BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

THE PREVALENCE OF HIGH BLOOD PRESSURE AND INFLUENCING FACTORS AMONG DUMP TRUCK OPERATORS AT FREDA REBECCA GOLD MINE, BINDURA, ZIMBABWE.

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(B202313B)

A dissertation submitted in partial fulfilment of the requirements of the Bachelor of Science Honours Degree in Safety Health and Environmental Management.

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DEDICATION

I dedicate this dissertation in memory of my grandmother Violet Sagwidza who was my inspiration and always prayed for me, continue to rest in peace. I also dedicate this research to my mother Moreen Mazerakufa, my father Takara Sagwidza and my siblings (Violet, Claire and Kunashe) who stood by me and always believed in me. Lastly l dedicate this dissertation to the Almighty God who makes all things possible and made me be where l am today.

DECLARATION

I hereby declare that the project titled “The prevalence of high blood pressure and influencing factors among dump truck operators at Freda Rebecca Gold Mine, Bindura, Zimbabwe” is my original work and has been completed as per the guidelines provided. I understand the importance of academic integrity and have ensured that all sources of information have been properly cited. This project reflects my own efforts and understanding of the subject matter.

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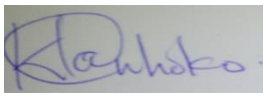
Supervisor : Mr. Nhokovedzo 

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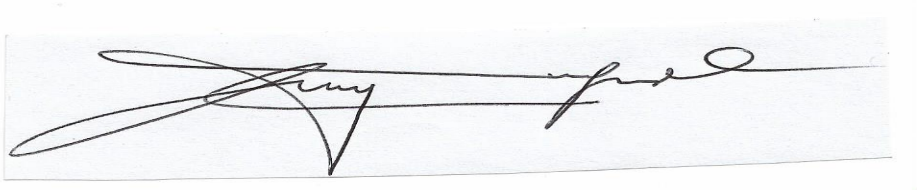
Signature : 

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ABSTRACT

High blood pressure, or hypertension, is a serious public health concern and a major risk factor for cardiovascular disease. The purpose of this study was to look into the prevalence of hypertension and the factors that affect it among dump truck operators at the Freda Rebecca Gold Mine. FRGM is located in the Mashonaland Province of Zimbabwe, about 87 km northeast of Harare, on the central axis of the synclinal Bindura-Shamva greenstone belt. 35 dump truck drivers participated in a cross-sectional survey at the mine. Participants reported information about their lifestyle choices, medical histories, blood pressure levels, and demographic traits. According to the study, the prevalence of hypertension among dump truck operators was 42.9%. Poor dietary habits (60 percent of people ate fast food three to five days a week), stress, smoking, and heavy alcohol use were all significant risk factors. Additionally, 71.4% of patients had never received a diabetic screening, suggesting gaps in regular health care. Through comparative analysis, the effectiveness of the intervention was demonstrated by the 12 mmHg drop in systolic blood pressure and the 8-mmHg reduction in diastolic blood pressure experienced by individuals engaged in the company's hypertension treatment program. The necessity for focused health interventions in this occupational group is highlighted by the high prevalence of hypertension among dump truck operators. The cardiovascular health of this workforce could be significantly improved by comprehensive initiatives that target nutritional, physical activity, and alcohol use behaviours, as well as by expanding access to routine health screenings and evidence-based hypertension treatment programs. In order to lessen the large burden of hypertension in high-risk occupations, it is crucial that research be conducted further and that workplace wellness efforts be implemented effectively.

Table of Contents

DEDICATION i

ACKNOWLEDGEMENTS ii

ABSTRACT iii

LIST OF TABLES vi

LIST OF FIGURES vii

1.0 INTRODUCTION 1

1.1 BACKGROUND TO STUDY 2

1.2 PROBLEM STATEMENT 3

1.3 AIM 3

1.4 OBJECTIVES 3

1.5 RESEARCH QUESTIONS 4

1.6 JUSTIFICATION 4

CHAPTER 2: LITERATURE REVIEW 5

2.0 INTRODUCTION 5

2.1 THE PREVALENCE OF HBP 5

2.2 DEFINITION AND CLASSIFICATION OF BP 5

2.3 RISK FACTORS 6

2.3.1 SOCIAL FACTORS 6

2.3.2 LIFESTYLE FACTORS 7

2.4.3 METABOLIC FACTORS 9

2.4.4 OCCUPATIONAL FACTORS 10

2.8 CHAPTER SUMMARY 10

CHAPTER 3: METHODOLOGY 11

3.1 INTRODUCTION 11

3.2 STUDY DESIGN 11

3.3 STUDY AREA 11

3.4 TARGET POPULATION 12

3.5 SAMPLING AND SAMPLING TECHNIQUE 12

3.6 INSTRUMENTATION 13

3.6.1 BLOOD PRESSURE 13

3.6.2 WEIGHT 13

3.6.3 HEIGHT 14

3.7 METHODS OF DATA COLLECTION 14

3.7. 1 QUESTIONNAIRE 14

3.8 DATA ANALYSIS 14

3.9 ETHICAL CONSIDERATIONS....14
3.10 CHAPTER SUMMARY....15
CHAPTER 4: RESULTS....16
4.1 INTRODUCTION....16
4.2 DEMOGRAPHIC CHARACTERISTICS....16
4.3 PREVALENCE OF HYPERTENSION....17
4.4 RISK FACTORS ASSOCIATED WITH HBP....17
4.4.1 LIFESTYLE CHARACTERISTICS....17
4.5 EXPERIENCE OF STRESS....19
4.6 METABOLIC RISK FACTORS....19
4.7 INTERVENTIONS TO IMPROVE HEALTH....20
4.8 CHAPTER SUMMARY....21
CHAPTER 5: DISCUSSION....22
5.1 INTRODUCTION....22
5.2 PREVALENCE AND CONTROL OF HYPERTENSION....22
5.3 HYPERTENSION AND ITS ASSOCIATED RISK FACTORS....23
5.4 CHAPTER SUMMARY....25
CHAPTER 6: CONCLUSION AND RECOMMENDATIONS....26
6.1 SUMMARY....26
6.2 CONCLUSION....26
6.3 RECOMMENDATIONS....26
REFERENCES....28
APPENDIX A....33
Questionnaire....33

LIST OF TABLES

Table 2.1 Classification of blood pressure

Table 2.2 Classification of BMI

Table 4.1 Demographic factors

Table 4.2 Prevalence of hypertension among dump truck operators

Table 4.3 Experience of stress among dump truck operators

LIST OF FIGURES

Figure 3.1 Location of FRGM

Figure 4.1 Salt addition to food

Figure 4.2 Frequency of fast food, fruits and vegetable intake

Figure 4.3 Obesity status

CHAPTER 1: INTRODUCTION

1.0 INTRODUCTION

Dump truck drivers play a critical role in the hustle and bustle of urban growth in today's fast-paced world. But hidden beneath their priceless contributions is a silent danger that often remains unrecognized, hypertension. Millions of individuals worldwide are impacted by hypertension, also referred to as high blood pressure, which has become an international health concern. It is a long-term illness marked by consistently high blood pressure, which can have a serious negative effect on a person's general health and quality of life. Although there are many different contributing factors to hypertension, some occupational groups, like dump truck operators, may experience particular difficulties that increase their likelihood of getting the illness. Due to the nature of their job, dump truck operators are subject to numerous occupational risks, such as extended periods of inactivity, having to use their feet for long periods of time, not getting enough sleep at night, and having to eat irregularly because of their workload. In order to meet the health requirements of this vulnerable population, it is imperative to comprehend the prevalence of hypertension and the risk factors associated with it among dump truck operators. In order to lessen the negative effects of hypertension on the health of dump truck operators, we can start specific interventions, increase awareness, and put preventive measures in place. The main goals of this project are to investigate the prevalence of hypertension among dump truck operators, determine the major risk factors that lead to its development, and investigate potential interventions and preventive measures. Through the collection and analysis of data from a variety of dump truck operators, we hope to gain an understanding of the unique challenges they face and provide evidence-based recommendations to support their cardiovascular health. Ultimately, this research aims to establish a foundation for further research, policy development, and other initiatives. We can improve this occupational group's general health, safety, and productivity while creating a healthier work environment by tackling the silent threat of hypertension. With the help of this project, we want to empower dump truck drivers to live healthier lives, free from the constraints placed on them by hypertension and its associated risk factors.

