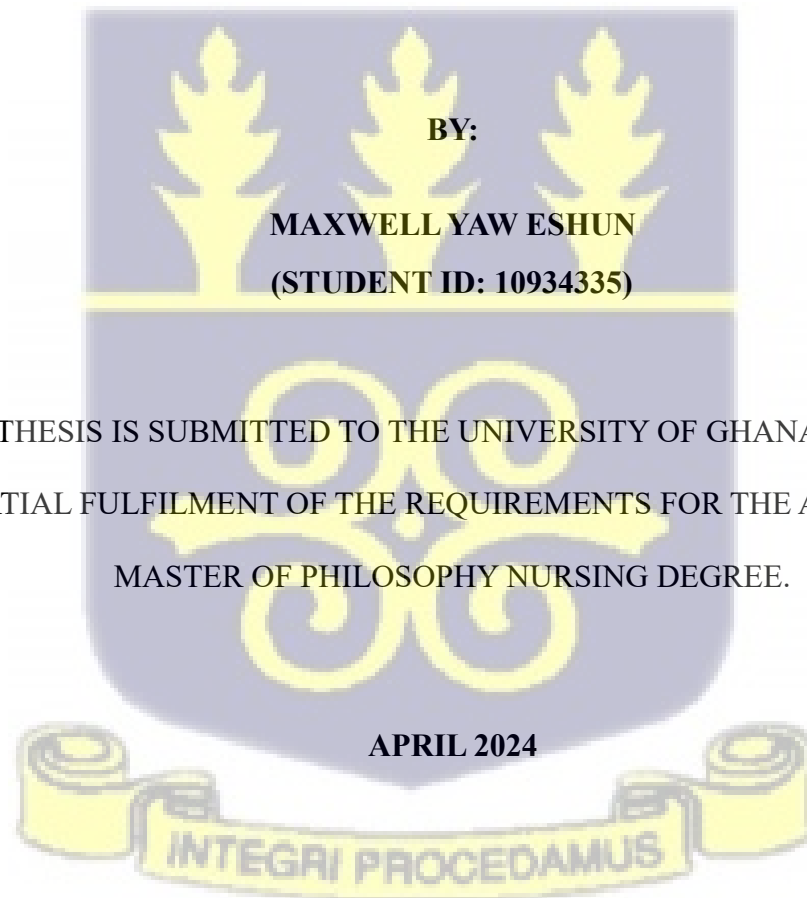


**UNIVERSITY OF GHANA**  
**SCHOOL OF NURSING AND MIDWIFERY**  
**DEPARTMENT OF ADULT HEALTH**

**PREVENTIVE PRACTICES FOR HYPERTENSION AMONG  
WORKERS AT COCOA PROCESSING COMPANY LIMITED, TEMA**



THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF  
MASTER OF PHILOSOPHY NURSING DEGREE.

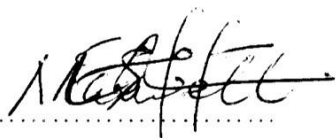
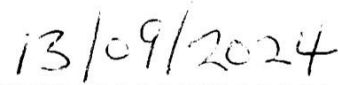
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## DECLARATION

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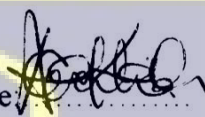
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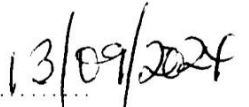
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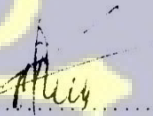
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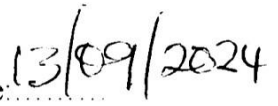
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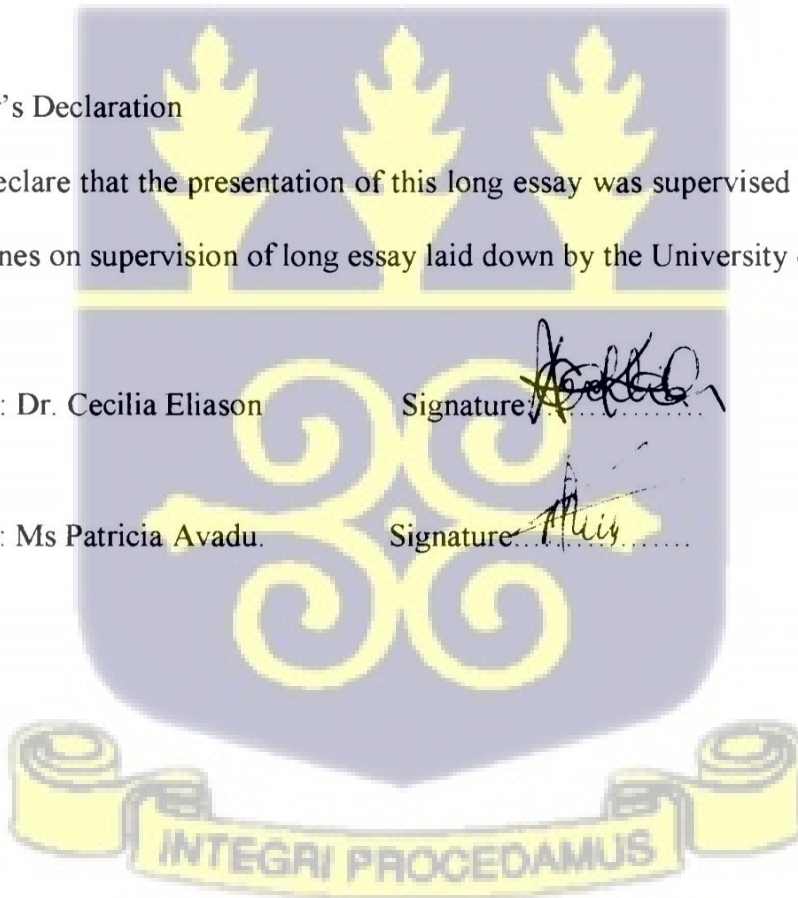
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### **DEDICATION**

I dedicate this work to the Almighty God and my family for their support throughout this thesis.



## ACKNOWLEDGEMENTS

I thank my supervisors, Dr. Cecilia Eliason and Madam Patricia Avadu, for their criticism, guidance, corrections, encouragement, leadership, and support before, during, and after compiling the research work.

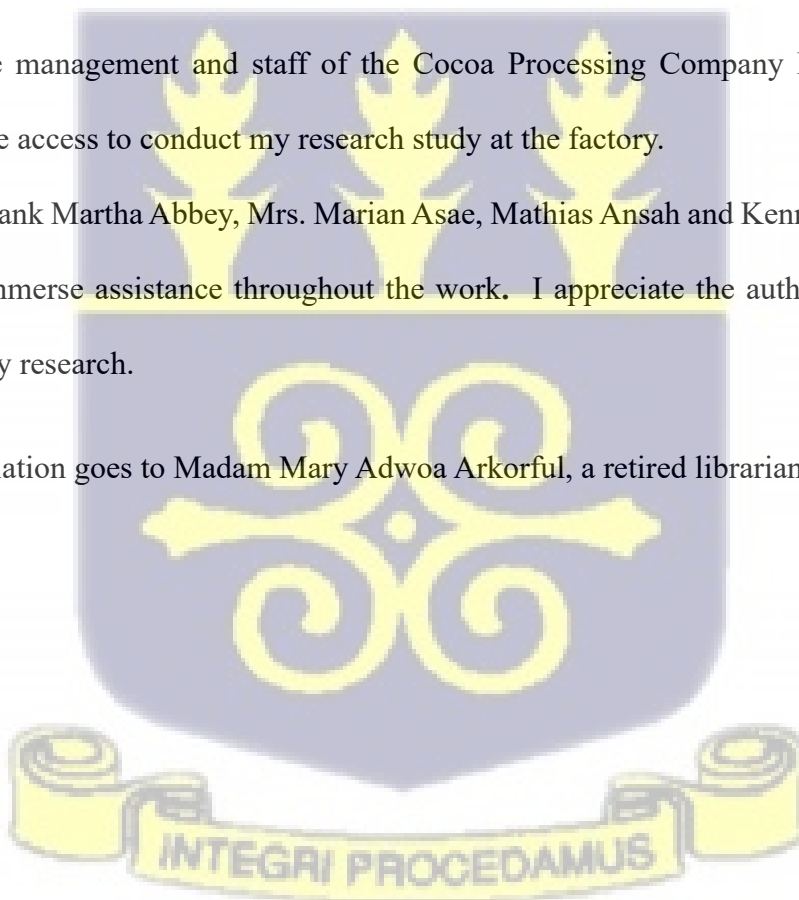
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## ABSTRACT

Hypertension is a major risk factor for cardiovascular disease and contributes to mortality in Africa. Hypertension among different populations such as young adults, adults, older adults and persons living with hypertension has been studied. This study aimed to examine the preventive practices towards hypertension among workers of the Cocoa Processing Company in Tema, Ghana. This study employed a descriptive cross-sectional study design to examine preventive practices for hypertension among population of 485 manufacturing factory workers of the Cocoa Processing Company in Ghana. The stratified sampling method was adopted to select a sample size of 219 workers, comprising production, management, contract, and third-party staff. A structured questionnaire and an online Google questionnaire were used to gather data. Statistical Package for Social Sciences (SPSS) software was used to analyse the data. The results of the study indicated that workers enjoy healthy diet that correlated with hypertension prevention practices with ( $p = 0.008$ ). Workers engage in moderate exercise which correlate with hypertension prevention practices ( $p = 0.022$ ). while barrier to hypertension prevention practices correlated with disturbed sleep ( $p = 0.003$ ), prolong standing for more than 4 hours. In addition, attitudes toward hypertension prevention practices among workers correlated with excessive weight loss ( $p = 0.018$ ). Workers' health promotion behaviours were correlated with working with everyone at the workplace ( $p = 0.002$ ) and receiving support from colleagues ( $p = 0.004$ ). Therefore, health education should be provided to workers regarding the risks and complications of hypertension.

**Key words:** Hypertension, Preventive Practice, Health Education, Factory worker

## CHAPTER ONE

### INTRODUCTION

This chapter discusses the background, problem statement, main objectives, specific objectives, research questions, purpose, significance, and operational definition of the study.

#### 1.1 Background to the Study

##### Global Burden of Hypertension

Hypertension is defined as persistent increase in systolic blood pressure above 140mmHg and a diastolic blood pressure of at least 90mmHg (Charchar et al., 2024). Hypertension is a common health condition. It is asymptomatic, so most people are unaware, they are suffering from hypertension and may experience serious complications like cardiovascular diseases or stroke. The actual cause of hypertension is unknown. The contributory factors to hypertension include genetics, eating unhealthy diet, poor exercise, stress. Hypertension can also occur as a result of diseases such as kidney disease, hormonal disorders. Hypertension can damage major organs of the body (such as the heart, kidney and brain) when poorly managed and uncontrolled (Thalib, 2025). Hypertension is regarded as a global epidemic that creates a serious burden on high, middle and low-income countries. The prevalence of hypertension in high-income countries is 2.6%, which can be attributed to an increased awareness, treatment and health protection. However, low-income countries are associated with less awareness and health protection leading to a 7.7% increase in hypertension between 2000 and 2010 (Elnaem et al., 2022).

Hypertension is a major public health problem and is the leading contributor to 4.7% of hospital admissions and 15.3% of deaths in Ghana (Bosu & Bosu, 2021). Most people with hypertension are undiagnosed, untreated, or inadequately treated. Hypertension had a prevalence of 28.3%. Awuah et al. (2014) further reported among hypertensives that 7.4% people were aware of their

condition; 4% were on hypertensive medications, while 3.5% controlled their blood pressure. Hypertension is a significant risk factor for cardiovascular diseases, such as ischemic heart disease, which accounts for 45% of related deaths. In Ghana, abdominal obesity, stress, and tobacco smoking are triggers of hypertension. Individuals with hypertension may need to cope with it through assistance from friends, family and social networks (Atibila et al., 2021).

Hypertension has been described as a looming crisis in sub-Saharan Africa (SSA) because of the shift in the burden of hypertension from high-income countries to low-middle countries (Ferdinand, 2020). Previous systematic review studies have concluded that the prevalence of hypertension among adults in Sub-Saharan Africa ranges between 30% and 57% (Ataklte, F. et al., 2015). In Nigeria, the overall prevalence of hypertension varies from 8% to 46.4% (Ogah, 2012). Prevalence was similar between men and women. A national survey in Botswana reported a 28.6% prevalence of hypertension among individuals aged 20–69 years (Ntiyani et al., 2022). In other studies, conducted in Lesotho, data from the demographic and health survey revealed that one (1) in every five women of reproductive age (WRA) was hypertensive and about 23% were pre-hypertensive (Lebuso & De Wet- Billings, 2022).

Globally, 35% of the workforce perform extra work over 40 hours each week which may have extensive effect on their health and wellness. Excessively working for more hours increases the risk of cardiovascular diseases among workers. Long working hours put the individual worker at risk of high blood pressure (Andini & Siregar, 2024). Furthermore Andini & Siregar (2024), reported that an increase in the time of workers each week may increase the chance of workers getting hypertension. Also, workers that operate on heavy loads, computers and has job stress may have the potential of developing high blood pressure.

### **National Burden of Hypertension**

Hypertension is the fifth most common cause of outpatient morbidities (Dorgbetor et al., 2022). Hypertension is the second leading cause of outpatient mortality in the Greater Accra Region (Aikins et al., 2014). Furthermore, hypertension control has been established to be poor. Approximately 4% of the hypertensive population is under control, treatment, and management. In addition, the number of people living with hypertension remains high, with an estimated 36% of adults suffering from hypertension (Lampitey et al., 2017).

In Ghana, hypertension has been reported to be the leading cause of outpatient attendance in adults aged 45 years and above (Atibila et al., 2021). Two-thirds of medical admissions are hypertensive, resulting in 50% of the deaths. Hypertension may be undiagnosed as most affected individuals may not be aware of the disease (Nyarko et al., 2017). Factors that suggest increased blood pressure may include increased body mass index, failure to monitor blood pressure, and unawareness of increased salt intake in the diet (Konlan et al., 2024).

Further on, risk factors that accounts for hypertension has been age, sex, family history, obesity, poor exercise and adding approximately 10 g of salt to their food have the potential to develop hypertension (Kwaku Doe & Asaa Asiedu, 2023). A national study of hypertension conducted in Ghana among taxi drivers in Cape Coast metropolis, indicated that hypertension is prevalent in 13.1% people between the ages of 15-49 years with 23% being hypertensive and 52.5% prehypertensive. People in occupations such as taxi driving, shopkeepers are at risk of cardiovascular diseases, increased blood pressure due to sedentary work-life that reduce physical activity with high body weight reducing cardiac output and systemic blood flow.

Furthermore, occupations that are involved prolonged sitting increase the risk of high blood pressure (Oklu et al., 2025)

### **Relevance of Hypertension to the working population**

Educating these individuals to reduce their salt intake helps prevent hypertension. Furthermore, 58% of the individuals with increased body weight (BMI >25 kg/m<sup>2</sup>) were diagnosed with hypertension. The intake of fatty foods and foods containing oil accounts for an increase in blood pressure (Meher et al., 2023). In addition, inadequate consumption of fruits, vegetables, proteins, and carbohydrates increases the risk of high blood pressure. Rodrigues et al. (2023) reported that women mostly enjoy foods made from industry, which increases blood pressure; this was evident in 55.9% of overweight women. Hence, an appropriate diet plan and regular exercise are helpful for preventing hypertension.

People who are known to be at higher risk of hypertension due to their background of both parents being hypertensive can suffer high blood pressure when exposed to a sedentary lifestyle. Health education enables individuals to gain relevant information about their health and wellness (Meher et al., 2023). The health promotion model helps to achieve an individual well-being through health promoting behaviours, such as continuous review for hypertension, blood pressure control, and compliance with treatment regimens. The health promotion model can be applied to enhance the health status of individuals with hypertension and to prevent hypertension in undiagnosed individuals (Giena et al., 2018). Therefore, this study sought to examine the preventive practices employed by workers of the Cocoa Processing Company Tema towards hypertension.

## 1.2 Problem Statement

According to a study by Lavigne-Robichaud et al. (2019), information about effect of stress on blood pressure of workers receiving treatment for hypertension is limited. There are challenges of psychological job demands, low job control, poor work pace, inconsistent work interruptions, conflicting task, difficulty task put workers at a risk of increased blood pressure at the workplace. Also, workers experiencing psychosocial stress at the workplace shows higher prevalence for uncontrolled hypertension (Lavigne-Robichaud et al., 2019). There is no research conducted on preventive practices of hypertension among industrial workers of Tema.

In Ghana, hypertension is the second leading cause of outpatient disease among adults. Atibila et al. (2022) asserted that 87% of individuals had heard of hypertension, 79% said that a poor diet causes hypertension, and 14% indicated inactivity and overweight as causes of hypertension. In addition, 50% of the individuals revealed that palpitation is a symptom of hypertension, and 26.5% agreed that dizziness is a symptom. Job stress is linked with uncontrolled blood pressure (Khonde Kumbu et al., 2023) low use of the factory clinic, undiagnosed hypertension, absenteeism from work due to hypertensive symptoms affect work productivity. Bokaba et al. (2021) reported that among workers with hypertension that were surveyed, 48.7% were unscreened, 23.1% were screened but undiagnosed, 5.8% were diagnosed but untreated, 13.5% were treated but uncontrolled and 8.9% were controlled. Approximately 90% of the participants reported that they visited the hospital when they experienced increased blood pressure. According to Dodam et al. (2023), non-adherence to prescribed management also contributes to the risk of hypertension complications. Peniston et al. (2024) reported that lack of medical screening, inadequate accessibility to drugs, poor support systems for continuity of care, slow referral of hypertensive cases to appropriate specialist, bad treatment judgement and insufficient health talk have increased the risk of hypertension among adults. In line with

the global aim of reducing hypertension by 2025, the Ghana Health Services Policy focuses on managing and controlling hypertension (Sambah et al., 2023).

According to the annual report of the factory Clinic of Cocoa Processing Company Tema, workers diagnosed with hypertension were reported for routine review, compliance to medications, and health challenges in 2023. In the report, January to March 2023 recorded 255 attendances, April to June 2023 recorded 226 visits, July to September 2023 recorded 217 attendances, October to December 2023 recorded 207 visits. Three (3) staff were confirmed of stroke and were being managed by the nurses and doctors at the factory clinic in Tema. High blood pressure is associated with cardiovascular diseases and affect workers on shift duties between the ages of 30-49years (Anane et al., 2015).

The researcher has worked as an occupational health nurse in the industry for over 10 years. He observed from the out-patient attendance records that hypertension was more prevalent among shift workers, in stress-related jobs, and with inadequate or no information on the complications of hypertension among workers. The factory clinic has professional nursing and physicians that provide health teaching at the clinic, but most workers do not benefit due to reduce attendance at the clinic. Workers, as part of their occupational health and safety practices, should report to the factory clinic for review and routine blood pressure checks. Due to the need to work within their shift to achieve production target, fail to report and sometime forget to report to the factory clinic for their blood pressure checks. The factory clinic is located in the administration block at the entrance of the factory which gives workers easy access when they report to work to seek health care. Nevertheless, situations such as late reporting, delays in the bus arrival keep them away from reporting. Also, majority of the staff, both permanent and contract, do shift work which demands that they change their dress into prescribed working attire to take over. The workers also need to hurry to continue running the machines and for the outgoing staff to change,

bath and join the bus home which has been timed within 20 minutes - 30minutes. The staff and some contract workers are to eat from the factory canteen. Nevertheless, due to workload pressure and individual preference of food, may not eat at all. Meanwhile there are adequate playgrounds and indoor games available for workers to engage in physical activities. Unfortunately, majority are shows less interest in performing physical activity as a daily practice. These situations ensure smooth production and at the same time involve staff who should report to the factory clinic for their blood pressure checks, affecting their early detection of high blood pressure. However, 10 years extensive studies have been conducted on industrial workers of the Tema Metropolitan Assembly of Ghana on noise exposure, which negatively affects their health (Omari et al., 2013). However, no studies have been conducted among industrial workers in Ghana using a Theoretical model to explore determinants of preventive practices.

### **1.3 Main Objectives**

The objective of this study was to examine the preventive practices for hypertension among workers of the Cocoa Processing Company, Tema based on the Pender Health Promotion model.

### **1.4 Specific Objectives of the Study**

This was to:

1. Investigate the relationship between individual characteristics and hypertension prevention practices among workers.
2. Assess the relationship between the level of knowledge and health promotion activities among workers to prevent hypertension.
3. Evaluate the attitudes of workers towards the prevention of hypertension.
4. Determine the barriers to hypertension prevention practices among workers.
5. Determine the prevention practices of hypertension among workers.

### **1.5 Purpose of the Study**

The purpose of this study was to investigate the preventive practices adopted by workers of the Cocoa Processing Company, Tema, to reduce the risk of hypertension complications based on the Pender Health Promotion Model.

### **1.6 Research Questions**

1. What is the relationship between individual characteristics and hypertension prevention practices among workers?
2. What is the relationship between the level of knowledge and health-promotion activities among workers in preventing hypertension?
3. What are the attitude of workers towards the prevention of hypertension?
4. What are the barriers to hypertension prevention among workers?
5. What are the preventive practices for hypertension among the workers?

### **1.7 Significance of the Study**

The findings of this study will contribute to the available information on hypertension that factory workers can use as a guideline. This study can also be duplicated among other factory workers to confirm these findings. Further research on the experiences of factory workers managing hypertension can also be conducted in other offices or environments. This study also suggests some preventive practices towards hypertension to management, staff, and relevant stakeholders of the Cocoa Processing Company, Tema. The study also provides guidelines for factory workers in other sectors of the industry to adopt for preventing hypertension. This study will also motivate nursing students to explore more in industrial health of workers through scientific research. This will improve industrial health promotion, rehabilitation and enhanced overall wellbeing of the industrial workers in Ghana. Staff contribution to their own wellbeing

is key in restoring their health. It is therefore relevant for companies to put in place measures to reduce the impact of work schedules among workers.

### 1.8 Operational definition

**Blood pressure:** This is the pressure exerted on the walls of the blood vessels as blood moves through the arteries

**Cardiovascular disease:** This is a disease that affects the heart muscle, heart valves, heart, pacemaker and blood vessels

**Cocoa:** Cocoa is a seed used for processing power and butter

**Company: Business** that involves manufacturing, production and distribution of

**Factory worker:** A person who is employed to perform various tasks in the production area

**Factory:** A building that allows the manufacturing and processing of goods such as food finished goods

**Health education:** The process of empowering individuals with relevant information that helps them to take control of and improve their everyday lives.

**Hypertension:** This is a persistent rise in blood pressure above the normal range of systolic and diastolic pressures.

**Industrial:** This refers to industries that deal in large-scale manufacturing through the use of mechanized methods in production

**Practice:** The regular medical intervention that assists to manage health and wellness

**Preventive:** The action that individuals take in avoiding increased blood pressure

**Processing:** This is the process of changing raw materials into finished products

**Renal/kidney diseases:** These are medical conditions that affect the kidney due to high blood pressure

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter details the literature review on the preventive practices of workers in reducing the risk of hypertension complications. Theoretical framework adopted for the study and reviews of the relevant literature that has been undertaken on hypertension and preventive measures. The literature review was based on the theoretical framework of the study, the constructs of the Pender Health Promotion model, and the modifiable factors for the preventive practices of hypertension. A review of related literature on the health promotion model was conducted using studies in databases such as Online Wiley, PubMed, Cochrane, ScienceDirect, and other relevant sources.

#### **2.2 Theoretical Framework**

In order to develop a theoretical framework for this study, three models: the Pender Health Promotion Model (PHPM), the Theory of Planned Behaviour (TPB) and the Health Belief model (HBM) was reviewed.

##### **2.2.1 Pender Health Promotion Model**

The Pender Health Promotion Model (PHPM) is named after Nola Pender, who developed the Model in 1982. Nola Pender is a professor emeritus of nursing at the University of Michigan and a nursing theorist who was recognized as a living Legend of the American Academy of Nursing in 2012. According to Pender, nurses have the responsibility to help individuals learn while receiving care. Nurses encourage individuals to participate fully in their self-care needs to prevent or ameliorate diseases. In 1970, Pender studied health-promoting behaviours and

wrote articles on exercise, behavioural change, and relaxation. She is an advisor on international health research and has collaborated well with nursing scientists.

The Pender Health Promotion Model explains how nurses adopt preventive health measures to alleviate illnesses. The Pender model is about health promotion measures that address nurses' efforts to prevent illness (Khaninezhad et al., 2024). The aim of the health promotion model is to assist individuals in practicing healthy lifestyles. They control their behaviour and ensure a balanced life. Individual well-being may be affected by beliefs, and individuals can dedicate themselves to issues that yield individual interests. According to this model, an individual is confronted with constraints that affect their actions. Nevertheless, people may receive support from close relationships that could improve interpersonal influence and promote health (Petiprin, 2023).

Pender Health Promotion Model explains that people's life experiences influence their health seeking behaviours modify unhealthy behaviour and improve the health of their promoters. The Model involved perceived benefits, barriers, self-efficacy, and social support. Learned positive strategies are put into action to enable individuals to maintain a healthy state and adapt well to the illness (Pouresmali et al., 2022). Pender Health Promotion explains that every individual possesses special characteristics and experiences that influence activities of daily living. The set of variables that affect individual behaviour can be modified through nursing actions that aim to improve individual health, enhance functional abilities, and achieve quality of life.

The Nola Pender Health Promotion Model has been used in nursing research, education, and practice (Bistara et al., 2024). Applying this model helps nurses assist individuals in improving their well-being through healthy behaviour. The model also helps nurses understand how to improve their healthy lifestyles and wellness. PHPM describes an individual's ability to interact

with the natural environment to achieve a healthy status. The model focuses on individual characteristics, experiences, and behavioural outcomes. The individual characteristics included age, sex, education, and socioeconomic status. Experiences, according to Pender, involve perceived barriers and interpersonal influences such as attitude and commitment to plan action, which will lead to healthy behaviour.

The key assumption is that individuals regulate their own behaviour positively and progressively influence their environment as they interact with the environment. Healthcare professionals are involved in the interpersonal environment, and an individual's self-initiated interactive patterns help in behaviour change (Eriksson et al., 2025). Individuals dedicate themselves to behaviour that brings about personal values. Perceived barriers constrain an individual's commitment to action. Families, peers, and healthcare providers remain a major aspect of individuals' interpersonal influences that help them to be involved in health-promoting behaviour. Individual commitment to a plan of action may contribute to the required behaviour change as the individual modifies the environment to develop a better interest in healthy actions (Hwang & Kim, 2020).

The Health Promotion Model provides a basic explanation with clarity and targets health promotion and disease prevention. The Pender Health Promotion Model is applicable to public health and improves the well-being of individuals, families, and friends (Dos Santos et al., 2025). Financial and economic resources are required to improve the health-promoting behaviour of individuals. This model also helps prevent disability, limit complications, and restore the health of individuals who use the model. A healthy diet and exercise improve health of individuals (Gonzalo, 2023).

