investigator and the study participants.

3.18 Compensation

Study participants were not given any financial compensation for participating in the study. This was made known to participants before they chose to take part in the study or not. However, participants were given refreshment or snacks after administering the questionnaires.

3.19 Risks and Benefits

Apart from the time that was lost by study subjects in answering the questionnaires, there was no risk or cost associated in participating in the study. Participants gained nothing in the form of direct benefits. However, it was expected that the results of the study would contribute towards health policy decisions on psycho-social factors associated with hypertension and other chronic diseases to the benefit of both the study participants and the investigator.

3.20 Voluntary withdrawal

Participation in the study was completely voluntary and participants were educated to choose not to answer any individual question or all the questions if they were not convinced about the study and were at liberty to pull out at any point in time. However, they were admonished and encouraged to fully participate to ensure findings from the study to reflect psycho- social risk factors in relation to hypertension. They were also made to know that, in the event of any withdrawal, all data gathered on the participant would be deleted and destroyed.

3.21 Informed Consent and Consenting process

Consent information was obtained from participants before commencement of the study. Respondents in the study were approached individually to explain the objectives of the study to them and their consent sought. The decision to take part in the study was absolutely voluntary and refusal to take part did not affect the relationship between the participant(s) and the researcher. In addition, respondents were made to sign a written consent form after a detailed explanation to them before they participate in the study.

3.22 Data storage and usage

Data collected in this study was strictly for research purposes. The data was stored with passwords on electronic media and in safely locked boxes. Anonymity was ensured in dissemination of findings from this study since participants were not be identified by their names.

3.23 Declaration of conflict of interest

The researcher as the principal investigator hereby declare no conflict of interest in this study.

3.24 Funding of the study

This study was in partial fulfillment of the requirements 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. Hence, there was no funding from any source and all estimated cost of the study was borne solely by the researcher.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter elaborates the findings of the study arising from the statistical analysis of the responses from the study participants. It comprises of demographic characteristics of respondents, psychosocial risk factors such as depression, perceived discrimination and financial stress in order to address the specific objectives.

4.2 Demographic characteristics

The study included 270 respondents and all 270 were filled and returned given a response rate of 100%. Majority of the respondents 158(58.5%) were females whilst 112(41.5%) were males. The mean age was 47 ± 1.6 years and those above 60 years old were the majority (40.7%) among the respondents. Most respondents 113(41.9%) had primary education. Majority of the respondents 194(71.9%) were married. Concerning employment status, 86 (31.9%) are retired. Table 4.1 illustrates the demographic characteristics of the respondents.

Table 4.1 Demographic characteristics of respondents

Variable	Frequency(N=270)	Percentage
Sex		
Male	158	58.5
Female	112	41.5
Age		
31-40yrs	52	19.3
41-50yrs	66	24.4
51-60yrs	42	15.6
60yrs and above	110	40.7
Educational level		
No formal education	39	14.4
Primary	113	41.9
JHS	69	25.6
SHS/Tech/Voc	10	3.7
Tertiary	39	14.4
Marital status		
Single	18	6.7
Married	194	71.9
Divorced	41	15.2
Widowed	17	6.3
Employment status		
Civil servant	73	27
Nongovernmental employee	24	8.9
Self-employed	68	25.2
Retired	86	31.9
Unemployed	19	7.0

Based on the Patient Health Questionnaire (PHQ-12), Depression was classified into 3 categories; minimal, mild, and severe according to the PHQ-12 depression severity criteria. Participants with a score less than 5 were classified as having no depression, from 5-9 was classified as having minimal depression, those with score ranging between 10-14 were classified as mild depression, 15-19 as depressed and 20 and above as severe depression.

The results of the study showed that 67 hypertensive patients were not depressed whilst the majority (75.2%) had minimal depression (Table 4.2). Depression was significantly associated on hypertension in the bivariate analysis at 95% confidence level ($p \leq 0.05$).