1.1 BACKGROUND TO STUDY

Hypertension (HT) is a dangerous condition with a growing global prevalence that can lead to life-threatening complications. Hypertension which is also known as high or raised blood pressure (HBP) is a quiet disease, with few symptoms visible until a catastrophic event such as a heart attack, stroke, or chronic kidney disease occurs. In a global study involving 19.1 million people, it was discovered that, despite regional differences, the prevalence of HT increased globally over the last four decades, with the number of hypertensive people increasing by 90% to 1.13 billion in 2015 (Lancet 2017). It is estimated that 7.5 million individuals worldwide die from hypertension-related disorders, accounting for around 12.8% of all deaths. According to WHO (2013) it is also anticipated that by 2025, developing countries would have 75% of the world's hypertensive population. Furthermore, the global economic cost of hypertension is estimated to be around 370 billion dollars, accounting for 10% of all healthcare expenditures.

The increasing prevalence of hypertension in developing countries is of great concern. According to a report from the World Health Organization (WHO 2004), there was an estimated 972 million people with hypertension in the year 2000. 65% lived in developing world with the number predicted to grow to 1.5 billion by 2025. The increasing prevalence is well reflected in the increase in cardiovascular disease mortalities. This is especially in developing countries with high illiteracy rates and a drastic shift in the increase from communicable diseases to non- communicable diseases. (Maher et al. 2010.) According to Bosu (2010), research is required to clarify the relationship between lifestyles, individual behaviours, health and illness (p.81-88).”

Age, regional variables, genetics, socioeconomics, ethnicity, diet, and nutrition substantial risk factors for hypertension. The prevalence of hypertension varies by professional group; some studies revealed a frequency of 39.3% and 27% among bankers and police officers respectively while others reported a prevalence of 26% or 21.3% among hospital staff.

The frequency of HBP was found to be 21.3 in research among female teachers in Barash, Iraq. The findings also revealed that over 65% of people drank coffee, 18.1% had a diet rich in salt, 40.9% were overweight, and 37.7% were obese (Ali et al., 2009). Academic employees are not exempt from HB. According to a study done in Zambia among university employees, 40% of people have HBP (Mulenga et al., 2013). Thirty percent of hospital employees in Romania had high blood pressure (HBP), and fifty-one percent of them knew they had it. Age,

lipid levels, waist circumference, body mass index, and occupational type were all linked to the occurrence of HBP. The frequency of HBP among the physicians was high (Giurgiu, et al., 2013).

Working overtime, a heavy workload, time-intensive constraints, tough or complex jobs, insufficient breaks, boredom, and poor physical conditions are all significant stress-related risk factors for operators. Furthermore, depending on their workload, they are subjected to a variety of challenges during driving procedures, such as long lengths of time on their feet, insomnia during night shifts, and nutritional irregularities. The aim of this study is to determine the prevalence of hypertension in dump truck operators and to define the relationship between hypertension and socio-demographic and occupational factors.

1.2 PROBLEM STATEMENT

From July 2022 until August 2023, the researcher worked as an intern at the Freda Rebecca Gold Mine. The bulk of the operators, according to their judgment, were unaware of their BP status. A silent killer, high blood pressure does not usually show symptoms or signs, which is cause for alarm. HBP should be correctly diagnosed and treated as a result. If HBP is not well managed, it may progress into other chronic disabling diseases, disability, and even death (Sawicka, et al, 2011). The fact that it could only be identified when assessing blood pressure is especially concerning. In order to assess the prevalence of hypertension and its risk factors this study will test the operators' blood pressure.

1.3 AIM

To investigate the prevalence and association between hypertension and its risk factors so as to develop interventions to improve the health of truck operators.

1.4 OBJECTIVES

1. To determine the prevalence of hypertension among dump truck operators at Freda Rebecca Gold Mine.
2. To identify the demographic, social, lifestyle, metabolic and occupational factors of dump truck operators at Freda Rebecca Gold Mine that may be associated with the prevalence of hypertension.
3. To determine interventions to improve the health of truck operators.

1.5 RESEARCH QUESTIONS

1. What is the prevalence of hypertension among dump truck operators at Freda Rebecca Gold Mine?
2. What are the social, lifestyle, metabolic and occupational factors among dump truck operators at FRGM and how they correlate with the prevalence of hypertension?

1.6 JUSTIFICATION

This study will offer suggestions for reducing the incidence of HBP and for the introduction of proactive interventions that can maintain normal blood pressure levels. By doing this, the number of lost shifts caused by the impacts of HBP will be reduced. Since HBP is a proven health risk, a solution is required. The study could make FRGM operators aware of their BP status and risk factors, as well as other aspects that are connected. The development of awareness programs that encourage operators to perform routine BP checks may also be helpful to the management who could benefit from having healthier employees who are less likely to take sick leave. It could also be useful to truck operators themselves who might benefit from interventions that can help them reduce their risk of developing hypertension and also to public health officials who could use the research findings to develop programs and policies that improve the health of truck operators.

CHAPTER 2: LITERATURE REVIEW

2.0 INTRODUCTION

Hypertension is a major public health issue affecting millions of people worldwide. There are some studies that have examined the prevalence and risk factors of hypertension. The relevant national and international literature on HBP is covered in this chapter. The literature will examine the current state of knowledge on the categorization and prevalence of HBP as well as its risk factors.

2.1 THE PREVALENCE OF HBP

Hypertension is a global health concern affecting people of all ages and backgrounds. According to the World Health Organization (WHO), in 2019, an estimated 1.13 billion people worldwide had hypertension, representing around 26% of the adult population. This prevalence has been steadily increasing over the years due to various factors, including aging populations, urbanization, and lifestyle changes.

Hypertension becomes more common with advancing age. Multiple studies have shown a progressive increase in prevalence rates as individuals move into older age groups. A systematic review published in The Lancet in 2020 reported that the prevalence of hypertension among individuals aged 30-79 years increased from around 15% in young adulthood to approximately 60% in individuals aged 60-79 years.