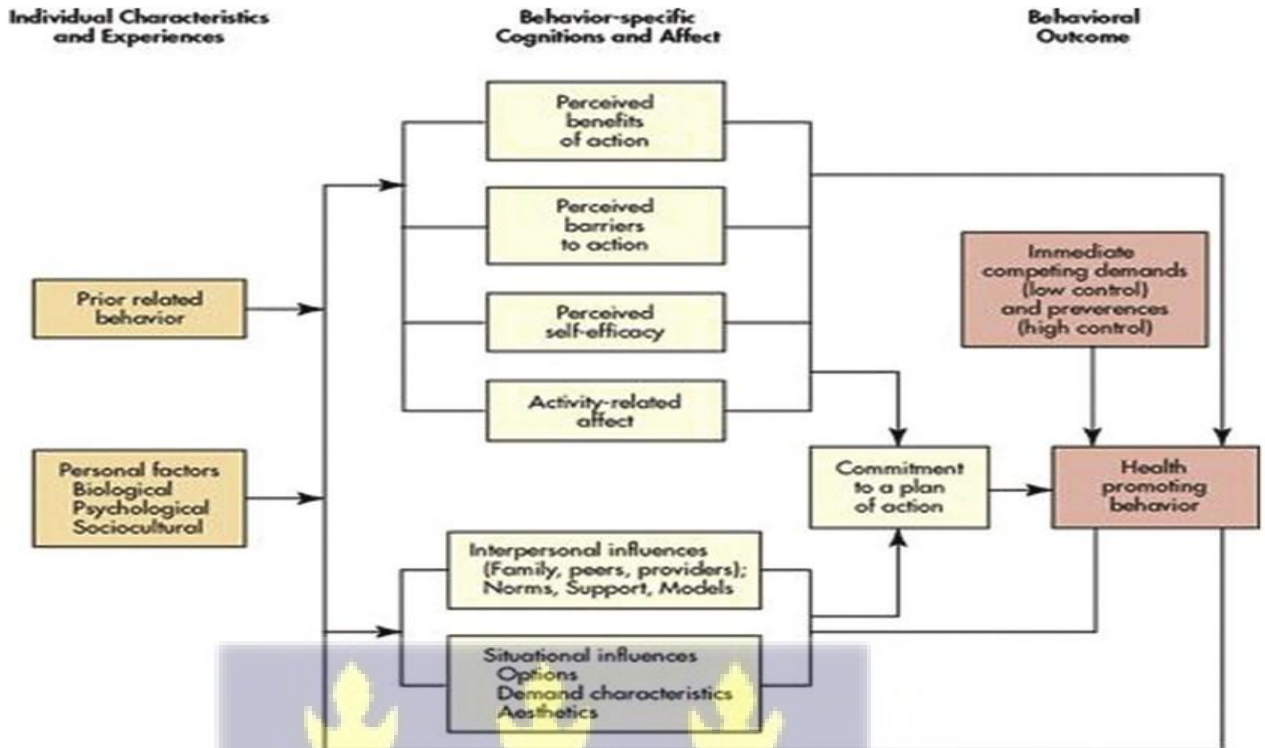


Figure 1: Pender Health Promotion Model

### 2.2.2 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) was developed by Icek Ajzen in 1991 (Kan & Fabrigar, 2017). This theory explains that behaviour is influenced by individual intentions. This theory began with the Theory of Reasoned Action in 1980, predicting a person's intention to engage in behaviour at a specific time and place. The theory sought to elaborate on self-control. The theory of planned behaviour explains that behaviour depends on an individual's motivation and ability to control. The weakness of TPB is that it assumes that individuals have acquired opportunities and resources to be successful in performing the desired behaviour. Individuals past experiences, anxiety, and apprehensions are not considered (LaMorte, 2022).

Hypertension prevention and nutritional behaviour were significantly related to attitude, perceived behaviour control, and behavioural intention. The theory can be applied to educational interventions but not in an area where the individual has to have a lot of control in his/her health

management activities. The theory is useful in promoting only appropriate eating habits, leaving out most of the modifiable variables (Bélanger et al., 2023). Planned Behaviour proposes three key areas for consideration: beliefs about the likely consequences of behaviour (consequence beliefs), beliefs about the normative expectations of others (normative beliefs) and beliefs about the presence of factors that may facilitate or impede performance of the behaviour (control beliefs) that guide human behaviour (Angassa et al., 2022).

It explains health behaviour that is not entirely under an individual's control and allows for a better understanding of individual attitudes and intentions. The theory shows how influences on an individual determine their decisions to follow a particular pattern of behaviour (Sajjad et al., 2023).

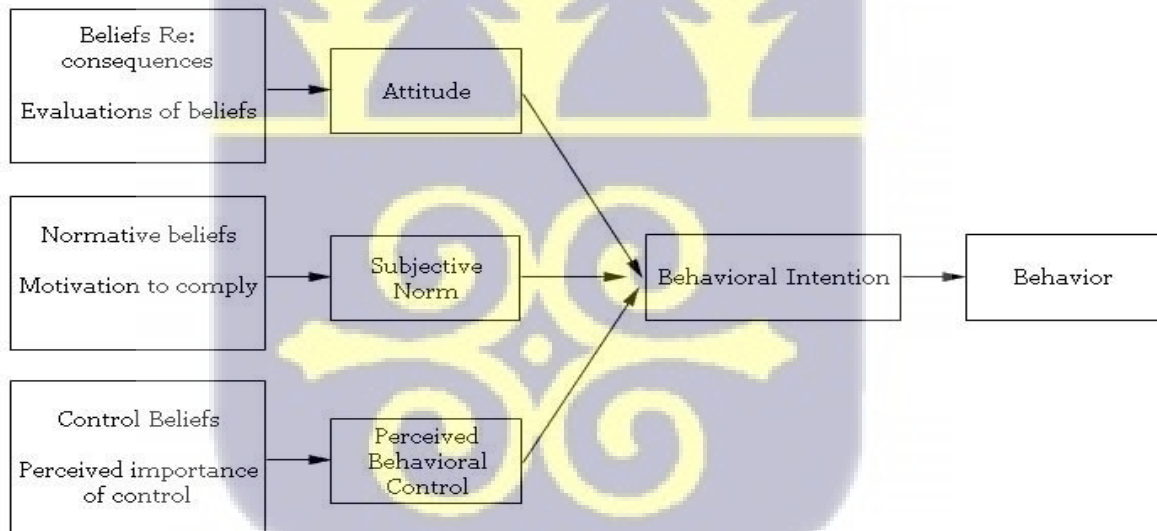


Figure 2: Theory of Planned Behaviour

### 2.2.3 The Health Belief Model Theory

The Health Belief Model (HBM), based on psychological and behavioural theories, was developed in 1950 by social psychologists Godfrey Hochbaum and Irwin Rosenstock (Ghorbani-Dehbalaei et al., 2021). It deals with decision making regarding the health of an individual. Its aim is to explain the reasons for which a person engages in health-seeking behaviour to prevent diseases (Luger, 2013). The Health Belief Model is based on the principle that people's beliefs influence their health-related actions or behaviours and help change attitudes and behaviour. The theory presumes that an individual is likely to act when faced with a personal threat only if the benefit of the action outweighs the barriers, whether real or perceived.

It is effective for health education and disease prevention. It comprises six components: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Ma, 2018). Relating these concepts to preventive hypertension, individuals should believe that they are vulnerable to hypertension (perceived susceptibility); that hypertension has serious complications, (perceived severity); that self-care behaviours have some benefits as well as threats to (barriers for) individuals (perceived benefits and barriers); and that they should believe that they can control hypertension (Mohebi et al., 2018). The health belief model emanates from psychological behavioural theory and explains that an individual's course of action often depends on their perception of the benefits and barriers related to certain health behaviours.

These behaviours can be modified by age, sex, and level of education as sociodemographic characteristics, whereas individual personality provides cues to modify behaviour (Adongo et al., 2022). Health belief model contains constructs that explain why people take action to control their illness. The health belief model encourages individuals to understand the benefit of following treatment instructions and the risk (barrier) of developing hypertension complications if the instructions are ignored (Atibila et al., 2022).

The health belief model describes how suggestions can make an individual adopt positive habits and mental processes. It helps in understanding how to influence individuals to adopt healthy behaviour. The emphasis is that individuals should realize that their unhealthy habits leave them vulnerable to unfavorable consequences and useful technical know-how for prevention and control (Zibon, A. K. et al., 2023).

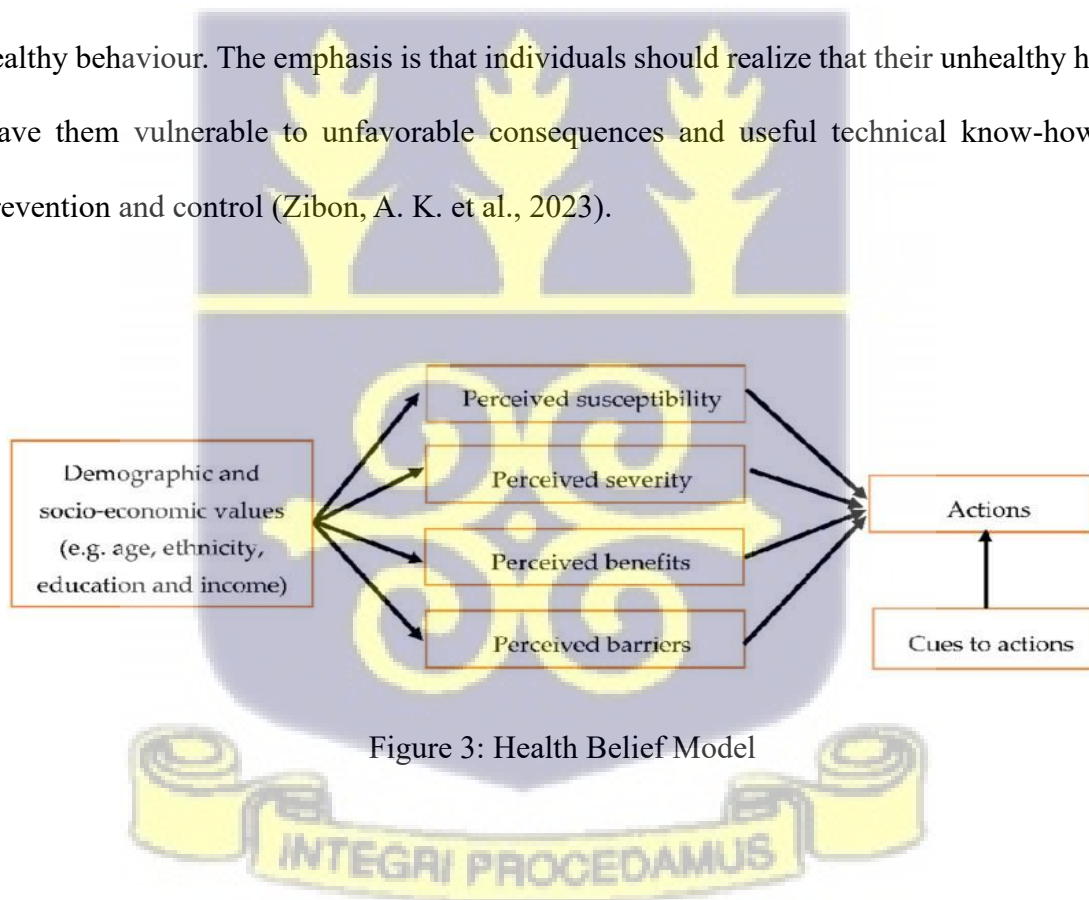


Figure 3: Health Belief Model

#### **2.2.4 Conclusion of the Models**

These three models provide individual interventions in health education. These models were used to provide health education for hypertension. The theory of planned behaviour does not provide any construct to help individuals manage support systems. The health belief model has six constructs that makes it too broad to be adopted for this study. However, the health promotion model had all the constructs that were well applied to the study objectives and proved reliable to help in the prevention of hypertension among workers at the Cocoa Processing Company Tema. Hence, the conceptual framework for this study is based on the Pender Health Promotion Model.

#### **2.2.5 Conceptual Framework of Preventive Practices towards Hypertension Based on Pender Health Promotion Model**

This study examined individual characteristics, focusing on personal factors, such as biological and sociocultural variables. Prior related behaviours were not considered. Behaviour-specific thoughts and emotions were assessed based on the perceived benefits of action, such as knowledge, whereas perceived barriers to action remained unchanged. Perceived self-efficacy was not considered relevant to this study. Attitudes towards activity were determined by activity related emotions. Interpersonal influences from family, peers, and healthcare providers were integrated into the commitment to planned action, which was combined with health-promoting behaviours. Situational influences, such as options, demands, and aesthetics, as well as immediate competing demands (low control) and prevalence (high control), were not included in the study.

## **2.3 Review of Related Literature**

### **2.3.1 Individual Characteristics: Socio-demographic Characteristics**

Hypertension requires critical approach in dealing with the factors that contribute to the occurrence of the disease (Ginting & Suci, 2023). According to Adeke (2022), there has been high relation between age groups and hypertension in women and men. The association with age, sex and marital status were positively related to hypertension. Educational background of primary, secondary and tertiary were positively associated with hypertension. Furthermore, lifestyle, low exercises correlated with hypertension (Adeke, 2022).

In a study by Ginting and Suci, (2023), which examined chi-square bivariate test on the relationship between independent and dependents variables with p-value of 0.05. The variables that were considered age, sex, lack of physical activity, high salt intake, consuming high fat, poor intake of fruits and vegetables and body mass index. It was evident that the variables are risk factors for hypertension. Body mass index has a p-value of 0.00 which had a relationship with hypertension which was affecting, sex correlated with hypertension with a p-value of 0.00 and considered as a risk factor to hypertension. Age was correlated well as a risk factor hypertension with a p-value of 0.00.

### **2.3.2 Perceived benefit of action: Awareness of Preventive Practices of Hypertension among Workers**

#### **2.3.2.1 Knowledge on Hypertension**

Hypertension is a multifactorial condition that involves genetic and environmental factors (Metoki & Kuriyama, 2023). Early detection of hypertension can be achieved through the identification of signs and symptoms, such as difficulty in breathing, chest pain, discomfort in the chest and limbs, unstable heartbeat, confusion, numbness of the extremities, fainting tendencies, fibrillation, bradycardia and tachycardia. It is important to monitor the heart,

blood flow, and oxygen saturation as frequently as possible (Patel et al., 2022). High blood pressure is diagnosed when systolic blood pressure is above 140 mmHg and a diastolic blood pressure reading of 90 mmHg (Kandil et al., 2023).

Cardiovascular diseases affect the structure and function of the heart and blood vessels leading to hypertension, coronary heart disease, heart failure (Limongelli et al., 2022). These conditions have become serious concerns worldwide as they are the leading causes of most deaths with a death rate of 19.9 million people annually; 11 million people are diagnosed of cardiovascular diseases in 47 countries and a greater incidence of 5.3 million reported cases occurs in men (Mukasheva et al., 2022). Most people have setbacks in the prevention and treatment of hypertension. Knowledge gaps in high blood pressure and the risk factors are recognized barriers to the prevention practice of hypertension (Amdemariam et al., 2022).

The risk factors for cardiovascular diseases (CVD) are modifiable and include smoking, diet, alcohol consumption, exercise, overweight, and obesity. Non-modifiable factors of CVD are sex, age, genetics, and family history. Measures to prevent CVD include the use of primary, secondary, and tertiary factors (Amdemariam et al., 2022). Cardiovascular diseases account for 31% of global deaths and 7.5 million deaths in Africa. Hypertension is a chronic disease (Ma et al., 2022). increased blood pressure is a major risk factor for cardiovascular diseases such as stroke and coronary heart diseases and affects at least 1.4 billion individuals worldwide (Mills et al., 2020).

One out of four males and one out of five females had hypertension (Vijna & Mishra, 2022). Hypertension can damage heart, blood vessels, the kidneys and brain functions (Amponsah-Offeh et al., 2023). The Health Belief Model has suggested sustained healthy behaviour

patterns that can positively influence people's attitudes and practices that can enhance adherence to planned treatment, reduce complications and limit disabilities caused by cardiovascular diseases (D. Boateng et al., 2017). Other symptoms of hypertension include stabbing pain in the heart, breathlessness, weak pulse, unstable blood pressure, palpitations, pale skin, cold extremities, persistent fatigue and general body weakness.

The burden of hypertension can be reduced when individuals are aware of the benefits of increasing their intake of fruits and vegetables (J. Wang et al., 2022). Hypertension can result in serious health complications such as cardiac arrest, kidney disease, stroke, retinopathy, myocardial ischemia and peripheral vascular diseases (Bidani & Griffin, 2015). Cardiovascular diseases include conditions such as atherosclerosis, angina, myocardial infarction, cardiomyopathy, abnormal heart rhythms, stroke build-up of plaque within the walls of the coronary arteries, aortic aneurysms, pulmonary embolism, and cardiac arrest which occur with sudden and immediate loss of the pumping action of the heart (Szczepańska et al., 2022).

Congenital heart diseases may include atrial septal defects, ventricular septal defects and tetralogy of Fallot (X. Gao & Yan, 2023). Cardiovascular diseases have no direct causes. Predisposing factors include physical inactivity, excess weight gain, cancer treatment, and cancer itself (de Jesus et al., 2022). Early diagnosis may include body mass index monitoring, ultrasound imaging of the heart and blood vessels (Anne et al., 2020); regular blood pressure monitoring, echocardiography to detect diastolic dysfunction (Nagueh, 2020); computed tomography angiography, fractional flow serum biomarkers and electrocardiograms (Barrios & Tison, 2022).

Olubiyi et al.(2022) explained that the Framingham risk score chart assists in determining the risk of developing hypertension has seven variables; total cholesterol, high density lipoproteins (HDL) cholesterol, smoking history, systolic blood pressure, diabetes mellitus and use of antihypertensive medication. The variables were graded low-risk (risk<10%), moderate-risk (risk 10% to<20%), and high-risk (risk $\geq$ 20%). Complications of cardiovascular disease include aortic rupture, and pulmonary hypertension (Beaufrère & Brash, 2021). Treatment of cardiovascular diseases may involve the application of vascular stents, artificial heart valves, artificial graft cardiac patches, atrial shunts and medication (J. Wang et al., 2022).

Most people may be admitted and treated to limit complications and improve their health through mechanical ventilation (Alizadehsani et al., 2022). Studies have shown that unhealthy lifestyles such as alcohol consumption, unhealthy diet (high salt and low fruit and vegetable intake), physical inactivity, and tobacco use are associated with hypertension (Chiva-blanch & Badimon, 2020). It is of great importance for every worker to know the signs and symptoms and have an idea about the preventive practices of hypertension. Esina et al. (2020) explained that men who reported risk of developing hypertension experienced psychosocial stress such as anxiety, depression, poor exercise, gross overweight.

Also, skipping diet, eating fast foods, eating outside the home and eating while working are practices that should be discouraged by workers. The risk of heavy drinking of alcoholic beverages relaxing the body after a long period of work can result in cardiovascular disease (Chiva-blanch & Badimon, 2020). Alcohol produces excessive stress hormones that affect the normal functioning of the liver during detoxification of materials from the body (Song et

al., 2022). The Food and Drug Authority (FDA) should ban the use of electronic devices as substitutes for smoking (Kaminsky et al., 2022).

### **2.3.2.2 Fatigue**

According to Gao et al.(2022), fatigue is defined as a situation in which an individual becomes exhausted without external factors such as exposure to a hot environment. When an individual becomes exhausted, he/she may resort to shortcuts, commit errors or become forgetful. Fatigue results from improper working arrangements, risky behaviour on the job and making errors while on duty leading to an increased risk of hypertension and heart diseases. Studies also suggest that improved, healthy lifestyle behaviours such as longer sleep, adherence to antihypertensive medications, physical activity, high intake of fruits, vegetables and high-caloric foods, and no smoking reduce the risk of hypertension (J. Wang et al., 2022).

Workers experience fatigue owing to prolonged job schedules and increased workplace demands. Fatigue can be seen in individuals as yawning, depression, lack of concentration, reduced attention with forgetfulness, not paying attention to work colleagues, inability to complete assigned work, inappropriate mannerisms and easily being agitated. These factors make workers prone to poor decision-making, inability to cope with job stress, inability to process information, difficulty in recalling relevant details while working and regularly reporting sick with increased absence from work. When engaged in prolonged tasks such as monitoring machines, equipment and driving many hours on the highway, workers are at risk of fatigue leading to cardiovascular diseases(Caldwell et al., 2019).

#### **2.3.4 Activity related emotions: Attitude to Prevention Practices of Hypertension among Workers**

Hypertension control and prevention involve improved detection, evaluation and treatment through improved adherence to antihypertensive therapy, long-term follow-ups with monitoring, provision of quality professional service delivery, patient education and support (Verdecchia et al., 2022).

##### **2.3.4.1 Diet Interventions**

It is well-established that dietary interventions help prevent cardiovascular diseases. Poor food habits such as high sodium intake (more than 5grams/day) should be controlled to 2.3 grams - 4.6grams a day; low legume intake (10grams/day) should be increased to 200grams/day as it is a good source of protein with low calories and high nutritional value. Low fruit and vegetable consumption should be increased to improve potassium intake by consuming more fruits, vegetables, nuts, seeds, and whole grains. High red and processed meat should be reduced while consuming large amounts of soy products and fish. It is necessary to provide a comprehensive controlled program for adults, as they may face challenges in adhering to changes in their eating habits.

A dietary model could be developed, and priority focused on healthy diet intake by the population, while policymakers assist in addressing the dietary risk factors in an effort to reduce cardiovascular diseases (Zhang et al., 2023). Common foods with good nutritional value should be encouraged, such as olive oil (fat-free), whole grains, legumes, and fish. Restrictions should be placed on processed foods, fatty meat, sugar, and salt to improve workers' food intake. Healthy diet is a balance of various food and fluids that help the individual in achieving and maintaining good weight, improving health and preventing illness.

This includes the consumption of fruits, vegetables, whole grains, fat-free foods, low-fat foods, lean proteins, and oils. Every individual was encouraged to read all the food labels for food safety instructions to prevent hazards. People should eat meals prepared under hygienic conditions. It is important to pay attention to the required caloric intake, eating fiber, and reduced intake of sodium and saturated fats (Mangione et al., 2022). Carbohydrates are fuels that power an individual's drive to exercise. Therefore, inclusion of carbohydrates in the diet is highly recommended. Carbohydrates are required to achieve an extended exercise period.

Therefore, an adequate amount of carbohydrates must be ingested before, during, and after exercise. Physical assessment and glucose level monitoring should be performed before, during, and after the exercise. This was done to evaluate individual carbohydrate nutritional status and energy fitness to exercise (Podlogar & Wallis, 2022).

#### **2.3.4.2 Adequate Training and Appropriate Exercises**

Exercise is a nondrug therapy. Workers directly and indirectly engage in active physical activity as part of their routine tasks by inspecting machines, walking to the canteen during breaks, walking from one department to another, and to the car park to join the bus and from the car park to the workstation for those workers who report with their own means of transportation (Angassa et al., 2022). Adults engaged in 75 minutes of moderate-to-intense exercises for an average of 150 minutes. Individuals are encouraged to perform aerobic exercise. Exercises performed during mornings, evenings, weekends, and weekdays help protect individuals from cardiovascular disease. Unfortunately, most workers are denied this opportunity because they work long hours (Biswas et al., 2022).

Monitoring individual demonstrative skills in toe and leg exercises, walking and turning, and upright postures enables the individual to take oxygen. Therefore, workers are advised to remain calm and breathe deeply. Any deviation in worker health is shared with the healthcare team (Mangione et al., 2022). It is recommended that people reduce sedentary behaviour, such as sitting for long hours while watching television, writing, typing, and working on the computer, to promote blood circulation and prevent deep vein thrombosis (blood clot formed in a deep vein) and cardiovascular disease (Johannesen et al., 2020).

Exercises should be performed according to the following types: treadmilling, cycling, running, and walking (**Encarnación-Martínez et al., 2021**). There should be rest periods between exercises to restore the individual's health status. Exercise helps to improve an individual's physical health. Individuals should select exercises based on their capabilities, squatting and knee extension, to prevent strain and sprain of the body. Individual involvement in daily activities is considered exercise. Some of the daily activities such as getting up from the chair, climbing heights, dressing up and cooking strengthen muscle functions. While exercising, an individual should be mindful to rest. Hurst et al. (2022) advised that exercises should not be performed on trial-and-error basis as it can lead to unexpected risk of trauma.

Rest periods help to relax the body. The individual should ideally rest between 60 and 180 when exercising. Between exercises, the individual should rest for 3 to 5 min. Exercises and rest periods should be assessed based on individual tolerance (Hurst et al., 2022). Exercises can rejuvenate the body by jogging, playing tennis, and brisk walking (Serra et al., 2022). To ensure gradual build-up of exercises and maintain and sustain individual energy levels, warm-up exercises should be performed for at least 10 minutes. This helps the individual to

rest while increasing circulation. The warm-up time should improve the heart rate. Furthermore, there should also be cool-down periods of 5-8 min to slow down the exercises. This can be achieved by controlling inspiration and expiration (Franklin et al., 2022).

### **2.3.3 Perceived barrier to action: Barriers to Prevention Practices of Hypertension among Workers**

#### **2.3.3.1 Compliance to Treatment**

According to the WHO, compliance to treatment is defined as an individual receiving drugs, obeying a planned diet and following lifestyle modification ordered by health professionals. (Kołtuniuk & Chojdak-lukasiewicz, 2022). Furthermore, Goudarzi et al. (2020) reported that 40%-60% of individuals with hypertension do not adhere to ordered treatment owing to strict instructions that involve lifestyle changes and the side effects of antihypertensive medication. Moreover, the individual concept of hypertension, poor motivation, inappropriate habits and miscommunication regarding specified instructions, leads to non-adherence to treatment. Efforts to change unhealthy behaviour are adopting the Pender Health Promotion Model concepts, which are effective in improving healthy behaviour in preventive practice towards hypertension.

#### **2.3.3.2 Shift Work**

Every worker is responsible for achieving a set target. Strenuous work within a specified period was significant. Draaijer et al. (2022) found that workers engaged in weekly night shifts for more than three nights a week put themselves at risk of developing cardiovascular diseases. Lim et al., (2023) explained that shift work can be the system through which working hours are planned to ensure that the worker becomes more productive through period. The time spent by the workers outside the workplace was limited. They struggled to

get good sleep, experienced depression, and complained of weakness. Lim et al went further to emphasize that shift work has been routine for most workers.

The day workers worked from 8 am to 5pm, from Monday to Friday. Those on shift work for 4 days a week: 2 days off duty, 4 nights work and 2 days off. The hours for the shift schedule are from 8am to 8pm for those working during the day shift while the night shift work is from 8pm to 8am. In their study, there were 20% shift workers and 7% day workers. In terms of marriage, however, married day workers accounted for 44.7% while married shift workers accounted for 24.3% of the total respondents. Shift work contributes to the risk of developing cardiovascular diseases. The risk of cardiovascular disease was 40% compared with day work, which was only 7% (Lim et al., 2023). The intensive workload during shift work results in cardiovascular diseases such as stroke and coronary heart disease.

