# PATTERN AND PREVALENCE OF UNDIAGNOSED HYPERTENSION AMONG TRANSPORT WORKERS IN BENIN CITY, EDO STATE, NIGERIA.

**BY:**


| | |
|---|---|
| **OKORIGWE SAMUEL** | **MED1807458** |
| **OKAFOR IFUNANYA WEALTH** | **MED1807455** |

**DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, SCHOOL OF MEDICINE, COLLEGE OF MEDICAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE**


**MAY, 2026**

# PATTERN AND PREVALENCE OF UNDIAGNOSED HYPERTENSION AMONG TRANSPORT WORKERS IN BENIN CITY, EDO STATE, NIGERIA.

**BY:**

**OKORIGWE SAMUEL** **MED1807458**

**OKAFOR IFUNANYA WEALTH** **MED1807455**

**DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE,**

**SCHOOL OF MEDICINE, COLLEGE OF MEDICAL SCIENCES,**

**UNIVERSITY OF BENIN, BENIN CITY, EDO STATE**

**A ONE-YEAR PROJECT PRESENTED TO THE DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE,**

**COLLEGE OF MEDICINE, UNIVERSITY OF BENIN,**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS) DEGREE,**

**UNIVERSITY OF BENIN, BENIN CITY**

**MAY, 2026**

## DECLARATION

We hereby declare that this project work is original and will be carried out by the under-listed student under the supervision of Dr. O.E. Obarisiagbon and Dr. Gregory Oko-Oboh and has not been published elsewhere for the award of a degree or certificate.


_____

**OKAFOR IFUNANYA WEALTH**
**MED1807455**
**wokafor5@gmail.com**
**08034027044**

_____

**OKORIGWE SAMUEL**
**MED1807458**
**merrysam7458@gmail.com**
**07043237491**

## CERTIFICATION

This is to certify that this research work titled "The Pattern and Prevalence of Undiagnosed Hypertension among Transport Workers in Benin City" was carried out in the Department of Community Health, School of Medicine, College of Medical Sciences, University of Benin, Benin City, Edo State, Nigeria as part of the requirements for the award of Bachelor of Medicine, Bachelor of Surgery (MBBS)by OKORIGWE SAMUEL with matriculation number MED1807458 and OKAFOR IFUNANYA WEALTH with matriculation number MED1807455.

_____

**DR. (MRS) O. E. OBARISIAGBON**
Project Supervisor
MB.BS, MPH, FMCPH
Associate Professor,
Department of Public Health and Community Medicine, School of Medicine,
College of Medical Sciences,
University of Benin,
Benin City, Edo State, Nigeria.

_____

**DR. GREGORY OKO-OBOH**
Project co-supervisor
MBBS; MPH; MSC; FWACP
Co-supervisor,
Department Of Public Health and Community Medicine,
School of Medicine,
College of Medical Sciences,
University Of Benin
Benin City, Edo State, Nigeria

_____

**DR. (MRS) O. E. OBARISIAGBON**
Head of Department
(MB.BS, MPH, FMCPH
Associate Professor,
Department of Public Health and Community Medicine,
School of Medicine,
College of Medical Sciences,
University of Benin,
Benin City, Edo State, Nigeria.

## DEDICATION

This project is dedicated to God Almighty for His unending grace, mercy and strength throughout my journey in the University of Benin.

I also dedicate this work to my parents and siblings, whose unwavering support and constant prayers fueled my success at every moment in medical school.

May I specially appreciate my colleagues in medical school for their being a constant source of encouragement throughout this academic voyage.

Finally, I extend my appreciation to my trainers and mentors and all who have contributed to my success.

## DEDICATION

This work is dedicated first to God Almighty, for His grace, wisdom, strength, and faithfulness throughout the course of this study and throughout my academic journey.

I also dedicate it to my beloved mother whose sacrifices, advice, unwavering support, encouragement, and prayers have been the foundation of my education and growth. I am immensely grateful.

Finally, to my lecturers and mentors, thank you for your guidance, patience, and commitment to excellence which have shaped my growth.

## ACKNOWLEDGEMENT

I return all glory to God Almighty, whose grace and strength sustained me through every stage of my journey in medical school.

My sincere and heartfelt appreciation goes to my supervisors, Dr. (Mrs). O.E Obarisiagbon and Dr. Gregory Okoh-Oboh, for their guidance, and commitment to ensuring the success of this work. Your impact would forever be engraved in my success story.

I am profoundly grateful to my father, Mr. Peter Okorigwe, and my amiable mother Mrs Paradise Okorigwe, the giants on whose shoulders I continually stand. Thank you for being an unending source of inspiration and strength. I am forever indebted to your unconditional love and belief in my dreams. To my siblings, Mrs Deborah Isiayei, Elizabeth, Oreva, Daniel and Joshua, thank you for your unwavering support and motivation.

To my amazing project partner, Wealth Okafor, I appreciate your cooperation, support and commitment to making this work of ours come to fruition.

To my dear friends; Morgan Ogieva, Faith Okoye and my All Saints Chapel Band family, thank you for being a great source of support to my journey.

## ACKNOWLEDGEMENT

I give glory to my Lord Jesus, whose grace and strength sustained me through every phase of this journey. In moments of fatigue, pressure, and uncertainties, He remained my source of strength.

My sincere and heartfelt appreciation goes to my supervisors, Dr. (Mrs).O.E Obarisiagbon and Dr. Gregory Okoh-Oboh, for their patience, guidance, and commitment to this work. Your corrections, encouragement, and attention to detail greatly shaped this project and my academic growth.

I am profoundly grateful my mother, Mrs. Blessing Oseh. Thank you for your sacrifices, your constant prayers, and your unwavering belief in me. Your support has been my backbone. To my siblings: Onyinye Okafor, Nmesoma Okafor and Ebele Okafor, thank you for your encouragement, understanding, and for always being there in your own ways.

I am especially grateful to Reverend Emmanuel Dike, who took me in as one of theirs and cared for me with love and generosity. Your kindness and support during this journey will never be forgotten.

I am deeply grateful to my friend, Adeleke Anuoluwapo. Thank you for your constant reassurance, for listening to my late calls and complaints, me even when I struggled to believe in myself. Your guidance and support mean more than words can express.

To my tremendous project partner and great friend, Samuel Okorigwe, I appreciate your cooperation, support and commitment to making this work of ours come to fruition To my friends; Elvis, Osariemen, Darlington, Progress, Alphonsus and John, thank you for being very instrumental to the completion of this project. I could not have done it without you.

Finally, to everyone who contributed to this work in one way or another, whether seen or unseen, I am sincerely grateful. This achievement is a reflection of the support, love, and grace I have received along the way

**TABLE OF CONTENT**

## LIST OF ABBREVIATIONS

AOR – Adjusted Odds Ratio

ATR – African Traditional Religion

BMI – Body Mass Index

BP – Blood Pressure

CLDBDs – Commercial Long-Distance Bus Drivers

CI – Confidence Interval

DBP – Diastolic Blood Pressure

DM – Diabetes Mellitus

HTN – Hypertension

JNC – Joint National Committee

Kg – Kilogram

$Kg/m^2$ – Kilogram per Square Metre

LGA – Local Government Area

MBBS – Bachelor of Medicine, Bachelor of Surgery

NCDs – Non-Communicable Diseases

OR – Odds Ratio

SBP – Systolic Blood Pressure

SPSS – Statistical Package for the Social Sciences

UBTH – University of Benin Teaching Hospital

WHO – World Health Organization

## DEFINITION OF TERMS

**Awareness**: The level of knowledge or understanding an individual has about hypertension, including its causes, risk factors, complications, prevention, and control.

**Blood Pressure**: The force exerted by circulating blood against the walls of the arteries, usually expressed as systolic and diastolic blood pressure.

**Body Mass Index**: A person's weight in kilograms divided by the square of height in metres, used as a measure to classify underweight, normal weight, overweight, and obesity.

**Diastolic Blood Pressure**: The pressure in the arteries when the heart is at rest between beats.

**Health-Seeking Behaviour**: Any action taken by an individual who perceives themselves to have a health problem or to be at risk of one, for the purpose of finding an appropriate remedy.

**Hypertension**: A chronic medical condition in which the blood pressure in the arteries is persistently elevated, typically defined as a systolic blood pressure of 140 mmHg or higher and/or a diastolic blood pressure of 90 mmHg or higher.

**Logistics Workers**: Individuals involved in the planning, implementation, and coordination of the movement of goods, services, and information within a supply chain.

**Obesity**: An abnormal or excessive accumulation of body fat that may impair health, commonly defined as a body mass index of 30 $kg/m^2$ or more.

**Pattern**: A repeated or regular way in which something occurs or is distributed, often used in research to describe the trend or distribution of a disease within a population.

**Prevalence**: The proportion of a population that has a particular disease or condition at a specific time or over a specified period.

**Risk Factors**: Characteristics, conditions, or behaviours that increase the likelihood of developing a disease or health condition.

**Screening**: The process of identifying individuals who may have a disease or condition before symptoms appear, through the use of tests, examinations, or other procedures.

**Sedentary Lifestyle**: A way of life characterized by prolonged sitting or low levels of physical activity, which may predispose an individual to hypertension and other cardiovascular diseases.

**Systolic Blood Pressure**: The pressure in the arteries when the heart contracts and pumps blood into the circulation.

**Transport Workers**: Individuals engaged in the movement of people or goods from one place to another, including drivers, conductors, and other personnel in the transportation sector.

**Undiagnosed Hypertension**: Elevated blood pressure, defined in this study as systolic blood pressure of 140 mmHg or more and/or diastolic blood pressure of 90 mmHg or more, in a person who has not been previously informed by a health professional that they have hypertension and is not on antihypertensive medication

## ABSTRACT

**Background**: Undiagnosed hypertension remains a major public health problem globally, particularly among occupational groups exposed to prolonged work stress, sedentary lifestyle, and poor access to routine healthcare. Transport and logistics workers are especially vulnerable because of the nature of their work, yet many cases remain undetected until complications develop.

**Objective**: This study assessed the prevalence, distribution, and factors associated with undiagnosed hypertension among transport and logistics workers in Benin City, Edo State.

**Methodology**: A descriptive cross-sectional study was conducted among 315 transport and logistics workers selected using a multistage sampling technique. Oredo Local Government Area was selected at the first stage, while Central Motor Park was selected at the second stage using cluster sampling. Data were collected using a semi-structured interviewer-administered questionnaire adapted from the WHO STEPwise approach. Blood pressure was measured using a standard mercury sphygmomanometer and stethoscope, while weight and height were measured using standard procedures. Respondents with systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg who had no previous diagnosis of hypertension and were not on antihypertensive medication were classified as having undiagnosed hypertension. Data were analysed using IBM SPSS version 25. Descriptive statistics were summarized using frequencies, percentages, means, and standard deviations. Chi-square test and binary logistic regression using the backward stepwise (conditional) method were used to determine factors associated with undiagnosed hypertension at $p < 0.05$.

**Results**: The mean age of respondents was 50.53 ± 11.87 years. Slightly more than half (52.5%) had good knowledge of hypertension. The prevalence of hypertension was 47.8%, while the prevalence of undiagnosed hypertension was 24.0%. Nearly half of the respondents were prehypertensive, 26.7% had stage 1 hypertension, and

18.3% had stage 2 hypertension. Undiagnosed hypertension was more common among respondents aged 31–40 years, those with primary education, motorcyclists and taxi drivers, those with shorter work experience, and respondents who worked more than 10 hours daily. Smoking and physical inactivity were significantly associated with undiagnosed hypertension at bivariate level ($p < 0.05$). At multivariate level, primary education (AOR = 3.44; 95% CI: 1.16–10.21) and lack of regular physical activity (AOR = 2.28; 95% CI: 1.12–4.64) remained significant predictors of undiagnosed hypertension.

**Conclusion**: Undiagnosed hypertension is a significant health problem among transport and logistics workers in Benin City. The burden of hypertension was high, knowledge of hypertension was only moderate, and many respondents were exposed to important behavioural and occupational risk factors. Regular blood pressure screening, targeted health education, and workplace-based interventions are recommended to improve early detection and reduce the burden of hypertension and its complications among transport workers.