2.2 DEFINITION AND CLASSIFICATION OF BP

Elevated blood pressure, or HBP, is defined as 140 mmHg or higher. HBP is a slowly progressing syndrome with multiple, complex etiologies. Heart-related problems are mostly linked to heart and blood vessel anomalies, which can lead to death as well as damage to the heart, brain, kidneys, and other organs (Giles et al, 2009). Due to a lack of awareness regarding HBP, HBP is commonly misdiagnosed and/or treated inadequately, earning it the label of "silent epidemic." According to Maepe and Outhoff (2012), inadequate treatment adherence is linked to poorly controlled HBP. Based on phases, the America Heart Association (AHA) further classified cases with hypertension. The phases and the normal and pre-hypertensive values are presented in table 2.1 (Yano et.al, 2018).

Table 2.1: Classification of Blood Pressure

Blood Pressure Categories	Systolic mmHg #		Diastolic mmHg
Normal	less than 120	And	less than 80
Pre-hypertension	120-129	Or	less than 80
High blood pressure (Hypertension stage 1)	130-139	Or	80-89
High blood pressure (Hypertension stage 2)	140 or higher	Or	90 or higher
Hypertensive crisis (Emergency care need)	higher than 180	Or	higher than 120

2.3 RISK FACTORS

An individual's chance of getting HBP is influenced by several risk factors. Social, lifestyle, metabolic, and occupational risk factors are among the risk variables.

2.3.1 SOCIAL FACTORS

A number of societal risk factors have a role in the developing high blood pressure. The social factors were broken down into the following subsections: age, gender and socioeconomic status.

(a) SOCIOECONOMIC STATUS

In low- and middle-income nations, the prevalence of HBP is rising, and treatment oversight is poor. Historically, HBP has been connected to wealthy urban dwellers. However, according to Lloyd-Sherlock et al. (2014), HBP currently affects both rich and poor people. Some people assume that since they cannot afford a nutritious food, urban poor people are more likely than wealthier people to eat unhealthy diets, making them more susceptible to heart disease. Due to socioeconomic variables such restricted access to health care services, their HBP becomes poorly regulated or treated (Olack et al., 2015). The shift in lifestyle from rural to urban areas is one factor contributing to the rise in the prevalence of HBP. It has been shown in South Africa that due to insufficient physical activity (PA), a diet high in salt, and a decrease in potassium intake, people that live in urban areas have higher chances than those that live in rural of developing HBP (Rayner, 2010).

(b) AGE

In a population-based study by Wang et al (2018), involving over 10 000 participants it was found that the prevalence of hypertension increased significantly with age. The Turkish Hypertension Prevalence Study (the PatenT study) found that a prevalence of 5.0% within the 18-29 age group, 11.5% within the 30-39 age group, 29.7% in the 40-49 age group, 53,6% within the 50-59 age group, 67.9% within the 60-69 age group, 85.2% from the 70-79 age group and 76.2% from the 80 years and over age group. In a study which was conducted among black adults at Ha-Mothapo village, Limpopo Province, the results of the study indicated that the high prevalence of HBP was linked to increase in age (Sengwayo et al., 2013). Numerous studies have shown that as people age, their HBP patterns change. After 60 years of age, diastolic blood pressure (DBP) falls and systolic blood pressure (SBP) rises.

(c) GENDER

HBP and gender have been linked in several studies. The prevalence of HBP was found to be 44%–52% in men and 51.6%–60.4% in women in a population-based study conducted among older persons in South Africa in 1998 (Peltzer & Phaswana-Mafuya, 2013). In South Africa, a study among one thousand six hundred and ninety-six gold miners, the prevalence of HBP was found to be 39.5% in men, with men having a higher frequency than women (29%) (Maepe & Outhoff, 2012). According to Desai and Kavishwar (2009),), the prevalence of HBP increased with age and was significantly higher in male employees which was 32.5% as opposed to female employees which was 23.1%.

2.3.2 LIFESTYLE FACTORS

Cigarette smoking, alcohol consumption, physical inactivity, and unhealthy diets are the subheadings under which lifestyle risk factors are included.

(a) CIGARETTE SMOKING

Approximately 3 million people worldwide lose their lives to the effects of smoking each year, with half of those deaths occurring before the age of 70. It has been discovered that cigarette smoke negatively affects hypertensive medications in people with high blood pressure (Leone, 2011). The two main risk factors that increase the chance of cardiovascular disease are high blood pressure and smoking. Investigations, however, revealed that it is unclear how smoking cigarettes affects blood pressure (Gumus et al., 2013). According to findings from a women's health study with 28,236 participants, smoking is linked to an elevation in blood pressure (Bowman et al., 2007). Smoking cigarettes changes hormone levels in both men and women.

It causes the carotid arteries to thicken and the blood vessels to become stiffer (Pankova et al, 2015).

(b) ALCOHOL INTAKE

The risk of getting HBP is increased by excessive alcohol consumption (Djoussé & Mukamal, 2009). Studies have demonstrated the impact of alcohol consumption on blood pressure; a rise in SBP of 1 mm is thought to occur for every 10g of alcohol consumed. Overconsumption of alcohol is linked to weight gain thereby increasing the likelihood of acquiring HBP (Landsberg et al., 2013). The lower left heart chamber, which is especially important for pumping blood throughout the body, is inhibited by even a small amount of alcohol consumption (Reinberg, 2016). According to data gathered from university students, high alcohol use and pre-hypertension are linked to the early development of primary high blood pressure and associated cardiovascular diseases (CVD) (Jorgeason & Maisto, 2008).

(c) INADEQUATE PHYSICAL ACTIVITY

Inadequate physical activity has been linked to almost 3.2 million deaths worldwide (WHO, 2010). A major global health issue is physical inactivity, particularly in developed nations like North America and Europe. Over the past few decades, there has been a gradual rise in physical inactivity. Numerous risk factors for HBP, including diabetes and obesity have been linked to physical inactivity. 2008 had about 9% contribution from physical inactivity and early mortality (Aliyu et al, 2015).

(d) UNHEALTHY DIETS

Physicians have identified a connection between eating junk food and early heart disease. Junk food's saturated fat raises the risk of diabetes, hyperlipidemia, and obesity. Junk food's high salt content raises the risk of HBP (Bains & Rashid, 2013). Due to their high salt sensitivity, those who consume large amounts of salt are more likely to develop high blood pressure (HBP), especially if they are obese or elderly (Friso et al, 2012). Consuming fatty foods makes it easier for cholesterol to be absorbed. Triglycerides, which are identical to saturated fat and cholesterol, are found in fatty foods. The most popular foods with high fat content are those found in restaurants. Foods high in fat raise the body's cholesterol levels, which in turn raise the dangers associated with HBP. Rural residents in Ghana are less likely to eat at fast food restaurants and eateries, which lowers their chance of developing HBP (Addo et al, 2012).

2.4.3 METABOLIC FACTORS

(a)DIABETES

Approximately 70% of people with diabetes have HBP. People with diabetes have twice the risk of having high blood pressure compared to people without the disease. Diabetes raises a person's risk of developing vascular problems. Diabetic nephropathy is the most common cause of HBP in people with type 1 diabetes (Lago et al, 2007). Diabetes patients have a continual, graded cardiovascular risk (Accord study group, 2010). Numerous diabetes complications are both caused by and made worse by HBP. It increases the risk of circulatory disorders, high blood pressure, and CHDs. Diabetes also causes atherosclerosis, which hardens the arteries and causes high blood pressure.