Moreover, Şarli Gündüz and Vardar (2021) reported that intensive workload during shift work results in cardiovascular diseases such as stroke and coronary heart diseases. Costa (2010) indicated that the time spent by workers outside the workplace is limited. They struggled to get good sleep, experienced depression and complained of weakness (Qui et al., 2022). Workers often have little time to visit the hospital for review and default in their disease management, leading to the worsening of cases, disability, and complications of their conditions. There are also challenges in accessing healthcare facilities because of irregular work schedules. Shift workers may experience carotid atherosclerosis (Wang et al., 2022).

Factory workers may work rotating shifts in the morning, afternoon and evening throughout the day. The work rotation included both day and night for eight (8) and twelve (12) hours,

respectively. Changes in lifestyle such as poor resting time, decreased concentration on assigned work, and the notion of workers accepting daily rotating work schedules as normal living put the worker at risk of cardiovascular diseases (Hung & Lin, 2023). Predisposing causes of hypertension in the workplace may include exposure to dust which results in vascular oxidative stress and atherosclerosis.

Furthermore, assignments that demand a lot of thinking and manual work, the use of powered machines that vibrate the entire body, especially the hands and joints, tasks that require manpower to accomplish, workers' schedule to operate in cold rooms, boilers with steam under pressure pipeline handlers, and risk of fumes when using diesel powering machines and welding equipment are work-related causes of cardiovascular diseases. Previous diagnosis of myocardial infarction, angina pectoris, hypertension, stroke, deep vein thrombosis, and the use of medication both prescribed and over-the-counter drugs may predispose the individual to serious complications of cardiovascular diseases (Grahm et al., 2022).

Working on shifts for more than 8 hours a day and over 40 hours a week; working on night duties, and periods of extended working hours may lead to job stress, fatigue, and burnout (Lin & Lin, 2022).

#### **2.3.3.3 Workload**

Stress at the workplace such as staying on the job overnight, sitting at one task until it is done, coming to work early and closing late and aiming at pleasing superiors, can lead to coronary artery diseases (Oldenburg & Jensen, 2022). Overworking may cause conflict among individuals, depression, anxiety and disturbed sleep owing to failure to complete scheduled work. In addition, performing many duties within a shift, continuous

nonadherence to break time rules, annual leave, and sick leave at the workplace, could also pose health issues to workers. Working for long periods of time can also affect a worker's work life through increased workload, which puts the worker at risk for cardiovascular diseases (Nishimura et al., 2022).

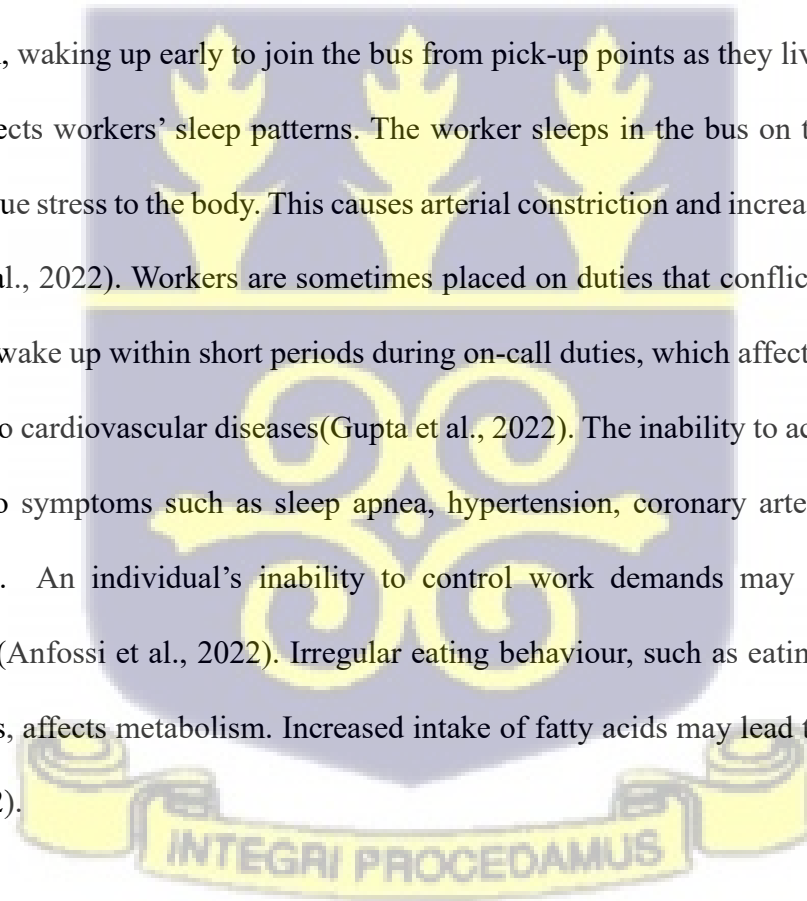
According to Ochiai et al. (2022), cardiovascular diseases are work-related, and people who have been diagnosed with cardiovascular diseases are known to have worked for more than 100 hours within a month and 80 hours continuously for six (6) months. Ochiai further elaborated that records from 2020 indicated that cardiovascular diseases affected 113 people due to overwork-related diseases and 81 individuals were diagnosed with ischemic heart diseases also from overwork. Long working hours result in trials, high blood pressure, and risk of stroke. Workers demonstrate increased commitment to the performance of assigned tasks but feel less valued with no promotion, which may lead to the onset of cardiovascular diseases (Sattler & Knesebeck, 2022).

#### **2.3.3.4 Positive Effect of Rest/Sleep on the Body**

Sleep helps an individual to repair wear and tear in the body, improving the maintenance of the body system for growth, health and development. Insufficient sleep leads to poor performance at work, chronic headaches and road accidents. Difficulty sleeping for shorter periods may be influenced by exposure to extreme light intensity, caffeine intake and noise. Baranwal et al. (2023) in their study reported that individuals who have trouble sleeping, may be exposed to extreme light intensity, caffeine intake, extreme temperature, noise, heat, inadequate ventilation, self-treatment and abuse of over-the-counter sleep medications.

Every adult requires a good night sleep of seven (7) to nine (9) hours, but this has not been possible due to rotating work, shift work and night duties leading to sleeping on duty (Caldwell et al., 2019). Overcoming sleeplessness would require achieving adequate regular sleep pattern (Wener, 2023). Sleep has been observed to be a critical risk factor to hypertension (Bock et al., 2022). An individual experiences increased blood pressure due to sleep apnea, short sleeping periods, and disrupted oxygen saturation. Snoring is a risk factor for hypertension (Han et al., 2020). Short sleep periods, when workers close late at night and reach home at midnight, lead to disturbed sleep patterns.

In addition, waking up early to join the bus from pick-up points as they live far away from their offices affects workers' sleep patterns. The worker sleeps in the bus on the way home, which causes undue stress to the body. This causes arterial constriction and increases the blood pressure (Matre et al., 2022). Workers are sometimes placed on duties that conflict with sleep duration. They also wake up within short periods during on-call duties, which affects their blood pressure and leads to cardiovascular diseases (Gupta et al., 2022). The inability to achieve sufficient sleep can lead to symptoms such as sleep apnea, hypertension, coronary artery disease, and atrial fibrillation. An individual's inability to control work demands may result in myocardial infarction (Anfossi et al., 2022). Irregular eating behaviour, such as eating late at night during night shifts, affects metabolism. Increased intake of fatty acids may lead to sleep apnea (Gupta et al., 2022).



#### **2.3.4 Interpersonal influence: Family Support/external support on Prevention Practices of Hypertension Among Workers**

Family support is a social interaction and relationship that individuals enjoy in their home environment for promoting healthy behaviour among family and friends (Bhattarai et al., 2024). Family support provides the needed help in maintaining and controlling blood pressure of their relations. Family members assist during the care of individual who are suffering from high blood pressure. The close relations of family members to the sick person have emotional linkage. The individual experiencing ill-health receive comfort, understanding and commitment from their family members and the healthcare team regarding adherence to treatment, healthy eating, rest and sleep. Family members are helpful to individuals with hypertension through motivation, advise, follow-up care, rehabilitation, physiotherapy and dietician reviews. The family support may be influenced by the financial status of the family, age and maturity level of the family members, understanding of the family members on high blood pressure, conflicting issues within the family, the relationship between the family member and the sick individual, (Geleta et al., 2025). Family members that have better understanding of high blood pressure prevention and management can provide adequate support for the individual with high blood pressure. The family is the most important source of assistance to people in lifestyle improvement by providing well balance diet, restful environment and engage in healthy relaxing conversations (Andala et al., 2022).



### 2.3.5 Commitment to a plan action: Workplace Support on Prevention Practices of Hypertension among workers

The World Health Organization (WHO) has explained that rehabilitation has influences prevention through patient efforts within their tolerance level (Sari & Tjahjono, 2022). Rehabilitation is a philosophy of care that uses a problem-solving approach. Rehabilitation can be performed at home and in other health care settings. This is performed for all ages and people with hypertension, cardiovascular diseases and other chronic diseases. During people's rehabilitation, their role in the community, job function, and involvement in education should be considered. Rehabilitation is the process of restoring health and reducing disability that may confront an individual. Rehabilitation is successful with the help of family, friends, coworkers and children.

Rehabilitation improves the individual self-management skills, self-relaxation and exercises engagement. Rehabilitation helps the worker to return-to-work (Bernt Jørgensen et al., 2022). The use of artificial ventilation, cardio-respiratory exercise and behaviour modification also improve the individual physical and mental wellbeing. People are educated on their disease conditions and management during rehabilitation to understand the best measures in the prevention of hypertension. The emotional aspect of individual ill health is also managed. Rehabilitation helps to achieve complete adherence to appropriate health promoting behaviour among individuals (Wade, 2020). Social support has a significant impact on the effective control of high blood pressure.

In a study by Osamor (2015) on the relationship between social support for treatment compliance among individuals suffering from hypertension, majority, (93%) reported that they enjoy social support from their family members. While 55% reported receiving social support from friends. Social support from friends ( $p < 0.0001$ ) but not from family ( $p =$

0.162) correlated well with good compliance with treatment for hypertension. The reasons for which family and friends were receiving significant support were marriage and religion, The age and educational level were associated with receiving significant support from family members only. Gender was not significantly associated with receiving social support. It was concluded that social support is strongly associated with hypertension treatment compliance. Therefore, promoting social support is relevant for managing chronic disease.

#### **2.3.5.1 Vital Signs Monitoring Prevention Practices of Hypertension among workers**

There has been increased innovation and improvement in health care with technology. Technology has sensors that monitor the body temperature, pulse, blood pressure, oxygen saturation (SPO2) and respiratory functions of the body (Ikram & Pillay, 2022). The severity of chronic illness and their improvement are determined by monitoring the individual temperature, pulse, respiration and blood pressure. Vital signs are the baseline data obtained at the health facilities every time individuals visit for review and health care (Saad et al., 2016). Hypertension can result in serious complications when the vital signs are not monitored well. Pulse oximeter is used to monitor oxygen saturation (Nemomssa & Raj, 2022).

Natural ventilation and air conditioning systems are made available to reduce heat that compromise the vital signs of the worker (Wang et al., 2023). Workers are encouraged to monitor their own blood pressure at home to assist them follow physician instructions. The monitoring of routine vital signs prevents the onset of cardiovascular diseases (Kaminsky et al., 2022).

#### **2.3.5.2 Provision of Enabling Working Condition at the Workplace**

Employers provide enabling working conditions at the workplace to enhance work and promote the better health for its employees by implementing strategies that prevent cardiovascular diseases (Anfossi et al., 2022). The workplace contributes to worker safety and health; hence the health protection and health promotion strategies have been put in place to safeguard the workers against hypertension and other health challenges. Counselling services should be accessible to individuals in order to maintain healthy behaviours. It is necessary that workers comply with the employment regulations that request them to go through annual medical examination before pre-employment, return to work after leave and exit from work. Food handlers are expected to do the same (Angassa et al., 2022).

#### **2.3.5.3 The International Labor Organization (ILO)**

The International Labor Organization (ILO) is responsible for preventing harm and maintaining standards for women and men to enjoy decent work. They provide policies that protect against health-related issues of occupation, such as injuries, diseases and sickness. ILO ensures that employers provide the right environment for every worker to work safely. Adequate training on occupational health helps workers to identify hazard spotting, incidence reporting and early identification of fatigue risk. Labor laws help address the issues of working conditions, exposure and threats to safety. Employee well-being programs such as health education and health promotion assist in reducing hypertension complications in the workplace (Mahdi et al., 2023).

#### **2.3.5.4 Mobile Phones and Modern Technology**

Modern technology, in the form of mobile phones, has provided sufficient intervention to assist healthcare providers in reaching individuals, families and companies to address chronic health problems such as cardiovascular diseases. Health care providers are able to facilitate health delivery through open, honest and welcoming interactive sessions on the mobile phone to educate, counsel, listen to individual complaints and concerns (Feinberg et al., 2017). Counsellors, nutritionists and physiotherapists improve patient care strategies throughout the work life of workers. In order to ensure holistic care, there is the need to involve the public health team and other allied health professionals in managing as well as preventing cardiovascular diseases (Kaminsky et al., 2022).

#### **2.3.5.5 Computers and Reduced Man Powered Jobs**

The use of computers has reduced man powered jobs and enhanced better workflow. This has eliminated inappropriate body postures, high exertion and fatigue of workers. Telework is described as working outside your usual office environment. Communication with other team members is by email, phone calls, fax, WhatsApp messages and SMS texts. Online meeting such as Skype, Zoom, Google Meet are used to communicate and reduce stress among workers. Coworkers, supervisors and customers are able to receive their required services through telework. Workers managing chronic ill-health such as hypertension, will still be relevant to the business (Furuya et al., 2022).

Flexible work allows workers to remain calm, relaxed and focus on productivity that prevents hypertensive symptoms. Telework also results in minimized work-family conflict, improved employee wellbeing and reduced physical engagement at the workplace. The weaknesses of telework are emotional exhaustion and the dependence on internet connectivity. Issues of

worker safety are a priority in telework as the worker performs official duties from home, thus reducing some factors that can predispose workers to cardiovascular diseases. Adequate training may be required to help workers stay away from risky situations (Beckel & Fisher, 2022).

#### **2.3.5.6 Medical Care and Collaborative Care**

Medical examination to screen undiagnosed individual workers with cardiovascular diseases would reduce the risk of death, disability and complications. Providing adequate education on hypertension could go a long way to help prevent cardiovascular diseases among workers (Gaafar & Gaafar, 2021). Health care policies aimed at reforming the impact of heart diseases are key to measures in protecting workers against the dangers of cardiovascular disease (Aheto & Dagne, 2021). Improving the healthy heart of every worker must be the hallmark of every health worker through education that can help identify at risk individuals for effective care.

Education also provides motivation for those affected with cardiovascular diseases to remain calm, relaxed and continue with their treatment plans. In addition, total regular health assessment of workers, tracking the baseline data of individuals both sick or well and prevention of cardiovascular diseases yield positive benefits. It is also important to consider collaborative approach with state agencies that help to provide holistic management of cardiovascular diseases among workers (Crawford et al., 2023). Good health and vitality are essential to every worker as it eliminates cost spent on work-related illnesses. Employers must consider developing workplace designs that improve the health of the worker whether sedentary or actively using a lot of energy. There should not be any factor that would put the worker at risk of cardiovascular diseases.

Medical care for hypertension includes comprehensive history taking, medical examinations such as height, weight, body mass index and follow-up visits. Non reporting and delay in reporting to hypertensive clinics result in complications. Hypertensive patients with national health insurance can access health care at no cost. Direct healthcare, health monitoring, detection, treatment and control of hypertension complications are the benefits packaged under the free national health insurance (Boateng et al., 2023). Self-monitoring behaviour can support and improve lifestyle modification. The possibility of getting reliable assistance with the use of digital tools can be helpful.

This can be the best way to improve adherence to management plans. This can be achieved through providing individuals with personalized educational information on their health condition. Mobile apps on smartphones, computers and tablets are useful for individuals to receive relevant information on their health condition. Electronic means of assisted health care interventions can address people's concerns about collecting medical instructions given to them. Informed health care instructions can be delivered to a larger population using mobile apps. As people interact with app-based interventions, they improve monitoring and reporting of healthy behaviour. People are able to take control and improve their health as they are engaged in self-monitoring.

Kassavou et al. (2022) in a systematic review reported that self-monitoring of blood pressure was 95% with medication adherence of 95% among individuals. The study participants were provided with a home blood pressure device. The participants were requested to check their blood pressure with an interval of one minute in the morning when they wake up and before they have their breakfast and in the evening before going to bed. The participants were encouraged to sit quietly for five minutes on a comfortable seat with enough pillows to

support their arms and back. They were advised not to cross their legs and feet during BP monitoring of the blood pressure (Commodore-Mensah et al., 2023).

This innovation is less expensive and more readily available. The healthcare interventions available on app-based interventions may include health education on diseases, reminders, and feedback on people with specific health conditions. Individuals may be advised on therapeutic effects, medication side effects, and routine blood pressure monitoring (Kassavou et al., 2022). The management of hypertension involves collaboration between healthcare workers, social welfare officers, clinical psychologists, public health workers, employers, employees, and management (Srinivasan et al., 2022).

Collaborative care emphasizes adherence to treatment, increased awareness of hypertension, and individual efforts to control it. It is important to ascertain that hypertension prevention, early detection and management involve key stakeholder engagement. Workers should avail themselves of collaborating with nurses, doctors and experts to ensure effective care outcomes for hypertension through strict compliance with follow-up appointments, attending specialist clinics and observing the management of the condition at work and outside the workplace (Carey et al., 2018).

Efficient hypertension care is based on education, antihypertensive therapy and blood pressure monitoring. Pharmacist also play a key role in ensuring that the prescribed drugs are served to individuals. This helps to effectively control hypertension, improve and promote individual health (Omboni et al., 2019).

Goldilocks' work paradigm approach for maintaining the health of workers while achieving set goals to increase profit margin and reduce costs to the business is worth suggesting. Therefore, employers should adopt a new approach to how tasks are performed, improve the

duration of time spent on each task and accept innovative ideas while modernizing old fashioned tasks.

Adherence to Goldilocks' work paradigm requires that all stakeholders of businesses, such as, employers, employees and occupational health teams be adequately informed, trained and equipped with the requisite technical know-how to address challenges and ensure sustainability. Providing sufficient rest periods in the workplace has been recommended by the public health team. The Goldilocks work paradigm appreciates leisure hours but places much emphasis on manhours, which is, the time spent on a job at the workplace (Chappel et al., 2023).

#### **2.4 Summary of the Literature Review**

The risk of cardiovascular diseases in adults is a great public health issue; therefore, early detection through genetic history assists in health promotion (Kundu & Kundu, 2022). Discussions to help individuals share their behaviour and lifestyles in relation to hypertension will be an improved strategy to prevent hypertension (Gyamfi et al., 2017) Improving the cardiovascular system is also relevant in the prevention of hypertension through well balanced diet, reduced intake of simple carbohydrates, participation in physical exercises, and adoption of appropriate stress management strategies (Szczepańska et al., 2022).

Adhering to prescribed treatments and obtaining blood pressure monitoring devices can assist individuals in detecting, managing, and preventing hypertension. Individuals can be encouraged to practice self-monitoring blood pressure techniques (Konlan et al., 2020). The study addresses the identified gap by examining knowledge, attitude, barriers and support systems using the Pender Health Promotion Model. The next chapter presents the methodology adopted to explore these issues.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

This section details the methodology employed in this study. It first describes the research design adopted by the study, the study area, the population from which the sample for the study will be derived, the method used to select the sample, the sample size used for the study, and the procedures for data collection and analysis. This chapter discusses the institution from which ethical clearance is sought.

#### 3.2 Study Design

This study used a descriptive quantitative cross-sectional design to examine the preventive practices of hypertension among workers at the Cocoa Processing Company in Tema. This design allowed for the observation of a sample of the population for a particular phenomenon at one point in time. A Cross-sectional study design is appropriate, because it allows researchers to gather data at a single point in time. Therefore, it saves resources, such as time and finances (Cummings, 2021).

##### 3.2.1 The Philosophical Underpinning

The philosophical underpinning of this study is the positivist view of patterns among the social factors. A Positivist collects data from large samples and places them into datasets to find causes and effects through correlations. The positivist allows for an objective collection of numerical data that can be analyzed (Citra, 2023). A positivist identifies social issues among large groups in society and administers a statistical analysis through which accurate predictions can be made. A positivist relies on what has been observed, measured, and recorded, using a quantitative method. The positivist helps unearth facts that ensure that the

data collected are reliable and generalizable (Konlan et al., 2020). The researcher adopted a positivist philosophical underpinning to ensure an accurate representation of facts collected from the field using a quantitative approach. Furthermore, quantitative approach implies positivist paradigm seeks cause-and-effect relationships (Maksimović & Evtimov, 2023)

### 3.3 Study Setting

The study setting is the environment in which the study was conducted. It involves the specific location, the population, ethical considerations, and potential influences on the study findings. The setting is relevant because it influences participant experiences, data collection, and the interpretation of results. (Hiemstra, 2025). The study setting also allow for possible prediction and generalization in similar situation where careful consideration is made of the characteristics and their effects on the study (Sprague, 2006).

The study area was the Cocoa Processing Company Limited (CPC), located in the Tema Metropolitan Area of the Heavy Industrial Area. According to the Occupational Health and Safety Supervisor, the factory was established in 1965. The company was incorporated as a limited-liability company on November 30, 1981. The Company is comprised of three factories: two cocoa factories and one confectionary factory. The Company processes raw cocoa beans through biological, chemical, and physical transformation into semi-finished products Cocoa Liquor, Butter, Natural/Alkalized Cake, or Powder, while the Confectionary Factory manufactures Golden Tree Chocolate Bars, Couverture, Chocolate Coated (Peanuts Pebbles), VITACO and ALLTIME drinking chocolate Powder, Choco Delight (chocolate spread), Choco Bake, and Royale Natural Cocoa Powder (Melo et al., 2022).

Through intensive research and product development, the CPC has developed products that meet international quality standards as well as consumer satisfaction. The vision of the CPC is to be a first-class factory of international repute and a mission of processing cocoa to delight their customers with the full health benefits of world-class cocoa/chocolate products.

### **3.4 Study Population**

The study population included all workers, comprising 485 staff members working at the Cocoa Processing Company Limited, Tema.

### **3.5 Inclusion criteria**

This study involved workers who had been working at the company for a minimum of one year. Workers with employment statuses of management, production, and contract staff were identified. Further classifications based on senior staff, junior staff, and third-party staff working in the factory were also sampled.

### **3.6 Exclusion Criteria**

This study excluded workers on annual, maternity, study, and sick leaves. Permanent and part-time staff working outside the factory, such as those working on the distribution of finished products, were excluded from the study.

### **3.7 Sampling, Sample method and sample Size calculation**

#### **3.7.1 Sampling and Sample method**

Sampling is the process of selecting a part of the entire population that can be used to represent the population, as it is challenging to study the whole population (Acharya et al., 2013). The stratified random sampling method was used to group all factory workers into various subgroups (strata). Samples were selected from each stratum. Sampling was conducted separately for each stratum (Singh & Masuku, 2014). Stratified method divides the entire population into smaller, more manageable subsets, or "strata." The reason for the

stratification is to achieve internal uniformity. When a population is divided into subgroups with comparable values, there is less room for variation within each stratum. The estimations are more reliable because of the independent sampling within each stratum. Simple random sampling is used for selecting samples within each stratum (Ahmad et al., 2024).

### 3.7.2 Sample Size Calculation

The sample size from the population was calculated using the Yamane's formular  $n = \frac{N}{1 + N(e)^2}$   $n$  is the required sample size from the population under study

$N$  is the whole population that is under study

$e$  is the precision or sampling error which is 5%

therefore  $n = \frac{N}{1 + N(e)^2}$ ,  $N=485$ ;  $e= 0.05$ ;  $e^2= 0.0025$   $n= \frac{485}{1 + 485(0.05)^2}$   $n= \frac{485}{1 + 485(0.0025)}$   $n= \frac{485}{2.2125}$   $n= 219$

Therefore, a minimum sample size of 219 CPC who met the inclusion criteria was recruited for the study.

To achieve this, each stratum was divided by the total population then multiple by required sample size to arrive at the respondents for the subgroups detailed below,

Table 1: Showing sample size calculation according to strata

| Subgroup                    | Total number | Strata calculation         |
|-----------------------------|--------------|----------------------------|
| Production staff            | 240          | $240/485 \times 219 = 108$ |
| 3 <sup>rd</sup> party staff | 124          | $124/485 \times 219 = 56$  |
| Contract staff              | 103          | $103/485 \times 219 = 47$  |

|                  |     |                         |
|------------------|-----|-------------------------|
| Management staff | 18  | $18/485 \times 219 = 8$ |
| Total population | 485 | Sample (108+56+47+8)    |

Source: Researcher's Construct (2024)

Simple random sampling was used to sample One hundred and eight (108) production staff, fifty-six (56) third-party staff, forty-seven (47) Contract staff and eight (8) management staff members. The sample size of 219 was sufficient to determine statistically significant results from each variables under investigation. The sample response expected was estimated using the formular  $\text{Response Rate} = (\text{Responses Returned}) / (\text{Surveys Sent out}) \times 100$ .  $\text{Response Rate} = 219 / 219 \times 100 = 100$

The response rate for this study was 100% as every worker in the sample provided a response. This ensured complete participation from the target group as data provided was reliable with no missing respondents.

### 3.8 Independent Variables

The independent variables were the individual characteristics from the Pender health promotion model that deals with personal factors such as biological, psychological and sociocultural. In this study, the individual characteristics for biological factors were age, gender, while sociocultural factors were marital status, educational background, department, employment status, work schedule, workload, eating habits, rest periods, physical activity of respondents. The psychological factor was not employed in this study.

### 3.9 Dependent Variables

The study examined dependent variables such as knowledge of the hypertension work environment, work-life policy, medical care, and family support system.

### 3.10 Data Collection Tool

This study administered printed structured questionnaires to workers at Cocoa Processing Company Limited Tema, to collect data. Hypertension Evaluation Lifestyle Management (HELM) questionnaire (see Appendix C) was adopted. Permission for the use of the tool was sought and granted by researchers in an email received (evidence in Appendix D). The researcher was granted permission on the 31<sup>st</sup> October, 2023 by Jacob Setorglo (PhD), an associate Professor, School of Medical Sciences, University of Cape Coast to adopt a questionnaire on the predictors of hypertension and prehypertension among taxi drivers (Setorglo et al., 2020) and the Hypertension Evaluation of Lifestyle and Management Knowledge Scale instrument for hypertension knowledge assessment questionnaire (Gyamfi et al., 2017). The questionnaire was administered to the participants voluntarily and had six sections. Section A covers the demographic characteristics of the respondents. Section B covers items on awareness of preventive practices for hypertension among workers.