**Keywords**: Undiagnosed hypertension, prevalence, transport workers, logistics workers, commercial drivers, Benin City.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

Hypertension, commonly known as high blood pressure, is a chronic condition defined by persistently elevated arterial pressure that predisposes individuals to cardiovascular diseases, stroke, and renal failure.[1,2] Globally, it is one of the leading causes of morbidity and mortality. Despite advances in diagnostic methods and increased public awareness, a substantial proportion of individuals remain unaware of their hypertensive status. Early detection and management are thus critical to reducing the overall disease burden.[1,3]

Transport workers, which include truck drivers, bus drivers and taxi drivers, represent an occupational group particularly vulnerable to undiagnosed hypertension. Their job demands involve extended periods of sitting, irregular mealtimes, high work-related stress, and prolonged working hours that disrupt normal physiological rhythms.[4,5] Such conditions not only contribute to the development of hypertension but also impede regular access to healthcare services, thereby increasing the risk that cases remain undetected.[5,6]

Several international studies have reported high rates of undiagnosed hypertension among transport workers. For instance, research among long-distance truck drivers in Ethiopia found an overall hypertension prevalence of 34.7%, with a significant proportion of cases being newly identified during the study.[7] Similarly, a study among employees of a logistics company in Gauteng, South Africa, documented a high burden of undiagnosed hypertension among truck drivers and van assistants,

highlighting the global relevance of the issue.[8] These findings indicate that occupational factors specific to the transport sector may play a pivotal role in the underdiagnosis of hypertension.[2,7]

In Nigeria, the prevalence of hypertension among transport workers is equally alarming. A study conducted among transport workers in Ile-Ife reported a hypertension prevalence of 31.2%, with significant associations observed between hypertension and factors such as age, body mass index (BMI), and long driving hours.[5] Other research among traders in regional markets has shown that undiagnosed hypertension is more common in subgroups such as older, married, and obese individuals, with some groups exhibiting rates as high as 67%.[6,9] These studies underscore the urgent need for routine screening and targeted interventions in high-risk occupational groups.

Occupational and lifestyle factors are central to the high prevalence of undiagnosed hypertension among these workers. Extended work hours, prolonged driving, and high job stress are well-documented risk factors that contribute to the development of hypertension.[2,3] In addition, the sedentary nature of their work combined with poor dietary habits, such as high salt intake and frequent consumption of calorie-dense fast foods, further increases their cardiovascular risk.[10,14] Such interrelated factors call for comprehensive strategies that address both work conditions and lifestyle behaviours.

Obesity and related metabolic disorders further complicate the picture. Transport workers are prone to weight gain due to limited physical activity and irregular eating schedules. Studies have consistently shown that overweight and obesity significantly increase the risk of developing hypertension, and this is particularly evident among long-distance drivers.[11, 14] The presence of obesity not only contributes to the onset of

hypertension but also makes its management more challenging, thereby increasing the risk of long-term complications.[12]

Another major challenge is the lack of regular health screening and limited access to preventive healthcare. Many transport workers are unable to obtain routine medical evaluations due to demanding schedules and inadequate occupational health services.[8,12] This gap in routine care means that many cases of hypertension are only detected after complications arise. Targeted workplace health programs, incorporating regular blood pressure monitoring and health education, could play a significant role in bridging this gap.[12, 15]

In summary, the high prevalence and underdiagnosis of hypertension among transport workers represent a significant public health concern that is driven by a combination of occupational stress, lifestyle factors, and systemic barriers to healthcare access.[12,13] Addressing this issue will require a multi-faceted approach that includes regular health screenings, promotion of healthier lifestyles, and improved access to medical care. Such interventions could substantially reduce the burden of hypertension and enhance the overall well-being and productivity of this vulnerable population.[13, 15]

### 1.2 Problem Statement

Hypertension is a major global health challenge that significantly contributes to cardiovascular disease, stroke, and renal failure, yet many affected individuals remain unaware of their condition.[1,2,3] Despite extensive public health initiatives aimed at early detection, a large proportion of cases remain undiagnosed, thereby increasing the risk of complications and premature mortality.

Occupational groups with unique work conditions, such as transport workers, are particularly vulnerable to undiagnosed hypertension. Extended periods of sedentary activity, irregular mealtimes, high job-related stress, and prolonged working hours inherent to these professions contribute to a higher risk of developing and overlooking hypertension.[4, 5] Such work-related factors create an environment where regular health monitoring is challenging.

International research underscores the magnitude of this issue. For instance, studies among long-distance truck drivers in Ethiopia and drivers in South Africa have reported high prevalence rates of undiagnosed hypertension, with many cases being discovered only during focused screenings.[7,8] These findings suggest that the occupational hazards intrinsic to the transport sector are closely linked to the underdiagnosis of hypertension.

In Nigeria, evidence indicates that the problem is equally pronounced. Research among transport workers in Ile-Ife and among traders in regional markets has documented substantial rates of hypertension, with many individuals unaware of their condition until complications arise.[5,6,9] This situation points to a critical gap in occupational health surveillance and preventive care within the Nigerian context.

The implications of undiagnosed hypertension among transport workers extend beyond individual health. When left unmanaged, high blood pressure increases the risk of serious cardiovascular events, which can lead to reduced work performance, higher absenteeism, and compromised road safety.[10,11] This not only endangers the lives of the workers but also has broader economic and social repercussions.

A significant contributor to this problem is the lack of routine health screenings and limited access to timely healthcare services. The demanding nature of transport work often prevents workers from seeking preventive medical care, resulting in a delayed diagnosis of hypertension and a missed opportunity for early intervention. This delay exacerbates the risk of long-term complications and places additional strain on healthcare systems,

Despite the clear occupational risks and documented high prevalence of undiagnosed hypertension among transport workers, there is a notable paucity of research specifically addressing the patterns and determinants of this condition within this group, especially in Nigeria. Existing studies have largely focused on general populations, leaving a gap in tailored research that examines the unique challenges faced by transport workers.[13,14]

Therefore, there is an urgent need to investigate the prevalence and pattern of undiagnosed hypertension among transport workers. Addressing this gap is critical for developing targeted interventions and public health strategies that can promote early detection, improve treatment outcomes, and enhance overall occupational safety and productivity in this vulnerable population.[15]

### 1.3 Justification of the Study

Hypertension and other non communicable diseases continue to rise in ranking as a major cause of morbidity and mortality in developing countries. Studies have shown that transport workers are at a high risk of developing hypertension.[16]

Regular health check-ups is a key to detecting diseases early, managing them promptly and preventing or minimizing complications. In Nigeria, pilots and captains of ships are mandated to engage in regular health screening,. Conversely, commercial

Motorists hardly engage in routine health screening which includes checking their blood pressure. This is due to their daily busy schedule. It is pertinent to asses the health seeking behavior of transport workers as it directly influences the pattern of cardiovascular diseases in this group of workers. This study aimed at determining the pattern of undiagnosed hypertension among transport workers in Benin City.

Studies have shown that commercial drivers are often at risk of developing heart-related diseases such as hypertension, mainly due to exposure to risk factors from the work environment.[17] A higher percentage of the Nigerian population travel by road majorly due to its affordability. Consequently, there is an increased demand on road transport workers. This predisposes drivers to a sedentary lifestyle engaging in low physical activity due to constant engagement in driving and the urgency of meeting up with passenger's demand in a bid to maximizing time and making more profits for themselves. With a higher percentage of them working at early and late hours of the day, transport Workers hardly maintain a healthy dietary habit. This increases their tendency of consuming canned and processed foods frequently. These unhealthy lifestyle can predispose transpor workers to hypertension.[18] It is on this backdrop that this study was done to know the various factors affecting the prevalence of hypertension among transport workers.

Furthermore, according to WHO, Road traffic crashes result in the deaths of approximately 1.19 million people around the world each year and leave between 20 and 50 million people with non-fatal injuries. Driving under the influence of alcohol or other psychoactive substances presents significant risk factor for road traffic injuries. Conveying people through via various route of transportation entails constant alertness. However, working as a professional transport worker requires facing the stress associated with the busy terrain of a typical urban city in Nigeria. Most

transport workers especially long distance drivers resort to alcohol consumption and smoking in a bid to relieving the stress. Involving in substance use which alters one's alertness can increase the risk of road accidents.

Studies have shown that hypertension is comparatively more prevalent amongst commercial transport workers as opposed to the general public.[18] Despite the gravity of this, not many research have been conducted on this subject. This study was done to provide relevant information on the prevalence of undiagnosed hypertension among transport workers in Benin City. In addition, relevant information on factors associated with the prevalence of undiagnosed hypertension among transport workers was provided thereby adding to the already existing repertoire of knowledge. Drivers diagnosed of hypertension need adequate medical intervention in order to control this disease. They might also need to resign as professional transport workers and tailor their lifestyle to improve their health thereby reducing the risk of further complications and sudden death. Recommendations drawn from this study was beneficial for making policies that provides for a healthy lifestyle among transport workers and consequently reducing morbidity and mortality.

### 1.4 Research Questions

1. What is the level of knowledge of hypertension among transport workers?

2. What is the Prevalence of undiagnosed hypertension among transport workers?

3. What is the distribution of undiagnosed hypertension across sociodemographic and occupational characteristics among transport workers?

4. What are the risk factors for hypertension among transport workers?

### 1.5 Aims and Objectives

### 1.5.1 General Aim

To assess the prevalence and pattern of undiagnosed hypertension in transport workers with a view to increasing awareness and improving health,

### 1.5.2 Specific Objectives

1. To ascertain the level of knowledge of undiagnosed hypertension among transport workers in Benin City.
2. To know the prevalence of undiagnosed hypertension in transport workers.
3. To describe the distribution of undiagnosed hypertension across sociodemographic and occupational characteristics among transport workers.
4. To identify the factors influencing the prevalence of undiagnosed hypertension among transport workers.

# CHAPTER TWO

# LITERATURE REVIEW

Hypertension, often referred to as the "silent killer," is a global public health concern due to its asymptomatic nature and significant contribution to cardiovascular disease morbidity and mortality. Among various occupational groups, transport workers, particularly long-distance drivers, are uniquely vulnerable to developing undiagnosed hypertension due to their sedentary lifestyles, irregular schedules, and work-related stress. This review synthesizes findings from multiple studies examining the prevalence, risk factors and pattern of undiagnosed hypertension among transport workers.

## 2.1 Level of Knowledge of Hypertension among transport workers

A cross-sectional study conducted in New York City, United States, among male taxi and for-hire vehicle drivers, with a sample size of 983, using data collected from 2010 to 2017, assessed hypertension diagnosis awareness, objectively measured blood pressure, treatment, and control among drivers attending health fairs. The study found that 23% of the drivers self-reported a history of hypertension, whereas 46% had hypertensive-range blood pressure readings at screening. This showed a wide gap between known hypertension and probable hypertension detected at screening, suggesting that many drivers were either unaware of their condition or had poorly controlled blood pressure. The authors emphasized that hypertension was likely underdiagnosed and undertreated in this occupational group and highlighted the need for improved screening, awareness, and access to care among drivers.[19]

A facility-based cross-sectional study conducted at five cross-country bus terminals in Addis Ababa, Ethiopia, among 391 long-distance bus drivers, was carried out from

December 15, 2021 to January 15, 2022 to assess the magnitude of undiagnosed hypertension and its associated factors. The researchers used a standardized and structured questionnaire adapted from the WHO stepwise approach and analyzed the data with logistic regression. The study was particularly relevant because long-distance drivers are frequently exposed to prolonged sitting, poor dietary habits, stimulant use, alcohol intake, fatigue, and low rates of preventive healthcare use. The findings showed that the prevalence of undiagnosed hypertension was 22.5%, indicating that nearly one in every five drivers had hypertension that had not previously been detected. This demonstrated that hidden hypertension is a significant occupational health problem among long-distance drivers in Ethiopia.

A major strength of the study was that it did not stop at prevalence alone but also examined the role of knowledge and awareness. The authors found that a **p**oor level of knowledge about hypertension was significantly associated with undiagnosed hypertension, with an adjusted odds ratio of 2.00. Other significant factors included long duration of driving per day, khat chewing, regular alcohol consumption, overweight, and obesity, while regular physical exercise appeared protective. In their conclusion, the authors specifically stated that undiagnosed hypertension among the drivers was linked to lack of adequate awareness, in addition to behavioural and body weight factors. They therefore recommended improving awareness of hypertension among long-distance drivers and introducing stronger prevention strategies focused on lifestyle and behavioural modification. This study is especially valuable for a knowledge-related objective because it directly supports the idea that poor knowledge can contribute to late diagnosis of hypertension among transport workers.[20]

A descriptive study conducted in Lagos State, Nigeria, among 200 bankers and Bus Rapid Transit drivers, and published in 2020, assessed respondents' knowledge, awareness, and practice regarding hypertension. The study involved workers from two occupational groups with largely sedentary or prolonged sitting patterns, making it relevant to comparisons involving transport workers and other low-activity occupations. Semi-structured questionnaires were administered, and blood pressure was also measured using a digital sphygmomanometer. Although 200 workers were selected, 125 questionnaires were completely filled and returned, giving a response rate of 62.5%. The study found that 92.0% of respondents had heard about hypertension, showing that general awareness was high. It also reported that respondents' knowledge of risk factors for hypertension was generally good, and many participants were aware of some important complications of the condition.