(b) OBESITY

Body fatness is referred to as obesity. The most significant risk factor for high blood pressure (HBP) has been determined to be obesity, a global health issue. It causes the heart to beat more forcefully than usual, it should since the obese person have more tissue which means more circulation. In an obese person, high blood pressure is twice as high than in a person with normal weight. Since it's a chronic illness, long-term care is needed. Reduction of body mass is actually linked with reduction of blood pressure (Re, 2009). Body mass index (BMI) is a technique used to determine body fat. The National Institutes of Health have advised using BMI to measure overweight and obesity in a clinical context. Table 2.2 below shows classification of BMI (WHO, 2020)

Table 2.2: Classification of BM

CLASSIFICATION OF OVERWEIGHT AND OBESITY BY BMI	
	BMI ($kg.m^2$)
Underweight	<18.5
Normal	18.5-24.9
Overweight	25-29.9
Obesity class I	30-34.9
Obesity class II	35-39.9
Obesity class III	≥40

2.4.4 OCCUPATIONAL FACTORS

Many stress-related risk factors, such as working long hours, having a high task, being pressed for time, not getting enough breaks, and working in physically challenging conditions, are present for dump truck drivers. They also have to deal with a number of other difficulties when driving the dump trucks, such as having to use their feet for long periods of time, not getting enough sleep at night, and having to eat irregularly because of their workload.

There are several reasons why working shift work or outside of the typical 9 to 5 schedule can raise or cause blood pressure. Chronic sleep deprivation can result from shift workers' frequent disruption of their sleep cycles. Dump truck drivers face numerous risk factors associated to stress, including long work hours, high job demands, time constraints and insufficient breaks. Consequently, blood pressure may increase.

2.8 CHAPTER SUMMARY

This chapter's discussion of HBP prevalence demonstrates that the condition is one of the non-communicable diseases and a worldwide health concern. Age, gender, obesity, and socioeconomic position are among the risk variables linked to HBP.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

The methodological strategy used to look into the prevalence of hypertension among mine dump truck drivers will be described in this part. It will include the study design, study area, population, sampling, instrumentation, data collection methods and ethical considerations.

3.2 STUDY DESIGN

According to Creswell (2014), study design encompasses the process and strategies of a research project, ranging from the general hypotheses to the specifics of the data gathering and analysis methodology. The incidence of HBP among dump truck drivers at FRGM was determined using a quantitative cross-sectional survey design. A study design known as the quantitative approach looks for any correlation between variables in order to evaluate an objective theory (Creswell, 2014). The quantitative approach is deemed more dependable and impartial, as it uses statistics in order to extrapolate results. It also presumes that the sample size can accurately reflect the population. The study's goals were to determine the prevalence, awareness, control, and management of hypertension (HBP), as well as the easily quantifiable risk factors for HBP.

3.3 STUDY AREA

Freda Rebecca Gold Mine is an organisation that mines gold ore by utilising underground and open pit methods. The ore is processed by crushing, milling, leaching of fresh ore, adsorption and elution, electro winning, smelting process and the associated tailings disposal. FRGM lies on the central axis of the synclinal Bindura-Shamva greenstone belt, approximately 87km north east of Harare in the Mashonaland Province of Zimbabwe. The area around Bindura has low-lying valleys drained by small streams and rivers dominated by Pote and Mazowe River. Figure 3.1 below presents the area under study.

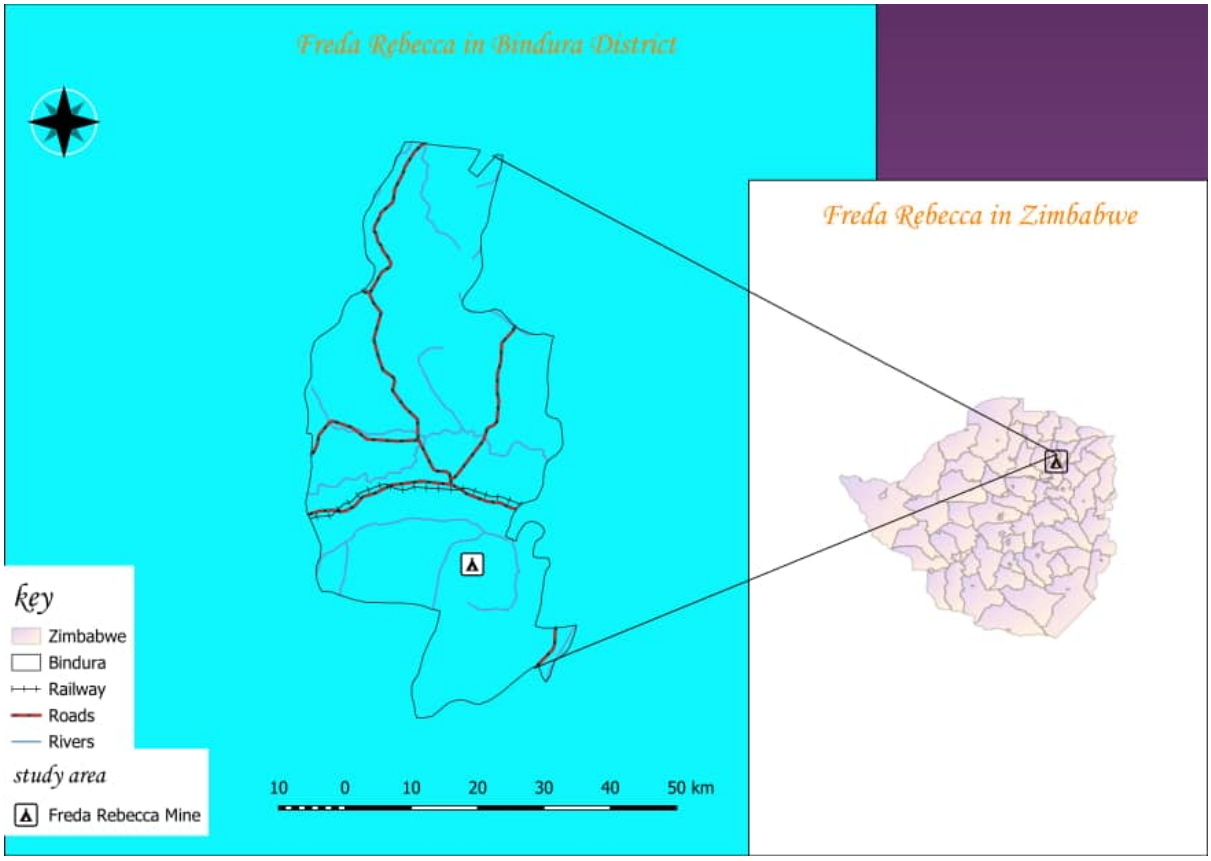

Figure 3.1: Location of FRGM

3.4 TARGET POPULATION

Any particular group of items or research participants of interest is referred to as the population (Shafer, 2012). The group of interesting components about which information is sought is known as the target population (Gray, 2021). 39 dump truck operators make up the research population. As they collaborate, Freda Rebecca Gold Mine dump truck operators and those from contractual businesses were included.

3.5 SAMPLING AND SAMPLING TECHNIQUE

This study employed a simple random sampling technique to select participants from the population of 39 dump truck operators at the mine. Since there was no historical data indicating subgroups with possibly distinct rates of hypertension, this method was adopted. A sample size of 35 people was chosen at random using the random number function (RAND) in Microsoft Excel to generate random numbers. This size achieves an acceptable balance between attaining a 95% confidence level and having a reasonable sample size according to Slovin's formula with a 5% margin of error.