Table 4.2: Depression score of study participants

Depression level	WHO (PHQ-12), Depression scale	Frequency	Percentage
None	<5	67	24.8
Minimal	5-9	203	75.2
Mild	10-14	0	0.0
Depressed	15-19	0	0.0
Severe depression	>20	0	0.0

4.3 Financial stress

The results of the study showed that 26.7% of patients had no financial stress, 38.1% had low financial stress and 35.2% had high financial stress. Financial stress was found not to be statistically significant on hypertension at 95% confidence level ($p > 0.05$).

4.4 Perceived discrimination

The results of the study showed that, out of 270 patients of hypertension, 50% had no perceived discrimination, 21.1% had low perceived discrimination and 28.9% had high perceived discrimination indicating that, half the total sample size studied had no perceived discrimination compared to the other half which had a perceived discrimination. However, perceived discrimination was not statistically significant on hypertension at 95% confidence level ($p > 0.05$).

4.5 Depression

The results of depression showed that, 67 hypertensive patients representing (24.8%) did not report being depressed while 203 out of the total study population of 270 representing (75.2%) reported having minimal depression. Depression was significantly associated with hypertension ($p < 0.05$).

Table 4.3 Association between psycho-social risk factors and hypertension

Psycho-social risk factor	Frequency(N=270)	Percentage	χ^2	P-value
Depression			18.45	0.048*
None	67	24.8		
Minimal	203	75.2		
Financial stress			8.86	0.452
None	72	26.7		
Low	103	38.1		
High	95	35.2		
Perceived discrimination			7.84	0.582
None	135	50		
Low	57	21.1		
High	78	28.9		

($P \leq 0.05$).

4.5 Association between demographic characteristics and depression

4.5.1 Sex

The results showed that 53.7 % males and 46.3 % females had no depression whilst 60.1% males and 39.9% females had minimal depression. Statistical analysis did not show any significant association between sex and depression on hypertension ($p=0.359$).

4.5.2 Educational status

The results showed that out of the total number of 67 patients who had no depression on hypertension, 14.9 % had no formal education, 68.7% had middle level education and 16.4 % had high level education. Similarly, out of 203 Patients who had minimal depression on

hypertension, 71.9% had middle level education, 13.7% had high level education and within high 14.2% had no formal education. Statistical analysis did not show any significant association between education and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.878$).

4.5.3 Marital status

The marital status of patients was classified as either single or married. Patients who were separated, divorced or widowed were classified and grouped as married. The results showed that 1.5 % of those who are single and 98.5% of patients who are married had no depression on hypertension. Out of the total number of 203 who are minimally depressed, 91.6% are married whilst 8.4% are single some formal education showed minimal symptoms of depression. The analysis revealed a statically significant association between marital status and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.045$) (Table 4.3).

4.5.4 Age

The results showed that out of the total number of 67 patients who had no depression on hypertension, 40.3% are between the ages of 31-50 and 60years and above. However, Patients between the ages of 50-60 had 19.4%. On the other hand, patients who had minimal depression on hypertension which was 40.9% are 60years and above, 38.4% are between 50-60years whilst 20.7% are between ages of 31-50years. Statistical analysis did not show any significant association between age and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.625$).

4.5.5 Employment status

The employment status of patients was classified as either employed or unemployed. Patients who are civil servant, non-governmental employee and self-employed were classified and grouped as employed whilst those retired and unemployed are grouped and classified as unemployed. The results showed that 61.2 % of those who are employed and 38.8% unemployed had no depression on hypertension. However, 61.1% patients who are employed and 38.9% patients who are unemployed had a minimal depression on hypertension. The analysis revealed no statically significant association between employment status and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.890$) (Table 4.3).

4.6 Logistic regression of psycho social risk factors influencing hypertension

From the bivariate analysis, it was observed that only one psycho -social variable; depression was significantly associated with hypertension. In order to further investigate the statistical strength of the association, a bivariate logistic regression was conducted on the factor using demographic characteristics. The results revealed that, patients who have high and middle level education have reduced odds of being depressed compared to those without formal education on hypertension though not statistically significant at 95% confidence level (OR=0.14, CI95% (0.02, 0.248), $p>0.05$) (Table 4.3).