Section C includes items on shift work and workload as barriers to the prevention of hypertension among workers, and Section D deals with items on physical activity and eating habits as measures to prevent hypertension among workers. Section E comprises items on work environment, work-life policy, and medical care as measures to prevent practices hypertension. Section F includes items on family and external support as measures of hypertension prevention practices.

The study also used an online Google survey to ensure that all eligible respondents had access to the questionnaire. The online Google survey form adopted for the data collection was completed by sending the online Google survey form questionnaire to workers-specific corporate emails to enable workers to respond to the questionnaire. A Google Classroom was created to monitor the online responses. The questions were based on the objectives and

conceptual framework of the study, which sought to determine the level of awareness of preventive practices on hypertension among workers, to identify barriers to staff on the preventive practices of hypertension and to determine measures put in place to prevent hypertension among workers of CPC.

### 3.11 Reliability and Validity

The study ensured the reliability of the data, as it was used to test for consistency. Reliability consists of homogeneity, which is the extent to which all items on a scale measure a construct. The reliability of the study was determined using item-to-total correlation, split-half reliability, and Cronbach's alphas. The study ensured content validity with inference to the related concepts being studied; construct validity was determined through homogeneity, convergence, and criteria. Validity was measured using convergent, divergent, and predictive methods. Additionally, the questionnaire was pre-tested among 15 factory workers in the TexStyle (GTP) and Textile Industry in the Heavy Industrial Area of Tema in the Greater Accra Region.

Table 2: Reliability Analysis of the Scales

| Scale                                  | No. of Items | Cronbach's Alpha |
|----------------------------------------|--------------|------------------|
| DEMOGRAPHIC                            | 7            | 0.441            |
| LEVEL OF KNOWLEDGE                     | 19           | 0.831            |
| BARRIERS TO HEALTH PROMOTION           | 18           | 0.871            |
| ATTITUDES TO PREVENTIVE MEASURES       | 13           | 0.733            |
| PREVENTIVE MEASURES (WORK ENVIRONMENT) | 16           | 0.823            |
| PREVENTIVE MEASURES (FAMILY/EXTERNAL)  | 4            | 0.316            |

Source of data: field data, 2024

Reliability analysis of the scales showed that "LEVEL OF KNOWLEDGE" ( $\alpha = 0.831$ ), "BARRIERS TO HEALTH PROMOTION" ( $\alpha = 0.871$ ), and "PREVENTIVE MEASURES (WORK ENVIRONMENT)" ( $\alpha = 0.823$ ) exhibit high internal consistency, indicating that the items within these scales are well correlated and reliability measures the same construct. "ATTITUDES TO PREVENTIVE MEASURES" ( $\alpha = 0.733$ ) also shows acceptable reliability, though slightly lower. In contrast, the "DEMOGRAPHIC" ( $\alpha = 0.441$ ) and "PREVENTIVE MEASURES (FAMILY/EXTERNAL)" ( $\alpha = 0.316$ ) scales have low Cronbach's alpha values, suggesting poor internal consistency and indicating a need for potential removal of certain items to enhance their reliability.

### **3.12 Data Collection Technique**

Two (2) nurses were trained in data collection and assisted in the data collection procedure. Male and female workers who were present at the time of data collection were included. These were individual workers who were well oriented to self, time, and place and had no mental infirmity. The purpose of data collection was explained to the respondents. The respondents were offered at least 15 min to complete the questionnaire.

The Cocoa Processing Company Limited, Tema Occupational Health and Safety Management, located the data collection team at the junior staff canteen where the staff report taking breakfast, lunch, and super while at work. This enabled the team to engage with most production, technical, and contract staff. At the office location where the third-party staff were found, the team was granted permission by the security and the human resource department of Cocoa Processing Company Limited Tema.

### **3.13 Data Management**

The data collected were locked in safe and protection of the information gathered for the study. In addition, the digital data were entered into Microsoft Excel, and SPSS software was encrypted with secured passwords, saved on a pen drive, and secured in a locker.

### **3.14 Data Analysis**

The data analysis plan helps the researcher to demonstrate the appropriate management of the data collected (Olsen et al., 2023). The Statistical Package for Social Sciences Version 27 (SPSS) software was used for data analysis. Descriptive analyses, such as simple frequencies, percentages, means, and standard deviations, were also used for further analysis and for a summary of the data collected.

Chi-square tests were also conducted between selected variables to determine the associations of knowledge, barriers, and measures to prevent hypertension among workers at the Cocoa Processing Company in Tema Municipality. Logistic regression was used to test for significant variables of interest.

### **3.15 Ethical Considerations**

The protocol title: Preventive practices towards hypertension among workers at Cocoa Processing Company Limited, Tema, was approved by the Noguchi Memorial Institute for Medical Research- Institutional Review Board (NMIMR-IRB), University of Ghana, Legon with protocol identification number (057/23-24) (see Appendix A). An introductory letter was obtained from the Department of Adult Health and sent to the Human Resources Manager of the Cocoa Processing Company Limited in Tema.

The researcher informed the participants that their participation was voluntary, and that they could quit at any time they wished. The researcher also sought consent after full disclosure of the study content, which has detailed consent (see Appendix B) stipulated in each questionnaire, as required by the NMIMR-IRB. The participants were offered one-on-one interactions with the researcher and his team of assistants to provide respondents with anonymity and confidentiality without any influence.



## CHAPTER FOUR

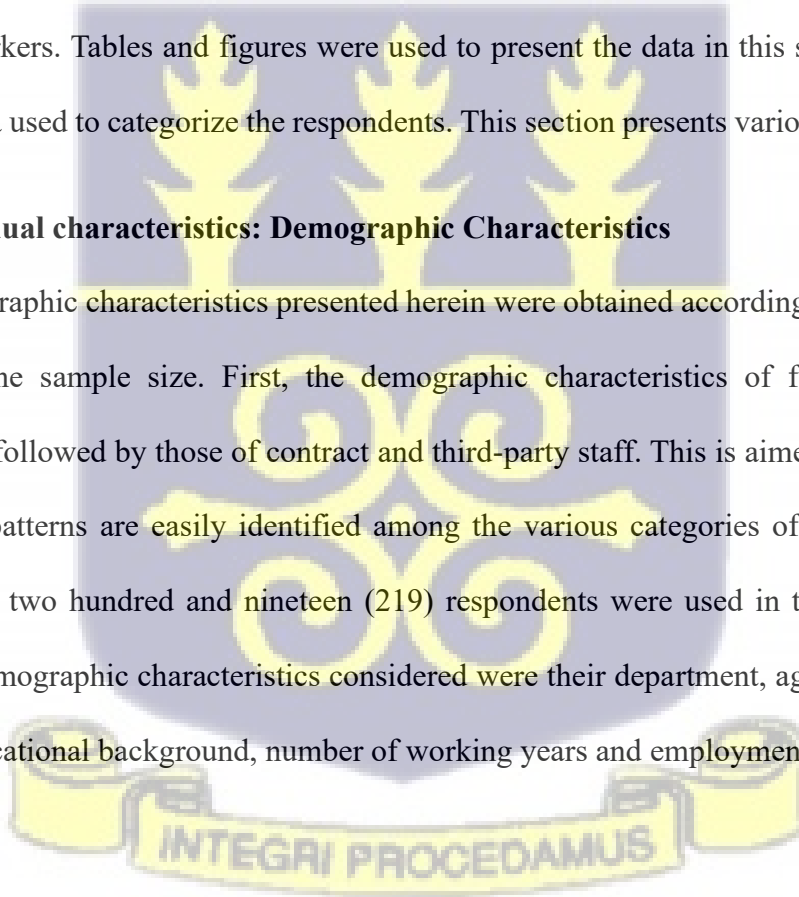
### ANALYSIS OF FINDINGS

#### 4.1 Introduction

This chapter presents an analysis of the data that sought to assess the preventive practices of hypertension among workers of the Cocoa Processing Company Limited Tema. The findings are presented and discussed in line with the specific research objectives of the study, which sought to determine the level of awareness of workers regarding the preventive practices of hypertension, identify the barriers to the preventive practices of hypertension among workers, and determine measures that assist in the preventive practices of hypertension among workers. Tables and figures were used to present the data in this section, according to the strata used to categorize the respondents. This section presents various statistical tests.

#### 4.2 Individual characteristics: Demographic Characteristics

The demographic characteristics presented herein were obtained according to the strata used to determine sample size. First, the demographic characteristics of full-time staff are presented, followed by those of contract and third-party staff. This is aimed at ensuring that emerging patterns are easily identified among the various categories of CPC employees. Altogether, two hundred and nineteen (219) respondents were used in this study and the specific demographic characteristics considered were their department, age, gender, marital status, educational background, number of working years and employment status.



**Table 3: Socio Demography of Respondents**

| <b>Variables</b>                 | <b>Full-time staff</b>     |          | <b>Contract staff</b>     |          | <b>3<sup>rd</sup> party staff</b> |          |
|----------------------------------|----------------------------|----------|---------------------------|----------|-----------------------------------|----------|
| <b>Age</b>                       | <b>Frequency<br/>(116)</b> | <b>%</b> | <b>Frequency<br/>(47)</b> | <b>%</b> | <b>Frequency<br/>(56)</b>         | <b>%</b> |
| 20-30 years                      | 25                         | 21.6     | 22                        | 46.8     | 35                                | 62.5     |
| 31-40 years                      | 32                         | 27.6     | 12                        | 25.5     | 11                                | 19.6     |
| 41-50 years                      | 33                         | 28.4     | 12                        | 25.5     | 6                                 | 10.7     |
| 51 - 60 years                    | 26                         | 22.4     | 1                         | 2.1      | 2                                 | 3.6      |
| Above 60 years                   | 0                          | 0.0      | 0                         | 0.0      | 2                                 | 3.6      |
| Chi-Square p-value               | 0.216                      |          | 0.825                     |          | 0.34                              |          |
| <b>Gender</b>                    |                            |          |                           |          |                                   |          |
| Male                             | 89                         | 76.7     | 29                        | 61.7     | 28                                | 50       |
| Female                           | 27                         | 23.3     | 18                        | 38.3     | 28                                | 50       |
| Chi-Square p-value               | 0.048                      |          | 0.919                     |          | 0.568                             |          |
| <b>Marital status</b>            |                            |          |                           |          |                                   |          |
| Married                          | 69                         | 59.5     | 16                        | 34.0     | 14                                | 25       |
| Single                           | 46                         | 39.7     | 31                        | 66.0     | 42                                | 75       |
| Divorced                         | 1                          | 0.9      | 0                         | 0.0      | 0                                 | 0.0      |
| Chi-Square p-value               | 0.639                      |          | 0.546                     |          | 0.548                             |          |
| <b>Educational qualification</b> |                            |          |                           |          |                                   |          |
| Tertiary                         | 49                         | 42.2     | 16                        | 34.0     | 9                                 | 16.1     |
| Secondary                        | 41                         | 35.3     | 18                        | 38.3     | 34                                | 60.7     |
| Technical                        | 22                         | 19.0     | 7                         | 14.9     | 4                                 | 7.1      |
| Vocational                       | 4                          | 3.4      | 6                         | 12.8     | 9                                 | 16.1     |
| Chi-Square p-value               | 0.781                      |          | 0.495                     |          | 0.858                             |          |
| <b>Number of working years</b>   |                            |          |                           |          |                                   |          |
| 2 years                          | 16                         | 13.8     | 19                        | 40.4     | 35                                | 62.5     |
| 3-4 years                        | 15                         | 12.9     | 11                        | 23.4     | 5                                 | 8.9      |
| 5-6 years                        | 26                         | 22.4     | 8                         | 17.0     | 6                                 | 10.7     |
| 7 years and above                | 59                         | 50.9     | 9                         | 19.1     | 10                                | 17.9     |
| Chi-Square p-value               | 0.124                      |          | 0.322                     |          | 0.838                             |          |
| <b>Department</b>                |                            |          |                           |          |                                   |          |
| Human Resource                   | 6                          | 5.2      | 15                        | 31.9     | 35                                | 62.5     |
| Technical                        | 24                         | 20.7     | 8                         | 17.0     | 6                                 | 10.7     |
| Production                       | 71                         | 61.2     | 21                        | 44.7     | 12                                | 21.4     |
| Marketing                        | 2                          | 1.7      | 1                         | 2.1      | 0                                 | 0.0      |
| Administration                   | 2                          | 1.7      | 0                         | 0.0      | 3                                 | 5.4      |
| Finance                          | 10                         | 8.6      | 2                         | 4.3      | 0                                 | 0.0      |

|                    |       |      |       |      |       |      |
|--------------------|-------|------|-------|------|-------|------|
| Health             | 1     | 0.9  | 0     | 0.0  | 0     | 0.0  |
| Chi-Square p-value | 0.001 |      | 0.859 |      | 0.332 |      |
| Employment Status  |       |      |       |      |       |      |
| Senior Staff       | 8     | 6.9  | 7     | 14.9 | 3     | 5.4  |
| Junior Staff       | 108   | 93.1 | 40    | 85.1 | 53    | 94.6 |
| Chi-Square p-value | 0.963 |      |       |      |       |      |

Source of data: Field data (2024)

#### 4.3 Relationship Between Individual Characteristics and Health-Promotion Behaviour Across Different Employee Types (Full-Time Staff, Third-Party Staff and Contract Staff)

The analysis revealed associations between individual characteristics and health promotion behaviours across different employee types. Gender demonstrates significance only among fulltime staff ( $p = 0.048$ ), where males exhibit different health promotion behaviours than females. Conversely, age ( $p = 0.216$ ), marital status ( $p = 0.639$ ), educational qualification ( $p = 0.781$ ), and years of work experience ( $p = 0.124$ ) did not significantly influence health promotion behaviour across any employee type.

The department appears significant only for full-time staff ( $p = 0.001$ ), suggesting that departmental roles might uniquely influence health promotion practices in this group. Employment status was not significantly associated with health-promotion behaviours among full-time staff members ( $p = 0.963$ ). This finding is consistent with (Adeke, 2022) which affirmed that there is a positive relationship between women and men. In addition, Ginting and Suci (2023) revealed that the independent and dependent variables correlated well with a p-value of 0.05.

#### 4.4 Perceived benefit of action: Level of knowledge on prevention practices of hypertension

##### 4.4.1.1 Relationship between individual characteristics and level of knowledge on prevention practices of hypertension full-time staff

Table 4 provides the demographic and employment characteristics of full-time staff (N=116), alongside chi-square test results to assess the significance of associations between individual characteristics and prevention practices towards hypertension.

The analysis revealed varied relationships between individual characteristics and knowledge of preventive practices among full-time staff members. The department exhibited a highly significant association ( $p < 0.001$ ), implying that different departments may have distinct levels of knowledge regarding preventive measures. Age ( $p = 0.088$ ), sex ( $p = 0.372$ ), marital status ( $p = 0.79$ ), educational qualification ( $p = 0.889$ ), work experience ( $p = 0.568$ ), and employment status ( $p = 0.711$ ) did not show any relationship with hypertension knowledge, which proves that these factors are not major determinants of preventive practice knowledge among full-time staff.

Table 4: Relationship between individual characteristics and the level of knowledge on prevention practices of full-time staff

| Item                      | Pearson Chi-Square | Df | Asymptotic Significance (2-sided) |
|---------------------------|--------------------|----|-----------------------------------|
| Department                | 113.989            | 60 | <0.001                            |
| Age                       | 40.914             | 30 | 0.088                             |
| Gender                    | 10.819             | 10 | 0.372                             |
| Marital Status            | 14.761             | 20 | 0.79                              |
| Educational Qualification | 20.968             | 30 | 0.889                             |
| Work Experience           | 28.054             | 30 | 0.568                             |
| Employment Status         | 16.095             | 20 | 0.711                             |

Source of data: Field data (2024)

#### **4.4.1.2 Relationship between level of knowledge on hypertension prevention practices and health-promotion behaviour of full-time staff (N=116)**

According to Table 5,  $p < 0.05$  indicates a relationship, and  $p > 0.05$  shows no significant relationship. Analysis of the relationship between knowledge of hypertension prevention and health promotion behaviour suggests that while some beliefs and knowledge regarding hypertension show significant associations with health promotion behaviour, others do not. Specifically, beliefs such as "High blood pressure can cause cancer" ( $p = 0.048$ ), "High blood pressure can cause a person to have a stroke" ( $p = 0.029$ ), "Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure" ( $p < 0.001$ ), and "A person who has high blood pressure should eat more fruits and vegetables" ( $p = 0.008$ ) exhibit a relationship with health promotion behaviour.

"I know a lot about hypertension" ( $p = 0.595$ ), "Once someone has high blood pressure, it is for life" ( $p = 0.592$ ), and "Lifestyle changes are useful to prevent hypertension" ( $p = 0.824$ ) do not show significant associations. Additionally, beliefs regarding "High blood pressure can cause heart diseases" ( $p = 0.974$ ), "High blood pressure can cause kidney problems" ( $p = 0.9$ ), "High blood pressure can cause diabetes" ( $p = 0.219$ ), as well as the belief that "A normal blood pressure is between 135/85mmHg and 100/60 mmHg" ( $p = 0.408$ ), and do not exhibit significant associations with health promotion behaviour.



Table 5: Relationship between knowledge of hypertension prevention and health promotion behaviour

| Item                                                                                           | Pearson ChiSquare | Degrees of Freedom | Asymptotic Significance (2-sided) |
|------------------------------------------------------------------------------------------------|-------------------|--------------------|-----------------------------------|
| I know a lot about hypertension                                                                | 17.883            | 20                 | 0.595                             |
| Some members of my family have hypertension                                                    | 22.496            | 20                 | 0.314                             |
| Once someone has high blood pressure, it is for life                                           | 17.929            | 20                 | 0.592                             |
| People with high blood pressure should take their medicine according to prescription/regularly | 19.514            | 20                 | 0.489                             |
| Losing weight usually makes blood pressure remain stable                                       | 27.65             | 20                 | 0.118                             |
| Eating more salt usually makes blood pressure go high                                          | 18.894            | 20                 | 0.529                             |
| High blood pressure can cause heart diseases                                                   | 9.663             | 20                 | 0.974                             |
| High blood pressure can cause cancer                                                           | 31.614            | 20                 | 0.048                             |
| High blood pressure can cause kidney problems                                                  | 20.585            | 30                 | 0.9                               |
| High blood pressure can cause a person to have a stroke                                        | 33.573            | 20                 | 0.029                             |
| High blood pressure can cause diabetes                                                         | 24.559            | 20                 | 0.219                             |
| Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure            | 73.745            | 20                 | <0.001                            |
| Smoking a pack of cigarettes per day will not affect a person's risk of hypertension           | 26.56             | 20                 | 0.148                             |
| High blood pressure cannot be cured                                                            | 26.207            | 20                 | 0.159                             |
| Lifestyle changes are useful to prevent hypertension                                           | 14.136            | 20                 | 0.824                             |
| A person who has high blood pressure should eat less fat                                       | 28.68             | 20                 | 0.094                             |
| A person who has high blood pressure should eat more fruits and vegetables                     | 38.424            | 20                 | 0.008                             |
| A normal blood pressure is between 135/85mmHg and 100/60 mmHg                                  | 20.811            | 20                 | 0.408                             |
| I can detect symptoms of high blood pressure                                                   | 32.366            | 20                 | 0.04                              |

Source: Field study (2024)

#### 4.4.2.1 Relationship between individual characteristics and the knowledge prevention practices of contract staff (N=47)

According to table 6 using  $p < 0.05$  and  $p > 0.05$  for interpretation, the analysis of the relationship between individual characteristics and knowledge of prevention practices among contract staff (N=47) regarding hypertension reveals that most demographic variables do not demonstrate significant associations with prevention practices. Specifically, age ( $p = 0.602$ ), gender ( $p = 0.787$ ), marital status ( $p = 0.171$ ), educational qualification ( $p = 0.508$ ), number of working years ( $p = 0.2$ ), and department ( $p = 0.574$ ) had no relationship with knowledge of prevention practices. These findings suggest that demographic factors of contract staff do not strongly influence knowledge and prevention practices related to hypertension.

Table 6: The relationship between individual characteristics and the knowledge prevention practices of contract staff

| Variable       | Frequency<br>(N=47) | Percentage<br>(%) | Pearson<br>Chi-Square | df | Asymptotic<br>Significance<br>(2-sided) |
|----------------|---------------------|-------------------|-----------------------|----|-----------------------------------------|
| Age            |                     |                   | 56.554                | 60 | 0.602                                   |
| 20-30 years    | 22                  | 46.8              |                       |    |                                         |
| 31-40 years    | 12                  | 25.5              |                       |    |                                         |
| 41-50 years    | 12                  | 25.5              |                       |    |                                         |
| 51-60 years    | 1                   | 2.1               |                       |    |                                         |
| Above 60 years | 0                   | 0                 |                       |    |                                         |
| Gender         |                     |                   | 32.7                  | 40 | 0.787                                   |
| Male           | 29                  | 61.7              |                       |    |                                         |
| Female         | 18                  | 38.3              |                       |    |                                         |
| Marital Status |                     |                   | 25.845                | 20 | 0.171                                   |
| Married        | 16                  | 34                |                       |    |                                         |
| Single         | 31                  | 66                |                       |    |                                         |

|                           |    |      |        |    |       |
|---------------------------|----|------|--------|----|-------|
| Divorced                  | 0  | 0    |        |    |       |
| Educational Qualification |    |      | 59.119 | 60 | 0.508 |
| Tertiary                  | 16 | 34   |        |    |       |
| Secondary                 | 18 | 38.3 |        |    |       |
| Technical                 | 7  | 14.9 |        |    |       |
| Vocational                | 6  | 12.8 |        |    |       |
| Number of Working Years   |    |      | 68.957 | 60 | 0.2   |
| 2 years                   | 19 | 40.4 |        |    |       |
| 3-4 years                 | 11 | 23.4 |        |    |       |
| 5-6 years                 | 8  | 17   |        |    |       |
| 7 years and above         | 9  | 19.1 |        |    |       |
| Department                |    |      | 77.009 | 80 | 0.574 |
| Human Resource            | 15 | 31.9 |        |    |       |
| Technical                 | 8  | 17   |        |    |       |
| Production                | 21 | 44.7 |        |    |       |
| Marketing                 | 1  | 2.1  |        |    |       |
| Administration            | 0  | 0    |        |    |       |
| Finance                   | 2  | 4.3  |        |    |       |
| Health                    | 0  | 0    |        |    |       |

Source: Field study (2024)



#### **4.4.2.2 Relationship between knowledge of preventive practices and health promotion behaviours of contract staff**

According to Table 7, using the  $p > 0.05$  and  $p < 0.05$  for interpretation, the analysis of beliefs regarding hypertension suggests that most perceptions do not significantly correlate with preventive actions. Specifically, beliefs such as "I know a lot about hypertension" ( $p = 0.893$ ), "Some members of my family have hypertension" ( $p = 0.796$ ), "Once someone has high blood pressure, it is for life" ( $p = 0.728$ ), "People with high blood pressure should take their medicine according to prescription/regularly" ( $p = 0.774$ ),

"Losing weight usually makes blood pressure remain stable" ( $p = 0.067$ ), "Eating more salt usually makes blood pressure go high" ( $p = 0.612$ ), "High blood pressure can cause heart diseases" ( $p = 0.68$ ), "High blood pressure can cause cancer" ( $p = 0.466$ ), "High blood pressure can cause kidney problems" ( $p = 0.67$ ), "High blood pressure can cause a person to have a stroke" ( $p = 0.22$ ), "High blood pressure can cause diabetes" ( $p = 0.88$ ), "Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure" ( $p = 0.074$ ),

"Smoking a pack of cigarettes per day will not affect a person's risk of hypertension" ( $p = 0.266$ ), "High blood pressure cannot be cured" ( $p = 0.42$ ), "Lifestyle changes are useful to prevent hypertension" ( $p = 0.132$ ), "A person who has high blood pressure should eat less fat" ( $p = 0.078$ ), "A person who has high blood pressure should eat more fruits and vegetables" ( $p = 0.907$ ), "A normal blood pressure is between 135/85mmHg and 100/60 mmHg" ( $p = 0.429$ ), and "I can detect symptoms of high blood pressure" ( $p = 0.623$ ) do not significantly relate to preventive measures.

Table 7: Relationship between knowledge of preventive practices and health promotion behaviours of contract staff

| Item                                                                                           | Pearson Chi-Square | df | Asymptotic Significance (2-sided) |
|------------------------------------------------------------------------------------------------|--------------------|----|-----------------------------------|
| I know a lot about hypertension                                                                | 7.922              | 14 | 0.893                             |
| Some members of my family have hypertension                                                    | 9.525              | 14 | 0.796                             |
| Once someone has high blood pressure, it is for life                                           | 10.463             | 14 | 0.728                             |
| People with high blood pressure should take their medicine according to prescription/regularly | 4.047              | 7  | 0.774                             |
| Losing weight usually makes blood pressure remain stable                                       | 22.579             | 14 | 0.067                             |
| Eating more salt usually makes blood pressure go high                                          | 5.39               | 7  | 0.612                             |
| High blood pressure can cause heart diseases                                                   | 11.072             | 14 | 0.68                              |
| High blood pressure can cause cancer                                                           | 13.78              | 14 | 0.466                             |
| High blood pressure can cause kidney problems                                                  | 11.199             | 14 | 0.67                              |
| High blood pressure can cause a person to have a stroke                                        | 9.474              | 7  | 0.22                              |
| High blood pressure can cause diabetes                                                         | 8.168              | 14 | 0.88                              |
| Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure            | 12.943             | 7  | 0.074                             |
| Smoking a pack of cigarettes per day will not affect a person's risk of hypertension           | 16.817             | 14 | 0.266                             |
| High blood pressure cannot be cured                                                            | 14.41              | 14 | 0.42                              |
| Lifestyle changes are useful to prevent hypertension                                           | 19.943             | 14 | 0.132                             |
| A person who has high blood pressure should eat less fat                                       | 22.012             | 14 | 0.078                             |
| A person who has high blood pressure should eat more fruits and vegetables                     | 7.649              | 14 | 0.907                             |
| A normal blood pressure is between 135/85mmHg and 100/60 mmHg                                  | 14.284             | 14 | 0.429                             |
| I can detect symptoms of high blood pressure                                                   | 11.798             | 14 | 0.623                             |

Source: Field study (2024)

#### 4.4.3.1 Relationship between level of knowledge on prevention practices of hypertension and health preventive behaviours of third-party staff (N=56)

In reference to table 8, using a significance level of 0.05 for analysis, the data in the table elucidates the relationship between knowledge of hypertension and health promotion behaviours.

Notably, beliefs such as "People with high blood pressure should take their medicine according to prescription/regularly" ( $p = 0.022$ ) and "Moderate to vigorous exercise 30 minutes/day 3-5

times a week lowers blood pressure" ( $p = 0.02$ ) exhibited significant associations with health promotion behaviours, indicating a positive correlation.