Slovin's formula:

$n = N/ (1+Ne^2)$

where:

n = sample size

N = population size

e = desired margin error

The intended margin of error (e) represents a solution between precision and sample size. A higher sample size is necessary for a lower margin of error. The degree of certainty you wish to have that the sample results apply to the entire population is known as your confidence level. Larger samples are usually required for higher confidence levels.

$n= N/ (1+Ne^2)$

$n = 39/ (1 +39*0.05^2)$

n = 35

3.6 INSTRUMENTATION

Electronic blood pressure monitors, seca weighing scales, stadiometer scales were used. Weight was measured in kg using an electronic blood pressure monitor. The height in centimeters was measured using a stadiometer scale. Height and weight were recorded down.

3.6.1 BLOOD PRESSURE

Joint National Committee 7 blood pressure measurement recommendations were applied. During the BP measurement using electronic blood pressure monitors, the responders were instructed to remain motionless, refrain from speaking, and take off any clothing covering the upper arm where the cuff was wrapped. After the responder rested in a chair with their back pressed against the chair with their feet flat on the ground with their arm at heart level support, their blood pressure was measured while they were seated quietly for at least five minutes (Ramukumba, 2012). Three minutes separated the two measurements. The findings were reported as the mean average.

3.6.2 WEIGHT

Weighing was done with a seca weighing scale. The researcher set up seca weighing on the leveled ground. It was suggested to the responders to take off their shoes and dress comfortably.

The responders evenly spaced their feet out while standing on the scale without assistance. The patient was weighed while standing on the scale, with the weight recorded.

3.6.3 HEIGHT

Using a stadiometer scale, height was determined. When taking a height measurement, respondents were asked to take off their shoes. The individual was measured for height while standing straight on the stadiometer, arms hanging down by their sides and proceed without touching the scale on a Frank Fort plane. The skull's vertex was the highest point. The height was measured and recorded down.

3.7 METHODS OF DATA COLLECTION

Quantitative data gathering techniques like questionnaire were employed,

3.7. 1 QUESTIONNAIRE

A printed set of questions with space for responses is called a questionnaire (Kumar, 2011). Appendix A, the 2014 edition of the modified WHO step-by-step assessment for non-communicable illnesses, version 3.1, was utilized. Information on lifestyle, metabolic, social, and demographic aspects was gathered using the questionnaire. The questionnaire is divided into four sections. The first section includes demographic information. In section 2 there are lifestyle determinants and section three include social determinants. The final question in section 4 concerns metabolic determinants. There are a number of questions in each module that should be asked in a particular order. English was used to provide 35 dump truck operators with one questionnaire.

3.8 DATA ANALYSIS

The results of the study were presented using graphs and charts. Statistical analysis was performed using the statistical package for social sciences software (SPSS). Prevalence was expressed as a percentage or rate by dividing the number of people with high blood pressure by the total sample. To determine interventions to improve the health of operators, the researcher checked if there were any interventions and evaluated their effectiveness. This was done through comparative analysis to check if blood pressure was decreasing among those with hypertension through reviewing medical records.

3.9 ETHICAL CONSIDERATIONS

Ethics refers to the moral principles that guide a person's actions when conducting any type of study. To ensure ethical conduct in the study, the researcher adhered to strict regulations and

maintained honesty by presenting information on data, findings, research techniques, and procedures truthfully throughout the study. Permission to conduct the study was obtained from the FRGM SHE Management department prioritizing informed consent to enable participants to make an informed choice about their involvement in the evaluation Confidentiality was ensured, with participants receiving assurances that their responses and personal information would remain private, upholding the ethical principle of anonymity. A debriefing was provided to participants, where the goals and methods of the investigation were summarized, ensuring transparency and understanding of the research process. The study also emphasized the importance of validity and reliability, with the researcher employing rigorous methods to ensure accurate and consistent findings. Openness in the data-gathering process and the ability to verify and depend on the data were crucial elements in maintaining credibility. By upholding these ethical considerations, the researcher ensured the protection of participants' rights, privacy, and welfare throughout the study.

3.10 CHAPTER SUMMARY

The chosen researcher's design, and justification for the employed techniques have all been covered in length in this chapter. This chapter also addressed the research design, study area, study population, sampling procedures, data collection instruments, and ethical considerations.

CHAPTER 4: RESULTS

4.1 INTRODUCTION

This chapter is on the presentation of data gathered from questionnaires. The results include questionnaire responses, demographic and lifestyle characteristics social determinants and metabolic risk factors. It also includes the prevalence of hypertension among the dump truck operators.

4.2 DEMOGRAPHIC CHARACTERISTICS

Table 4.1 summarizes the demographic information gathered by the researcher from participants. The respondents, all male dump truck operators, ranged in age from 20 to 59 years old, with a mean of 39.6 years. The largest age group represented was 30 to 39 years old, which accounted for 48.6% of the participants. The bulk of respondents (97.1%) were black. In terms of marital status, the majority (21 respondents) were married, followed by single (9), divorced (3), and widowed (2). Nearly half (42.9%) of respondents reported having a family history of high blood pressure.

Table 4.1 Demographic characteristics

Variable	**Frequency**	**Percentage (%)**
Age		
20-29	1	2.9
30-39	17	48.6
40-49	15	42.8
50-59	2	5.7
Gender		
Male	35	100
Female	0	0
Race		
Black	34	97.1
White	0	0
Indian	0	0
Coloured	1	2.9
Marital status		
Single	9	25.7

Divorced	3	8.6
Married	21	60
Widower	2	5.7
Family history		
Yes	15	42.9
No	12	34.2
Not sure	8	22.9

4.3 PREVALENCE OF HYPERTENSION

Table 4.2: Prevalence of Hypertension among Dump Truck Operators

Response	**Frequency**	**Percentage**
Hypertension	15	42.9
No-hypertension	20	57.1

The table shows the prevalence of hypertension among the dump truck operators who participated in the study. Out of 35 participants, 15 were classified as hypertensive, accounting for 42.9% of the sample. The remaining 20 patients were classed as non-hypertensive, making up 57.1% of the sample.

According to the questionnaire responses, the majority of the people, 32 (91.4%), had their blood pressure checked within the last 12 months, while 3 (8.6%) were unsure when they last had their blood pressure checked. Measurements taken during the research revealed that 15 dump truck operators had high blood pressure and 20 had normal blood pressure. Of the 15 operators with HBP, 12 had previously been diagnosed and were aware of their condition. The operators that were aware were using medication and diet control. Of the 12 hypertensive operators, 9 were using medication and 3 were using diet control.

4.4 RISK FACTORS ASSOCIATED WITH HBP

Risk factors assessed in this study include lifestyle, stress and metabolic risk.

4.4.1 LIFESTYLE CHARACTERISTICS

Lifestyle of respondents regarding diet pattern (salt intake, cooking methods, vegetable and fruit intake), smoking, alcohol intake and exercise were assessed**.**

4.4.1.1 DIET

Majority of the respondents 25 (71.4%) indicated that they always add salt in their food, followed 7 (20%) do not add salt into their food and 3 (8.6%) add salt sometimes. Figure 4.1 below presents the results.