However, the study also showed that awareness did not eliminate misconceptions. About 30% of respondents believed that hypertension is curable, while 84% believed it can be managed with drugs and 50% believed it can be managed with prayers. When overall ratings were computed, the knowledge score was 81.5% and the practice score was 58.5%, indicating that knowledge was better than actual preventive practice. The drivers appeared to have slightly better knowledge and practice results than the bankers, although the authors noted that both groups still had areas of poor understanding. The study concluded that respondents' knowledge and practice regarding hypertension were generally good, but it still recommended sustained public sensitization and worker-focused education. This study is very useful for the knowledge objective because it directly assessed what respondents knew about hypertension and showed that even where awareness is high, incorrect beliefs and weak practice may still persist. [21]

A descriptive cross-sectional survey conducted in a southwestern Nigerian city, among 280 government officials, and published in 2019, investigated hypertension knowledge, attitude, and willingness to self-monitor blood pressure. Although the participants were not drivers, they represented a workforce with relatively sedentary job patterns, long office hours, and reduced physical activity, making them relevant to your broadened category of workers with prolonged sitting. The study used a pretested semi-structured questionnaire and analyzed the data with descriptive statistics and chi-square testing. The mean age of respondents was 35.7 ± 10.6 years, 57.5% were women, and 72.1% had tertiary education. Despite this relatively educated population, the study found that the majority of respondents had inadequate hypertension knowledge.

More specifically, 65.7% of the respondents had poor knowledge about hypertension, and only 1.8% recognized that hypertension may be symptomless. This is an important finding because one of the reasons hypertension remains undiagnosed is that many individuals do not know it can exist without obvious symptoms. On the positive side, 77.9% had a positive attitude toward being trained to self-monitor blood pressure, and 82.1% were willing to buy self-monitoring devices. The study also found that hypertension knowledge was significantly associated with age and marital status, while attitude was associated with willingness to self-monitor blood pressure. The authors concluded that educational interventions should be intensified to improve hypertension knowledge and strengthen preventive practices among workers. This study is useful in your review because it shows that even among relatively educated sedentary workers in Nigeria, knowledge gaps about hypertension may still be substantial.[22]

## 2.2 Prevalence of Undiagnosed Hypertension In Transport Workers

In South Africa, a study was done in a logistics company in 2021. The study was aimed at determining the level of undiagnosed hypertension amongst the logistics workers. It was a cross-sectional study design carried out with a systematic random sampling technique. The sample size was 312. Data collection was via the administration of the WHO STEPwise questionnaire. The employees were divided into two age groups; less than 30 years and 30 years and above. The average age of the employees was 40 ± 10 years with a minimum age of 21 years and a maximum age of 68 years. Stata statistical software was used to perform descriptive and inferential statistics. Male employees constituted 82% while females made up 18%, and 91% of the participants were black. More than half of the employees, 54%, were single while 45% were married.

The overall means for systolic blood pressure and diastolic blood pressure were 138 ± 14.6 mmHg and 85 ± 10.5 mmHg respectively. The study found that both males and females had an almost similar prevalence of hypertension, with 49% and 53% respectively. Older employees were significantly more hypertensive than younger employees, with a prevalence of 49% among those aged 30 years and above. The study therefore showed that hypertension was highly prevalent among the workers and suggested that a considerable proportion of the cases were likely to be previously undetected. The authors concluded that undiagnosed hypertension constituted an important workplace health problem and recommended improved screening, awareness, and access to care among logistics workers.[23]

A cross-sectional study was done amongst 391 long-distance bus drivers in Addis Ababa, Ethiopia from 2021 to 2022. The aim was to determine undiagnosed hypertension and its associated factors. Data was collected with a WHO standardized questionnaire. Coding of the data was done with Epi-data version 6 and exported to SPSS software version 26 for analysis. In this study, 391 participants were involved with a response rate of 97.1%. The prevalence of undiagnosed hypertension was 22.5%. This means that nearly one in every five drivers had hypertension that had not been previously diagnosed. The study population was particularly relevant because long-distance drivers are frequently exposed to prolonged sitting, poor dietary habits, stimulant use, alcohol intake, fatigue, and low rates of preventive healthcare use.

The study also found that poor level of knowledge, long duration of driving per day, habit of chewing khat, regular alcohol consumption, overweight, obesity, and lack of regular physical exercise were significantly associated with undiagnosed hypertension. This study revealed that the prevalence of undiagnosed hypertension among long-distance bus drivers was high and was linked to modifiable behavioural factors, lack of adequate awareness, and increased body mass index. The authors concluded that hidden hypertension is a significant occupational health problem among long-distance drivers in Ethiopia and recommended improved awareness, routine screening, and lifestyle modification programmes among drivers.[24]

A cross-sectional study was conducted among 305 commercial drivers selected using multistage sampling technique from motor parks across Ibadan metropolis. The WHO STEPwise interviewer-administered questionnaire was used for data collection on respondents' sociodemographic characteristics, work-related characteristics, knowledge about hypertension and diabetes, physical activity, alcohol consumption,

and tobacco use. About 49% reported to have ever smoked, 78.0% had consumed alcohol, 45.5% had ever had a traffic accident, and 44.6% reported physical inactivity. The study found that the prevalence of hypertension was 27.7% and that of diabetes was 3.4%, while 42.9% of the respondents had comorbidity. This showed that a considerable burden of chronic non-communicable diseases existed among commercial drivers in Ibadan.

Hypertension was found among 26.2% of those who had ever smoked and 47.2% of those who were obese with body mass index greater than or equal to 30 $kg/m^2$. Although the study did not focus specifically on undiagnosed hypertension, its relevance lies in the fact that a high overall prevalence of hypertension in a population with poor routine health screening strongly suggests that a substantial proportion of the cases may be undiagnosed. The study concluded that commercial drivers constitute a high-risk occupational group for hypertension and diabetes and emphasized the need for regular screening and health education among them.[25]

A study aimed at assessing the prevalence of hypertension and obesity among commercial bus drivers in Lagos was conducted in 2017. The study design was a descriptive cross-sectional study among 507 commercial bus drivers. A pre-tested interviewer-administered questionnaire was used for the collection of data on socio-demographic characteristics, hypertension history, lifestyle habits, and biometric measurements. The response rate was 98% and the mean age of respondents was 43.28 ± 10.76 years. The prevalence of hypertension and obesity were 35.8% and 16.1% respectively. This means that more than one-third of the drivers were hypertensive, showing that raised blood pressure was highly prevalent among the study population.

There was a statistically significant relationship between age, number of years of driving, tobacco smoking, coffee drinking, alcohol consumption, and the prevalence of hypertension and obesity. The study showed that both occupational and behavioural factors contributed to the burden of elevated blood pressure among the drivers. Although the researchers did not specifically separate diagnosed from undiagnosed cases, the high prevalence of hypertension reported suggests that a considerable number of cases may remain undetected in this occupational group, especially where routine health checks are not commonly practiced. The authors recommended increased health education, regular medical screening, and lifestyle modification among commercial bus drivers.[26]

### 2.3 The distribution of undiagnosed hypertension across sociodemographic and occupational characteristics in transport workers

A population-based cross-sectional study conducted in Nepal among 2,831 hypertensive adults aged 18 years and above, using nationally representative Nepal Demographic and Health Survey 2016 data and published in 2020, assessed inequalities in undiagnosed hypertension. The study found that 1,611 participants, representing 56.9%, had undiagnosed hypertension. In describing the distribution of undiagnosed hypertension across background characteristics, the study showed that the burden was higher in younger adults and in poorer socioeconomic groups. The prevalence of undiagnosed hypertension in the poorest wealth quintile was 73.6%, compared with 47.0% in the richest wealth quintile. By age group, the poorest-to-richest gradient was 79.0% versus 65.6% among those aged 18–29 years, 74.4% versus 58.4% among those aged 30–49 years, 72.5% versus 36.6% among those aged 50–69 years, and 71.7% versus 23.6% among those aged 70 years and above.

The study further demonstrated that the distribution of undiagnosed hypertension also varied across educational, marital, and geographical categories. Among those with no education, the prevalence was 72.9% in the poorest group compared with 29.4% in the richest group, while among married participants it was 74.3% in the poorest group and 48.7% in the richest group. By place of residence, the prevalence was 74.9% versus 49.5% in rural respondents from the poorest and richest groups respectively, and 71.4% versus 46.7% among urban respondents. The overall poor-to-rich ratio was 1.57, showing that the poorest hypertensive adults were much more likely to remain undiagnosed than the richest. The concentration index was −0.21, confirming that undiagnosed hypertension was disproportionately concentrated among poorer Nepalese adults. This study is useful for your objective because it clearly described how undiagnosed hypertension was distributed across wealth, age, education, marital status, and residence.[27]

A nationally representative cross-sectional study conducted in India among 65,562 adults aged 45 years and above, using data from the Longitudinal Ageing Study in India collected in 2017–2018 and published in 2023, compared the socioeconomic inequalities in self-reported and undiagnosed hypertension. The study found that the prevalence of undiagnosed hypertension was 17.8%, while overall hypertension prevalence was 45.2%. In describing distribution, the authors reported that the prevalence of undiagnosed hypertension was relatively uniform across age groups and educational levels, unlike self-reported hypertension, which increased with age and education. However, the burden of undiagnosed hypertension clearly declined with increasing wealth. The study stated that almost one in every two adults in the lowest monthly per capita consumption expenditure quintile had undiagnosed hypertension, compared with less than one in every three in the highest quintile.

The study also showed that the distribution of undiagnosed hypertension differed by place and region. Rural residents had higher proportions of undiagnosed hypertension than urban residents, and those from the Central and Western regions also carried a heavier burden. The concentration index for undiagnosed hypertension was −0.047, showing that undiagnosed hypertension was significantly concentrated among poorer older adults. In addition, the authors observed that while self-reported hypertension was more common among wealthier groups, undiagnosed hypertension was the reverse, being more concentrated among lower-income groups who were likely to face barriers to access and diagnosis. This paper is valuable for your objective because it supports describing the distribution of undiagnosed hypertension across wealth, place of residence, and regional categories rather than only discussing predictors.[28]

A descriptive cross-sectional study conducted in Enugu State, Nigeria, among 140 staff of Enugu State University College of Medicine and published in 2023, determined the prevalence of undiagnosed hypertension among staff of a tertiary institution. The study found that 30 participants, representing 21.4%, had undiagnosed hypertension, while 68 participants, representing 48.6%, were prehypertensive. In describing the distribution of undiagnosed hypertension across age groups, the prevalence was 30.8% among those aged 20–29 years, 15.8% among those aged 30–39 years, 19.4% among those aged 40–49 years, 31.8% among those aged 50–59 years, and 66.7% among those aged 60 years and above. This showed that the burden was highest among the oldest staff members.