Conversely, "High blood pressure cannot be cured" ( $p = 0.98$ ) and "Lifestyle changes are useful to prevent hypertension" ( $p = 0.153$ ) did not show significant associations.

Work-related factors, such as "Working irregular hours" ( $p = 0.14$ ) and "Excess workload" ( $p = 0.303$ ), also displayed no significant relationship with health promotion behaviours for hypertension prevention. However, "I experience disturbed sleep" ( $p = 0.03$ ) revealed a statistically significant association, suggesting that disturbed sleep may influence health promotion behaviours related to hypertension prevention. Other variables, including "I experience short resting times" ( $p = 0.678$ ) and "I can detect symptoms of high blood pressure" ( $p = 0.946$ ), did not show significant associations with health promotion behaviours for hypertension prevention. Furthermore, beliefs regarding the impact of weight loss on blood pressure stability ("Losing weight usually makes blood pressure remain stable") and dietary habits ("Eating more salt usually makes blood pressure go high") did not exhibit significant associations with health promotion behaviours for hypertension prevention, with p-values of 0.392 and 0.901, respectively.

Similarly, beliefs regarding the adverse health outcomes associated with high blood pressure, such as heart diseases, cancer, kidney problems, strokes, and diabetes, did not show statistically significant correlations with health promotion behaviours for hypertension prevention, as indicated by p-values ranging from 0.08 to 0.749. Other items related to lifestyle habits, workplace conditions, and definitions of normal blood pressure also did not demonstrate significant associations with health promotion behaviours for hypertension prevention, with p-values exceeding the threshold of 0.05.

Table 8: Relationship between knowledge of hypertension and health preventive behaviours

| Item                                                                                           | Pearson<br>ChiSquare | df | Asymptotic<br>Significance<br>(2-sided) |
|------------------------------------------------------------------------------------------------|----------------------|----|-----------------------------------------|
| I know a lot about hypertension                                                                | 11.007               | 20 | 0.946                                   |
| Some members of my family have hypertension                                                    | 16.122               | 20 | 0.709                                   |
| People with high blood pressure should take their medicine according to prescription/regularly | 34.593               | 20 | 0.022                                   |
| Losing weight usually makes blood pressure remain stable                                       | 21.089               | 20 | 0.392                                   |
| Eating more salt usually makes blood pressure go high                                          | 12.429               | 20 | 0.901                                   |
| High blood pressure can cause heart diseases                                                   | 29.393               | 20 | 0.08                                    |
| High blood pressure can cause cancer                                                           | 23.759               | 20 | 0.253                                   |
| High blood pressure can cause kidney problems                                                  | 16.906               | 20 | 0.659                                   |
| High blood pressure can cause a person to have a stroke                                        | 17.859               | 20 | 0.597                                   |
| High blood pressure can cause diabetes                                                         | 15.463               | 20 | 0.749                                   |
| Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure            | 59.965               | 20 | 0.02                                    |
| Smoking a pack of cigarettes per day will not affect a person's risk of hypertension           | 20.982               | 20 | 0.398                                   |
| High blood pressure cannot be cured                                                            | 15.463               | 20 | 0.98                                    |
| Lifestyle changes are useful to prevent hypertension                                           | 26.384               | 20 | 0.153                                   |
| A person who has high blood pressure should eat more fruits and vegetables                     | 13.718               | 20 | 0.845                                   |
|                                                                                                | 19.423               | 20 | 0.495                                   |

|                                                                                         |        |    |       |
|-----------------------------------------------------------------------------------------|--------|----|-------|
| A normal blood pressure is between 135/85mmHg and 100/60 mmHg                           |        |    |       |
| Working for long hours can be a barrier to preventing the onset of Hypertension         | 19.069 | 20 | 0.517 |
| Working irregular hours can be a barrier to preventing hypertension                     | 26.832 | 20 | 0.14  |
| Working on night shift frequently is a barrier to preventing hypertension among workers | 26.832 | 20 | 0.14  |
| Working on rotating shift can be a barrier to preventing hypertension                   | 23.041 | 20 | 0.287 |
| Excess workload can be a barrier to the prevention of hypertension                      | 22.716 | 20 | 0.303 |
| I perform multiple tasks at the workplace                                               | 16.581 | 20 | 0.68  |
| I stand for more than 4 hours at the workstations                                       | 19.317 | 20 | 0.501 |
| I have other workloads at my workstation                                                | 16.889 | 20 | 0.66  |
| I experience short resting times                                                        | 7.493  | 10 | 0.678 |
| I experience disturbed sleep                                                            | 62.945 | 20 | 0.03  |
| A normal blood pressure is between 135/85mmHg and 100/60 mmHg                           | 8.588  | 10 | 0.572 |
| I can detect symptoms of high blood pressure                                            | 11.007 | 20 | 0.946 |

Source of data: Field data (2024)



#### 4.5 Activity related emotions: Attitude to Prevention Practices of Hypertension

##### 4.5.1.1 Relationship between attitudes to prevention practice of hypertension and individual characteristics of full-time staff

According to Table 9, only department showed a statistically significant association with health outcomes ( $p < 0.001$ ), indicating that departmental affiliation significantly influenced health related variables. Conversely, age ( $p = 0.088$ ), gender ( $p = 0.372$ ), marital status ( $p = 0.79$ ), educational qualification ( $p = 0.889$ ), number of working years ( $p = 0.568$ ), and employment status ( $p = 0.711$ ) did not exhibit statistically significant associations with health outcomes based on the provided analysis. These results suggest that departmental affiliation plays a crucial role in health-related outcomes.

Table 9: Relationship between attitude to prevention practices of hypertension and individual characteristics

| Item                       | ChiSquare Value | Df | Asymptotic Significance (2-sided) |
|----------------------------|-----------------|----|-----------------------------------|
| Department                 | 113.989         | 60 | <0.001                            |
| Age                        | 40.914          | 30 | 0.088                             |
| Gender                     | 10.819          | 10 | 0.372                             |
| Marital status?            | 14.761          | 20 | 0.79                              |
| Educational qualification? | 20.968          | 30 | 0.889                             |
| Number of working years    | 28.054          | 30 | 0.568                             |
| Employment Status          | 16.095          | 20 | 0.711                             |

Source of data: Field data (2024)

#### 4.5.1.2 Relationship between attitudes to prevention practices of hypertension and health promotion behaviours of full-time staff (N=116)

As shown in Table 10, attitudes such as having time for sporting activities ( $p < 0.001$ ), making time for daily walks ( $p = 0.005$ ), ensuring regular intake of fruits and vegetables ( $p = 0.04$ ), avoiding late eating ( $p = 0.001$ ), moderating salt intake ( $p = 0.001$ ), irregular eating behaviour ( $p < 0.001$ ), skipping diet frequently ( $p < 0.001$ ), and eating while working ( $p < 0.001$ ) demonstrated relationships with health prevention behaviours. However, attitudes such as exempting oneself from physical exercise ( $p < 0.001$ ), experiencing excessive weight loss ( $p = 0.192$ ), controlling weight ( $p = 0.107$ ), exercising in bed before starting the day ( $p = 0.118$ ), and enjoying fatty foods ( $p < 0.025$ ) indicated no interrelationship with health prevention behaviours among full-time staff members.

Table 10: Relationship between attitudes to prevention practices of hypertension and health prevention behaviours

| Item                                              | ChiSquare Value | Degree of Freedom df | Asymptotic Significance (2-sided) |
|---------------------------------------------------|-----------------|----------------------|-----------------------------------|
| I do exempt myself from physical exercises        | 92.822          | 20                   | <0.001                            |
| I experience excessive weight loss                | 25.243          | 20                   | 0.192                             |
| I control my weight                               | 28.089          | 20                   | 0.107                             |
| I have time for sporting activities               | 138.015         | 30                   | <0.001                            |
| I make time to walk in a day                      | 40.097          | 20                   | 0.005                             |
| I exercise in bed before starting my day          | 27.644          | 20                   | 0.118                             |
| I have irregular eating behaviour                 | 47.667          | 20                   | <0.001                            |
| I ensure intake of fruit and vegetables regularly | 19.033          | 10                   | 0.04                              |
| I regularly do eat late                           | 92.885          | 20                   | 0.001                             |
| I enjoy taking fatty foods                        | 20.475          | 10                   | <0.025                            |
| I increase salt intake with meals at tables       | 29.807          | 10                   | 0.001                             |
| I skip diet frequently                            | 68.327          | 20                   | <0.001                            |
| I eat while working                               | 67.307          | 20                   | <0.001                            |

Source of data: Field data (2024)

#### 4.5.2.1 Relationship between attitude to prevention practices of hypertension and individual characteristics of contract staff

As shown in Table 11, department demonstrated a statistically significant association with contract staff demographics ( $p = 0.012$ ), suggesting variations in departmental representation among contract staff. However, age ( $p = 0.822$ ), gender ( $p = 0.678$ ), education ( $p = 0.892$ ), marital status ( $p = 0.337$ ), and working years ( $p = 0.304$ ) did not exhibit statistically significant associations with individual contract staff characteristics based on the analysis.

Table 11: Relationship between attitude to prevention practices of hypertension and individual characteristics of contract staff

| Item           | Pearson Chi-Square | Degree of Freedom | p-value |
|----------------|--------------------|-------------------|---------|
| Department     | 47.694             | 28                | 0.012   |
| Age            | 15.023             | 21                | 0.822   |
| Gender         | 11.101             | 14                | 0.678   |
| Education      | 13.462             | 21                | 0.892   |
| Marital Status | 7.949              | 7                 | 0.337   |
| Working Years  | 23.783             | 21                | 0.304   |

Source of data: Field data (2024)

#### 4.5.2.2 Relationship between attitudes to prevention practices of hypertension and health promotion behaviours of contract staff

As shown in Table 12, excessive weight loss ( $p = 0.049$ ), weight control ( $p = 0.026$ ), regular intake of fruits and vegetables ( $p = 0.015$ ), frequent skipping of the diet ( $p = 0.003$ ), and eating while working ( $p = 0.01$ ). These results suggest that individuals reporting these attitudes are more likely to exhibit corresponding health behaviours. Conversely, attitudes such as exempting oneself from physical exercises ( $p = 0.338$ ), having time for sporting activities ( $p = 0.6$ ), making time to walk in a day ( $p = 0.62$ ), exercising in bed before starting the day ( $p = 0.112$ ), having irregular eating behaviour ( $p = 0.47$ ), enjoying fatty foods ( $p = 0.204$ ), and increasing salt intake

with meals at tables ( $p = 0.515$ ) did not demonstrate statistically significant associations with health behaviours, as their  $p$ -values were above the conventional significance level of 0.05

Table 12: Relationship between attitudes to prevention practices of hypertension and health promotion behaviours of contract staff

| Attitudes                                         | Pearson<br>ChiSquare | df | Asymptotic<br>Significance<br>(2-sided) |
|---------------------------------------------------|----------------------|----|-----------------------------------------|
| I do exempt myself from physical exercises        | 7.938                | 7  | 0.338                                   |
| I experience excessive weight loss                | 23.743               | 14 | 0.049                                   |
| I control my weight                               | 26.011               | 14 | 0.026                                   |
| I have time for sporting activities               | 5.493                | 7  | 0.6                                     |
| I make time to walk in a day                      | 5.331                | 7  | 0.62                                    |
| I exercise in bed before starting my day          | 11.675               | 7  | 0.112                                   |
| I have irregular eating behaviour                 | 6.614                | 7  | 0.47                                    |
| I ensure intake of fruit and vegetables regularly | 27.79                | 14 | 0.015                                   |
| I regularly do eat late                           | 7.074                | 7  | 0.421                                   |
| I enjoy taking fatty foods                        | 9.73                 | 7  | 0.204                                   |
| I increase salt intake with meals at tables       | 6.217                | 7  | 0.515                                   |
| I skip diet frequently                            | 33.225               | 14 | 0.003                                   |
| I eat while working                               | 18.456               | 7  | 0.01                                    |

Source of data: Field data (2024)

#### 4.5.3.1 Relationship between attitudes to prevention practices of hypertension and individual characteristics of third-party staff

Table 13 shows the relationship between individual characteristics and attitudes toward hypertension prevention practices. In this analysis, none of the variables, department ( $p = 0.442$ ), age ( $p = 0.877$ ), gender ( $p = 0.16$ ), Marital Status ( $p = 0.981$ ), Educational Qualification ( $p = 0.362$ ), and Work Experience ( $p = 0.656$ ), showed a relationship with attitudes toward the prevention of hypertension among workers at a significance level of 0.05.

Table 13: Relationship between attitude to prevention practices of hypertension and individual characteristics of third-party staff

| Variable                  | Pearson Chi-Square | Degrees of Freedom (df) | Asymptotic Significance (2-sided) |
|---------------------------|--------------------|-------------------------|-----------------------------------|
| Department                | 30.465             | 30                      | 0.442                             |
| Age                       | 29.944             | 40                      | 0.877                             |
| Gender                    | 14.305             | 10                      | 0.16                              |
| Marital Status            | 9.152              | 20                      | 0.981                             |
| Educational Qualification | 32.117             | 30                      | 0.362                             |
| Work Experience           | 26.366             | 30                      | 0.656                             |

Source of data: Field data (2024)

#### 4.5.3.2 Relationship between attitudes to prevention practices of hypertension and health promotion behaviours of third-party staff

According to table 14, several attitudes demonstrated significant relationships with health promotion behaviours. Attitudes such as exempting oneself from physical exercises ( $p < 0.001$ ), experiencing excessive weight loss ( $p = 0.018$ ), having time for sporting activities ( $p < 0.001$ ), making time to walk in a day ( $p < 0.001$ ), exercising in bed before starting the day ( $p < 0.001$ ), having irregular eating behaviour ( $p = 0.028$ ), regularly eating late ( $p < 0.001$ ), enjoying taking fatty foods ( $p = 0.089$ ), increasing salt intake with meals at tables ( $p < 0.001$ ), and eating while working ( $p < 0.001$ ) all demonstrated statistically significant associations with health promotion behaviours. However, controlling weight ( $p = 0.167$ ), ensuring intake of fruits and vegetables regularly ( $p = 0.435$ ), and skipping diet frequently ( $p = 0.112$ ) did not exhibit significant associations.

Table 14: Relationship between attitudes to prevention practices of hypertension and health promotion behaviours of third-party staff

| Attitudes | Pearson ChiSquare | Degrees of Freedom (df) | Asymptotic Significance (2-sided) |
|-----------|-------------------|-------------------------|-----------------------------------|
|-----------|-------------------|-------------------------|-----------------------------------|

|                                                   |        |    |         |
|---------------------------------------------------|--------|----|---------|
| I do exempt myself from physical exercises        | 61.81  | 20 | < 0.001 |
| I control my weight                               | 14.128 | 10 | 0.167   |
| I experience excessive weight loss                | 35.328 | 20 | 0.018   |
| I have time for sporting activities               | 49.391 | 20 | < .001  |
| I make time to walk in a day                      | 64.513 | 20 | < .001  |
| I exercise in bed before starting my day          | 71.243 | 20 | < .001  |
| I have irregular eating behaviour                 | 20.142 | 10 | 0.028   |
| I ensure intake of fruit and vegetables regularly | 10.068 | 10 | 0.435   |
| I regularly do eat late                           | 50.45  | 20 | < .001  |
| I enjoy taking fatty foods                        | 16.407 | 10 | 0.089   |
| I increase salt intake with meals at tables       | 74.621 | 20 | < .001  |
| I skip diet frequently                            | 27.885 | 20 | 0.112   |
| I eat while working                               | 72.139 | 20 | < .001  |

Source of data: Field data (2024)

#### 4.6 Perceived barrier to action: Barriers to Prevention Practices of Hypertension

##### 4.6.1.1 Relationship between the barriers to prevention practices of hypertension and demographic characteristics of full-time staff (N=116)

Based on table 15, using the p values of ( $p < 0.05$ ) and ( $p > 0.05$ ) for interpretation, The examination of knowledge levels in relation to demographic factors reveals no significant association between departmental affiliation ( $p = 0.469$ ), gender ( $p = 0.238$ ), age ( $p = 0.314$ ), marital status ( $p = 0.314$ ), educational qualification ( $p = 0.134$ ), number of working years ( $p = 0.306$ ), and employment status ( $p = 0.322$ ) with the variables under consideration.

Table 15: Relationship between the barriers to prevention practices of hypertension and demography of full-time staff

| Items          | Frequency<br>(N=116) | Percentage<br>(%) | Pearson<br>ChiSquare<br>df | Asymptotic<br>Significance<br>(2-sided) |       |
|----------------|----------------------|-------------------|----------------------------|-----------------------------------------|-------|
| Department     |                      |                   | 114.503                    | 114                                     | 0.469 |
| Human Resource | 6                    | 5.2               |                            |                                         |       |

|                           |    |      |        |    |       |
|---------------------------|----|------|--------|----|-------|
| Technical                 | 24 | 20.7 |        |    |       |
| Production                | 71 | 61.2 |        |    |       |
| Marketing                 | 2  | 1.7  |        |    |       |
| Administration            | 2  | 1.7  |        |    |       |
| Finance                   | 10 | 8.6  |        |    |       |
| Health                    | 1  | 0.9  | 41.686 | 38 | 0.314 |
| Gender                    |    |      |        |    |       |
| Male                      | 89 | 76.7 |        |    |       |
| Female                    | 27 | 23.3 |        |    |       |
| Age                       |    |      | 64.24  | 57 | 0.238 |
| 20-30 years               | 25 | 21.6 |        |    |       |
| 31-40 years               | 32 | 27.6 |        |    |       |
| 41-50 years               | 33 | 28.4 |        |    |       |
| 51-60 years               | 26 | 22.4 |        |    |       |
| Marital Status            |    |      | 41.686 | 38 | 0.314 |
| Married                   | 69 | 59.5 |        |    |       |
| Single                    | 46 | 39.7 |        |    |       |
| Divorced                  | 1  | 0.9  |        |    |       |
| Educational Qualification |    |      | 68.915 | 57 | 0.134 |
| Tertiary                  | 49 | 42.2 |        |    |       |
| Secondary                 | 41 | 35.3 |        |    |       |
| Technical                 | 22 | 19   |        |    |       |
| Vocational                | 4  | 3.4  |        |    |       |
| Number of Working Years   |    |      | 61.885 | 57 | 0.306 |
| 2 years                   | 16 | 13.8 |        |    |       |
| 3-4 years                 | 15 | 12.9 |        |    |       |
| 5-6 years                 | 26 | 22.4 |        |    |       |

|                        |     |      |        |       |
|------------------------|-----|------|--------|-------|
| 7 years and above      | 59  | 50.9 |        |       |
| Employment Status      |     |      | 41.468 | 38    |
| Full time Senior Staff | 8   | 6.9  |        | 0.322 |
| Full time Junior Staff | 108 | 93.1 |        |       |

Source of data: Field data (2024)

#### 4.6.1.2 Relationship between the barriers to prevention practices of hypertension and health promotion behaviours of full-time staff (N=116)

According to Table 16, using a p-value ( $p < 0.05$  and  $p > 0.05$ ) as the basis of interpretation of the data summarized. Among these variables, no statistically significant associations are found between working long hours ( $p = 0.318$ ), working irregular hours ( $p = 0.182$ ), working on night shift frequently ( $p = 0.461$ ), working on rotating shift ( $p = 0.548$ ), or closing late from work ( $p = 0.275$ ) and hypertension prevention. However, experiencing increased workplace demand ( $p < 0.001$ ), working on heavy loads ( $p < 0.001$ ), leaving work unfinished ( $p = 0.024$ ), experiencing disturbed sleep ( $p = 0.594$ ), and having insufficient sleep ( $p < 0.001$ ) are all significantly associated with barriers to preventing hypertension.

Additionally, sleeping on the bus on the way to and from work is also interrelated with barriers to preventing hypertension ( $p < 0.001$ ). Other factors such as performing multiple tasks at the workplace ( $p = 0.366$ ), standing for more than 4 hours at workstations ( $p = 0.281$ ), having other workloads at the workstation ( $p = 0.619$ ), poor resting times ( $p = 0.733$ ), short resting times ( $p = 0.923$ ), and waking up very early every day ( $p = 0.083$ ) do not show significant associations with hypertension prevention.

Table 16: Relationship between the barriers and health promotion behaviours

| Items                                                                     | Pearson Chi-Square | Degrees of Freedom | Asymptotic Significance (2-sided) |
|---------------------------------------------------------------------------|--------------------|--------------------|-----------------------------------|
| Working for long hours can be a barrier to preventing hypertension        | 22.415             | 20                 | 0.318                             |
| Working irregular hours can be a barrier to preventing hypertension       | 25.52              | 20                 | 0.182                             |
| Working on night shift frequently is a barrier to pre...                  | 19.953             | 20                 | 0.461                             |
| Working on rotating shift can be a barrier to prevention of hypertension  | 18.597             | 20                 | 0.548                             |
| Closing late from work can be a barrier to the prevention to hypertension | 23.286             | 20                 | 0.275                             |
| Excess workload can be a barrier to the prevention to hypertension        | 14.977             | 20                 | 0.778                             |
| I experience increased workplace demand                                   | 48.563             | 20                 | <0.001                            |
| I perform multiple tasks at the workplace                                 | 21.533             | 20                 | 0.366                             |
| I work on heavy loads                                                     | 74.028             | 20                 | <0.001                            |
| I stand for more than 4 hours at the workstations                         | 23.159             | 20                 | 0.281                             |
| I go home with unfinished work                                            | 20.657             | 10                 | 0.024                             |
| I have other workloads at my workstation                                  | 17.514             | 20                 | 0.619                             |
| I have poor resting times                                                 | 15.732             | 20                 | 0.733                             |
| I experience short resting times                                          | 11.783             | 20                 | 0.923                             |
| I experience disturbed sleep                                              | 17.905             | 20                 | 0.594                             |
| I have insufficient sleep                                                 | 128.71             | 20                 | <0.001                            |
| I wake up very early everyday                                             | 16.646             | 10                 | 0.083                             |
| I sleep on the bus on my way to and from work                             | 51.424             | 20                 | <0.001                            |

Source of data: Field data (2024)

#### 4.6.2.1 Relationship between individual characteristics and barriers to health promotion behaviours of contract staff (N=47)

The analysis of Table 17, various demographic and employment-related variables revealed no significant relationship between department ( $p = 0.573$ ), age ( $p = 0.219$ ), sex ( $p = 0.46$ ), marital status ( $p = 0.388$ ), number of working years ( $p = 0.255$ ), and educational qualification ( $p = 0.384$ ) with the factors being studied.

Table 17: Relationship between individual characteristics and barriers to health promotion behaviours of contract staff

| Variable                                | Pearson ChiSquare | Degrees of Freedom (df) | Asymptotic Significance (2-sided) |
|-----------------------------------------|-------------------|-------------------------|-----------------------------------|
| Indicate your department                | 69.168            | 72                      | 0.573                             |
| What is your age?                       | 61.751            | 54                      | 0.219                             |
| Indicate your gender                    | 36.175            | 36                      | 0.46                              |
| What is your marital status?            | 19.059            | 18                      | 0.388                             |
| Number of working years                 | 60.415            | 54                      | 0.255                             |
| What is your educational qualification? | 56.44             | 54                      | 0.384                             |

Source of data: Field data (2024)

#### 4.6.2.2 Relationship between barriers to prevention practice of hypertension and health prevention behaviours of contract staff

Table 18 shows the analysis of the relationship between various perceived barriers and the implementation of preventive measures for hypertension revealed that most variables do not exhibit a significant relationship with preventive measures. Specifically, variables such as working long hours ( $p = 0.625$ ), working irregular hours ( $p = 0.315$ ), working night shifts frequently ( $p = 0.254$ ), working rotating shifts ( $p = 0.165$ ), closing late from work ( $p = 0.317$ ), experiencing an excess workload ( $p = 0.179$ ), increased workplace demand ( $p = 0.199$ ), performing multiple tasks ( $p = 0.490$ ), working on heavy loads ( $p = 0.812$ ), having other workloads ( $p = 0.395$ ), poor resting times ( $p = 0.186$ ), short resting times ( $p = 0.441$ ), disturbed

sleep ( $p = 0.789$ ), insufficient sleep ( $p = 0.735$ ), waking up very early every day ( $p = 0.628$ ), and sleeping on the bus ( $p = 0.287$ ) all show no significant relationship with hypertension prevention.

However, significant relationships are found for the variables "I stand for more than 4 hours at the workstations" ( $p = 0.023$ ) and "I go home with unfinished work" ( $p = 0.011$ ) which means that standing and going home with unfinished work are important factors impacting the implementation of preventive measures for hypertension.

Table 18: Relationship between barriers to prevention practice of hypertension and health prevention behaviours of contract staff

| Items                                                                     | Pearson ChiSquare | Degrees of Freedom (df) | Asymptotic Significance (2-sided) |
|---------------------------------------------------------------------------|-------------------|-------------------------|-----------------------------------|
| Working for long hours can be a barrier to preventing hypertension        | 11.761            | 14                      | 0.625                             |
| Working irregular hours can be a barrier to preventing hypertension       | 15.968            | 14                      | 0.315                             |
| Working on night shift frequently is a barrier to preventing hypertension | 17.041            | 14                      | 0.254                             |
| Working on rotating shift can be a barrier to preventing hypertension     | 18.989            | 14                      | 0.165                             |
| Closing late from work can be a barrier to preventing hypertension        | 15.933            | 14                      | 0.317                             |
| Excess workload can be a barrier to preventing hypertension               | 18.634            | 14                      | 0.179                             |
| I experience increased workplace demand                                   | 18.172            | 14                      | 0.199                             |
| I perform multiple tasks at the workplace                                 | 13.473            | 14                      | 0.49                              |
| I work on heavy loads                                                     | 3.716             | 7                       | 0.812                             |
| I stand for more than 4 hours at the workstations                         | 26.436            | 14                      | 0.023                             |
| I go home with unfinished work                                            | 28.842            | 14                      | 0.011                             |
| I have other workloads at my workstation                                  | 7.337             | 7                       | 0.395                             |
| I have poor resting times                                                 | 10.038            | 7                       | 0.186                             |
| I experience short resting times                                          | 6.889             | 7                       | 0.441                             |
| I experience disturbed sleep                                              | 3.923             | 7                       | 0.789                             |
| I have insufficient sleep                                                 | 4.38              | 7                       | 0.735                             |
| I wake up very early everyday                                             | 5.266             | 7                       | 0.628                             |

|                                               |       |   |       |
|-----------------------------------------------|-------|---|-------|
| I sleep on the bus on my way to and from work | 8.544 | 7 | 0.287 |
|-----------------------------------------------|-------|---|-------|

Source of data: Field data (2024)

#### 4.6.3.1 Relationship between barriers to prevention practices of hypertension and individual characteristics of third-party staff

From Table 19, the analysis using Pearson Chi-Square tests and corresponding p-values revealed that among the individual characteristics examined, department and marital status exhibited significant associations ( $p = 0.028$  and  $p = 0.003$ , respectively) with knowledge of hypertension among third-party staff. This suggests that staff members' barriers to preventing hypertension may be influenced by the department they work in and their marital status. However, age ( $p = 0.764$ ), gender ( $p = 0.33$ ), educational qualification ( $p = 0.25$ ), and number of working years ( $p = 0.757$ ) did not show any significant relationship with barriers of hypertension.