Table 4.4 Association between demographic characteristics and depression

Variable	Depression level(N=270)		p-value
	No depression(N=67)	Minimal depression (N=203)	
Demographic characteristics			
Sex			0.359
Male	36(53.7)	122(60.1)	
Female	31(46.3)	81(39.9)	
Age (years)			0.625
31-50	27(40.3)	42(20.7)	
50-60	13(19.4)	78(38.4)	
>60	27(40.3)	83(40.9)	
Educational level			0.878
Low	10(14.9)	29(14.2)	
Middle	46(68.7)	146(71.9)	
High	11(16.4)	28(13.7)	
Marital status			0.045*
Married	66(98.5)	186(91.6)	
Single	1(1.5)	17(8.4)	
Employment status			0.890
Employed	41(61.2)	124(61.1)	
Unemployed	26(38.8)	79(38.9)	

(P≤0.05)

Patients who are married have higher odds of being depressed compared with those who are not married on hypertension though not statistically significant (OR=1.34, CI95% (0.707, 2.32) and was not statically significant ($p \leq 0.05$).

Patients who are employed have higher odds of being depressed compared with those who are unemployed on hypertension though it was not statistically significant (OR=1.21, CI95% (0.7874, 1.20) and was not statically significant ($p \leq 0.05$).

Table 4.5 Logistic Regression for Demographic factors associated with depression on hypertension

Variable	Depression		Crude Odd ratio		Adjusted Odd ratio	
	Minimal	None	(95% CI)	P value	(95%CI)	P value
Educational Level				0.979		0.875
High level	10	186	0.14 (0.02-0.248)		0.06 (0.03-0.345)	
Middle level	46	146	0.17(0.03-0.2.345)		0.21(0.08.2.384)	
No education	11	28	1.0 (ref)		1.0 (ref)	
Employment status				0.345		0.248
Employed	41(72.4)	124(83.6)	1.21 (0.874-1.20)		0.76 (0.4-1.61)	
Unemployed	26(27.6)	79(16.4)	1.0 (ref)		1.0 (ref)	
Marital status				0.048		0.076
Married	66(19.0)	186(2.6)	1.34 (0.707-2.32)		0.78(0.148-1.85)	
Single	1(81.0)	17(97.4)	1.0 (ref)		1.0 (ref)	
Sex				0.360	0.67(0.3 -1.739)	0.485
Female	3146.3)	81(39.9)	0.77(0.442-1.345)		1.0 (ref)	
Male	36(53.7)	122(60.1)	1.0 (ref)			

CHAPTER FIVE

DISCUSSION

The main objective of the study was to determine the Psycho-Social risk factors (depression, perceived discrimination and financial stress) on hypertension in the Ga West Municipality of the Greater Accra region of Ghana.

Sex

Demographic characteristics such as sex, educational status, marital status, age and employment were assessed to determine their relationship with depression on hypertension. The results showed that 53.7% males and 46.3 % females had no depression whilst 60.1% males and 39.9% females had minimal depression. Statistical analysis did not show any significant association between sex and depression on hypertension ($p=0.359$). Also in the logistic regression of sex on depression, females had lower odds of being depressed compared to their male counterparts. (OR=0.77 CI95% (0.442-1.345) $p>0.05$).

Educational status

Educational status results showed that out of the total number of 67 patients who had no depression on hypertension, 14.9% had no formal education, 68.7% had middle level education and 16.4 % had high level education. Similarly, out of 203 Patients who had minimal depression on hypertension, 71.9% had middle level education, 13.7% had high level education and 14.2% had no formal education. Again, the study revealed that, patients who had high and middle level education had reduced or lower odds of being depressed compared to those without formal education on hypertension. Statistical analysis did not

show any significant association between education and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.878$). This was in relation with Kim et al., (2003), who observed that higher education had a very high influence on cognitive skills and thereby affected positively employment, income opportunities and individuals' ability to comprehend and understand medical advice to change their lifestyle against risk factors of hypertension. It was also reported that people with poor educational background were less likely to receive knowledge on effective management of hypertension and health information which might explain the gap between the educated and the uneducated in the development of hypertension (Dominguez-Berjon et al., 2010). A bivariate logistic regression, the results revealed that, patients who have high and middle level education had reduced odds of being depressed compared to those without formal education on hypertension though not statistically significant at 95% confidence level (OR=0.14, CI95% (0.02, 0.248), $p>0.05$).