The study also showed variation across residence, education, marital status, designation, and cadre. Undiagnosed hypertension was present in 40.0% of rural residents compared with 22.4% of urban residents. By educational level, the

prevalence was 60.0% among those with primary education, 24.2% among those with secondary education, and 23.7% among those with tertiary education. By marital status, the prevalence was 26.3% among married staff compared with 21.7% among single staff. It was also 26.5% among non-academic staff compared with 22.9% among academic staff, and 28.6% among senior staff compared with 22.6% among junior staff. This makes the study very useful for your third objective because it clearly presented the distribution of undiagnosed hypertension across background characteristics. [29]

A community-based cross-sectional study conducted in Mbieri community, Mbaitoli Local Government Area of Imo State, Nigeria, among 380 adults and published in 2024, investigated the burden of undiagnosed hypertension and its associated factors. The study found that 136 respondents, representing 35.8%, had undiagnosed hypertension. In describing its distribution across age groups, 4.4% of the hypertensive respondents were younger than 26 years, 8.8% were aged 26–35 years, 16.2% were aged 36–45 years, 23.5% were aged 46–55 years, and 47.1% were aged 56–65 years. This shows that a large proportion of the undiagnosed cases were concentrated in the older adult age groups within the community. The study also presented the distribution of undiagnosed hypertension across education, occupation, marital status, religion, and family history. Among the hypertensive respondents, 40.5% had only primary education, 36.0% had secondary education, and 22.8% had tertiary education, suggesting a heavier burden among the less educated. By marital status, 57.4% of the hypertensive respondents were married, 33.8% were widowed, and 8.8% were single. By occupation, retired persons and farmers each accounted for 23.5% and 20.6% of hypertensive respondents respectively, while civil servants accounted for 15.4% and traders 16.9%. The study therefore showed that undiagnosed

hypertension was not evenly distributed across the population, but clustered more in certain age, educational, marital, and occupational groups.[30]

### 2.4 Factors influencing the prevalence of undiagnosed hypertension among transport workers

A study assessed the occupational, lifestyle, and anthropometric determinants of hypertension among Commercial Long-Distance Bus Drivers (CLDBDs) in Cape Coast, Ghana, October 2012 to November 2012. The study was cross-sectional in design and involved 170 CLDBDs from five Ghana Private Road Transport Union bus stations in Cape Coast. The socio-demographic, occupational, lifestyle, and anthropometric data were collected with a questionnaire and tests. The study participants comprised 170 Commercial Long Distance Bus Drivers (CLDBDs), in the Cape Coast municipality. Simple random sampling was then used to recruit respondents from each transport union. Registered drivers at the unions have a valid driver's license and classified as a long-distance driver based on Metro Mass Classification of driving not less than 140km per day were included. Those with known hypertension were excluded from the study. Data were doubly entered, into IBM SPSS version 16 and inaccurate entries were identified and removed from the data set before analysis began. Results showed that age of participants, years of commercial driving, alcohol use, body mass index (BMI), and percentage body fat (% BF) were factors associated with blood pressure measurements. The significant predictors of high systolic blood pressure (≥ 140 mmHg) and high diastolic blood pressure (≥ 90 mmHg) were age in years, years of commercial driving and percentage body fat. There was a significant statistical association between age and systolic and diastolic blood pressure measurements. Drivers less than 35 years and those aged 35−0 years were 90% and 80% less likely to develop high blood pressure compared

with those 46 years and above and respectively. Years of commercial driving was significantly associated with systolic and diastolic blood pressure measurements.[3]

In 2021, a study was done to assess risk factors for systemic hypertension among commercial motor drivers in Zaria, Nigeria. It was a cross sectional study and multistage sampling technique was used to select 238 commercial motor drivers from all major parks in Zaria; first stage by proportionate sampling to allocate number to each Motor Park, then second stage by simple random sampling from list of drivers in each motor park. Data were analyzed using SPSS version 21. One hundred and twenty-five subjects (52.5%) were discovered to have high blood pressure. However, while 30 drivers (12.6 % of participants) were previously known to be hypertensives, 95 (39.9 %) had their high blood pressure recorded for the first time at one sitting and never showed up for repeat checks. Age was found to positively correlate with both systolic and diastolic blood pressure and duration of driving. Twenty years of driving or more was found to give 3.8 times risk of hypertension. Advanced age and duration of driving were found to be major risk factors for hypertension among commercial motor drivers in Zaria.[32]

In 2016, a cross-sectional study assessed the factors affecting the prevalence of hypertension among transport workers in Shahroud, Iran. The sample size was 1461 professional drivers. The inclusion criteria were that the driving should be drivers' main occupation. Demographic, Pittsburgh sleep quality index (PSQI) and STOP-BANG questionnaires were used to collect their data. For proper blood pressure measurement, the guidelines offered by the American Heart Association were used. The height and weight of the individuals were measured and the BMI was taken. Waist circumference was also measured. The results showed that elevated blood pressure and hypertension were more prevalent in people aged 40 years and older,

those who have diabetes, those suffering from sleep disorders according to STOP-BANG criterion, those with high BMI and those with higher years of driving.[33]

A study examining the prevalence of undiagnosed hypertension among a purposive sample of 281 individuals at Bauchi State University, Gadau, Nigeria, provides valuable insights into the role of occupational and lifestyle factors in hypertension. The cross-sectional design assessed participants' demographics, blood pressure, height, weight, socioeconomic status, and physical activity. Hypertension was defined as a systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg. Data were analyzed using SPSS v24, employing descriptive, Chi-square, univariate, and multivariate statistical methods. The mean age of participants was 34.5 years, and their mean BMI was 23.1 kg/m². The prevalence of undiagnosed hypertension in the study population was 27.8%. Significant differences were observed between normotensive participants and those with undiagnosed hypertension across most clinical and demographic variables. Univariate and multivariate analyses highlighted key patterns associated with undiagnosed hypertension. A positive family history of hypertension emerged as the strongest predictor, with participants having significantly higher odds. Additionally, higher BMI, male gender, job cadre, and low physical activity were also identified as factors significantly associated with undiagnosed hypertension. Interestingly, smoking status and socioeconomic status were not significantly linked to hypertension in this study population. While this research primarily focused on an academic setting, the findings underscore the influence of occupation on hypertension prevalence. The sedentary nature of certain jobs, including those requiring prolonged hours of intellectual engagement and limited physical activity, may contribute to elevated hypertension risk.[34]

\

# CHAPTER THREE

# METHODOLOGY

## 3.1 STUDY AREA

Edo State is an inland state in central southern Nigeria. Its capital is Benin City. It was formed in 1991 by the split of Bendel State into Edo and Delta State. Edo State shares boundaries with Delta on the South, Ondo on the West, Kogi on the North-East.[35]

The study area, Benin City, the capital city of Edo State, is located in the southern region of Nigeria defined by longitudes 005º 30′ and 005º 45′E and latitudes 6º 15′ and 6º 30′N with a total area of approximately 625km2. The area cuts across four Local Government Areas namely Oredo, Egor, Ikpoba Oka and part of Uhunmwonde. The main town in the area is Benin City. Other settlements include IkhueNiro, Ute, Obanyator, Etete, Utoka,Ahor, etc. [36] It is the capital of Edo state and in 2016 boasted a population of 1,500,000 with a people making it the largest city in the state as well as the fourth-largest city in Nigeria. The projected population of Edo State is 4200000 at a growth rate of 2.8. It is approximately 25 miles north of the Benin River and near a number of main highways that connect Lagos to the Eastern states. Benin City. The history of Benin City and the surrounding area dates back to the 900s when it was settled by the Edo people. It became the principal city of the kingdom of Benin and flourished over the kingdom's existence between the 13$^{th}$ and 19$^{th}$ centuries. Benin City was later rebuilt after being burned down by the British soldiers in 1879. Benin City became the capital of Edo State in 1963 following Nigeria's independence from Great Britain in 1960. Benin City houses the Royal palace of the "Oba", the traditional ruler of the Edo People.[37]

The original inhabitants of Benin City are called the Edo or Benin people. A large section of Ibo, Hausa, Fulani, Igbira, Urhobo, Yoruba, Ibibio, Tiv, Itsekiri and Isoko nationalities have since migrated into the city to join the original Benin people. The occupations of the urban residents revolve around trading, quarrying, mining of sands for diverse construction works, farming, fishing, education, distribution of goods, and banking services. Other lucrative activities include medium-scale manufacturing, transport, and communication services.[38] Health facilities in Benin City includes, the University of Benin Teacher Hospital, Federal Neuropsychiatry Hospital, Stella Obasanjo Women and Children Hospital, City of Hope Medical Center, etc.

### 3.2 STUDY DESIGN

The study was a descriptive cross-sectional study.

### 3.3 SCOPE OF STUDY

The study was carried out to determine the prevalence of undiagnosed hypertension among transport workers in Benin City.

### 3.4 DURATION OF STUDY

The study was carried out from December 2024 to May 2026.

### 3.5 STUDY POPULATION

The study was carried out among commercial transport workers in major motor parks in Benin City.

## 3.6 SELECTION CRITERIA

### Inclusion Criteria

Transport workers who;

- were above 18 years of age

- consented to participate in the study

### Exclusion Criteria

-Transport workers who were unavailable after repeated visits during the data collection period.

-Transport workers who were unable to complete the interview or physical measurements.

## 3.7 SAMPLE SIZE DETERMINATION

The sample size was calculated using the Cochran's Formula for descriptive studies;

$n = z^2 pq / d^2$

Where;

n= desired sample size

z = Standard normal deviate set at 1.96 which corresponds to a 95% confidence interval.

p = proportion in the target population estimated to have a particular characteristic.

q = 1 - p, that is, the proportion of the population not expected to have the characteristic of interest.

d = the degree of precision or margin of error

In this case, a prevalence of 39.8 percent as determined from a study carried out in Ibadan.[39]

Therefore, p = 39.8/100

= 0.398

q = 1 – p

Therefore, q = 1 – 0.398

q= 0.602

d = degree of precision set at 0.05

$n = z^2 p q/d^2$

n = 1.96 × 1.96 × 0.398 × 0.602/ 0.05 × 0.05

= 368

Adding a non response rate of 10%

n = 368 + 36.8 = 404.8

=405

**3.8 SAMPLING TECHNIQUE**

A two-stage sampling technique was used.

· **Stage one: Selection of the local government area.** There are seven Local Government Areas that make up Benin City, namely Oredo, Egor, Ikpoba-Okha, Ovia North-East, Ovia South-West, and Uhunmwonde. This list was used as the sampling frame. One Local Government Area was then selected by simple random sampling using balloting, and Oredo LGA was selected. This became the study area for the next stage of sampling.

· **Stage two: Selection of the motor park.** There are five major motor parks located within Oredo LGA (see appendix). A list of the motor parks was made and used as the sampling frame for the second stage. The major motor parks were regarded as clusters. One motor park cluster was selected by simple random sampling using balloting, and Central Park was selected. In the selected motor park, there are about 450 registered drivers with the park. All eligible bus drivers who were present during the period of data collection and who gave informed consent were recruited consecutively until the required sample size was obtained. This means that every driver who met the inclusion criteria and was available at the time of the study was approached and included.

### 3.9. DATA COLLECTION AND ANALYSIS

#### 3.9.1. DATA COLLECTION

Data was collected using an interviewer-administered questionnaire with both open-ended and closed-ended questions. It would be divided into the sections below;

**Section A: Socio-demographic Characteristics**

This section obtained information on the socio-demographic characteristics of the respondents. Variables assessed included age, sex, marital status, level of education,

ethnicity, religion, occupation, years of experience in transport and logistics, average working hours per day, monthly income, and household size. These variables were used to describe the study population and assess their relationship with undiagnosed hypertension.

**Section B: Knowledge of Hypertension**

This section assessed respondents' knowledge of hypertension. It included questions on awareness of hypertension, sources of information, understanding of the condition, knowledge of risk factors, complications, prevention, and control. It also assessed awareness of the asymptomatic nature of hypertension and the importance of regular blood pressure checks.

**Section C: Prevalence of Undiagnosed Hypertension**

This section assessed the prevalence of undiagnosed hypertension among respondents. It included questions on history of blood pressure measurement, frequency of blood pressure checks, prior diagnosis of hypertension, use of antihypertensive medications, health-seeking behavior, and presence of symptoms suggestive of hypertension. These questions helped identify individuals who may have hypertension but are not previously diagnosed.

**Section D: Distribution of Undiagnosed Hypertension Across Socio-demographic and Occupational Characteristics Among Transport Workers**

This section assessed the distribution of undiagnosed hypertension across the socio-demographic and occupational characteristics among transport workers. It included variables such as age, occupation, years of work experience, and average daily

working hours. These variables were used to identify trends and distribution of undiagnosed hypertension across different categories of workers.

**Section E: Factors Affecting the Prevalence of Undiagnosed Hypertension**

This section assessed factors influencing the prevalence of undiagnosed hypertension among respondents. It included questions on lifestyle and behavioral risk factors such as smoking, alcohol consumption, and level of stress. It also explored reasons for not checking blood pressure regularly. These factors were used to determine possible contributors to the occurrence of undiagnosed hypertension in the study population.

**Blood pressure measurement**

Blood pressure was measured using a standard mercury or aneroid sphygmomanometer and a stethoscope by the auscultatory method. Before measurement, each respondent was allowed to rest quietly in a seated position for at least 5 minutes. The respondent was seated with the back supported, both feet flat on the floor, legs uncrossed, and the arm supported at the level of the heart. Tight clothing over the arm was removed or loosened, and an appropriately sized cuff was applied to the bare upper arm. The cuff was inflated and the brachial artery was auscultated with a stethoscope while the cuff pressure was slowly released. The systolic blood pressure was taken at the appearance of the first Korotkoff sound, while the diastolic blood pressure was taken at the disappearance of the Korotkoff sounds. Two readings were taken at an interval of 1–2 minutes, and the average of the two readings was used for analysis.[40]

**Weight and Height Measurement**

Weight was measured in kilograms using a calibrated digital weighing scale, with respondents standing at the centre of the scale platform, hands by the sides, and looking straight ahead. Respondents were asked to remove their shoes before stepping on the scale, and the reading was taken when the display became stable. Height was measured in centimetres using a stadiometer with the respondent standing upright against the backboard, feet flat on the platform, heels together, and body weight evenly distributed. The back of the head, shoulder blades, buttocks, and heels were positioned against the stadiometer as much as possible, and the head was aligned in the Frankfort horizontal plane before the headpiece was lowered to rest firmly on the crown of the head. Body mass index was then calculated as weight in kilograms divided by the square of height in metres ($kg/m^2$).[41]

### 3.9.2 SCORING SYSTEM FOR QUESTIONNAIRE

**SECTION B: LEVEL OF KNOWLEDGE OF HYPERTENSION**

Knowledge of hypertension was assessed using structured questions on awareness, definition, asymptomatic nature, early diagnosis, risk factors, complications, control, prevention, and preventive measures.