Table 19: Relationship between barriers of hypertension and individual characteristics of third-party staff

| Item                      | Pearson ChiSquare | Degrees of Freedom (df) | Asymptotic Significance (2-sided) |
|---------------------------|-------------------|-------------------------|-----------------------------------|
| Department                | 82.638            | 60                      | 0.028                             |
| Age                       | 70.637            | 80                      | 0.764                             |
| Gender                    | 22.2              | 20                      | 0.33                              |
| Marital status            | 69.163            | 40                      | 0.003                             |
| Educational qualification | 66.994            | 60                      | 0.25                              |
| Number of working years   | 52.076            | 60                      | 0.757                             |

Source of data: Field data (2024)

#### **4.6.3.2 Relationship between barriers of hypertension and health prevention behaviours of their third-party staff**

Table 20 elaborates that Chi-square test results that examined the relationship between barriers to hypertension and health prevention behaviours among third-party staff revealed that factors such as heavy workload ( $p < 0.001$ ), going home with unfinished work ( $p = 0.002$ ), poor resting times ( $p < 0.001$ ), and disturbed sleep ( $p < 0.001$ ) were associated with preventive behaviours for hypertension.

Conversely, variables such as working irregular hours ( $p = 0.140$ ), working night shifts ( $p = 0.419$ ), excessive workload ( $p = 0.303$ ), increased workplace demand ( $p = 0.748$ ), performing multiple tasks ( $p = 0.680$ ), standing for more than four hours at workstations ( $p = 0.501$ ), having other workloads at the workstation ( $p = 0.660$ ), insufficient sleep ( $p = 0.891$ ), waking up very early every day ( $p = 0.572$ ), and sleeping on the bus on the way to and from work ( $p = 0.946$ ) indicated no interrelationship.

These findings suggest that specific work-related stressors and sleep-related issues impact preventive behaviours related to hypertension among third-party staff. Furthermore, variables such as working long hours ( $p = 0.517$ ), working on rotating shifts ( $p = 0.287$ ), and closing late from work ( $p = 0.421$ ) also did not demonstrate relationship with preventive behaviours for hypertension.



Table 20: Relationship between barriers of hypertension and health prevention behaviours of their third-party staff

| Item                                                                      | Pearson ChiSquare | Degrees of Freedom (df) | Asymptotic Significance (2-sided) |
|---------------------------------------------------------------------------|-------------------|-------------------------|-----------------------------------|
| Working for long hours can be a barrier to preventing hypertension        | 19.069            | 20                      | 0.517                             |
| Working irregular hours can be a barrier to preventing hypertension       | 26.832            | 20                      | 0.14                              |
| Working on night shift frequently is a barrier to preventing hypertension | 20.627            | 20                      | 0.419                             |
| Working on rotating shift can be a barrier to preventing hypertension     | 23.041            | 20                      | 0.287                             |
| Closing late from work can be a barrier to the prevention of hypertension | 20.597            | 20                      | 0.421                             |
| Excess workload can be a barrier to the prevention of hypertension        | 22.716            | 20                      | 0.303                             |
| I experience increased workplace demand                                   | 15.493            | 20                      | 0.748                             |
| I perform multiple tasks at the workplace                                 | 16.581            | 20                      | 0.68                              |
| I work on heavy loads                                                     | 51.792            | 20                      | <0.001                            |
| I stand for more than 4 hours at the workstations                         | 19.317            | 20                      | 0.501                             |
| I go home with unfinished work                                            | 43.192            | 20                      | 0.002                             |
| I have other workloads at my workstation                                  | 16.889            | 20                      | 0.66                              |
| I have poor resting times                                                 | 64.337            | 20                      | <0.001                            |
| I experience short resting times                                          | 7.493             | 10                      | 0.678                             |
| I experience disturbed sleep                                              | 62.945            | 20                      | <0.001                            |
| I have insufficient sleep                                                 | 5                 | 10                      | 0.891                             |
| I wake up very early everyday                                             | 8.588             | 10                      | 0.572                             |
| I sleep on the bus on my way to and from work                             | 11.007            | 20                      | 0.946                             |

Source of data: Field data (2024)

#### 4.7 Interpersonal influence: Family/External Support on Prevention Practices of Hypertension

##### 4.7.1.1 Relationship between family/external support on prevention practices of hypertension and individual characteristics of full-time staff

Table 21 shows that p-values for Department ( $p = 0.618$ ), Age ( $p = 0.52$ ), Gender ( $p = 0.668$ ), Marital Status ( $p = 0.665$ ), Work Experience ( $p = 0.871$ ), and Employment Status ( $p = 0.174$ ) were all greater than 0.05, indicating a lack of statistical significance. However, Education ( $p = 0.018$ ) shows a relationship with the adoption of hypertension prevention practices, suggesting that education level impacts individuals in preventative measures with family or external support.

Table 21: Relationship between individual characteristics and prevention practices of hypertension on family/external support of full-time staff

| Variable          | Pearson Chi-Square | df | Asymptotic Significance (2-sided) |
|-------------------|--------------------|----|-----------------------------------|
| Department        | 27.108             | 30 | 0.618                             |
| Age               | 14.073             | 15 | 0.52                              |
| Gender            | 3.205              | 5  | 0.668                             |
| Marital Status    | 7.633              | 10 | 0.665                             |
| Education         | 28.633             | 15 | 0.018                             |
| Work Experience   | 9.119              | 15 | 0.871                             |
| Employment Status | 13.985             | 10 | 0.174                             |

Source of data: Field data (2024)



#### 4.7.1.2 Relationship between family/external support prevention practices of hypertension and health promotion behaviours of full staff

According to Table 22, the p-values show the associations between each variable and health promotion behaviours. Among the variables analyzed, statistically relationship ( $p < 0.05$ ) was found for relying on coworkers during illness ( $p = 0.029$ ) and getting along well with people in the neighbourhood ( $p = 0.011$ ) with health promotion behaviours. However, no significant associations were observed for allowing other family members to assist in health routines ( $p = 0.097$ ), direct family support for health plans ( $p = 0.894$ ), or adherence to medical advice ( $p = 0.278$ ) based on the provided p-values. This suggest that certain forms of social support do not influence on health promotion behaviours for full time staff.

Table 22: Relationship between family/external supportive preventive measures and health promotion behaviours of full staff

| Item                                                                             | Pearson<br>ChiSquare | df | Asymptotic<br>Significance<br>(2-sided) |
|----------------------------------------------------------------------------------|----------------------|----|-----------------------------------------|
| My family supports my health and wellness plans                                  | 12.598               | 20 | 0.894                                   |
| I allow other members of my family to assist in my health and wellness schedules | 28.564               | 20 | 0.097                                   |
| I adhere to all medical treatment advice given to me                             | 12.099               | 10 | 0.278                                   |
| I rely on my co-workers for help when I am unwell and need help                  | 20.056               | 10 | 0.029                                   |
| I get along well with people in your neighbourhood                               | 37.348               | 20 | 0.011                                   |

Source of data: Field data (2024)

#### 4.7.2.1 Relationship between individual characteristics and prevention practices of hypertension on family/external support of contract staff

In Table 23, Demographic factors revealed that only departmental affiliation ( $p = 0.012$ ) significantly influences perceived social support among participants, indicating a notable association. However, age ( $p = 0.822$ ), gender ( $p = 0.678$ ), marital status ( $p = 0.337$ ), education level ( $p = 0.892$ ), and years of work ( $p = 0.304$ ) do not exhibit statistically significant associations with social support.

Table 23: Relationship between individual characteristics and prevention practices of hypertension on family/external support of contract staff

| Item           | Pearson Chi-Square | df | Asymptotic Significance (2-sided) |
|----------------|--------------------|----|-----------------------------------|
| Department     | 47.694             | 28 | 0.012                             |
| Age            | 15.023             | 21 | 0.822                             |
| Gender         | 11.101             | 14 | 0.678                             |
| Marital Status | 7.949              | 7  | 0.337                             |
| Education      | 13.462             | 21 | 0.892                             |
| Years of Work  | 23.783             | 21 | 0.304                             |

Source of data: Field data (2024)

#### 4.8.2.2 Relationship between family/external support prevention practices of hypertension and health promotion behaviours of contract staff

The social support, according to table 24, for contract staff indicate that there is a significant relationship between individuals perceiving family supports their health and wellness plans ( $p = 0.019$ ). However, allowing other family members to assist in their health and wellness schedules ( $p = 0.47$ ), relying on co-workers for help when unwell ( $p = 0.607$ ), and getting along well with people in the neighbourhood ( $p = 0.897$ ) do not demonstrate association with perceived social

support. These findings suggest that family support specifically in health and wellness plans significantly influences individuals' perceptions of social support, while other forms of social support such as co-worker assistance or neighbourhood relationships do not show significant correlations for contract staff.

Table 24: Relationship between family/external support prevention practices of hypertension and health promotion behaviours

| Item                                                                             | Pearson<br>ChiSquare | df | Asymptotic<br>Significance<br>(2-sided) |
|----------------------------------------------------------------------------------|----------------------|----|-----------------------------------------|
| My family supports my health and wellness plans                                  | 26.972               | 14 | 0.019                                   |
| I allow other members of my family to assist in my health and wellness schedules | 6.614                | 7  | 0.47                                    |
| I rely on my co-workers for help when I am unwell and need help                  | 5.435                | 7  | 0.607                                   |
| I get along well with people in your neighbourhood                               | 2.867                | 7  | 0.897                                   |

Source of data: Field data (2024)

#### 4.7.3.1 Relationship between family/external support prevention practices of hypertension and individual characteristics of third-party staff

In table 25, none of the variables—Department ( $p = 0.442$ ), Age ( $p = 0.877$ ), Gender ( $p = 0.160$ ), Marital Status ( $p = 0.981$ ), Education ( $p = 0.362$ ), and Work Experience ( $p = 0.656$ )—exhibited relationships for third party staff.



Table 25: Relationship between family/external support prevention practices of hypertension and individual characteristics

| Item            | Pearson Chi-Square | df | Asymptotic Significance (2-sided) |
|-----------------|--------------------|----|-----------------------------------|
| Department      | 30.465             | 30 | 0.442                             |
| Age             | 29.944             | 40 | 0.877                             |
| Gender          | 14.305             | 10 | 0.16                              |
| Marital Status  | 9.152              | 20 | 0.981                             |
| Education       | 32.117             | 30 | 0.362                             |
| Work Experience | 26.366             | 30 | 0.656                             |

Source of data: Field data (2024)

#### 4.7.3.2 Relationship between family/external supportive prevention practices of hypertension and health promotion behaviours of third-party staff

Based on Table 26, "My family supports my health and wellness plans" ( $p = 0.892$ ) and "I allow other members of my family to assist in my health and wellness schedules" ( $p = 0.964$ ) both exhibited non-significant relationships with health and wellness plans. However, "I rely on my co-workers for help when I am unwell and need help" showed a highly significant relationship ( $p < 0.01$ ), suggesting that this factor is strongly associated with seeking support from colleagues during illness. Similarly, "I get along well with people in your neighbourhood" ( $p = 0.03$ ) also demonstrated a significant relationship with wellness amongst third party staff.

Table 26: Family/External Support Prevention Practices of Hypertension and Health Promotion Behaviours of Third-Party Staff

| Item                                                                             | Pearson<br>ChiSquare | df | Asymptotic<br>Significance<br>(2-sided) |
|----------------------------------------------------------------------------------|----------------------|----|-----------------------------------------|
| My family supports my health and wellness plans                                  | 4.985                | 10 | 0.892                                   |
| I allow other members of my family to assist in my health and wellness schedules | 10.234               | 20 | 0.964                                   |
| I rely on my co-workers for help when I am unwell and need help                  | 62.781               | 20 | <0.01                                   |
| I get along well with people in your neighbourhood                               | 33.41                | 20 | 0.03                                    |

Source of data: Field data (2024)

#### 4.8 Commitment to a plan action: Workplace Prevention Practices of Hypertension

##### 4.8.1.1 Relationship between workplace prevention practices of hypertension and individual characteristics of full-time staff

According to table 27, the department was significantly related to health promotion measures ( $p < 0.001$ ), indicating that departmental affiliation influences perceived health promotion measures. Gender also shows a significant relationship with health promotion measures ( $p = 0.039$ ), suggesting gender-specific differences in perceived health promotion measures. Work experience significantly affects the perception of health promotion measures ( $p = 0.006$ ). Age ( $p = 0.107$ ), marital status ( $p = 0.952$ ), educational qualification ( $p = 0.239$ ), and employment status ( $p = 0.996$ ), indicate no relationships with health promotion measures.



Table 27: Relationship between workplace prevention practices of hypertension and individual characteristics

| Variable                  | Pearson Chi-Square Value | Degrees of Freedom (df) | Significance (2-sided) |
|---------------------------|--------------------------|-------------------------|------------------------|
| Department                | 123.5                    | 72                      | <0.001                 |
| Age                       | 46.796                   | 36                      | 0.107                  |
| Marital Status            | 13.755                   | 24                      | 0.952                  |
| Gender                    | 21.861                   | 12                      | 0.039                  |
| Educational Qualification | 41.619                   | 36                      | 0.239                  |
| Work Experience           | 60.58                    | 36                      | 0.006                  |
| Employment Status         | 9.503                    | 24                      | 0.996                  |

Source of data: Field data (2024)

#### 4.8.1.2 Relationship between workplace prevention practices of hypertension and health promotion behaviours of full-time staff (N=116)

According to table 28, items that indicate relationships include happiness working with everyone in the workstation ( $p = 0.002$ ), performing agile work ( $p = 0.011$ ), receiving support from colleagues ( $p = 0.004$ ), enjoying annual leave schedules ( $p = 0.024$ ), and having access to use other hospitals outside the factory ( $p < 0.001$ ). This suggests these factors are significantly associated with health promotion behaviours. In contrast, items such as having adequate working space ( $p = 0.643$ ), a flexible work schedule ( $p = 0.926$ ), enjoying medical benefits ( $p = 0.899$ ), undergoing routine medical screening ( $p = 0.254$ ), visiting the physician specialist ( $p = 0.129$ ), knowing workplace policy on breaks ( $p = 0.055$ ), having health insurance ( $p = 0.067$ ), having access to a factory clinic ( $p = 0.958$ ), waiting to see a medical doctor ( $p = 0.819$ ), checking blood pressure regularly ( $p = 0.686$ ), and adhering to medical treatment advice ( $p = 0.278$ ) do not show statistically significant relationships with health promotion behaviours.

Table 28: Relationship between workplace preventive measures and health promotion behaviour of full-time staff

| Item                                                      | Pearson ChiSquare Value | Degrees of Freedom (df) | Significance (2-sided) |
|-----------------------------------------------------------|-------------------------|-------------------------|------------------------|
| I have adequate working space                             | 17.16                   | 20                      | 0.643                  |
| I am happy working with everyone in my workstation        | 27.167                  | 10                      | 0.002                  |
| I have a flexible work schedule                           | 11.697                  | 20                      | 0.926                  |
| I perform agile work                                      | 50.521                  | 30                      | 0.011                  |
| I get support from my colleagues at the workstation       | 25.774                  | 10                      | 0.004                  |
| I enjoy medical benefits at my workplace                  | 4.876                   | 10                      | 0.899                  |
| I enjoy annual leave schedules                            | 34.255                  | 20                      | 0.024                  |
| I undergo routine general medical screening               | 23.732                  | 20                      | 0.254                  |
| I do visit the physician specialist responsible for staff | 27.216                  | 20                      | 0.129                  |
| I know the workplace policy on break                      | 31.009                  | 20                      | 0.055                  |
| I have health insurance                                   | 30.159                  | 20                      | 0.067                  |
| The factory has clinic to help with my health needs       | 10.517                  | 20                      | 0.958                  |
| I have access to use other hospitals outside the factory  | 122.08                  | 20                      | <0.001                 |
| I wait to see the medical doctor when I visit the clinic  | 14.215                  | 20                      | 0.819                  |
| I check my blood pressure regularly                       | 16.48                   | 20                      | 0.686                  |
| I adhere to all medical treatment advice given to me      | 12.099                  | 10                      | 0.278                  |

Source of data: Field data (2024)

#### 4.7.2.1 Relationship between workplace prevention practices of hypertension and individual characteristics of contract staff

According to table 29 the p-values for department ( $p = 0.082$ ), age ( $p = 0.935$ ), gender ( $p = 0.182$ ), marital status ( $p = 0.614$ ), education ( $p = 0.358$ ), and work experience ( $p = 0.626$ ) are all above the typical significance threshold of 0.05. This indicates that there are no statistically significant differences in workplace prevention practices of hypertension based on these individual characteristics among the contract staff members.

Table 29: Relationship between workplace preventive practices of hypertension and individual characteristics of contract staff

| Variable        | Chi-Square Value | df | Significance (2-sided) |
|-----------------|------------------|----|------------------------|
| Department      | 53.011           | 40 | 0.082                  |
| Age             | 19.215           | 30 | 0.935                  |
| Gender          | 25.537           | 20 | 0.182                  |
| Marital Status  | 8.154            | 10 | 0.614                  |
| Education       | 32.2             | 30 | 0.358                  |
| Work Experience | 26.939           | 30 | 0.626                  |

Source of data: Field data (2024)

#### 4.8.2.2 Relationship between workplace prevention practices of hypertension and health promotion behaviours of contract staff (N=46)

Table 30 shows that, the statement "I am happy working with everyone in my workstation" points that there is a relationship with knowledge of preventive practices ( $p = 0.04$ ). Again, variables such as having adequate working space ( $p = 0.122$ ), flexible work schedule ( $p = 0.668$ ), performing agile work ( $p = 0.757$ ), receiving support from colleagues ( $p = 0.936$ ), enjoying medical benefits ( $p = 0.783$ ), and several other items show no significant relationship (all  $p$ -values  $> 0.05$ ). This suggests that most work-related factors do not significantly influence workplace prevention practices of hypertension amongst contract staff.

Table 30: Relationship between workplace prevention practices of hypertension and health promotion behaviours of contract staff

| Item                                                | ChiSquare Value | df | Significance (2-sided) |
|-----------------------------------------------------|-----------------|----|------------------------|
| I have adequate working space                       | 11.402          | 7  | 0.122                  |
| I am happy working with everyone in my workstation  | 14.726          | 7  | 0.04                   |
| I have a flexible work schedule                     | 4.938           | 7  | 0.668                  |
| I perform agile work                                | 16.228          | 21 | 0.757                  |
| I get support from my colleagues at the workstation | 2.374           | 7  | 0.936                  |
| I enjoy medical benefits at my workplace            | 3.972           | 7  | 0.783                  |

|                                                           |        |    |       |
|-----------------------------------------------------------|--------|----|-------|
| I enjoy annual leave schedules                            | 14.785 | 14 | 0.393 |
| I undergo routine general medical screening               | 9.268  | 7  | 0.234 |
| I do visit the physician specialist responsible for staff | 3.654  | 7  | 0.819 |
| I know the workplace policy on break                      | 20.256 | 14 | 0.122 |
| I have health insurance                                   | 12.967 | 14 | 0.529 |
| The factory has clinic to help with my health needs       | 5.736  | 7  | 0.571 |
| I have access to use other hospitals outside the factory  | 4.793  | 7  | 0.685 |
| I wait to see the medical doctor when I visit the clinic  | 4.694  | 7  | 0.697 |
| I check my blood pressure regularly                       | 9.87   | 7  | 0.196 |
| I adhere to all medical treatment advice given to me      | 7.603  | 7  | 0.369 |

Source of data: Field data (2024)

#### 4.8.3.1 Relationship between workplace prevention practices of hypertension and individual characteristics of third-party staff (N=56)

The p-values for table 31 include the Department ( $p = 0.442$ ), Age ( $p = 0.877$ ), Gender ( $p = 0.16$ ), Marital Status ( $p = 0.981$ ), Education ( $p = 0.362$ ), and Work Experience ( $p = 0.656$ ) showing no relationship with workplace prevention practices of hypertension.

Table 31: Relationship between workplace prevention practices of hypertension and individual characteristics of third-party staff

| Item            | Pearson Chi-Square | df | Asymptotic Significance (2-sided) |
|-----------------|--------------------|----|-----------------------------------|
| Department      | 30.465             | 30 | 0.442                             |
| Age             | 29.944             | 40 | 0.877                             |
| Gender          | 14.305             | 10 | 0.16                              |
| Marital Status  | 9.152              | 20 | 0.981                             |
| Education       | 32.117             | 30 | 0.362                             |
| Work Experience | 26.366             | 30 | 0.656                             |

Source of data: Field data (2024)

#### 4.8.3.2 Relationship with health promotion behaviours and workplace prevention practices of hypertension of third-party staff

According to Table 32, Results indicate that factors of health promotion measures at the workplace such as being happy working with everyone in the workstation ( $p = 0.013$ ), performing agile work ( $p = 0.029$ ), and receiving support from colleagues at the workstation ( $p = 0.003$ ) demonstrate strong relationships with health promotion behaviours. Conversely, having adequate working space ( $p = 0.646$ ) and enjoying medical benefits at the workplace ( $p = 0.221$ ) do show any association with health promotion behaviours. Notably, proactive health behaviours like waiting to see a doctor when visiting a clinic ( $p < 0.001$ ) and regularly checking blood pressure ( $p < 0.001$ ) establish strong relationships with health promotion behaviour.

Table 32: Relationship with health promotion behaviours and workplace preventive measures of third-party staff

| Item                                                      | Pearson<br>ChiSquare | df | Asymptotic<br>Significance<br>(2-sided) |
|-----------------------------------------------------------|----------------------|----|-----------------------------------------|
| I have adequate working space                             | 7.821                | 10 | 0.646                                   |
| I am happy working with everyone in my workstation        | 22.47                | 10 | 0.013                                   |
| I have a flexible work schedule                           | 7.179                | 10 | 0.708                                   |
| I perform agile work                                      | 33.601               | 20 | 0.029                                   |
| I get support from my colleagues at the workstation       | 42.3                 | 20 | 0.003                                   |
| I enjoy medical benefits at my workplace                  | 24.508               | 20 | 0.221                                   |
| I enjoy annual leave schedules                            | 13.746               | 20 | 0.843                                   |
| I undergo routine general medical screening               | 18.538               | 20 | 0.552                                   |
| I do visit the physician specialist responsible for staff | 15.275               | 20 | 0.76                                    |
| I know the workplace policy on break                      | 16.447               | 20 | 0.689                                   |
| I have health insurance                                   | 12.866               | 20 | 0.883                                   |
| The factory has clinic to help with my health needs       | 15.072               | 20 | 0.772                                   |
| I have access to use other hospitals outside the factory  | 14.192               | 20 | 0.821                                   |
| I wait to see the medical doctor when I visit the clinic  | 66.321               | 20 | <0.001                                  |
| I check my blood pressure regularly                       | 64.394               | 20 | <0.001                                  |

|                                                      |        |    |       |
|------------------------------------------------------|--------|----|-------|
| I adhere to all medical treatment advice given to me | 14.597 | 20 | 0.799 |
|------------------------------------------------------|--------|----|-------|

Source of data: Field data (2024)

### Summary Analysis of Key patterns

#### Third-Party Staff

| Theme                                  | Yes (n, %) | No (n, %)  | Don't know (n, %) | P-value |
|----------------------------------------|------------|------------|-------------------|---------|
| Knowledge & Perception of Hypertension | 31 (55.4%) | 11 (19.6%) | 14 (25.0%)        | < 0.001 |
| Attitude to prevention of hypertension | 29 (51.8%) | 25 (44.6%) | 2 (3.6%)          | < 0.001 |
| Barriers to Hypertension Prevention    | 26 (46.4%) | 25 (44.6%) | 5 (8.9%)          | < 0.001 |
| Family & Social Support                | 42 (75.0%) | 12 (21.4%) | 1 (1.8%)          | < 0.001 |

*Source of data: field data (2024)*

The analysis of participants' responses demonstrates significant variation in knowledge, perceptions, and practices concerning hypertension. Regarding knowledge of hypertension, 31 participants (55.4%) indicated having knowledge and awareness, 11 (19.6%) reported not having knowledge, and 14 (25.0%) were uncertain, suggesting that a considerable proportion of participants may still lack comprehensive understanding of the condition. For barriers to hypertension prevention, 26 participants (46.4%) acknowledged the existence of such barriers, 25 (44.6%) reported none, and 5 (8.9%) were unsure, reflecting diverse experiences and levels of awareness among participants. In terms of attitude to preventive measures, including physical exercise and weight management, 29 participants (51.8%) reported adherence, 25 (44.6%) did not, and 2 (3.6%) were uncertain, indicating gaps in the adoption of recommended lifestyle practices. Concerning family and social support, 42 participants (75.0%) reported having support, 12 (21.4%) reported a lack of support, and 1 (1.8%) was uncertain, highlighting

the potential role of social networks in facilitating effective hypertension management. The differences in responses across all themes were statistically significant ( $p < 0.001$ ), indicating that the observed variations are highly unlikely to have occurred by chance and reflect meaningful distinctions in participants' knowledge, attitude, barriers and prevention practices regarding hypertension.

### **Contract Staff**

The responses of contract staff regarding hypertension-related knowledge, attitude, workplace barriers, and social support indicate generally high levels of awareness and engagement. Specifically, 32 participants (68.1%) reported having knowledge of hypertension, while 11 (23.4%) did not and 4 (8.5%) were uncertain. Regarding workplace barriers, 28 participants (59.6%) acknowledged their presence, compared to 17 (36.2%) who did not, and 2 (4.2%) who were unsure. Engagement in healthy lifestyle practices, such as exercise and weight management, was reported by 33 participants (70.2%), with 12 (25.5%) not engaging and 2 (4.3%) uncertain. Social support was perceived positively, with 37 participants (78.7%) indicating adequate support, 10 (21.3%) reporting a lack of support, and 1 (2.1%) uncertain. The p-values for all themes ( $p = 0.462$ ) exceed the conventional significance threshold ( $p < 0.05$ ), suggesting that the differences in responses are not statistically significant, and the variations observed could be attributed to random factors, reflecting generally consistent patterns of knowledge, attitude, barriers and practices among the contract staff.