Marital status

The marital status of patients was classified as either single or married. Patients who were separated, divorced or widowed were classified and grouped as married. The results showed that 1.5 % of those who are single and 98.5% of patients who are married had no depression on hypertension. Out of the total number of 203 who are minimally depressed, 91.6% are married whilst 8.4% are single. The analysis revealed a statically significant association between marital status and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.045$). Also in the logistic regression analysis to test the

strength of marital status on depression, patients who were married have higher odds of being depressed than patients who were single though not statically significant (OR=1.34, CI95% (0.707, 2.32) ($p \leq 0.05$).

Age as one of the demographic characteristics results showed that out of the total number of 67 patients who had no depression on hypertension, 40.3% were between the ages of 31-50 and 60years and above. However, Patients between the ages of 50-60 had 19.4%. On the other hand, patients who had minimal depression on hypertension which was 40.9% are 60years and above, 38.4% are between 50-60years whilst 20.7% are between ages of 31-50years. Statistical analysis did not show any significant association between age and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.625$).

Employment status

Employment status of patients was also classified as either employed or unemployed. Patients who are civil servant, non-governmental employee and self-employed were classified and grouped as employed whilst those retired and unemployed are grouped and classified as unemployed. The results showed that 61.2 % of those who are employed and 38.8% unemployed had no depression on hypertension. However, 61.1% patients who are employed and 38.9% patients who are unemployed had a minimal depression on hypertension. The analysis revealed no statically significant association between employment status and depression on hypertension in the bivariate analysis at 95% confidence level ($p=0.890$). When logistic regression was used to test strength of employment on depression, the patients who were employed have higher odds of being

depressed compared to those who were not employed. It was not statistically significant (OR=1.21, CI95% (0.7874, 1.20) ($p \leq 0.05$). This could be attributed to the fact that majority of patients were retired at the time of study and had dependents who were taking care of their needs which might have accounted for the lower odds of those unemployed. It could also be that those patients who were employed during the study might have so much financial responsibilities leading to the higher odds. However, Dominguez-Berjon et al., 2010 reported that people with lower employment status tend to be susceptible to high cardiovascular risk profile due to bad lifestyles and stand a higher risk of being depressed. This is not in relation with this study.

Financial status

Socio-economic situations of an individuals who are disadvantaged have shown to affect the health outcomes of people during their lifetime (Popkin, 2010). Though financial status of the patients in this study show no significant association with hypertension, 35.2% representing 95 patients out of 270 were highly financially stressed. Although literature on stress suggests that economic hardships leads to an increase in financial stress contributing to hypertension, knowledge is poor with respect to the association of financial stress among other psycho-social risk factors related to hypertension (Balog, 2012). He did not find any association between financial stress leading to hypertension. The study found out that, higher number of patients with hypertension in the study were employed than those who were unemployed. This might have accounted for the higher levels of low financial stress found among the study group which has no significant association on hypertension since most of them might be economical sound and can meet the demands of their daily needs.

It was reported that people at the lower social structure of society suffer more risk of hypertension due to long term discrimination together with social isolation and inadequate social support (Wilkinson et al., 2003). Poor psychological factors such as racism, social, ethnic, discrimination and stigmatization were found to have affected the health and life of people negatively. (Friel, 2011).