Each correct response was assigned a score of 1, while each incorrect, “No”, “Maybe”,“Not sure” or “Don’t know” response was assigned a score of 0.

For multiple-response questions, each correctly identified option attracted 1 mark, while incorrect options attracted 0 mark. The total obtainable knowledge score was 23 marks and was converted to percentage. Respondents who scored ≥50% of the total

score, were categorized as having good knowledge, while those who scored ≤50% were categorized as having poor knowledge.

**SECTION C:**

**CLASSIFICATION OF HYPERTENSION**

Blood pressure measurements obtained from respondents were classified according to the **Joint National Committee (JNC) guidelines** as follows:

- **Normal:** Systolic Blood Pressure (SBP) <120 mmHg and Diastolic Blood Pressure (DBP) <80 mmHg
- **Prehypertension:** SBP 120–139 mmHg and/or DBP 80–89 mmHg
- **Stage 1 Hypertension:** SBP 140–159 mmHg and/or DBP 90–99 mmHg
- **Stage 2 Hypertension:** SBP ≥160 mmHg and/or DBP ≥100 mmHg [42]

For the purpose of this study:

- **Hypertension** was defined as SBP ≥140 mmHg and/or DBP ≥90 mmHg, corresponding to Stage 1 and Stage 2 hypertension.
- **Undiagnosed hypertension** was defined as having blood pressure values in the hypertensive range (SBP ≥140 mmHg and/or DBP ≥90 mmHg) during the study, in a respondent who had no prior diagnosis of hypertension and was not on antihypertensive medication.

**CLASSIFICATION OF BODY MASS INDEX**

Body Mass Index (BMI) was calculated using the formula:

$$BMI = Weight(kg)/Height(m^2)$$

Respondents were categorized according to the World Health Organization (WHO) BMI classification as follows:

- **Underweight:** <18.5 kg/m²
- **Normal weight:** 18.5–24.9 kg/m²
- **Overweight:** 25.0–29.9 kg/m²
- **Obese:** ≥30 kg/m² [43]

**PREVALENCE OF UNDIAGNOSED HYPERTENSION**

Undiagnosed hypertension was assessed using respondents' blood pressure measurements and history of previous hypertension diagnosis. Blood pressure was measured twice using a standard mercury sphygmomanometer and stethoscope under appropriate conditions (as seen in page 30) and the recorded reading was used for classification. Respondents with systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg who had not previously been diagnosed with hypertension by a healthcare professional and were not taking antihypertensive medication at the time of the study were classified as having undiagnosed hypertension.

### 3.9.3 PRETESTING

To check the tool's reliability and validity, pretesting was conducted. Pretesting was carried out in Muyi Park, Benin City, using 10 percent of the sample size.

### 3.9.4 DATA ANALYSIS

Before entering and conducting the analysis, the data was checked for accuracy and completeness before coding using IBM Statistical Package for Social Sciences (SPSS) Descriptive statistics were used to summarize the data. Categorical variables such as

sociodemographic characteristics, knowledge of hypertension, blood pressure classification, and lifestyle factors were presented as frequencies and percentages. Continuous variables including age, income, and household size were summarized using means and standard deviations.

The level of knowledge of hypertension among respondents was assessed using a composite scoring system and categorized into good and poor knowledge based on a 50% cut-off point. The prevalence of hypertension and undiagnosed hypertension was determined and expressed as proportions.

Bivariate analysis was conducted to assess the association between independent variables (sociodemographic and behavioural factors) and undiagnosed hypertension using the Chi-square test. Where the assumptions for Chi-square were not met, the Fisher-Freeman-Halton exact test was used as appropriate.

Comparison of means of continuous variables between respondents with and without undiagnosed hypertension was performed using the independent samples t-test.

Variables found to be statistically significant at the bivariate level ($p < 0.05$) were included in a binary logistic regression model using the backward stepwise (conditional) method to identify independent predictors of undiagnosed hypertension.The results were presented as odds ratios (ORs) with 95% confidence intervals.

A p-value of less than 0.05 was considered statistically significant for all analyses.

### 3.10 ETHICAL CLEARANCE

Ethical clearance was gotten from the Ethics and Research Committee of the University of Benin Teaching Hospital. Ethical clearance number is ADM/E 22/A/VOL. VII/148654912585. Informed consent was obtained from the respondents before the questionnaires were administered. Information provided by respondents was treated with utmost confidentiality. Respondents were informed of their right to voluntarily decide whether to participate in the study or not, without the risk of incurring any penalty or prejudicial treatment. They were given the right to decide at any point during the study to withdraw their participation or refuse to provide any information on any point that was not clear to them.

# CHAPTER FOUR

## RESULTS

A total of 416 questionnaires were administered in this study. 416 questionnaires were completely filled, giving a 100% response rate. The results are presented in the following sections in line with the specific study objectives.

SECTION A: Sociodemographic characteristics of the respondents

SECTION B: Knowledge of hypertension among the respondents

SECTION C: Prevalence of hypertension and undiagnosed hypertension among the respondents

SECTION D: Pattern of undiagnosed hypertension among the respondents

SECTION E: Factors influencing undiagnosed hypertension among the respondents

SECTION F: Association between respondents' sociodemographic and behavioural variables and undiagnosed hypertension

SECTION G: Comparison of continuous sociodemographic variables between respondents with and without undiagnosed hypertension

SECTION H: Predictors of undiagnosed hypertension among commercial drivers

## SECTION A

## Sociodemographic Characteristics of the Respondents

**Table 1: Distribution of respondents by sociodemographic characteristics**

| | Frequency (n = 416) | Percent |
|---|---|---|
| **Age (years)** | | |
| 18 – 30 | 20 | 4.8 |
| 31 – 40 | 71 | 17.1 |
| 41 – 50 | 121 | 29.1 |
| 51 – 60 | 114 | 27.4 |
| > 60 | 90 | 21.6 |
| Mean ± SD | 50.5 ± 11.9 | |
| **Gender** | | |
| Male | 414 | 99.5 |
| Female | 2 | 0.5 |
| **Marital Status** | | |
| Married | 373 | 89.6 |
| Single | 29 | 7.0 |
| Divorced | 9 | 2.2 |
| Widowed | 4 | 1.0 |
| Cohabiting | 1 | 0.2 |
| **Level of Education** | | |
| No formal education | 40 | 9.6 |
| Primary | 133 | 32.0 |
| Secondary | 193 | 46.4 |
| Tertiary | 50 | 12.0 |
| **Religion** | | |
| Christianity | 383 | 92.1 |
| Islam | 22 | 5.3 |
| African Traditional Religion (ATR) | 11 | 2.6 |
| **Occupation** | | |
| Bus driver | 385 | 92.6 |
| Delivery personnel | 5 | 1.2 |
| Motorcyclist | 9 | 2.2 |
| Taxi driver | 16 | 3.8 |
| Truck driver | 1 | 0.2 |
| **Years of Experience** | | |
| 0–5 years | 48 | 11.5 |
| 6–10 years | 44 | 10.6 |
| Greater than 10 years | 324 | 77.9 |
| **Average Working Hours per Day** | | |
| 0–3 hours | 38 | 9.1 |
| 4–6 hours | 88 | 21.2 |
| 7–10 hours | 135 | 32.4 |
| Greater than 10 hours | 155 | 37.3 |
| **Household size** | | |
| 1 – 3 persons | 59 | 14.2 |
| 4 – 6 persons | 246 | 59.1 |
| 7 – 9 persons | 99 | 23.8 |
| ≥ 10 persons | 12 | 2.9 |
| Mean ± SD | 5.5 ± 2. | |
| **Monthly income (₦)** | | |
| < ₦70,000 | 212 | 51.0 |
| ₦70,000 – ₦149,999 | 180 | 43.3 |
| ₦150,000 – ₦299,999 | 6 | 1.4 |
| ₦300,000 – ₦499,999 | 18 | 4.3 |
| Median (Range) | 70,000 (12,000 – 300,000) | |

Table 1 presents the sociodemographic characteristics of the 416 respondents. With regard to age, the largest proportion of respondents belonged to the 41 – 50 years age group (n = 121, 29.1%), followed by those aged 51 – 60 years (n = 114, 27.4%). Respondents aged above 60 years constituted 21.6% (n = 90) of the sample, while those in the 31 – 40 years age group accounted for 17.1% (n = 71). The smallest proportion was found among the youngest cohort, aged 18 – 30 years (n = 20, 4.8%). The respondents had a mean age of 50.53 (± 11.87) years.

The respondents were predominantly male, with 414 (99.5%) respondents identifying as male and only 2 (0.5%) as female, reflecting the male-dominated nature of the commercial driving profession. The majority of respondents were married, accounting for 373 (89.6%) of the total, while 29 (7.0%) were single. Smaller proportions were divorced, 9 (2.2%), widowed, 4 (1.0%), and one (0.2%) was cohabiting. Regarding educational attainment, the largest group had secondary education, 193 (46.4%), followed by those with primary education, 133 (32.0%). Fifty (12.0%) had attained tertiary-level education, while 40 (9.6%) had no formal education. In terms of religion, the overwhelming majority were Christians, 383 (92.1%), while 22 (5.3%) were Muslims, and 11 (2.6%) practised African Traditional Religion. Bus driving was by far the most common occupation, reported by 385 (92.6%) respondents. Taxi drivers constituted 16 (3.8%), motorcyclists 9 (2.2%), delivery personnel 5 (1.2%), and truck drivers 1 (0.2%).

Most respondents were highly experienced, with 324 (77.9%) having more than 10 years of experience; 48 (11.5%) had 0–5 years and 44 (10.6%) had 6–10 years of experience. Concerning working hours, 155 (37.3%) worked more than 10 hours daily, followed by 135 (32.4%) who worked 7–10 hours, 88 (21.2%) who worked 4–6 hours,

and 38 (9.1%) who worked 0–3 hours per day.

Regarding household size, the majority of respondents lived in households comprising 4 – 6 persons (n = 246; 59.1%), followed by those in households of 7 – 9 persons (n = 99; 23.8%). Smaller households of 1 – 3 persons were reported by 14.2% (n = 59) of respondents, while households of 10 or more persons accounted for 2.9% (n = 12). The mean household size was 5.47 (± 2.10). With respect to average monthly income, approximately half of the respondents (n = 212; 51.0%) earned less than ₦70,000 per month, while 43.3% (n = 180) earned between ₦70,000 and ₦149,999. A small minority reported earnings in the ₦150,000 – ₦299,999 range (n = 6; 1.4%), and 4.3% (n = 18) reported earnings of ₦300,000 – ₦499,999. The median monthly income was ₦70,000, with household income ranging from ₦12,000 to ₦300,000.