### Contract Staff

| Theme                                  | Yes (N, %) | No (N, %)  | Do Not Know (N, %) | p-value     |
|----------------------------------------|------------|------------|--------------------|-------------|
| Knowledge of Hypertension              | 32 (68.1%) | 11 (23.4%) | 4 (8.5%)           | (p = 0.462) |
| Attitude to prevention of hypertension | 33 (70.2%) | 12 (25.5%) | 2 (4.3%)           | (p = 0.462) |
| Barriers to hypertension prevention    | 28 (59.6%) | 17 (36.2%) | 2 (4.2%)           | (p = 0.462) |
| Social Support                         | 37 (78.7%) | 10 (21.3%) | 1 (2.1%)           | (p = 0.462) |

*Source of data: field data (2024)*

### Permanent Staffs

The responses of staff regarding hypertension-related knowledge, perceived barriers, preventive measures, and family or social support indicate notable variations across themes. For knowledge and perception of hypertension, 63 participants (54%) reported having knowledge, 23 (20%) did not, and 30 (26%) were uncertain, suggesting that a significant proportion still lack full understanding of the condition. Regarding perceived barriers to hypertension prevention, 60 participants (52%) acknowledged barriers, 58 (50%) reported no barriers, and 11 (10%) were unsure, reflecting diverse experiences and awareness levels among staff. Concerning attitude to preventive measures, including physical exercise and weight management, 68 participants (59%) reported engaging in these practices, whereas 50 (43%) did not, and 5 (4%) were uncertain, indicating partial adherence to recommended lifestyle practices. In terms of family and social support, 87 participants (75%) reported having support, 28 (24%) reported lacking support, and 1 (1%) was uncertain, highlighting the importance of social networks in facilitating hypertension management. The differences in responses across all themes were statistically significant ( $p < 0.001$ ), indicating that the observed variations are

highly unlikely to have occurred by chance and reflect meaningful distinctions in staff knowledge, attitude, barriers and preventive practices regarding hypertension.

### Permanent Staff

| Theme                                            | Yes (N, %) | No (N, %)  | Do Not Know (N, %) | p-value     |
|--------------------------------------------------|------------|------------|--------------------|-------------|
| Knowledge of Hypertension                        | 63 (54%)   | 23 (20%)   | 30 (26%)           | (p < 0.001) |
| Attitude to prevention of hypertension           | 68 (58.6%) | 47 (40.5%) | 1 (0.9%)           | (p < 0.001) |
| Measures – Physical Exercise & Weight Management |            |            |                    |             |
| Barriers to Hypertension Prevention              | 60 (52%)   | 58 (50%)   | 11 (10%)           | (p < 0.001) |
| Family & Social Support                          | 87 (75%)   | 28 (24%)   | 1 (1%)             | (p < 0.001) |

*Source of data: field data (2024)*

### Third party Staff

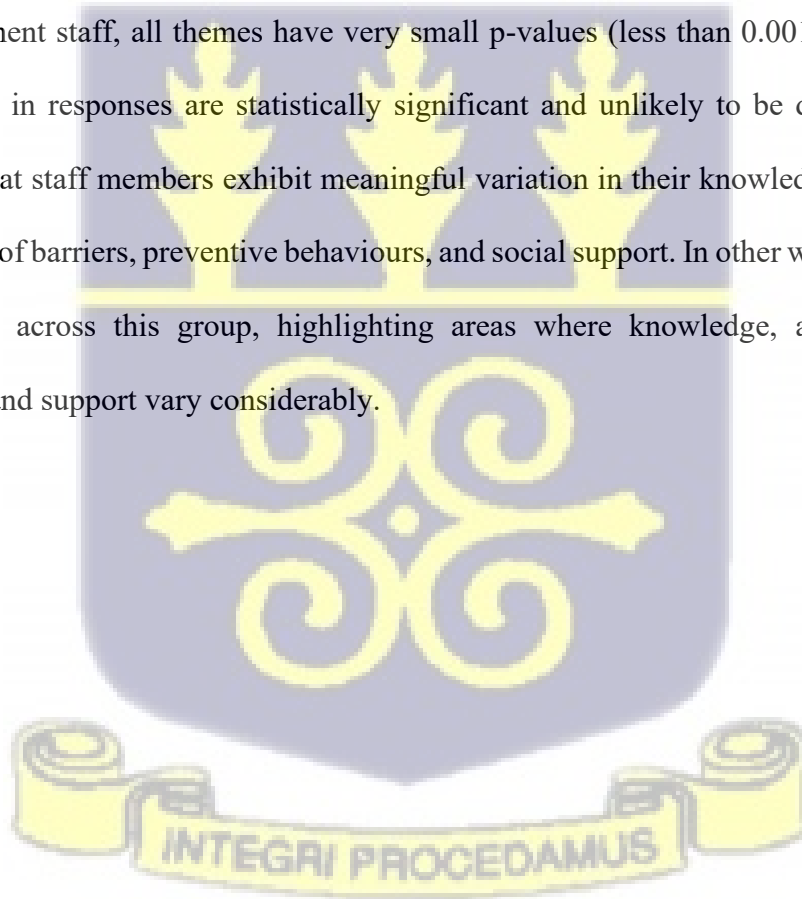
For Third Parties, all themes including Knowledge, Attitude to Preventive Measures, Barriers, and Family & Social Support have extremely small p-values (>0.001), far below the 0.001 threshold. This means the differences in their responses (Yes, No, Don't Know) are highly unlikely to have happened by chance. In practical terms, Third Parties demonstrate clear and meaningful differences in what they know about hypertension, the barriers they perceive, their attitude to preventive practices, and the level of social support they receive.

### **Contract staff**

Among Contract Staff, the p-values for all themes (Knowledge, Attitude, Workplace Barriers, Social Support) are much larger (0.462), which is above the usual 0.05 threshold. This indicates that the differences in their responses are not statistically significant and could easily have occurred by random chance. Essentially, contract staff display relatively consistent and uniform patterns in their knowledge, attitude, barriers, and social support regarding hypertension.

### **Permanent Staff**

For permanent staff, all themes have very small p-values (less than 0.001), showing that the differences in responses are statistically significant and unlikely to be due to chance. This suggests that staff members exhibit meaningful variation in their knowledge of hypertension, perception of barriers, preventive behaviours, and social support. In other words, there are clear differences across this group, highlighting areas where knowledge, attitude, barriers to practices, and support vary considerably.



## CHAPTER FIVE

### DISCUSSION

#### 5.1 Introduction

This Chapter discusses the findings based on the Pender Health Promotion Model. Perceived benefit of action: awareness level of workers on the prevention practice of hypertension, activity related emotions: attitude to prevention practices of hypertension, Perceived barrier to action: barriers to the prevention practices of hypertension among workers, interpersonal influences: family Support system/external support on prevention practices of hypertension, commitment to a plan action: workplace prevention practices of hypertension and Health promotion behaviour: prevention practices of hypertension among workers.

#### 5.2 Perceived benefit of action: Worker's Level of Awareness of Hypertension

This discussion of the study findings based on the Pender Health Promotion model in relation to Perceived benefits of action which looked at knowledge of staff on hypertension. The findings of the study demonstrate that full-time staff knowledge of hypertension regarding that high blood pressure can cause cancer, high blood pressure can cause a person to have a stroke was inadequate but understand that a person who has high blood pressure should eat more fruits and vegetables.

Nevertheless, the full-time and third-party staff indicated that their awareness of moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure. Meanwhile, the third-party staff affirmed their knowledge that people with high blood pressure should take their medicine according to prescription regularly. However, contract staff have no correlation to knowledge of hypertension

This was affirmed by Awuah et al., (2014) in their report that 7.4% people were aware of their condition, 4% were on hypertensive medication, 3.5% controlled their blood pressure. While Nyarko et al., (2017) indicated that most affected people may not be aware of suffering from high blood pressure. Metoki & Kuriyama, (2023) revealed that high blood pressure is a long-life disease condition which is also a family disease.

According to Ma et al., (2022). Boateng et al., (2017) confirmed that good behaviours enhance individual compliance to high blood management. high blood pressure leads to heart disease changing the performance and structure of the heart and may lead to decrease pumping activity of the heart (Limongelli et al., 2022; Szczepańska et al., 2022). Cancer treatment causes high blood while high blood pressure may lead to cancer, kidney diseases, stroke, coronary heart diseases (de Jesus et al., 2022; Bidani & Griffin, 2015; Mills et al., 2020). There is the need to ensure continuous monitoring of the heart with blood pressure machine which should be within the defined reading of 140/90mmHg (Kandil et al, 2023; Patel et al, 2022).

### **5.3 Activity related emotions: Attitude to prevention practices of hypertension**

The study discussion based on activity related emotions revealed positive attitude to prevention practices of hypertension which should be encouraged. The fulltime and third-party staff had significant association ( $p < 0.005$ ) for having time for sporting activities and make time to walk a day. However, the full-time staff and contract staff ensure regular intake of fruits and vegetables. While full-time staff avoid late eating and ensure moderate salt intake, the contract staff control their weight and the third-party staff exercise in bed before starting their day.

The negative attitude that requires education for change in attitude includes full-time, third-party, contract staff all eat while working. The full-time and third-party staff exempt themselves from physical activities and practices irregular eating behaviour. The full-time and contract staff skip

diet frequently. The contract and third-party staff experience weight loss. The third-party staff regularly eating late and increase salt intake with meals at table ( $p<0.001$ ), It was concluded by Dodam et al that nonadherence to prescribed treatment contributes to risk of hypertension complications while Konlan (2020) affirmed that adherence to prescribed treatment and getting blood pressure monitoring devices can assist individuals to detect, manage and prevent hypertension. Individuals can be encouraged to practice self-monitoring blood pressure techniques. Moreso, Goudarzi et al (2020) reported that 40%-60% of individuals suffering from hypertension do not adhere to ordered treatment owing to strict instructions that involve lifestyle changes and side effects of antihypertensive medication.

Meanwhile, Esina et al indicated that men that report with the risk of developing cardiovascular diseases experienced psychosocial stress such as anxiety, depression, poor exercises, smoking cigarette, gross overweight and inadequate intake of fruits and vegetables. Skipping diet, eating fast foods and eating outside home and eating while working are practices that should be discouraged by workers.

Han et al (2022) affirmed that individual experiences increased blood pressure due to sleep apnea, short sleeping periods and disrupted oxygen saturation. Snoring can be a risk factor of hypertension as confirmed by Matre et al (2022) Short sleep periods as workers close late in the night and reach home at midnight lead to disturbed sleep patterns. Also waking up early to join the bus from picking up points as they live far away from their offices affects workers' sleep patterns. The worker sleeps in the bus on the way home which puts undue stress on the body. This brings about arterial constriction and increases blood pressure as affirmed by Angassa et al (2022).

The workplace contributes to worker safety and health; hence the health protection and health promotion strategies have been put in place to safeguard the worker against hypertension and

health challenges. Counselling services should be accessible to individuals in order to maintain healthy behaviours. It is necessary that workers comply with the employment regulations that request them to go through annual medical examination before pre-employment, return-to work after leaving and exit from work. Food handlers are also expected to do the same. Mangione et al (2022) agreed that common foods with good nutritional values should be encouraged, such as olive oil (fat free), whole grain, legumes and fish.

Restriction should be placed on processed foods, fatty meat, sugar and salt to improve food intake of workers. Healthy diet is a balance of various food and fluids that help the individual in achieving and maintaining good weight, improving health and preventing illness. This includes consumption of fruits, vegetables, whole grains, fat-free, low-fat, lean proteins and oils. Every individual is encouraged to read all food labels for food safety instructions to prevent hazards. People should eat meals that have been prepared under hygienic conditions. It is important to pay attention to required caloric intake, eating fibres and reduced intake of sodium and saturated fats.

Johannesen et al (2020) recommended that people should reduce sedentary behaviour such as sitting for long hours watching television, writing, typing and working on the computer to promote blood circulation and prevent deep vein thrombosis (blood clot formed in a deep vein), a cardiovascular disease. Hurst et al (2022) advised that exercises should not be performed on trial-and-error basis as it can lead to unexpected risk of trauma. Rest periods help to relax the body. The individual should ideally rest between 60 seconds to 180 seconds when exercising. In between exercises, the individual should rest 3 to 5 minutes.

The exercises and rest periods should be assessed by individual tolerance as affirmed by Kaminsky et al (2022) to encourage workers to monitor their own blood pressure at home to

assist them follow physician instructions. The monitoring of routine vital signs prevents the onset of cardiovascular diseases.

Kassavou (2022) in a systematic review reported that self-monitoring of blood pressure was 95% with medication adherence of 95% among individuals. a home blood pressure device to check blood pressure every morning when they wake up and before they take their breakfast and in the evening before going to bed. Amdemariam et al (2022) confirmed that risk factors to cardiovascular diseases (CVD) were modifiable factors which includes smoking, diet, alcohol, exercises, overweight and obesity.

The non-modifiable factors to CVD were sex, age, genetics and family history. The measures to prevent CVD include primary, secondary and tertiary factors. Zhang et al (2023) revealed that low fruit and vegetable consumption should be increased to improve potassium intake through consuming more fruits, vegetables, nuts, seeds and whole grain. High red and processed meat should be reduced while taking high amounts of soy products and fish. It is necessary to provide a comprehensive controlled programme for adults as they may have challenges adhering to changes in eating habits. A dietary model could be developed, and priority focused on healthy diet intake by the population while policy makers assist in addressing the dietary risk factors in an effort to reduce cardiovascular diseases.

#### **5.4 Perceived barrier to action: Barriers to prevention practices of hypertension among workers**

The discussion on barriers to preventing hypertension practices among workers were that while, all the staff go home with unfinished work. The full-time staff experienced increased workplace demand, having insufficient sleep, and sleeping on the bus on the way to and from work. However, the contract staff barriers to prevent practices of hypertension were that they stand for

more than 4 hours at the workstation. As the full-time and third-party staff work on heavy load, the third-party staff experiences poor resting time, disturbed sleep.

This was consistent with Hung & Lin (2023) who revealed that inadequate resting while working for long hours and stress from extended working hours as affirmed by (Lin & Lin, 2022). Shift work is planned working hours that ensures workers become more productive through a period of time, as such, workers engaged in weekly night shift for more than three-nights shift a week put themselves at the risk of developing cardiovascular diseases (Lim et al., 2023; Draaijer et al., 2022). Also, Oldenburg and Jensen (2022) affirmed that staying on the job overnight, sitting at one task till it is done, coming to work early and closing late can lead to coronary artery diseases.

Working for long periods of time can also affect a worker's work-life through increased workload which puts the worker at risk of high blood pressure (Nishimura et al 2023; Ochiai et al 2022), cardiovascular diseases have been identified as work-related and people who have been diagnosed with cardiovascular diseases are known to have worked for more than 100 hours within a month and 80 hours continuously for 6 months. Ochiai further elaborated that records from 2020 indicated that cardiovascular diseases affected 113 people due to overwork-related diseases and 81 individuals were diagnosed with ischemic heart diseases also from overwork.

Long working hours bring in its trail, high blood pressure and risk of stroke (Sattler and Knesebeck 2022). Workers demonstrate increased commitment in the performance of assigned tasks but feel less valued with no promotion in position at the workplace which may lead to onset of cardiovascular diseases (Bock 2022). Moreover, sleep has been observed to be a critical risk factor to hypertension as Gupta et al (2022) affirmed that workers duties may conflict with their sleeping time. They also wake up within short periods when on call duties and these affect their blood pressure leading to cardiovascular diseases.

Baranwal et al (2023) confirmed that environmental effects such as noise and heat account for poor sleep, and inability to enjoy good sleep put the worker at risk of hypertension. Anfossi et al (2022) reported that adequate working space enables workers to operate within their convenience may promote workers motivation, attitude and comfort which are relevant for preventing hypertension. It eliminates workers' frustration and struggle within the workstation. The workers were happy about their flexible work since it keeps the worker relaxed and free to achieve good health and wellness. However, Chapped et al (2023) encouraged flexible work for workers to prevent hypertension and help them to be more productive.

### **5.5 Interpersonal influences: Family Support system/external support on prevention practices of hypertension**

The interpersonal influences from the Pender Health Promotion model show that fulltime and contract staff rely on coworkers during illness( $p=0.029$ ) and get along well with people in the neighborhood ( $p=0.011$ ). Nevertheless, contract staff allow family members to assist in their health and wellness plans( $p=0.019$ ). This is affirmed by Bhattarai et al., (2024) that family support promotes healthy behaviour among family members and friends. Furthermore, Geleta et al (2025) also explained that family support helps in managing blood pressure through comforting, understanding and commitment to care. Andala et al (2022) elaborated that family members assist people in their family to improve their wellbeing with relaxing conversation and restful environment. However, other reasons for which family and friends were receiving significant support were marriage and religion, The age and educational level were associated with receiving significant support from family members only. Gender was not significantly associated with receiving social support. It was concluded that social support is strongly associated with hypertension treatment compliance. Therefore, promoting social support is relevant for managing chronic disease. Gyamfi et al 2017. Open discussions to help individuals

change their behaviour and lifestyles in relation to hypertension can improve preventing hypertension.

#### **5.6 Commitment to a plan action: workplace prevention practices of hypertension**

The discussion on the commitment to a plan action in the study revealed that full-time, contract and third-party staff demonstrating happiness working with everyone in the workstation. This shows significant relationship in commitment to a plan action on prevention practices of hypertension. Also, full-time and third-party staff showed association with performing agile work, receiving support from colleagues. It is only fulltime staff that enjoy annual leave schedules and have access to other hospitals outside the factory as workplace prevention practices of hypertension.

The workplace prevention practices that have significant relationship as the workers of Cocoa Processing Company Limited Tema enjoy medical benefits at the workplace such as refund for medical expenses and provision of medical examination. This was confirmed by Boateng et al (2023) which reported that medical care for high blood pressure should involve detailed history taking of individuals height, weight, body mass index and follow-up visits. Crawford et al (2023) explained that improving the healthy heart of every worker must be the hallmark of every health worker. Encouraging workers with cardiovascular diseases to remain calm, relaxed and take their routine medications.

Gaafar and Gaafar (2021) reported that medical examination for screening undiagnosed individual workers with cardiovascular diseases. There is also relationship with workers who

visit the physician specialist for staff. This is consistent with Beckel and Fisher (2022) who indicated that worker safety is a priority as the worker performs official duties from home helping to reduce the risk of cardiovascular diseases. Furthermore, the workers have patience and wait to see the doctor each time they visit the clinic was also significantly correlated as Srinivasan et al (2022) said that most individuals become impatient and leave the hospital premises during medical visit.

Mahdi et al (2023) explained that employee wellness activities such as health talk and health promotion help to reduce high blood pressure complications in the workplace. Meanwhile, Feinberg et al (2023) revealed that mobile phones have assisted in linking up with individuals, families and companies in addressing chronic health problems such as cardiovascular diseases. Also, the workers check their blood pressure regularly. This relevant as Konlan 2020 reported that compliance to prescribed treatment and getting blood pressure monitoring devices can assist individuals to detect, manage and prevent hypertension.

Also, workers can be encouraged to practice self-monitoring blood pressure techniques which are in line with Furuya et al (2022) who revealed that workers could manage well with their chronic ill-health and be relevant to the business. On the other hand, the support needed for workers by their family members on their health and wellbeing is significant when the workers allow other family members to assist in their health and wellness schedules as Osamor 2015 indicated that promoting social support is relevant for managing chronic disease. Carey et al (2018) said that collaborating with nurses and doctors to ensure effective care outcome with hypertension through strict compliance to follow-up appointments.

Sari and Tjahjono (2022) agreed that rehabilitation restores health by limiting disability that can affect the individual. Rehabilitation is successful with the help of family, friends, coworkers and

children since Wade (2020) affirmed that rehabilitation helps to achieve complete adherence to appropriate health promoting behaviour among individuals. Osamor (2015) majority, (93%) reported that they enjoy social support from their family members. While 55% reported receiving social support from friends. Social support from friends ( $p < 0.0001$ ) but not from family ( $p = 0.162$ ) correlated well with good compliance with treatment for hypertension.

### **5.7 Health Promotion Behaviour: Prevention Practices of Hypertension**

The discussion on the health promotion behaviours from the Pender Health Promotion Model explores the prevention practices of hypertension. Workers continue learning about the complications of hypertension and being provided with adequate understanding of adherence to hypertension management is relevant health promotion behaviour to hypertension prevention. Workers' positive attitudes to exercising, healthy diet eat daily, and appropriate eating habits are important in the prevention practices of hypertension. Meanwhile, the negative attitudes that affect the health promotion behaviours should be discouraged such as increasing salt intake with meal at table, experiencing weight loss. workers ability to identify barriers of hypertension help in following standard prevention practices. Early adjustment and relieving plans for increased workplace demand assist in the health promotion behaviours to reduce stress which can increase blood pressure of the workers. Workers sleeping on the bus on the way to and from work is an indication of pressure on the worker with evidence less resting time on the job and at home. Sleep and rest periods are health promotion behaviours that should be managed well by workers to prevent hypertension. Standing for more than 4 hours monitoring machines to ensure flow, quality and achieve production target can be minimized with health promotion behaviours of continuous routine rotation of personnel during the line of production. Workers work on heavy loads due to incentives and rewards. Incentive Policy on restricted workload based medical and occupational health fitness to practice are health promotion behaviours that must be provided as

a prevention practice of hypertension. Appropriate social support to workers from co-workers and at home with family members are health promotion behaviours that help in the prevention practices of hypertension. Commitment to providing support at the workplace to co-workers is health promotion behaviours that must be encouraged. Workers should be committed to their annual leave to each year as a health promotion behaviour for prevention of hypertension.



## CHAPTER SIX

### SUMMARY AND CONCLUSION

#### 6.1 Introduction

This chapter provides a summary of major findings and the conclusion of the study. The study focused on examining the preventive practices towards hypertension among workers at Cocoa Processing Company, Tema. The specific objectives investigated the relationship between the socio-demographic characteristics and hypertension prevention practices among workers, assessed the relationship between workers knowledge level and health promotion activities to prevent hypertension, evaluated the attitudes of workers towards the prevention of hypertension, workers barriers to preventing hypertension and prevention practices of hypertension were determined.

This study employed quantitative data for collected data with structured questionnaire to 219 respondents (146 males and 73 females). Data was analysis using chi-square. The study independent variables were age, gender, marital status, educational background, department, employment status, work schedule, workload, eating habits, rest periods, physical activity of respondents. Also, the study dependent variables were knowledge of hypertension work environment, work-life policy, medical care, and family support system.

#### 6.2 Summary of Major Findings

The study findings revealed respondent department ( $p = 0.001$ ) and gender ( $p = 0.048$ ) were the socio-demographic characteristics that correlated well with the hypertensive preventive practices among workers. The significance of the workplace department on health and wellbeing of every worker should be upheld. Consumption of healthy diet ( $p = 0.008$ ) correlated with the hypertension prevention practices among workers. The canteen facilities

provided at the factory for workers to eat in the morning, afternoon and evening has contributed to this positive attitude of respondents. Furthermore, workers engaging in moderate to mild exercise ( $p = 0.02$ ) was related to hypertension preventive practices.

The play fields and indoor games such as table tennis available at the factory enable the workers to balance work and exercise. Most importantly, workers' adherence to taking prescribed medication ( $p = 0.022$ ) was significantly correlated to hypertensive practices. This demonstrates the continuous efforts of the occupational health and safety team in ensuring staff welfare. On the hand, workers experiencing disturbed sleep ( $p = 0.03$ ) was correlated as barrier to the hypertension prevention practices.

Another barrier to hypertension prevention practices among workers was leaving work unfinished ( $p = 0.024$ ), stand for more than 4 hours ( $p = 0.023$ ), workers go home with unfinished work ( $p = 0.011$ ). The attitude that affected the hypertension prevention practices includes workers experiencing excessive weight loss ( $p = 0.018$ ), Those that expressed irregular eating behaviour ( $p = 0.028$ ) correlated with the attitude towards hypertension prevention practices. Also, workers skip diet frequently ( $p = 0.03$ ) which shows workers interest towards work than food.

Workers eat while working ( $p = 0.001$ ) was related to attitude to hypertension prevention practices. The health promotion behaviours that correlate with hypertension practices include work with everyone at the workstation ( $p = 0.002$ ), workers should be assisted with tools to perform agile work ( $p = 0.011$ ). Most workers enjoyed support from colleagues ( $p = 0.004$ ) and got along well with people in the neighborhood ( $p = 0.011$ ).

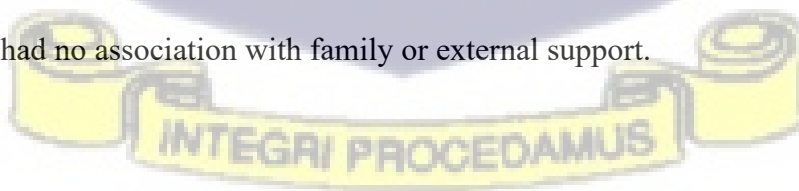
## 6.3 Conclusion

### 6.3.1 The relationship between individual characteristics and hypertension prevention practices among workers

Hypertension prevention practices measures are relevant in promoting the health and well-being of workers. The study findings indicated that department of full-time staff had relationship with knowledge of preventive practices of hypertension. Meanwhile demographic factors of contract and third-party staff do not influence prevention practices of hypertension. However, barriers to hypertension prevention practices in relation to socio-demographic indicate no association with age, gender, marital status, educational qualification, number of working years, department and employment status of respondents. Also, attitude to hypertension prevention practices was associated with departments of full-time and contract staff respondents except third-party staff. While, age, gender, marital status, educational qualification, number of working years and employment status did not exhibit associations with prevention practices of hypertension.

Workplace prevention practices of hypertension were related to department, gender, and work experience. Nevertheless, age, marital status, educational qualification and employment status have no relationships with prevention practices of hypertension at the workplace.

Educational qualifications show relationships with family or external support to preventing practices of hypertension. Moreover, department, age, gender, marital status and work experience had no association with family or external support.



### **6.3.2 The relationship between the level of knowledge and health promotion activities among workers to prevent hypertension**

The respondent knowledge that high blood pressure can cause cancer and stroke was relevant as moderate exercises, eating more fruit and vegetables, taking prescribed medication had significant relationship with prevention practices of hypertension

### **6.3.3 The attitudes of workers towards the prevention of hypertension**

Attitudes describe an individual approach towards his health and wellness. Therefore, positive attitudes related to prevention practices of hypertension include engaging in sporting events, walking daily, exercising in bed, eating at work, and intake of fruits and vegetables. The attitude that relates with prevention practices of hypertension which has to be avoided were exempting from exercises, excessive weight loss, irregular eating habits, regular late eating, fat food intake, increased salt intake at meals, skipping diet.

### **6.3.4 The barriers to hypertension prevention practices among workers**

The setback in achieving good health and well-being is barriers. Barriers to preventing practices of hypertension were significant with increased workplace demand, working on heavy loads, leaving work unfinished, experiencing disturbed sleep, and having insufficient sleep, sleeping on the bus too and after work for the full-time staff. Also, respondents indicated that standing for long hours (more than 4 hours), going home with unfinished work experience increased workload, going home with unfinished work, poor rest periods, disturbed sleep were barriers to prevent practices of hypertension among contract and third-party staff.