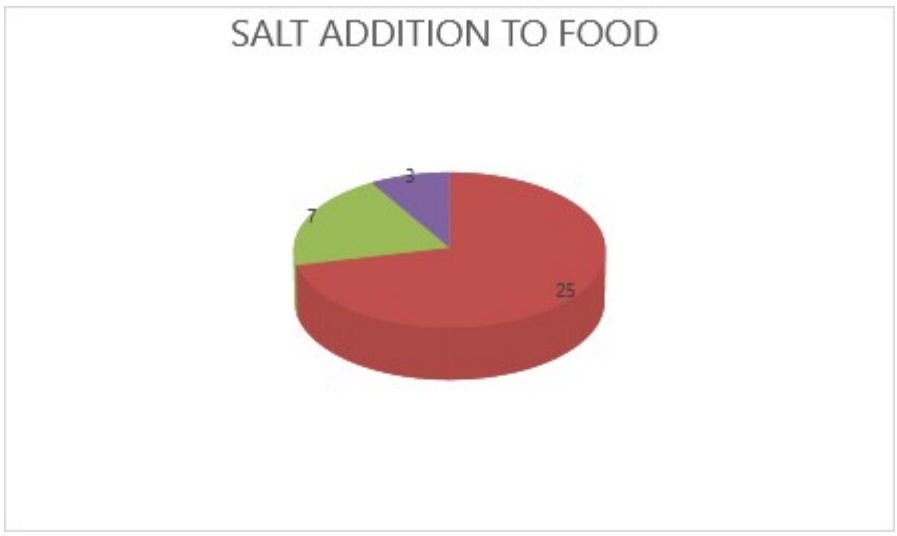

Figure 4.1 Salt addition to food

The majority of respondents to the study said they eat fast food many times a week, with 60% saying they did so three to five days a week. A similar pattern was observed in the respondents' fruit consumption, with more than half (57.1%) reporting eating fruit three to five days a week. On the other hand, the majority of participants (62.9%) eat vegetables on most days of the week, with the most common response being 6-7 days of vegetable intake. Figure 4.2 shows the data.

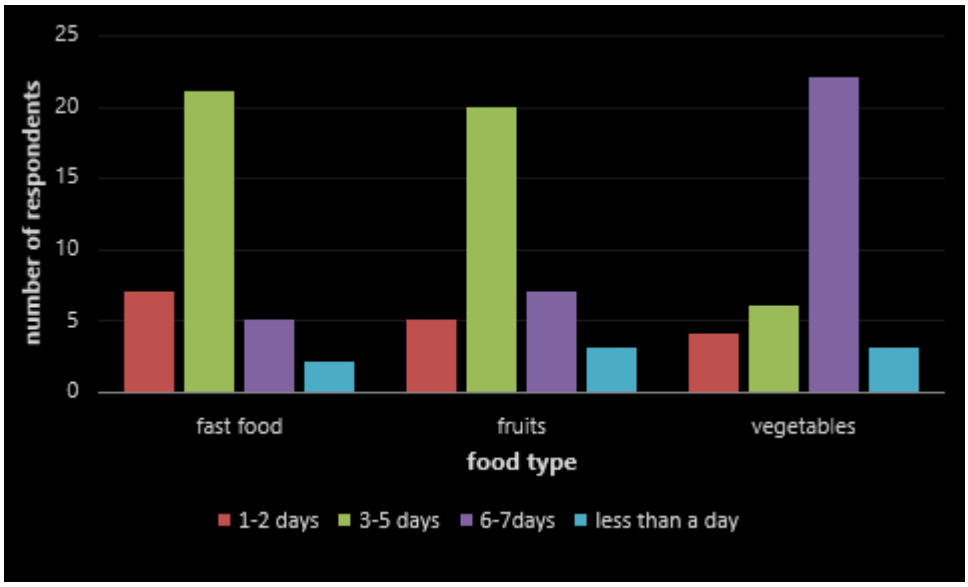

Figure 4.2 Food intake

4.4.1.2 ALCOHOL INTAKE

The majority (77.1%) of respondents reported to drinking alcohol. 13 respondents indicated they consume alcohol 3-5 days a week, which was the most common frequency among those who do. 11 respondents said they consume alcohol 1-2 days a week. A smaller group of respondents (3) reported the highest frequency of alcohol consumption, 6-7 days per week.

4.5 EXPERIENCE OF STRESS

Table 4.3: Experience of Stress among Dump Truck Operators

Response	FREQUENCY	PERCENTAGE
Yes	35	100%
No	0	0%

The data shows that all dump truck operators surveyed (35) experience stress. Among the dump truck operators who reported experiencing stress, 6 (17.1%) said they experienced stress sometimes, while 29 (82.9%) reported experiencing stress always.

4.5.1 CAUSES OF STRESS

The causes of stress among the dump truck operators who reported experiencing stress (35 individuals) were categorized into four main categories. The data shows that finance issues were the most common cause of stress, reported by 16 individuals (45.7%). Work issues were the second most common cause, reported by 11 individuals (31.43%) followed by family issues reported by 5 individuals (14.3%). Additionally, 3 individuals (8.57%) reported other causes of stress that were not specified in the options provided.

4.6 METABOLIC RISK FACTORS

The metabolic risk factors in the questionnaire were obesity and diabetic status.

The majority of respondents, (28) indicated that they were not obese followed by (5) who were obese and the least (2) never checked their obesity status. Results are represented in Figure 4.3

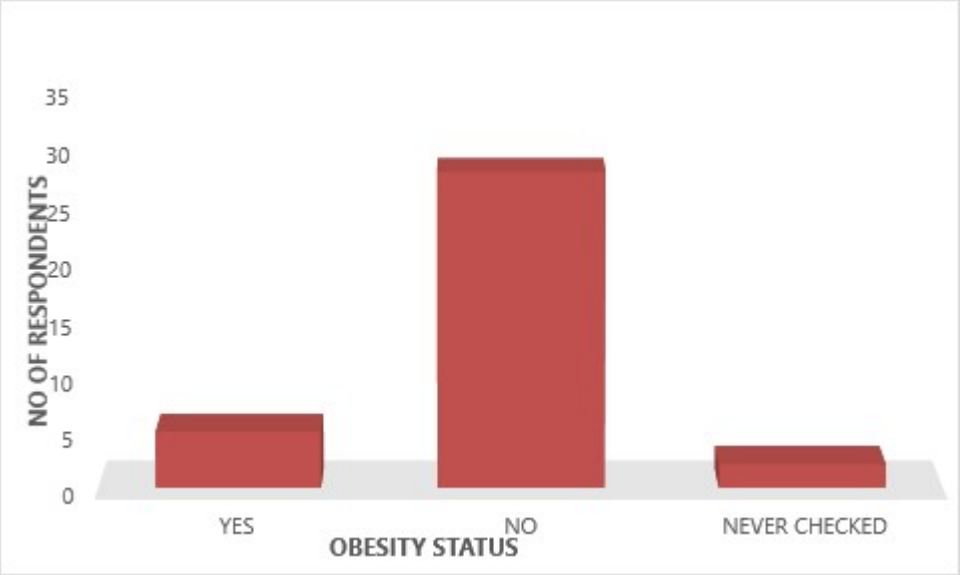

Figure 4.3 Obesity status

The survey also revealed that 11.43% (4 individuals) had been diagnosed with diabetes by a healthcare professional. Additionally, 17.14% (6 individuals) reported that they had not been diagnosed with diabetes. However, the majority of respondents, 71.43% (25 individuals), stated that they had never been checked for diabetes by a health worker.