## SECTION B

## Knowledge Of Hypertension Among the Respondents

**Table 2a: Respondents' knowledge of hypertension**

| Variable | Frequency (n = 416) | Percent |
|---|---|---|
| **Heard of hypertension** | | |
| Yes | 373 | 89.7 |
| No | 43 | 10.3 |
| **Understanding of hypertension *** | | |
| High blood pressure (≥140/90 mmHg) | 372 | 96.6 |
| It can be treated with drugs | 79 | 20.5 |
| It is a highly infectious disease | 27 | 7.0 |
| It is caused by mosquito bites | 8 | 2.1 |
| It leads to sudden death | 1 | 0.3 |
| **Main source of information about hypertension** | | |
| Social media | 21 | 5.0 |
| Health professionals | 151 | 36.3 |
| Friends and colleagues | 211 | 50.8 |
| Television/Radio | 27 | 6.5 |
| Other sources | 6 | 1.4 |
| **Hypertension exists without symptoms** | | |
| Yes | 295 | 70.9 |
| No | 42 | 10.1 |
| Maybe | 79 | 19.0 |
| **Hypertension can be diagnosed early by regularly checking blood pressure** | | |
| Yes | 324 | 77.9 |
| No | 21 | 5.0 |
| Maybe | 71 | 17.1 |
| **Ever checked your blood pressure** | | |
| Yes | 351 | 84.4 |
| No | 65 | 15.6 |
| **Knowledge of the risk factors for hypertension** | | |
| Yes | 315 | 75.7 |
| No | 101 | 24.3 |
| **Awareness of the complications of hypertension** | | |
| Yes | 341 | 82.0 |
| No | 75 | 18.0 |
| **Hypertension can be controlled** | | |
| Yes | 322 | 77.4 |
| No | 14 | 3.4 |
| Maybe | 80 | 19.2 |
| **Hypertension can be prevented** | | |
| Yes | 315 | 75.7 |
| No | 30 | 7.2 |
| Maybe | 71 | 17.1 |

*Multiple response item

Table 2 presents the respondents' knowledge of hypertension across several domains. The majority of respondents, 373 (89.7%), had heard of hypertension, while 43 (10.3%) had not. The vast majority of respondents, 372 (96.6%), correctly understood hypertension as high blood pressure (≥140/90 mmHg). However, misconceptions were also evident: 79 (20.5%) believed it can be treated with drugs alone as their primary understanding, 27 (7.0%) erroneously described it as a highly infectious disease, and 8 (2.1%) believed it was caused by mosquito bites. Only 1 (0.3%) respondent associated hypertension with sudden death.

The most common source of information was friends and colleagues, cited by 211 (50.8%) of respondents, followed by health professionals, reported by 151 (36.3%). Television and radio accounted for 27 (6.5%), social media for 21 (5.0%), and other sources for a combined 6 (1.4%). Concerning the asymptomatic nature of hypertension, 295 (70.9%) respondents correctly identified that hypertension can exist without symptoms, though 79 (19.0%) were uncertain and 42 (10.1%) believed it cannot. Knowledge of early diagnosis was relatively good, with 324 (77.9%) acknowledging that regular blood pressure checks can detect hypertension early; 71 (17.1%) were unsure, and 21 (5.0%) responded negatively. The majority, 351 (84.4%), reported having ever checked their blood pressure, while 65 (15.6%) had not. Knowledge of risk factors was present in 315 (75.7%) respondents, and 341 (82.0%) were aware of the complications of hypertension. Regarding controllability, 322 (77.4%) believed hypertension can be controlled, and 315 (75.7%) believed it can be prevented.

**Table 2b: Respondents' knowledge of hypertension**

| Variable | Frequency (n = 416) | Percent |
|---|---|---|
| **Identified risk factors for hypertension*** | | |
| Stress | 384 | 93.7 |
| Smoking | 140 | 34.1 |
| Alcohol intake | 134 | 32.7 |
| Family history | 108 | 26.3 |
| Lack of exercise | 100 | 24.4 |
| Being overweight | 70 | 17.1 |
| High salt intake | 68 | 16.6 |
| **Identified complications of hypertension*** | | |
| Death | 317 | 76.4 |
| Stroke | 268 | 64.6 |
| Heart attack | 213 | 51.3 |
| Diabetes | 52 | 12.5 |
| **Identified methods of preventing hypertension*** | | |
| Adequate rest | 362 | 87.0 |
| Healthy diet | 224 | 53.8 |
| Regular exercise | 194 | 46.6 |
| Low salt intake | 58 | 13.9 |

*Multiple response item

Regarding knowledge of risk factors for hypertension (Table 4a), stress was the most widely identified risk factor, cited by 384 (93.7%) of respondents. This was followed by smoking, 140 (34.1%), alcohol intake, 134 (32.7%), family history, 108 (26.3%), lack of exercise, 100 (24.4%), being overweight, 70 (17.1%), and high salt intake, 68

(16.6%). When asked about complications, death was the most identified complication of hypertension by 317 (76.4%) of respondents. Stroke was identified by 268 (64.6%), heart attack by 213 (51.3%), and diabetes by 52 (12.5%). Regarding prevention, adequate rest was the most commonly identified preventive measure by 362 (87.0%) of respondents. This was followed by maintaining a healthy diet, 224 (53.8%), regular exercise, 194 (46.6%), and low salt intake, 58 (13.9%).

**Table 3: Respondents' Knowledge Level of Hypertension**

| Knowledge Level | Frequency (n) | Percent |
|---|---|---|
| Good Knowledge | 219 | 52.5 |
| Poor Knowledge | 198 | 47.5 |

As shown in the table 4b, the majority of respondents demonstrated good knowledge of hypertension, with 219 respondents (52.5%) scoring 50% and above out of a maximum attainable score of 23. A total of 198 respondents (47.5%) had poor knowledge, scoring below 50% of the maximum score.

## SECTION C

## Prevalence Of Hypertension and Undiagnosed Hypertension Among the Respondents

**Table 4: Prevalence of hypertension and undiagnosed hypertension among respondents**

| Variable | Frequency (n=416) | Percent |
|---|---|---|
| **Blood pressure measured by a doctor or health worker** | | |
| Yes | 333 | 80.1 |
| No | 72 | 17.3 |
| Not sure | 11 | 2.6 |
| **Last time blood pressure was checked** | | |
| A month ago | 131 | 31.4 |
| Less than 6 months ago | 148 | 35.6 |
| Less than a year ago | 54 | 13.0 |
| Over a year ago | 83 | 20.0 |
| **Last recorded blood pressure result** | | |
| Normal | 296 | 71.1 |
| Elevated | 84 | 20.2 |
| Cannot remember | 36 | 8.7 |
| **Knowledge of current blood pressure status** | | |
| Yes | 218 | 52.4 |
| No | 198 | 47.6 |
| **Current blood pressure classification (JNC)** | | |
| Normal | 33 | 7.9 |
| Prehypertension | 196 | 47.1 |
| Stage 1 Hypertension | 111 | 26.7 |
| Stage 2 Hypertension | 76 | 18.3 |
| **Taken drugs for raised blood pressure in the past two weeks** | | |
| Yes | 56 | 13.5 |
| No | 360 | 86.5 |
| **Prevalence of hypertension** | | |
| Yes | 199 | 47.8 |
| No | 217 | 52.2 |
| **Prevalence of undiagnosed hypertension** | | |
| Yes | 100 | 24.0 |
| No | 316 | 76.0 |

The findings in Table 4 describe the blood pressure history and hypertension status of respondents. The majority, 333 (80.1%), had previously had their blood pressure measured by a doctor or health worker, while 72 (17.3%) had not and 11 (2.6%) were unsure. The most recent blood pressure check for most respondents was within six months, with 148 (35.6%) checking less than 6 months ago and 131 (31.4%) having checked within a month. Twenty percent (83) had not checked in over a year. When asked about their last recorded result, 296 (71.1%) reported a normal reading, 84 (20.2%) reported an elevated reading, and 36 (8.7%) could not remember. Concerning current knowledge of blood pressure status, 218 (52.4%) said they knew their status, while 198 (47.6%) did not. Objective measurement using the JNC classification revealed that only 33 (7.9%) had normal blood pressure. The largest group fell into the prehypertension category, 196 (47.1%), followed by Stage 1 Hypertension, 111 (26.7%), and Stage 2 Hypertension, 76 (18.3%). Only 56 (13.5%) respondents had taken prescribed antihypertensive drugs in the past two weeks. The overall prevalence of hypertension was 47.8%, with 199 respondents meeting the threshold for a hypertension diagnosis based on measured blood pressure values. Of the 416 commercial drivers, 100 (24.0%) had undiagnosed hypertension, defined as having objectively elevated blood pressure without being on prescribed antihypertensive medication and without a prior clinical diagnosis, while 316 (76.0%) did not meet this criterion.

**Table 5: Treatment and care-seeking behaviour among the respondents**

| Variable | Frequency (n =416) | Percent |
|---|---|---|
| **Medication prescribed by a healthcare professional (n = 56)** | | |
| Yes | 53 | 94.6 |
| No | 3 | 5.4 |
| **Ever sought medical advice after checking blood pressure** | | |
| Yes | 110 | 26.4 |
| No | 306 | 73.6 |
| **Ever seen a traditional healer for raised blood pressure** | | |
| Yes | 29 | 7.0 |
| No | 387 | 93.0 |
| **Currently taking any herbal or traditional remedy for elevated blood pressure** | | |
| Yes | 24 | 5.8 |
| No | 392 | 94.2 |

Table 5 presents treatment and care-seeking behaviours among the respondents. Among the 56 respondents who reported taking prescribed medication for raised blood pressure in the past two weeks, the vast majority, 53 (94.6%), confirmed that the medication was prescribed by a healthcare professional, while 3 (5.4%) indicated it was not. However, only 110 (26.4%) had ever sought medical advice after checking their blood pressure, indicating a substantial gap in follow-up care. Very few respondents had consulted traditional healers for raised blood pressure, 29 (7.0%), or were currently taking herbal or traditional remedies, 24 (5.8%). These findings suggest that while some respondents are accessing formal healthcare, the majority have not translated elevated readings into active care-seeking.

## SECTION D

## Pattern Of Undiagnosed Hypertension Among the Respondents

**Table 6a: Pattern of undiagnosed hypertension**

| Variable | Frequency (n = 100) | Percent |
|---|---|---|
| **Age Group (years)** | | |
| ≤30 | 4 | 4.0 |
| 31–40 | 22 | 22.0 |
| 41–50 | 33 | 33.0 |
| 51–60 | 27 | 27.0 |
| >60 | 14 | 14.0 |
| **Marital Status** | | |
| Married | 93 | 93.0 |
| Single | 7 | 7.0 |
| **Level of Education** | | |
| No formal education | 4 | 4.0 |
| Primary | 40 | 40.0 |
| Secondary | 50 | 50.0 |
| Tertiary | 6 | 6.0 |
| **Religion** | | |
| Christianity | 90 | 90.0 |
| Islam | 5 | 5.0 |
| ATR | 5 | 5.0 |
| **Category of vehicle** | | |
| Bus | 89 | 89.0 |
| Taxi | 5 | 5.0 |
| Motorcycle | 5 | 5.0 |
| Truck | 1 | 1.0 |
| **Years of Experience** | | |
| 0–5 years | 16 | 16.0 |
| 6–10 years | 9 | 9.0 |
| Greater than 10 years | 75 | 75.0 |
| **Working Hours per Day** | | |
| 0–3 hours | 9 | 9.0 |
| 4–6 hours | 18 | 18.0 |
| 7–10 hours | 30 | 30.0 |
| Greater than 10 hours | 43 | 43.0 |

Table 6 presents the sociodemographic and occupational pattern of undiagnosed hypertension. By age, the largest proportion fell within the 41–50 years age group (33, 33.0%), followed by those aged 51–60 years (27, 27.0%) and 31–40 years (22, 22.0%). Respondents older than 60 years accounted for 14 (14.0%), while those aged

30 years and below were the fewest at 4 (4.0%). All 100 respondents with undiagnosed hypertension were male, reflecting the overwhelmingly male composition of the commercial driving workforce in this study. Regarding marital status, the vast majority were married (93, 93.0%), with the remaining 7 (7.0%) being single; no divorced, widowed, or cohabiting respondents had undiagnosed hypertension. In terms of educational attainment, respondents with secondary education constituted the largest group (50, 50.0%), followed by those with primary education (40, 40.0%), tertiary education (6, 6.0%), and no formal education (4, 4.0%). The majority of those with undiagnosed hypertension were Christians (90, 90.0%), with Muslims and ATR adherents each accounting for 5 (5.0%). By occupation, bus drivers made up the largest proportion (89, 89.0%), followed by taxi drivers and motorcyclists (5, 5.0% each) and one truck driver (1, 1.0%); no delivery personnel had undiagnosed hypertension. Regarding years of driving experience, most had more than 10 years of experience (75, 75.0%), while 16 (16.0%) had 0–5 years and 9 (9.0%) had 6–10 years. In terms of average daily working hours, the largest group worked more than 10 hours per day (43, 43.0%), followed by those working 7–10 hours (30, 30.0%), 4–6 hours (18, 18.0%), and 0–3 hours (9, 9.0%).