### **6.3.5 The prevention practices of hypertension among workers**

Hypertension prevention practices among workers were determined by respondent feedback on the study. The respondents were happy working with everyone, receive support from coworkers

in the workstation and doing agile work related to workplace prevention practices of hypertension among third-party and contract staff. Contrary, full-time staff responded that they were happy with work, do agile work, they receive support from coworkers, enjoy annual leave and have access to other health facilities outside the factory were significantly related to prevention practices of hypertension. The respondents affirmed that their colleagues are reliable and assist each other when any of them are unhealth, families support their wellness plans and get along well in their neighborhood have significant relationship with prevention practices of hypertension third-party staff.

#### **6.3.6 Conclusion of Major Findings**

A few of the staff members indicated that some of their family members had hypertension. It is therefore very relevant for the staff to be educated on hypertension to enable the staff to help their family members who may be at risk of hypertension. The staff need detail to understand that hypertension is a life-long disease. As majority of staff admit that every individual with high blood pressure should take prescribed medication. The respondents should be well informed of the relation between increased salt intake and hypertension.

The workers of full employment, casual and third-party staff reported that they do not know that high blood pressure can cause cancer, kidney problems and diabetes. On the other hand, the staff confirmed that high blood pressure can cause stroke. Health education on the complications of high blood should be given to the respondents. The staff agreed that moderate exercises help to lower high blood pressure. Furthermore, the staff indicated that individuals with high blood pressure should eat less fat, more fruits and vegetables, and maintain adequate fluid intake. Blood pressure readings and interpretations should be taught to respondents.

#### 6.4 Recommendation

Based on the results, discussions, and findings of this study, recommendations were proposed for some stakeholders.

It is recommended that the Management of Cocoa Processing Company Limited Tema should put the following into action to sustain the health promotion strategies already in place.

##### **The Organization should:**

- Collaborate with occupational health and safety teams to organize regular health education for factory workers.
- Ensure planned supervision of third-party workers' health-seeking behaviour so that they can regularly patronize the factory clinic.
- Encourage third-party contractors to subsidize the medical care of their staff to motivate third-party workers to use the factory clinic.
- Commend the Occupational Health and Safety Team of the Company for routine medical screening of full-time staff.
- Permit the Occupational Health and Safety Team to extend its health promotion measures to third-party workers.

In addition, it is recommended that workers of the Cocoa Processing Company Limited Tema

##### **Individuals (workers) should be:**

- Encouraged to continue regular BP checks.
- Motivated to improve their resting practices and sleeping on comfortable beds and with soft pillows.
- Advised to rest in a calm, cool and quiet environment.

- Educated on complications such as cancer and kidney problems could be caused by high blood pressure.
- Appreciated for playing key roles in their health and wellness strategies. As such, they need to keep updated early on their health needs so that they can receive necessary help.
- Motivated to sustain positive interactions with external relations such as friends, neighbours, and partners.

### **Policy makers**

It is also suggested that other production companies in the country can use the results and findings of this research to benchmark their health strategies to their workers.

It is also recommended that this study is replicated in other sectors, and the findings are documented widely to reduce the number of health-related hypertension cases in the country. Again, it is recommended that future research be conducted on the experiences of factory workers living with high blood pressure.

## **6.5 Nursing Implication for Preventive practices towards hypertension**

### **Nursing Practice**

Hypertension has been one of the most reported out-patient cases to the hospitals and also recorded among workers. Most people that have been diagnosed of hypertension are living with the disease and are productive as well. Hypertension poorly managed can lead to serious complications for vital organs. It is therefore appropriate for nurses to involve all categories of ages during health education on hypertension. Medical care is rendered to hypertensive and other patients should focus on adherence and continuous follow-up on prescribed management to limit disability. Females may have more information on hypertension, while males may be impatience regarding their time spent for healthcare. Nurses must understand these dynamics to help

accelerate the knowledge of male adults on preventive practices of hypertension. Nurses mostly receive active support from female family members during healthcare needs in hospital settings. Nurses must involve family members in health care through a detailed explanation of hypertension and its preventive practices. Nurses should consider the relevance of married individuals in healthcare delivery to provide support. Nurses should continue to educate married individuals on hypertension to enhance their knowledge of the prevention practices and complications of hypertension. Higher education among individuals may encourage their interest in learning about preventive practices for hypertension.

### **Nursing Education**

Nurses use simple knowledge to educate people about hypertension. Nurses depend strongly on individual educational status in delivery of healthcare by achieving an adequate understanding of care rendered. When people understand health care delivery well, they comply with care everywhere they go. The departments in which workers operate are crucial for ensuring the health, safety, and well-being of workers. Nurses inculcate in health education the importance of their department and its effect on the health of the worker. Most workers experience stress and other constraints in their respective departments. Being to bear the essence of improving work ethics that affect the health of the worker will help workers sustain a healthy life. Hypertension prevention practices in the workplace in each department should be complied with by all workers. Nurses emphasize the need for workers to be productive and maintain a safe life with regular blood pressure checkups. Nurses also considered the employment status of the workers in their healthcare.

## Nursing Research

Workers are encouraged to enjoy the medical benefits provided by employers within the workplace. Appropriate data can be obtained from the occupational health and safety team on the workers' compliance to medical benefit and address the gaps in non-compliance through research. Nurses should track and monitor the medical status of each worker through **surveys**. Nurses performed pre-employment and employment medical examinations to ensure continuous fitness. A comprehensive medical examination report with recommendations for research should be done in line with the occupational health and safety policy. Nurses provide health education to workers regarding adherence to workload plans to reduce stress and poor rest with relevant research findings.

Nurses encourage workers to be involved in regular physical activities that help control blood pressure to normal levels. Workers' tolerance during physical activities can be researched and appropriate recommendations made on the level of activities that are feasible for them to engage. Hypertension prevention practices are key to the well-being of individuals. Therefore, nurses teach people who visit the hospital to participate in regular exercises that maintain their blood pressure within the normal range. Nurses also advise individuals to balance rest periods with each activity. Healthy eating habits help to manage and prevent hypertension. Individuals are encouraged to eat a well-balanced diet with proteins to repair worn-out tissues, glucose for energy, fruits, and vegetables for vitamins. Research tools can be adopted at the hospital to enable patients, and their relations provide information on their healthy living which can contribute immensely to knowledge.

Through research, nurses are determined to promote the health of people by advocating adequate rest and sleep. When an individual rests, it relaxes the body and the vital organs. Resting also

helps regulate blood pressure to within normal levels. Nurses admonished workers to avoid overworking and multiple jobs, with no rest periods. Nurses advise employers to manage workers' risk of hypertension through policies that help workers to be more active and restful. Healthy life also depends on rest and sleep, which are sound, relaxed, and comforting.



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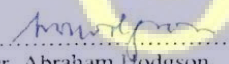
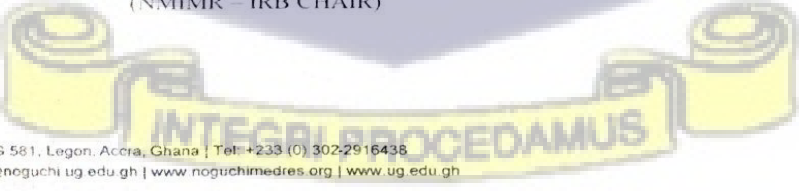
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## APPENDICES

### Appendix A: Ethical Clearance

|                                                                                                                                                                                                                                                                      |                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>UNIVERSITY<br/>OF GHANA</b>                                                                                                                                                  | <b>NOGUCHI MEMORIAL INSTITUTE<br/>FOR MEDICAL RESEARCH (NMIMR)</b><br>COLLEGE OF HEALTH SCIENCES<br>INSTITUTIONAL REVIEW BOARD                   |
| 6 <sup>th</sup> December 2023                                                                                                                                                                                                                                        |                                                                                                                                                  |
| <b>ETHICAL CLEARANCE</b>                                                                                                                                                                                                                                             |                                                                                                                                                  |
| <b>FEDERALWIDE ASSURANCE FWA 00001824</b>                                                                                                                                                                                                                            | <b>IRB 00001276</b>                                                                                                                              |
| <b>NMIMR-IRB CPN 057/23-24</b>                                                                                                                                                                                                                                       | <b>IORG 0000908</b>                                                                                                                              |
| On 6 <sup>th</sup> December 2023, the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) conducted an expedited review and approved your protocol titled:                                                                      |                                                                                                                                                  |
| <b>TITLE OF PROTOCOL :</b>                                                                                                                                                                                                                                           | <b>Preventive Practices Towards Hypertension Among<br/>Workers at Cocoa Processing Company, Tema</b>                                             |
| <b>PRINCIPAL INVESTIGATOR :</b>                                                                                                                                                                                                                                      | <b>Maxwell Yaw Eshun, Mphil Cand.</b>                                                                                                            |
| Please note that a final review report must be submitted to the Board at the completion of the study.<br>Your research records may be audited at any time during or after the implementation.                                                                        |                                                                                                                                                  |
| Any modification of this research project must be submitted to the IRB for review and approval prior to<br>implementation.                                                                                                                                           |                                                                                                                                                  |
| Please report all serious adverse events related to this study to NMIMR-IRB within seven days verbally and<br>fourteen days in writing.                                                                                                                              |                                                                                                                                                  |
| This certificate is valid till 5 <sup>th</sup> December 2024. You are to submit annual reports for continuing review.                                                                                                                                                |                                                                                                                                                  |
| Signature of Chair: <br>Dr. Abraham Hodgson<br>(NMIMR – IRB CHAIR)                                                                                                                | <b>COCOA PROCESSING CO. LTD.</b><br><br>PRIN. HR OPS OFFICER |
|                                                                                                                                                                                  |                                                                                                                                                  |
| P. O. Box LG 581, Legon, Accra, Ghana   Tel: +233 (0) 302-2916438<br>Email: <a href="mailto:nirb@noguchi.ug.edu.gh">nirb@noguchi.ug.edu.gh</a>   <a href="http://www.noguchimedres.org">www.noguchimedres.org</a>   <a href="http://www.ug.edu.gh">www.ug.edu.gh</a> |                                                                                                                                                  |
|                                                                                                                                                                                 |                                                                                                                                                  |



**UNIVERSITY OF GHANA**  
**DEPARTMENT OF ADULT HEALTH**  
**SCHOOL OF NURSING**

Ref. No.: .....

6th November, 2023.

The Institutional Review Board,  
Noguchi Memorial Institute for Medical Research,  
College of Health Sciences,  
University of Ghana,  
Legon.

**LETTER OF SUPPORT-ETHICAL CLEARANCE**

This letter is to support the application for ethical clearance for **Mr. Maxwell Yaw Eshun**, an MPhil Nursing student in the Department of Adult Health at the School of Nursing and Midwifery, University of Ghana, Legon.

As part of the programme, he is to undertake research on the topic **"Preventive Practices Towards Hypertension Among Workers at Cocoa Processing Company, Tema"**.

I hope the Institutional Review Board will consider the proposal to enable him collect data.

Thank you.

Yours faithfully,

Dr. Kwadwo Ameyaw Korsah  
Head – Adult Health Nursing



**COLLEGE OF HEALTH SCIENCES**

- P. O. Box LG 43, Legon, Accra, Ghana.
- Telephone: +233 (0) 302 513 250 / 0289 531 213
- Email: [adulthealth.son@chs.ug.edu.gh](mailto:adulthealth.son@chs.ug.edu.gh)
- Website: [www.nursing.chs.ug.edu.gh](http://www.nursing.chs.ug.edu.gh)



## COCOA PROCESSING COMPANY LTD.

A FREE ZONE ENTERPRISE  
Private Post Bag, Tema - Ghana Tel: 233 - 303 - 202926 / 202914 / 206375 / 212153 Fax: 233 - 303 - 206657 / 204411 / 212154  
E-mail: [info@goldentreeghana.com](mailto:info@goldentreeghana.com)

Your Ref:

Our Ref:

Date  
16<sup>th</sup> November, 2023

CPC/HRD/79

The School Administer  
University Of Ghana  
Department Of Adult Health  
School Of Nursing  
Accra

**Attention: Dr. Cecilia Eliason**

Dear Sir,

### RE: LETTER OF INTRODUCTION -- ETHICAL CLEARANCE

We acknowledge receipt of a letter dated 6<sup>th</sup> November 2023 on the above subject.

The Management of CPC has approved Mr. Maxwell Yaw Eshun's request to use CPC as a case study for his thesis data collection on **"Preventive Practices Towards Hypertension Among Workers At Cocoa Processing Company, Tema"**.

He therefore been permitted to use two (2) weeks for his data collection from **Tuesday, 21<sup>st</sup> to Thursday 30<sup>th</sup> November 2023.**

Please contact the Ag. Manager, HR, Occupational and safety for any assistance.

Yours faithfully,

  
**J. EKWURHULE**  
MANAGER, HR, OCCUP. HEALTH & SAFETY

- ✓ Ag. Managing Director
- ✓ Directors (Fin. & IT)/ Ag. Production)
- ✓ Prod. Manager - Cocoa
- ✓ Prod. Manager - Conf.
- ✓ Quality Assurance Manager
- ✓ Chief Accountant
- ✓ Sales & Marketing Manager

**INTEGRI PROCEDAMUS**



**UNIVERSITY OF GHANA**  
**DEPARTMENT OF ADULT HEALTH**  
**SCHOOL OF NURSING**

Ref. No.: .....

6<sup>th</sup> November, 2023.

The Human Resource Director,  
Cocoa Processing Co. Ltd.,  
Private Mail Bag,  
Tema.

Dear Sir/Madam,

**LETTER OF INTRODUCTION - ETHICAL CLEARANCE**

I write to introduce to you **Maxwell Yaw Eshun**, an MPhil Nursing student at the School of Nursing and Midwifery, University of Ghana, Legon.

The Scientific Review Committee of the school has approved the thesis topic: **"Preventive Practices Towards Hypertension Among Workers at Cocoa Processing Company, Tema"**.

As part of the school's requirement, the student is obliged to embark on data collection in your establishment.

In case of any clarification, kindly contact his Supervisor, **Dr. Cecilia Eliason** on telephone number **0244638716**.

Yours faithfully,

Charles A. Klutse  
School Administrator



**COLLEGE OF HEALTH SCIENCES**

- 
- P. O. Box LG 43, Legon, Accra, Ghana.
  - Telephone: +233 (0) 302 513 250 / 0289 531 213
  - Email: [adulthealth.son@chs.ug.edu.gh](mailto:adulthealth.son@chs.ug.edu.gh)
  - Website: [www.nursing.chs.ug.edu.gh](http://www.nursing.chs.ug.edu.gh)

## Appendix B: Consent Form



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### CONSENT FORM

(Download the NMIMR-IRB Consent form Template for guidance)

#### NMIMR-IRB CONSENT FORM TEMPLATE

Title: [Preventive Practices of Hypertension Among Workers of Cocoa Processing Company Limited, Tema]

Principal Investigator: [Maxwell Yaw Eshun]

Address: [Department of Adult Health, School of Nursing and Midwifery, University of Ghana, Legon]

#### General Information about Research

(This study aimed to examine the preventive practices of hypertension among workers of Cocoa Processing Company, Tema. The study objectives will find out the level of awareness of workers on the preventive practices of hypertension. It will also ascertain the barriers that workers are likely to encounter in the preventive practices of hypertension and determine measures that may assist workers in the preventive practices of hypertension. Every participant will use 15 minutes to read and tick on the questionnaire to the best of their knowledge. Please know that there are no correct or wrong answers. The responses would be confidential and used for academic purposes only. Your identity will not be revealed. I will comply with the ethical considerations as outlined by the Noguchi Memorial Institute for Medical Research, University of Ghana Legon, Institutional Review Board)





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**Possible Risks and Discomforts**

(There are no physical, social and psychological risk and discomfort as there will not be invasion of privacy and exposure to sharp injury of participant in this study)

**Possible Benefits**

(The benefit of participating in this research is that, it will help you as an individual to appreciate your knowledge on hypertension. It will also assist you to understand everyday activities that may be a hindrance to preventing hypertension. The study will enable the individual to understand suggested ways of improvement in preventing hypertension risk to cardiovascular diseases complications. The society of workers will learn from the experiences and shared knowledge on preventive practices of hypertension. Moreover, it helps in educating individuals diagnosed of hypertension to limit the consequences of disability and promote the health undiagnosed persons)

**Confidentiality**

(Kindly be assured that 'I will protect the information about you to the best of my ability. You will not be named in any report. Some staff of the Department of Adult Health School of Nursing and Midwifery University of Ghana Legon [research supervisor, head of Department Adult Health] may sometimes look at your research records").

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**Compensation**

(Compensation packages will be in kind made available for participants through monthly health talk on Hypertension delivered by me at the factory in collaboration with the Occupational Health and Safety Manager of Cocoa Processing Company Limited Tema. This will be done at the end of the study)

**Voluntary Participation and Right to Leave the Research**

(This research study is voluntary and participant can withdraw without penalty)

**Termination of Participation by the Researcher**

(Any anticipated circumstances under which the participant's participation may be terminated by the investigator without regard to the participant's consent must be specified) (This does not apply to all studies)

**Contacts for Additional Information**

(When you need answer to pertinent questions about the research, please Call Maxwell Yaw Eshun on 0246052902)

**Your rights as a Participant**

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: [nirb@noguchi.ug.edu.gh](mailto:nirb@noguchi.ug.edu.gh)

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## Appendix C : Data Collection Instruments (HELM Questionnaire)



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#### DATA COLLECTION INSTRUMENTS

(i.e. Interview Guide, Questionnaire, etc.)

Title of Research: **PREVENTIVE PRACTICES OF HYPERTENSION AMONG WORKERS OF COCOA PROCESSING COMPANY LIMITED, TEMA.**

#### QUESTIONNAIRE FOR WORKERS OF COCOA PROCESSING COMPANY LIMITED, TEMA

##### SECTION A: Demographic Characteristics

\_\_\_\_\_ ] where appropriate

1. **Department:** Human Resource ☐ Technical ☐ Production ☐ Marketing ☐

Customer Service ☐ Administration ☐ Finance ☐

2. **Age:** 20 – 30years ☐ 31– 40 years ☐ 41 – 50years ☐ 50 – 59 ☐ 60years ☐

3. **Gender:** Male ☐ Female ☐

4. **Marital status:** Married ☐ Single ☐ Divorced ☐

5. **Educational background:** Tertiary ☐ Secondary ☐ Technical ☐ Vocational ☐

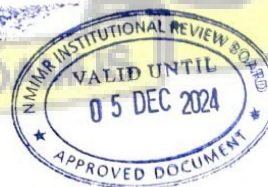
6. **Number of working years:** 2years ☐ 3 – 4years ☐ 5 – 6years ☐ 7 years and above ☐

7. **Employment status:** Senior staff ☐ Junior staff ☐ Full time employee ☐

Contract employee ☐

Others, kindly specify .....

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**SECTION B: Awareness of Preventive Practices on Hypertension (Perceived Experiences)** Please Tick [✓] the correct box to indicate your opinion on the statements on hypertension.

| S.N | STATEMENTS                                                                                     | RESPONSES |    |             |
|-----|------------------------------------------------------------------------------------------------|-----------|----|-------------|
|     |                                                                                                | Yes       | No | Do not know |
| 1   | I know a lot about hypertension                                                                |           |    |             |
| 2   | Some members of my family have hypertension                                                    |           |    |             |
| 3   | Once someone has high blood pressure, it is For life                                           |           |    |             |
| 4   | People with high blood pressure should take their medicine according to prescription/regularly |           |    |             |
| 5   | Losing weight usually makes blood pressure remain stable                                       |           |    |             |
| 6   | Eating more salt usually makes blood pressure go high                                          |           |    |             |
| 7   | High blood pressure can cause heart diseases                                                   |           |    |             |
| 8   | High blood pressure can cause cancer                                                           |           |    |             |
| 9   | High blood pressure can cause kidney problems                                                  |           |    |             |
| 10  | High blood pressure can cause a person to have a stroke                                        |           |    |             |
| 11  | High blood pressure can cause diabetes                                                         |           |    |             |
| 12  | Moderate to vigorous exercise 30 minutes/day 3-5 times a week lowers blood pressure            |           |    |             |
| 13  | Smoking a pack of cigarettes per day will not affect a person's risk of hypertension           |           |    |             |
| 14  | High blood pressure cannot be cured                                                            |           |    |             |
| 15  | Lifestyle changes are useful to prevent hypertension                                           |           |    |             |
| 16  | A person who has high blood pressure should eat less fat                                       |           |    |             |
| 17  | A person who has high blood pressure should eat more fruits and vegetables                     |           |    |             |
| 18  | A normal blood pressure is between 135/85mmHg and 100/60 mmHg                                  |           |    |             |
| 19  | I can detect symptoms of high blood pressure                                                   |           |    |             |

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**SECTION C: Shift Work as Barriers to the Prevention of Hypertension (Perceived barriers)** Please tick the appropriate box to indicate your opinion on the statements on hypertension.

| S.N | STATEMENTS                                                                              | Yes | No | Do not know |
|-----|-----------------------------------------------------------------------------------------|-----|----|-------------|
| 1   | Working for long hours can be a barrier to preventing the onset of hypertension         |     |    |             |
| 2   | Working irregular hours can be a barrier to preventing hypertension                     |     |    |             |
| 3   | Working on night shift frequently is a barrier to preventing hypertension among workers |     |    |             |
| 4   | Working on rotating shift can be a barrier to preventing hypertension                   |     |    |             |
| 5   | Closing late from work can be a barrier to the prevention of hypertension               |     |    |             |
| 6   | Excess workload can be a barrier to the prevention of hypertension                      |     |    |             |
| 7   | I experience increased workplace demand                                                 |     |    |             |
| 8   | I perform multiple tasks at the workplace                                               |     |    |             |
| 9   | I work on heavy loads                                                                   |     |    |             |
| 10  | I stand for more than 4 hours at the workstations                                       |     |    |             |
| 11  | I go home with unfinished work                                                          |     |    |             |
| 12  | I have other workloads at my workstation                                                |     |    |             |
| 13  | I have poor resting times                                                               |     |    |             |
| 14  | I experience short resting times                                                        |     |    |             |
| 15  | I experience disturbed sleep                                                            |     |    |             |
| 16  | I have insufficient sleep                                                               |     |    |             |
| 17  | I wake up very early everyday                                                           |     |    |             |
| 18  | I sleep on the bus on my way to and from work                                           |     |    |             |

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**SECTION D: Physical Activities and Eating Habits as Measures to Prevent Hypertension**  
Please tick the appropriate box to indicate your experience on the statements on hypertension.

| SN | Statement                                         | Responses |    |             |
|----|---------------------------------------------------|-----------|----|-------------|
|    |                                                   | Yes       | No | Do Not Know |
| 1  | I do exempt myself from physical exercises        |           |    |             |
| 2  | I experience excessive weight loss                |           |    |             |
| 3  | I control my weight                               |           |    |             |
| 4  | I have time for sporting activities               |           |    |             |
| 5  | I make time to walk in a day                      |           |    |             |
| 6  | I exercise in bed before starting my day          |           |    |             |
| 7  | I have irregular eating behaviour                 |           |    |             |
| 8  | I ensure intake of fruit and vegetables regularly |           |    |             |
| 9  | I regularly do eat late                           |           |    |             |
| 10 | I enjoy taking fatty foods                        |           |    |             |
| 11 | I increase salt intake with meals at tables       |           |    |             |
| 12 | I skip diet frequently                            |           |    |             |
| 13 | I eat while working                               |           |    |             |

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INTEGRAL PROCEDURES





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**SECTION E: Working Environment, Work Life Policy and Medical care as measures to prevent hypertension**

Please tick the appropriate box to indicate your opinion on the statements on hypertension.

| SN | Statement                                                 | Responses |    |             |
|----|-----------------------------------------------------------|-----------|----|-------------|
|    |                                                           | Yes       | No | Do Not Know |
| 1  | I have adequate working space                             |           |    |             |
| 2  | I am happy working with everyone in my workstation        |           |    |             |
| 3  | I have a flexible work schedule                           |           |    |             |
| 4  | I perform agile work                                      |           |    |             |
| 5  | I get support from my colleagues at the workstation       |           |    |             |
| 6  | I enjoy medical benefits at my workplace                  |           |    |             |
| 7  | I enjoy annual leave schedules                            |           |    |             |
| 8  | I undergo routine general medical screening               |           |    |             |
| 9  | I do visit the physician specialist responsible for staff |           |    |             |
| 10 | I know the workplace policy on break                      |           |    |             |
| 11 | I have health insurance                                   |           |    |             |
| 12 | The factory has clinic to help with my health needs       |           |    |             |
| 13 | I have access to use other hospitals outside the factory  |           |    |             |
| 14 | I wait to see the medical doctor when I visit the clinic  |           |    |             |
| 15 | I check my blood pressure regularly                       |           |    |             |
| 16 | I adhere to all medical treatment advice given to me      |           |    |             |

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**SECTION F: Family/External Support as Measure for Prevention Practices of Hypertension**  
Please tick the appropriate boxes to indicate your opinion on the statements below.

| SN | Statement                                                                        | Responses |    |             |
|----|----------------------------------------------------------------------------------|-----------|----|-------------|
|    |                                                                                  | Yes       | No | Do Not know |
| 1  | My family supports my health and wellness plans                                  |           |    |             |
| 2  | I allow other members of my family to assist in my health and wellness schedules |           |    |             |
| 3  | I rely on my co-workers for help when I am unwell and need help                  |           |    |             |
| 4  | I get along well with people in your neighborhood                                |           |    |             |

**THANK YOU FOR YOUR SUPPORT**

**Link to Online Questionnaire:** Preventive Practices towards hypertension among workers of Cocoa Processing Company Limited, Tema  
[https://docs.google.com/forms/d/13n35IDJWEL5jYWvW8ETD\\_zSmOWeVoyJS4n8TyW2gdj8/edit](https://docs.google.com/forms/d/13n35IDJWEL5jYWvW8ETD_zSmOWeVoyJS4n8TyW2gdj8/edit)

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Appendix D: Adoption Letter



MAXWELL YAW... 10/31/2023

to j.setorglo@uccsms.ed... ▾



Dear Sir,  
I am writing to seek your permission to adopt your questionnaire for my thesis.

Please find attached my permission letter.

Thank you very much.

Warm regards

Maxwell Yaw Eshun  
MPhil Nursing Student  
University of Ghana, Legon

Department of Adult Health  
School of Nursing and Midwifery  
University of Ghana, Legon  
[myeshun@st.ug.edu.gh](mailto:myeshun@st.ug.edu.gh)

31<sup>st</sup> October 2023

Dr. J. Setorglo,  
Department of Medical Biochemistry  
University of Cape Coast  
University Post, Ghana  
Email: [j.setorglo@uccsms.edu.gh](mailto:j.setorglo@uccsms.edu.gh)

Dear Sir,

PERMISSION TO ADOPT YOUR QUESTIONNAIRE FOR DATA COLLECTION FOR MY THESIS



Permission...nnaire.docx



Jacob Setorglo 10/31/2023

Hello Maxwell, Permission granted. Best of luck in your endeavors. Regards,