Perceived discrimination

According to (Maas AH, 2010), some are disadvantaged due to social and psycho-social conditions at both personal and inter personal levels. These seem to have an important role in the etiology and courses of hypertensive outcomes. Perceived discrimination, in this study was found not to be statistically significant on hypertension. Mujahid et al., (2011) studied the effects of neighborhood discrimination differences in hypertension prevalence using data from multi-ethnic study of Atherosclerosis on 2,679 hypertensive patients between the ages of 45-84 years in Baltimore, New York and North Carolina. The investigation was conducted to determine whether individual and neighborhood –level chronic discrimination contribute to disparities in a cross-sectional analysis. Discrimination was found to be associated with hypertension which is not in consistence with the findings of this study.

Depression

In this study, depression was found to be significantly associated with hypertension in the bivariate analysis at 95% confidence level ($p \leq 0.05$). Some research studies have documented that, depression could be risk factor to developing hypertension (Davidson et al., 2000). Despite the evidence of research work available, the cause of hypertension by depression remains uncertain by other researchers, hence to control high blood pressure by depression in hypertensive patients has over the years given much study. Scalco (2005) conducted a study in both Scandinavian and European countries which revealed an association between depression and hypertension (Ferrie et al., 2013), however some studies have also documented an inverse association between hypertension and depression in elderly people where both male and female patients with hypertension had minimal depression symptoms (Paterniti et al., 2000) which is in consistence with the findings of this study. The Possibility explained for this association between hypertension and depression may be due to neuro-endocrine changes that may occur during the depressive state of most people. Life style risk factors such as diet, physical inactivity, alcohol consumption, high smoking, can also act as precipitated factors that are associated with depression leading to hypertension (Berlin et al., 1999). These findings can be very relevant since when people are depressed, they resort to unhealthy lifestyle which is in association with depression leading to hypertension.

Depression has been extensively studied and clearly linked to hypertension (Addo et al., 2013; Janszky et al., 2000). Suggestion have been made that the more severe the individual is depressed, the higher the possibility of the development of hypertension (Rugulies, 2002).

Study conducted in Nigeria showed that depression was found to be significantly associated with hypertension in three-folds during a 5 year follow up period among studied participants (Baranyai et al., 2012). However, in a study by Lancheros (2014) on Psycho-social risk factors of hypertension in an adult population in India, he found no association between depression and hypertension in a cross-sectional study of 180 hypertensive patients, where depression was considered as an independent causal risk factor on hypertension.

Kim et al., (2003) found significant correlation between depression and hypertension. In his studies, relationships between these variables were examined among 190 urban hypertensive patients enrolled in an ongoing hypertension control clinical trials. The results revealed that more than 27.4% of the sample size scored higher than 16 on the depression severity measure scale which indicate a high risk of clinical depression on hypertension.

In this study depression was significantly associated with hypertension although no direct causal relationship between depression and hypertension was substantiated by the bivariate logistic regression conducted but the findings of the descriptive analyses revealed statistically significant association of depression on hypertension which shown consistency with the findings of Kim et al. (2003).

Depression was diagnosed in Spain by physicians following the American Psychological Association clinical criteria on mental health scales and depression was significantly found to have a relationship with hypertension (Hemingway et al., 2000) which is also in consistence with the findings of this study.

The association between depression and hypertension confirms the work of Kerl et al., (2010) who conducted a study on hypertension and depression and found out that, although high prevalence risk factors of hypertension was associated with low depression, he could not also establish a causal association between the two variables.

Few studies have been done over the years by researchers when it comes psychosocial risk factors influencing hypertension. The study done in different cultural back grounds in India under the conditions of socioeconomic and political settings revealed that, people with hypertension were among the of economically disadvantaged groups than those with better economic status (Dominguez-Berjon et al., 2010). Ferrie et al., (2013) found out that, environment conditions relating to high stressful jobs and insecurity of jobs may lead to depression and contribute significantly to the development of hypertension.