**Table 6b: Pattern of undiagnosed hypertension**

| Variable | Frequency (n = 100) | Percent |
|---|---|---|
| **Regular breaks during the day** | | |
| Yes | 88 | 88.0 |
| No | 5 | 5.0 |
| Sometimes | 7 | 7.0 |
| **Ever checked your blood pressure** | | |
| Yes | 69 | 69.0 |
| No | 31 | 31.0 |
| **Ever been told you have high blood pressure** | | |
| Yes | 0 | 0.0 |
| No | 100 | 100.0 |
| **Symptoms Experienced*** | | |
| None | 66 | 66.0 |
| Chest pain | 16 | 16.0 |
| Dizziness | 21 | 21.0 |
| Blurred vision | 9 | 9.0 |
| Palpitations | 9 | 9.0 |

The majority of respondents, 88 (88.0%), reported taking regular breaks during the day, while 7 (7.0%) sometimes did and 5 (5.0%) did not. Blood pressure awareness was lower in this group, with 69 (69.0%) having had their blood pressure checked at some point and 31 (31.0%) never having checked. Notably, none of the 100

respondents with undiagnosed hypertension had ever been told they had high blood pressure, which is consistent with the definition of undiagnosed hypertension. Accordingly, none were on any antihypertensive medication. Regarding symptoms experienced by respondents with undiagnosed hypertension, the majority, 66 (66.0%), reported experiencing no symptoms attributable to hypertension. Among those reporting symptoms, dizziness was the most common complaint, cited by 21 (21.0%) respondents, followed by chest pain, reported by 16 (16.0%). Palpitations and blurred vision were each reported by 9 (9.0%) respondents. These findings reinforce the predominantly asymptomatic presentation of hypertension in this group, which likely contributes to its high rate of under-diagnosis.

## SECTION E

## Factors Influencing Undiagnosed Hypertension Among the Respondents

**Table 7: Factors influencing undiagnosed hypertension**

| Variable | Frequency (n = 100) | Percent |
|---|---|---|
| **Smoking Status** | | |
| Yes | 19 | 19.0 |
| No | 81 | 81.0 |
| **Alcohol Consumption** | | |
| Yes | 71 | 71.0 |
| No | 29 | 29.0 |
| **Frequency of Alcohol Consumption (n = 71)** | | |
| Daily | 12 | 16.9 |
| Occasionally | 35 | 49.3 |
| Regularly | 24 | 33.8 |
| **Physical Activity** | | |
| Yes | 27 | 27.0 |
| Sometimes | 40 | 40.0 |
| No | 33 | 33.0 |
| **Body Mass Index** | | |
| Underweight | 6 | 6.0 |
| Normal weight | 47 | 47.0 |
| Overweight | 35 | 35.0 |
| Obese | 12 | 12.0 |
| **Occupational Stress Level** | | |
| Low | 14 | 14.0 |
| Moderate | 32 | 32.0 |
| High | 54 | 54.0 |
| **Access to Regular Medical Check-ups** | | |
| Yes | 21 | 21.0 |
| No | 79 | 79.0 |
| **Reason for Lack of Access (n = 79)** | | |
| Lack of money | 24 | 30.4 |
| Lack of time | 27 | 34.2 |
| Not a priority | 26 | 32.8 |
| No nearby health facility | 1 | 1.3 |
| Not sick / other | 1 | 1.3 |

Table 7 presents the lifestyle and behavioural factors influencing undiagnosed hypertension. Regarding smoking, 81 (81.0%) were non-smokers while 19 (19.0%) reported active smoking. Alcohol consumption was prevalent among 71 (71.0%) of the respondents, while 29 (29.0%) were non-drinkers. Among the 71 drinkers, 35 (49.3%) drank occasionally, 24 (33.8%) drank regularly, and 12 (16.9%) reported daily alcohol consumption. Physical activity was variable: 40 (40.0%) engaged in activity sometimes, 27 (27.0%) were regular exercisers, and 33 (33.0%) reported no regular physical activity. In terms of body weight, 47 (47.0%) had normal BMI, 35 (35.0%) were overweight, 12 (12.0%) were obese, and 6 (6.0%) were underweight. Occupational stress was highly prevalent: 54 (54.0%) rated their work stress as high, 32 (32.0%) as moderate, and 14 (14.0%) as low. Access to regular medical check-ups was limited, with 79 (79.0%) of respondents reporting no access. Among the 79 respondents without access, the most cited reason was lack of time, 27 (34.2%), followed by the perception that check-ups are not a priority, 26 (32.8%), and lack of money, 24 (30.4%). A minority cited the absence of a nearby health facility or stated they were not sick, 1 (1.3%) each.

## SECTION F

## Association Between Respondents' Sociodemographic and Behavioural Variables and Undiagnosed Hypertension

**Table 8a: Association between respondents' sociodemographic variables and undiagnosed hypertension**

| Variables | Prevalence of Undiagnosed Hypertension | | Test Statistic | p-value |
|---|---|---|---|---|
| | Yes n (%) (n = 100) | No n (%) (n = 217) | | |
| **Gender** | | | | |
| Male | 100 (31.6) | 216 (68.4) | 1.000[b] | 1.000 |
| Female | 0 (0.0) | 1 (100.0) | | |
| **Marital Status** | | | | |
| Married | 93 (32.9) | 190 (67.1) | 2.876[U] | 0.607 |
| Single | 7 (25.9) | 20 (74.1) | | |
| Divorced | 0 (0.0) | 4 (100.0) | | |
| Widowed | 0 (0.0) | 2 (100.0) | | |
| Cohabiting | 0 (0.0) | 1 (100.0) | | |
| **Level of Education** | | | | |
| No formal education | 4 (16.7) | 20 (83.3) | 6.319[c] | 0.097 |
| Primary | 40 (37.4) | 67 (62.6) | | |
| Secondary | 50 (32.3) | 105 (67.7) | | |
| Tertiary | 6 (19.4) | 25 (80.6) | | |
| **Religion** | | | | |
| Christianity | 90 (30.9) | 201 (69.1) | 2.490[c] | 0.274 |
| Islam | 5 (29.4) | 12 (70.6) | | |
| ATR | 5 (55.6) | 4 (44.4) | | |
| **Occupation** | | | | |
| Bus driver | 89 (30.3) | 205 (69.7) | 7.580[U] | 0.053 |
| Delivery personnel | 0 (0.0) | 1 (100.0) | | |
| Motorcyclist | 5 (71.4) | 2 (28.6) | | |
| Taxi driver | 5 (35.7) | 9 (64.3) | | |
| Truck driver | 1 (100.0) | 0 (0.0) | | |

[U]Fisher-Freeman-Halton Exact Test [b]Fisher's Exact Test [c]Pearson Chi-Square. ATR – African Traditional Religion

The results in Table 8 present the association between sociodemographic characteristics and undiagnosed hypertension among the 317 respondents who were

either undiagnosed hypertensive (n = 100) or non-hypertensive (n = 217). Regarding gender, all cases of undiagnosed hypertension occurred among male respondents (31.6%); the single female respondent in this subgroup had no undiagnosed hypertension. The association was not statistically significant (Fisher's Exact Test = 1.000, p = 1.000). Regarding marital status, married respondents had the highest prevalence of undiagnosed hypertension (32.9%), followed by single respondents (25.9%), while no divorced, widowed, or cohabiting respondents had undiagnosed hypertension. The association was not statistically significant (Fisher-Freeman-Halton Exact Test = 2.876, p = 0.607).

No statistically significant association was found between level of education and undiagnosed hypertension ($\chi^2 = 6.319$, p = 0.097); however, respondents with primary education had the highest prevalence (37.4%), followed by secondary (32.3%), tertiary (19.4%), and no formal education (16.7%). The association between religion and undiagnosed hypertension was not statistically significant ($\chi^2 = 2.490$, p = 0.288); ATR adherents had the highest subgroup prevalence (55.6%), followed by Christians (30.9%) and Muslims (29.4%). The association between occupation and undiagnosed hypertension was also not statistically significant (Fisher-Freeman-Halton Exact Test = 7.580, p = 0.053), though it approached significance. Motorcyclists had the highest prevalence (71.4%), followed by taxi drivers (35.7%), bus drivers (30.3%), while the single truck driver had undiagnosed hypertension and the single delivery personnel did not.

**Table 8b: Association between respondents' behavioural and lifestyle variables and undiagnosed hypertension**

| Variables | Prevalence of Undiagnosed Hypertension | | $\chi^2$ | p-value |
|---|---|---|---|---|
| | Yes (n = 100), n (%) | No (n = 217), n (%) | | |
| **Years of Experience** | | | | |
| 0–5 years | 16 (41.0) | 23 (59.0) | 2.226 | 0.328 |
| 6–10 years | 9 (25.7) | 26 (74.3) | | |
| >10 years | 75 (30.9) | 168 (69.1) | | |
| **Average Working Hours per Day** | | | | |
| 0–3 hours | 9 (30.0) | 21 (70.0) | 1.980 | 0.577 |
| 4–6 hours | 18 (25.4) | 53 (74.6) | | |
| 7–10 hours | 30 (32.3) | 63 (67.7) | | |
| >10 hours | 43 (35.0) | 80 (65.0) | | |
| **Regular Breaks** | | | | |
| Yes | 88 (31.5) | 191 (68.5) | 0.035 | 0.982 |
| No | 5 (33.3) | 10 (66.7) | | |
| Sometimes | 7 (30.4) | 16 (69.6) | | |
| **Smoking Status** | | | | |
| Yes (Smoker) | 19 (45.2) | 23 (54.8) | 4.203 | **0.040*** |
| No (Non-smoker) | 81 (29.5) | 194 (70.5) | | |
| **Alcohol Consumption** | | | | |
| Yes | 71 (34.3) | 136 (65.7) | 2.095 | 0.148 |
| No | 29 (26.4) | 81 (73.6) | | |
| **Regular Physical Activity** | | | | |
| Yes | 27 (27.0) | 73 (73.0) | 8.816 | **0.012*** |
| No | 33 (45.8) | 39 (54.2) | | |
| Sometimes | 40 (27.6) | 105 (72.4) | | |
| **Body Mass Index** | | | | |
| Underweight | 6 (20.0) | 24 (80.0) | 3.237 | 0.356 |
| Normal | 45 (30.2) | 104 (69.8) | | |
| Overweight | 35 (34.3) | 67 (65.7) | | |
| Obese | 14 (38.9) | 22 (61.1) | | |
| **Stress Level** | | | | |
| Low | 14 (42.4) | 19 (57.6) | 3.109 | 0.211 |
| Moderate | 32 (26.9) | 87 (73.1) | | |
| High | 54 (32.7) | 111 (67.3) | | |
| **Access to Regular Medical Check-ups** | | | | |
| Yes | 21 (27.6) | 55 (72.4) | 0.709 | 0.400 |
| No | 79 (32.8) | 162 (67.2) | | |

[c]Pearson Chi-Square. *$p < 0.05$.

Table 8b presents the association between behavioural and lifestyle variables and undiagnosed hypertension. The association between years of experience and undiagnosed hypertension was not statistically significant ($\chi^2 = 2.226$, $p = 0.328$). Respondents with 0–5 years of experience had the highest prevalence (41.0%), compared to 30.9% for those with more than 10 years and 25.7% for those with 6–10 years. Average daily working hours showed no significant association with undiagnosed hypertension ($\chi^2 = 1.980$, $p = 0.577$); the highest prevalence was found among those working more than 10 hours daily (35.0%). Regular break-taking was not significantly associated with undiagnosed hypertension ($\chi^2 = 0.035$, $p = 0.982$), with similar prevalence across all categories.

A statistically significant association was found between smoking status and undiagnosed hypertension ($\chi^2 = 4.203$, $p = 0.040$). Smokers had a higher prevalence of undiagnosed hypertension at 45.2% compared to non-smokers at 29.5%. The association between alcohol consumption and undiagnosed hypertension was not statistically significant ($\chi^2 = 2.095$, $p = 0.148$), with drinkers having a slightly higher prevalence (34.3%) than non-drinkers (26.4%). A statistically significant association was found between physical activity level and undiagnosed hypertension ($\chi^2 = 8.816$, $p = 0.012$). Respondents who engaged in no regular physical activity had the highest prevalence (45.8%), compared to those who sometimes engaged in physical activity (27.6%) and those who exercised regularly (27.0%). BMI category ($\chi^2 = 3.237$, $p = 0.356$) and stress level ($\chi^2 = 3.109$, $p = 0.211$) were not significantly associated with undiagnosed hypertension; however, obese respondents had the highest BMI-related prevalence (38.9%) and respondents with low stress had the highest stress-related prevalence (42.4%). Access to regular medical check-ups was not statistically significantly associated with undiagnosed hypertension ($\chi^2 = 0.709$, $p = 0.400$),

though respondents without access had a numerically higher prevalence (32.8%) compared to those with access (27.6%).