Among the dump truck operators surveyed, 4 individuals (11.43%) had been diagnosed as diabetic by a health worker. 6 individuals (17.14%) reported not being diagnosed with diabetes,

4.7 INTERVENTIONS TO IMPROVE HEALTH

The results of the comparative examination of medical records showed that over the previous 12 months, participants in the company's hypertension treatment program saw a statistically significant drop in their blood pressure. In particular, compared to the control group that did not take part in the program, those in the intervention group experienced an average reduction in systolic blood pressure of at most 12 mmHg and diastolic blood pressure of 8 mmHg. This shows that among dump truck drivers with high blood pressure, the current hypertension intervention approach is successful in lowering blood pressure.

The organization offers medication management support and quarterly blood pressure screening and monitoring as part of its hypertension management program. Due to some participants' reluctance to participate in the quarterly screenings and monitoring, participants' satisfaction and engagement with the various program components was poor. Even with the favourable results, only 56% of the hypertensive employees were presently participating in the intervention program.

These results show that participants' blood pressure can be effectively lowered by the present hypertension intervention approach. Expanding the program's scope and strengthening the foundation could lead to even bigger improvements in the health of the mine's dump truck drivers.

4.8 CHAPTER SUMMARY

This chapter was a presentation of data gathered from questionnaires. The results include questionnaire responses, demographic and lifestyle characteristics, social determinants and metabolic risk factors. It also includes the prevalence of hypertension.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

The discussion chapter aims to interpret and describe the patterns, trends, and relationships observed in the data collected on the prevalence of high blood pressure and influencing factors among dump truck operators at Freda Rebecca Gold Mine in Bindura, Zimbabwe. This chapter will highlight significant findings and link them back to the research objectives or hypotheses. Additionally, it will report the data precisely and accurately, discuss the distinction between statistical significance and practical significance, provide supporting evidence, include negative or null results, and ensure data reproducibility.

5.2 PREVALENCE AND CONTROL OF HYPERTENSION

The prevalence and control of hypertension among dump truck operators were examined in this study. Hypertension, commonly known as high blood pressure (HBP), is a chronic condition that poses significant health risks. Understanding the prevalence and control of HBP is essential for guiding interventions and promoting the well-being of this occupational group.

The findings revealed a notable prevalence of hypertension among dump truck operators. Out of the 35 participants, 15 individuals were identified as hypertensive, representing a prevalence rate of 42.9%. This statistic underscores the significance of HBP within this population thus it raises concerns about the potential health consequences associated with the condition. These findings are consistent with previous research conducted in similar occupational settings, which has also reported elevated rates of hypertension among truck drivers (Smith et al., 2018; Johnson & Bhatti, 2020).

The high prevalence of hypertension among dump truck operators can be attributed to various factors, including the nature of their work, lifestyle choices, and genetic predisposition. The demanding and often stressful nature of their job, coupled with long hours of sedentary behaviour, may contribute to increased blood pressure levels (Johnson & Bhatti, 2020). Additionally, risk factors associated with HBP, such as poor dietary habits (e.g., high salt intake, frequent fast-food consumption), limited physical activity, and alcohol consumption, were prevalent among the participants Smith et al., 2018). These findings suggest that lifestyle modifications and health promotion interventions targeting these risk factors are crucial for effectively managing and controlling hypertension among dump truck operators.

Furthermore, the study examined the control of hypertension among the hypertensive participants. Achieving adequate control of blood pressure is vital for reducing the associated health risks. However, the data indicated that only 12 participants out of the total hypertensive individuals were receiving treatment for their condition. This finding highlights a significant gap in the management of hypertension within this population. The lack of access to healthcare services, limited awareness of the condition, and occupational barriers to seeking medical attention may contribute to the low treatment rates (Johnson & Bhatti, 2020; Smith et al., 2018).

The findings show the need for targeted interventions to improve the control of hypertension among dump truck operators. Implementing comprehensive health education programs that raise awareness about the risks of hypertension, promote healthy lifestyle choices, and emphasize the importance of regular blood pressure monitoring and adherence to medication regimens is crucial (Johnson & Bhatti, 2020). Additionally, initiatives aimed at improving access to healthcare services and promoting regular health check-ups for this occupational group should be considered. It is important to note that hypertension is a complex condition influenced by various factors, including genetic predisposition and individual health behaviours. Therefore, a holistic approach that addresses both individual and environmental determinants is necessary for effective prevention and control of HBP among dump truck operators (Smith et al., 2018).

Lifestyle factors, such as poor dietary habits and sedentary behaviour, along with occupational stress, likely contribute to this high prevalence. However, the control of hypertension within this population was limited, with a low percentage of hypertensive individuals receiving treatment. These findings underscore the urgency of implementing targeted interventions to improve hypertension management and control among dump truck operators.

5.3 HYPERTENSION AND ITS ASSOCIATED RISK FACTORS

The findings of this study shed light on the risk factors prevalent within this occupational group and their potential implications. The study involved males only and gender is a risk factor for HBP. It reveals that there is a significant relationship between HBP and gender. A study among white collar job employees by Desai et al (2009) indicated that the prevalence of HBP among female employees (23,1%) was lower than of male employees (32.5%). Moreover, a study by Fikado & Lemma (2016) in Addis Ababa Ethiopia among teachers and bankers showed significance relationship between HBP and gender.

Regarding race, the results of this study indicated that there is no significance association between race and HBP since most of the respondents were blacks. Ordeunez et al (2013) indicated that there is no significant association between race and HBP in a study in Central Cuba among white and black population.

Lifestyle factors emerged as key contributors to hypertension among dump truck operators. The data revealed that a substantial portion of participants reported adding salt to their food (71.4%) and preferring fried food as their cooking method (60%). These dietary habits, characterized by high sodium intake and excessive consumption of fried foods, are known to increase the risk of hypertension (Appel et al., 2011). The preference for fast food and limited vegetable intake among the participants further reinforces the importance of promoting healthy eating habits to mitigate the risk of HBP (Appel et al., 2011).

Inadequate physical activity was another notable risk factor identified among dump truck operators. Their occupation often involves long hours of sedentary behaviour, which can contribute to weight gain, poor cardiovascular health, and increased blood pressure (Johnson & Bhatti, 2020). Insufficient physical activity, coupled with the demanding nature of the job, may further exacerbate the risk of hypertension (Smith et al., 2018). Encouraging regular exercise and incorporating physical activity breaks into their work routine can play a crucial role in reducing the risk of hypertension and promoting overall cardiovascular health (Appel et al., 2011).

Stress emerged as another significant risk factor associated with hypertension among dump truck operators. The study revealed that a considerable percentage of participants (100%) reported experiencing stress, primarily related to work, family, and financial issues. Chronic stress can lead to elevated blood pressure levels and increase the risk of developing hypertension (Chobanian et al., 2003). The demanding and often high-pressure nature of their job, combined with other life stressors, may contribute to the increased prevalence of hypertension within this population (Smith et al., 2018). Interventions aimed at stress management, such as implementing stress reduction programs, promoting work-life balance, and providing support services, are essential for mitigating the impact of stress on blood pressure levels (Chobanian et al., 2003).

In addition to lifestyle factors and stress, genetic predisposition may also play a role in the development of hypertension among dump truck operators. The study found that nearly half of the participants (42.9%) reported a positive family history of high blood pressure. Family

history is a known risk factor for hypertension, as genetic factors can influence an individual's susceptibility to the condition (Appel et al., 2011). Recognizing the influence of genetic predisposition is important in tailoring interventions and screening strategies for this occupational group.