Limitation of study

The study was limited on the basis that it did not cover a large number of municipalities within the Greater Accra region which could have provided more representative information to policy makers on psycho social risk factors affecting hypertension.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Investigations were carried out to determine the Psycho-Social risk factors of hypertension in the Ga West Municipality of the Greater Accra region of Ghana. Depression was found to be significantly associated with hypertension. Financial stress however was not found to be significantly associated with hypertension. Financial stress and perceived discrimination were not found to be associated with hypertension. Marital status among the demographic characteristics was found to be the highest. Out of the 270 respondents, 194 representing 71.9% revealed there was an association between depression and hypertension. Formal education, employment status, marital status and male hypertensive patients had higher odds of being depressed compared to their counterparts who had some formal education, unemployed, single and females.

6.2 Recommendations

Based on the findings of this study, the following recommendations are hereby made;

1. The Ghana Health service should consider including psychotherapists or clinical psychologists as part of the team of health professionals involved in the management of hypertension and other chronic health conditions.
2. There is the need for future research studies to establish the role of psychotherapy in the control and management of hypertension

3. It is also recommended that the study be replicated in other Municipalities within the Greater Accra Region for future knowledge expansion.

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APPENDICES

Appendix A: Participant's Consent Form

School of Public Health

College of Health Sciences

University of Ghana

Research Topic: Psycho-Social Risk Factors of Hypertension in Ga West Municipality, Ghana”

Introduction

My name is John Kofi Halm and I am a student pursuing Masters in Public Health in the School of Public Health, University of Ghana. I am the principal investigator and together with my research assistants we are conducting a study on Psycho-Social Risk Factors of Hypertension in Ga West Municipality, Ghana.

You are warmly invited to take part in the study. But before you make a decision to take part in the study or not, we would like you to read this consent or let someone read it to you to guide you in making your decision.

There were no costs for participating in this research and there were no payments awarded for participating in this research. However, your response would help in coming out with the true picture of the Psycho-Social Risk Factors of Hypertension in Ga West Municipality, Ghana”. The only cost you would incur would be the time taken to answer the questionnaire.

Confidentiality

Every single information you provide would be held in absolute confidence and data collected in this study are strictly for research purposes and would be stored with passwords on electronic media and in safely locked boxes. Access to the data would be limited strictly to the researcher and supervisor. Anonymity would be ensured in dissemination of findings from this study since participants were not identified by their names.

Ethical Approval

The study has been reviewed and approved by the Ghana Health Service Ethical Review Committee (GH-ERC). This committee is there to ensure that participants in researches are protected from harm and their rights are respected.

Participant's Consent Form

I have read the foregoing information/ the foregoing information has been read to me or translated to me in a language that I understand and I have fully understood it. I consent voluntarily to participate in this study.

(Name and signature of a witness should be provided in a case where the participant cannot speak or read English)

Signature/thumbprint: _____

Name of witness: _____

Signature/thumbprint of witness: _____

Interviewer's Statement

I, the undersigned (your name), have explained this consent form to the participant in simple language that she/he understands, clarified the purpose of the study, procedures to be followed as well as the risks and benefits involved. The participant has freely agreed to participate in the study.

Signature of interviewer

Date / /

Address: Madison Clinic Ltd. Box ML 454, Mallam, Accra

Telephone number: 0244565717

Email address: delali91@yahoo.com

Your rights as a Participant

If for some reasons you want clarification or questions of your involvement in the research, is your rights to do so by contacting 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: 0302 681 109

Mobile: 024 323 5225 or 050 704 1223

Email: Hannah.Frimpong@ghsmail.org

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Q NO.	QUESTIONS	Coding categories	Skip to	CODES
Section A: Demographic characteristics of respondents				
1	Age of respondents years		AGE
2	Educational level of respondents	No formal education..... 1 Primary..... 2 JHS.....3 SHS/Tech/Voc..... 4 Tertiary..... 5		EDU
3	Marital status	Single.....1 Married.....2 Divorced before diagnosis.....3 Divorced after diagnosis.....4 Widowed..... 5		MARITAL
4	Employment	Civil servant.....1 Nongovernmental employee.... 2 Self-employed.....3 Student.....4 Retired.....5		EMPLOY