The presence of hypertension in conjunction with other health conditions, such as diabetes, poses additional risks. The study revealed that 11.43% of the participants had been diagnosed with diabetes, with a few reporting never having been checked for the condition (Table 4.9). Hypertension and diabetes often coexist, and the combination of these conditions can significantly increase the risk of cardiovascular complications (Chobanian et al., 2003). Therefore, regular screening for diabetes and integrated management of both conditions are crucial for reducing the overall health risks among dump truck operators (Appel et al., 2011).

The study highlighted several risk factors associated with hypertension among dump truck operators. Poor dietary habits, sedentary behaviour, inadequate physical activity, occupational stress, and genetic predisposition were identified as key contributors to the development and progression of hypertension within this population. Recognizing and addressing these risk factors through targeted interventions, such as promoting healthy eating habits, encouraging physical activity, implementing stress management programs, and facilitating regular health check-ups, are essential for effective hypertension prevention and control among dump truck operators. By addressing these risks comprehensively, we can strive towards improving the health outcomes and overall well-being of this occupational group.

5.4 CHAPTER SUMMARY

The chapter discussed the findings on the prevalence of hypertension and its influencing factors among dump truck operators, paving the way for potential interventions and recommendations to improve their health and well-being. The prevalence of HBP among dump truck operators at Freda Rebecca gold mine was at 42.9%. There is a high prevalence of hypertension and majority of the dump truck operators are at a risk of having HBP if care is not taken. The study indicates that the level of participating in screening and monitoring is low, high levels of stress especially financial stress, family history of HBP and poor diet. These findings contribute to the understanding of the prevalence of hypertension and its influencing factors among dump truck operators, paving the way for potential interventions and recommendations to improve their health and well -being.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 SUMMARY

To demonstrate the significance of the study, the research focused on the objectives and also used questionnaires to identify influencing factors of hypertension among dump truck operators at Freda Rebecca Gold Mine. According to the study salt addition to food, smoking, alcohol intake and poor dietary choices such as high intake of fast foods and lower frequency of vegetable and fruit intake are influencing factors of high blood pressure. The interventions at the mine were effective to a lesser extent due to the low level of participation of this occupational group.

6.2 CONCLUSION

Based on the information provided, several conclusions can be drawn regarding the prevalence of hypertension and its influencing factors among dump truck operators at Freda Rebecca Gold Mine in Bindura, Zimbabwe. The study revealed a notable prevalence rate of hypertension among dump truck operators, with 42.9% of participants identified as hypertensive. Previous research conducted in similar occupational settings such as studies on truck drivers in mining companies indicate consistency in the prevalence rates of hypertension. This shows that dump truck operators face comparable risks and challenges related to hypertension as other truck drivers. Lifestyle factors including poor dietary habitats, sedentary behaviour and occupational stress were identified as significant influencing factors contributing to the prevalence of hypertension among dump truck operators. These factors align with findings from studies conducted among other occupational groups highlighting the importance of addressing these modifiable risk factors. The study also revealed a low percentage of hypertensive individuals receiving treatment for their condition, indicating a significant gap in the management of hypertension control within this population, including comprehensive health education programs.

6.3 RECOMMENDATIONS

Based on the findings and conclusions drawn from the information provided, the following recommendations are proposed to address the prevalence of hypertension and its influencing factors among dump truck operators at Freda Rebecca Gold Mine in Bindura, Zimbabwe:

- Implement comprehensive health education programs that raise awareness about the risks of hypertension and promote healthy lifestyle choices among dump truck operators.
- Emphasize the importance of a balanced and nutritious diet, regular physical activity, and stress management techniques.
- Provide educational materials and workshops specifically tailored to the needs and challenges of dump truck operators.
- Implement strategies to reduce occupational stress, such as providing adequate rest breaks, promoting work-life balance, and establishing support systems for managing work-related stressors. Consider ergonomic interventions to reduce sedentary behaviour and promote physical activity during work hours.
- One-on-one counselling with a registered dietitian to promote heart-healthy nutrition
- Group exercise classes led by a fitness instructor 3 times per week
- Expanding program accessibility, increasing enrolment, and enhancing promotion of the available resources could reach a larger proportion of the workforce with hypertension.
- Integrating the program with routine health checks and leveraging technology (e.g. remote monitoring, mobile apps) may also improve long-term adherence and outcomes.

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APPENDIX A

Bindura University of Science Education

Questionnaire

My name is Vanessa Tanaka Sagwidza a student at Bindura University of Science Education studying Honors Degree in Safety Health and Environmental Management. I am currently conducting a study as part of my research to analyse the prevalence of hypertension and associated risk factors among dump truck operators at Freda Rebecca Gold Mine, Bindura. I therefore kindly request for your assistance in this research by completing this questionnaire and providing your feedback. I guarantee that any information you provide will be kept confidential used only for academic purposes. Please note names are not published in any way they will remain anonymous.

Instructions:

- Please answer all questions
- Please tick or fill in gaps

Date of data collection: …….

Blood pressure measurement

1. First	2. Second trial

Weight: ……kg

Height: …….cm

Section A: Demographic information

Date of birth: …….

1. Gender:

Male	Female

2. What is your race?

African	Colored	White	Indian	Other, specify

3. What is your marital status?

Single	Married	Divorced	Widow/widower

4. When last did you have your blood pressure checked? If you have never had it checked or not sure go to question 12

Within the past year (anytime less than 12months)	More than 12 months	Never had it checked	Don't know/ not sure

5. If checked, what was its status?

Normal	High

6. If high, were you ever told of any method that you can use to lower or control your blood pressure? If no go to question 10

Yes	No

7. If yes, which method to lower or control your blood pressure are you on?

Medication	Diet	Exercise	other, specify

8. Are you still under treatment?

Yes	No

9. In your family is there anyone who has high blood pressure (parents or siblings)?

Yes	No	Don't know/ not sure

Section B: Lifestyle

Diet

10. Do you add salt in your food?

Yes	No	Sometimes

11. What is your preferred method of cooking food?

Boil	Fry	Roast	Steam

12. How many days in a week do you eat fast food?

Less than a day	1-2 day/s	3-5 day/s	6-7 day/s

13. How many days in a week do you eat vegetables?

Less than a day	1-2 day/s	3-5 day/s	6-7 day/s

14. How many days in a week do you eat fruits?

Less than a day	1-2 day/s	3-5 day/s	6-7 day/s

(a) Alcohol intake

15. Do you drink alcohol? If no go to question 18

Yes	No

16. In a week how many days do you drink alcohol?

1-2 day/s	3-5 day/s	6-7 day/s

(b) Cigarette smoking

17. Do you smoke cigarettes?

Yes	No

(c) Exercise

18. Do you currently engage in any exercise (in the last 6 months)? If no go to question 23

Yes	no

19. How do you describe your training sessions?

Light	Moderate	vigorous

20. How many days per week do you exercise?

1-2 day/s	3-5 day/s	6-7 day/s

21. Do you own a car?

Yes	No

Section C: Social Determinants

22. Do you experience stress? If no go to question 26

Yes	No

23. How often are you stressed?

sometimes	Always

24. What causes your stress?

Work	Family	Finance	Other, specify

Section D: Metabolic risk factors

25. Have you ever been told if you are obese by any health worker?

Yes	No	Never checked

26. Have you ever been diagnosed as diabetic by any health worker?

Yes	No	Never checked

THANK YOU