		Unemployed.....6		
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	SECTION B: Depression			
5	Over the past one year how often have you being bothered by any of the following			
a	Little interest or pressure in doing things?	Not at all..... 0 Some days..... 1 Every day.....2		NO_INTEREST
b	Feeling down or hopeless?	Not at all..... 0 Some days..... 1 Every day.....2		HOPELESS
c	Trouble falling asleep	Not at all..... 0 Some days..... 1 Every day.....2		TROUBLE_SLEEP
d	Sleeping too much	Not at all..... 0 Some days..... 1 Every day.....2		TOO MUCH_SLEEP
e	over eating	Not at all..... 0 Some days..... 1 Every day.....2		OVEREATING
d	Under eating	Not at all..... 0 Some days..... 1 Every day.....2		UNDER EATING

e	Feeling bad about yourself and failure	Not at all..... 0 Some days..... 1 Every day.....2		FAILURE
f	Trouble concentrating on things	Not at all..... 0 Some days..... 1 Every day.....2		TROUBLE_CONCENTRATE
g	Restless and moving round more than usual	Not at all..... 0 Some days..... 1 Every day.....2		RESTLESS
h	Thought that you will be better off dead	Not at all..... 0 Some days..... 1 Every day.....2		BETTEROFF_DEAD
Section C: Financial stress				
10	Are you suffering from any of the following financial stressors?			
a	Not able to purchase clothing,	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		DIFFICULTY_CLOTHING
b	Not able to pay utility bills	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		PROBLEM_UTILITY_BILLS

c	Not able to save for emergencies	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		EMMERGRMC IES
d	Have financial concerns that affect relationships	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		FINANCIAL_C ONCERNS
e	Not able to pay for medical bills	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		PROBLEM_M EDICAL BILLS
f	Not able to keep a car running	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		PROBLEM_CA R RUNNING
<p>Section C: Perceived discrimination (WHO) Patient Health questionnaire (Q12) about things that might have occurred in the daily lives of participant's that might have something to do with general working life.</p>				

16	You are treated with less politeness	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		LESS POLITENESS
17	You are treated with less respect	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		LESS RESPECT
	Do you receive poor services from people?	Never.....1 Not too often.....2 Fairly often.....3 Very often.....4		POOR SERVICE
	Perception that you're not smart,	Never.....1 Not too often..... 2 Fairly often.....3 Very often..... 4		NOT_SMART
	Do people feel you are dishonest?	Never.....1 Not too often..... 2 Fairly often.....3 Very often..... 4		DISHONEST
18	Do people think they are better than you	Never.....1 Not too often..... 2 Fairly often.....3 Very often..... 4		PEOPLE_BET ER THAN YOU
	You are called names that you do not like	Never.....1 Not too often..... 2		CALLED_NA MES

		Fairly often.....3		
		Very often..... 4		
	Are you threatened or harassed	Never.....1		HARASED
		Not too often..... .2		
		Fairly often.....3		
		Very often..... 4		

NO	COMMENTS	STUDENT'S RESPONSE TO COMMENTS
1	Results of abstract showed only percentages and no absolute values were included. Also abstract does not need sub headings	The values of the abstract were corrected and included in the final work without no sub headings.
2	The use of the word (causal relationship between) in quantitative study using cross sectional method was wrong	The correction on this was done to suit the study designed.
3	The was no conclusion in the abstract	The conclusion wats now included in the abstract
4	The abstract recommendation not directly related to the findings of study	That particular recommendation was corrected to match up with the study
5	The problem of the study was not clearly stated.	The clarity of the problem has been corrected and stated based on the rise of hypertension within the study area from 5.6% as at 2012 to 5.9 as at 2014.
6	Study designed being qualitative instead of quantitative	This has been corrected and stated as quantitative instead of qualitative earlier on stated.
7	Source of the 20% prevalence rate of hypertension in the study area	This observation by the examiner was corrected and the source was stated.
8	Inconsistent use of the verb tense in the methods	This has been corrected
9	Grammatical errors, incorrect use of prepositions	These were all taken note of and were appropriately corrected.
10	Margin width on all pages were not good	All margins on all pages were corrected.