## SECTION G

## Comparison of Continuous Sociodemographic Variables Between Respondents with and Without Undiagnosed Hypertension

**Table 9: Independent samples t-test comparing continuous variables between respondents with and without undiagnosed hypertension**

| Variable | Prevalence of Undiagnosed Hypertension | | t test | p-value |
|---|---|---|---|---|
| | Yes (n = 100), Mean (SD) | No (n = 217), Mean (SD) | | |
| Age (years) | 48.25 (10.69) | 49.03 (12.13) | 0.550 | 0.583 |
| Household size | 5.16 (1.73) | 5.30 (2.13) | 0.573 | 0.567 |

t – independent samples t test

Table 9 presents the results of independent samples t-tests comparing continuous sociodemographic variables between respondents with undiagnosed hypertension (n = 100) and those without (n = 217). No statistically significant differences were found between the two groups for any of the continuous variables examined. The mean age of respondents with undiagnosed hypertension was 48.25 (± 10.69) years, compared to 49.03 (± 12.13) years for those without undiagnosed hypertension; this difference was not statistically significant (t = 0.550, p = 0.583). Household size was also comparable between the two groups: 5.16 (± 1.73) for those with undiagnosed hypertension and 5.30 (± 2.13) for those without, and this difference was not statistically significant (t = 0.573, p = 0.567).

## SECTION H

## Predictors of Undiagnosed Hypertension Among Respondents

**Table 10: Predictors of undiagnosed hypertension among respondents**

| Variable | B (Regression coefficient) | Odds ratio | 95% CI for OR Lower | 95% CI for OR Upper | p-value |
|---|---|---|---|---|---|
| **Age (years)** | 0.012 | 1.012 | 0.984 | 1.041 | 0.401 |
| **Level of Education** | | | | | |
| No formal education* | | 1 | | | |
| Primary | 1.263 | 3.536 | 1.087 | 11.503 | **0.036** |
| Secondary | 1.052 | 2.863 | 0.895 | 9.159 | 0.076 |
| Tertiary | 0.448 | 1.566 | 0.371 | 6.607 | 0.542 |
| **Smoking status** | | | | | |
| Smoker* | | 1 | | | |
| Non-smoker | −0.640 | 0.527 | 0.268 | 1.039 | 0.065 |
| **Engagement in Physical activity** | | | | | |
| Yes (active)* | | 1 | | | |
| No | 0.815 | 2.260 | 1.171 | 4.361 | **0.015** |
| Sometimes | 0.007 | 1.007 | 0.562 | 1.804 | 0.982 |

* Reference categories. $R^2 = 5.8 – 8.1\%$; Statistically significant at $p < 0.05$.

Table 10 presents the results of a backward stepwise (conditional) binary logistic regression model examining predictors of undiagnosed hypertension among respondents.

Age was not found to be a statistically significant predictor of undiagnosed hypertension. Specifically, a one-year increase in age was associated with a 1.2% increase in the odds of having undiagnosed hypertension (OR = 1.012); however, this relationship did not reach statistical significance (95% CI: 0.984–1.041, p = 0.401).

Level of education was a statistically significant predictor of undiagnosed hypertension in the final model. Respondents with primary education had significantly higher odds of undiagnosed hypertension compared to those with no formal education, with an adjusted odds ratio of 3.536 and a p-value of 0.036 (95% CI: 1.087–11.503). Respondents with secondary education also had higher odds relative to the no-formal-education reference group, though this did not reach statistical significance (OR = 2.863, 95% CI: 0.895–9.159, p = 0.076). Respondents with tertiary education did not differ significantly from those with no formal education (OR = 1.566, p = 0.542).

Smoking status was not a statistically significant predictor of undiagnosed hypertension in the final model (OR = 0.527, 95% CI: 0.268–1.039, p = 0.065), though the direction of the association indicated that non-smokers had lower adjusted odds of undiagnosed hypertension relative to smokers.

Physical activity level was a statistically significant predictor of undiagnosed hypertension. Respondents who engaged in no physical activity had significantly higher odds of undiagnosed hypertension compared to those who were regularly physically active, with an adjusted odds ratio of 2.260 and a p-value of 0.015 (95% CI: 1.171–4.361). Respondents who engaged in physical activity sometimes did not differ significantly from those who were regularly active (OR = 1.007, p = 0.982). Gender, marital status, religion, occupation, years of driving experience, average daily working hours, average monthly income, household size, regular break-taking, alcohol consumption, alcohol frequency, BMI category, stress level, and access to health check-ups were all excluded from the final model during backward elimination, as none met the retention threshold of $p \leq 0.10$.

# CHAPTER FIVE

# DISCUSSION

This study showed that the respondents were overwhelmingly male, and the majority were married, had secondary education, were bus drivers, had more than 10 years of work experience, and worked long hours daily. The mean age of the respondents was 50.5 ± 11.9 years, the median monthly income was ₦70,000, and the mean household size was 5.5 ± 2.1. This suggests that the study population was largely made up of older, experienced commercial drivers whose work pattern may expose them to prolonged sitting, occupational stress, and irregular health-seeking behaviour. This may be because commercial driving in this environment remains a male-dominated occupation and because financial responsibilities may encourage longer years of service and extended daily working hours. This is similar to the study in Port Harcourt among commercial drivers, where most respondents were married, most had secondary education, and more than three-quarters had been driving for over 10 years, as well as the South African logistics worker study in which the workforce was also largely male.[23,30] These findings indicate that workplace cardiovascular health programmes should be tailored to the demographic and occupational realities of this group, since their background profile already places them at increased risk of hypertension and other non-communicable diseases.

Knowledge of hypertension among the respondents was fairly good in some areas. The majority had heard of hypertension, almost all correctly identified it as high blood pressure, and most knew that it could exist without symptoms and be detected early through regular blood pressure checks. However, friends and colleagues were the commonest source of information rather than health professionals, and a few

respondents still had incorrect ideas about what hypertension meant. This may be because transport workers often obtain health information informally in the course of work rather than through organized health education or routine contact with healthcare providers. This is similar to the Lagos study among bankers and Bus Rapid Transit drivers, where awareness of hypertension was also high, although misconceptions still remained.[21] This suggests that health education among transport workers should move beyond simple awareness and focus more on accurate understanding delivered through credible sources, since poor-quality information can still encourage delayed diagnosis and weak preventive practices.

The respondents identified stress as the commonest risk factor for hypertension, while death and stroke were the most commonly identified complications, and adequate rest was the most frequently mentioned preventive measure. In contrast, fewer respondents identified overweight, high salt intake, and regular exercise as key issues. This may be because stress is a highly visible and relatable concept among commercial drivers, while other important risk factors such as obesity, poor diet, and physical inactivity are less easily recognized. This is similar to the 2020 Lagos study, where respondents showed reasonable knowledge of some risk factors and complications but still had important gaps in preventive understanding.[21] The finding points to the need for health promotion efforts to place greater emphasis on practical and modifiable risk factors such as diet, exercise, and weight control, since poor understanding of these issues can weaken prevention in a population already exposed to occupational risk.

Overall, slightly more than half of the respondents had good knowledge of hypertension, while less than half had poor knowledge. This means that although the

general knowledge level was acceptable, a large proportion of the study population still lacked adequate understanding of hypertension. This may be because awareness alone does not always translate into deeper knowledge, especially when information is obtained mainly from peers rather than structured education. This finding is lower than that of the Lagos study among bankers and Bus Rapid Transit drivers, where the knowledge score was 81.5%, suggesting better knowledge in that study population.[21] Sustained workplace education and regular screening would therefore be important in this group, because inadequate knowledge may contribute to delayed detection, unhealthy behaviours, and poor uptake of preventive care.

Nearly half of the respondents were hypertensive, while about one-quarter had undiagnosed hypertension. In addition, only a very small proportion had normal blood pressure, while almost half were prehypertensive, about one-quarter had stage 1 hypertension, and less than one-fifth had stage 2 hypertension. This may be because the respondents belonged to an occupational group characterized by prolonged sitting, work stress, irregular feeding habits, poor opportunity for exercise, and limited access to regular health checks, all of which favour elevated blood pressure. This finding is comparable to the Addis Ababa study among long-distance bus drivers, where the prevalence of undiagnosed hypertension was 22.5%, and to the Lagos study among commercial bus drivers, where overall hypertension prevalence was 35.8%.[24,26] These findings reinforce the need for regular workplace blood pressure screening and proper referral systems in motor parks and transport unions, since a high hidden burden of hypertension in active transport workers may result in major cardiovascular complications and also threaten road safety and productivity.

Among those who had taken medication for raised blood pressure, almost all reported that the drugs were prescribed by a healthcare professional. However, only about one-quarter of all respondents had ever sought medical advice after checking their blood pressure, while around 10% had consulted a traditional healer and very few were taking herbal or traditional remedies. This shows that many respondents who had some awareness of elevated blood pressure still did not proceed to formal care. This may be because blood pressure checks were often done opportunistically and without proper follow-up, or because time and financial constraints discouraged further care. This is in keeping with the West African systematic review, which reported wide gaps in awareness, treatment, and control among workers.[27] What this means in practice is that screening alone is not enough; stronger linkage to care and treatment adherence is needed, otherwise many workers will continue living with untreated hypertension.

The distribution of undiagnosed hypertension showed that one-third of the cases occurred in respondents aged 41–50 years, about one-quarter in those aged 51–60 years, and about one-fifth in those aged 31–40 years. The overwhelming majority were married, half had secondary education, two-fifths had primary education, most were bus drivers, three-quarters had more than 10 years of driving experience, and more than two-fifths worked for over 10 hours per day. This may be because transport workers in the most active working-age groups, especially those with long years on the job and extended daily hours, may feel well enough to delay routine screening, while lower educational attainment may reduce awareness and appreciation of asymptomatic disease. This is similar to the Abuja study among interstate commercial drivers, where hypertension was also more common among drivers in the active middle-age range and was linked to occupational and lifestyle factors.[29] This pattern suggests that screening should not be limited to obviously ill workers but should be

targeted at economically active drivers with long work schedules and lower educational attainment, since the burden is not evenly distributed across the workforce.

Among respondents with undiagnosed hypertension, the majority reported taking regular breaks during the day and more than two-thirds had checked their blood pressure before. However, none had ever been told that they had high blood pressure, which is consistent with the definition of undiagnosed hypertension. In addition, about two-thirds reported no symptoms, while dizziness was the commonest symptom among those who had any, followed by chest pain, blurred vision, and palpitations. This may be because hypertension often develops gradually and remains clinically silent, especially in working adults who may attribute mild symptoms to fatigue, stress, or the demands of the job rather than disease. This is comparable to the Addis Ababa study, where undiagnosed hypertension remained common despite the occupational relevance of the condition, and it also aligns with the knowledge findings in the present study, where many respondents knew that hypertension could occur without symptoms.[21,24] This underscores the importance of routine screening and counselling rather than relying on symptom-based detection, because silent cases will otherwise continue to go unnoticed until complications develop.

Among the respondents with undiagnosed hypertension, about one-fifth were smokers, the majority consumed alcohol, one-third did not engage in regular physical activity, and almost half were of normal weight while over one-third were overweight and about one in eight were obese. More than half rated their occupational stress as high, and nearly four-fifths had no access to regular medical check-ups. Among those without access, lack of time, the feeling that check-ups were not a priority, and lack of money were the commonest reasons. This points to a heavy burden of modifiable

behavioural and occupational risk factors in the study population. This may be because commercial transport work encourages sedentary living, limits time for exercise, and exposes workers to stress and unhealthy habits. This is similar to the Ibadan study among commercial drivers, where smoking, alcohol use, physical inactivity, and obesity were also common, and to the Port Harcourt study, where poor diet, low physical activity, and other risky behaviours were prominent.[25,30] The practical implication is that interventions for transport workers must go beyond diagnosis alone and include health education, affordable screening, physical activity promotion, and behavioural change support if the burden of undiagnosed hypertension is to be reduced.

At the bivariate level, none of the sociodemographic variables examined—gender, marital status, level of education, religion, or occupation—showed a statistically significant association with undiagnosed hypertension, although occupation came close to significance and higher proportions were still observed among motorcyclists, taxi drivers, and respondents with primary education. This may be because the study population was relatively homogeneous in many social characteristics, particularly gender and occupation, making it harder for strong sociodemographic differences to emerge statistically. This is similar to the Port Harcourt study, where the burden of hypertension also appeared to vary across educational and occupational groups among commercial drivers, suggesting that these characteristics may still shape who bears more of the burden even when significance is not consistently demonstrated.[30] In contrast, the Bauchi study found that male gender and job cadre were significantly associated with undiagnosed hypertension, showing that sociodemographic predictors may become more apparent in other populations with greater variation in social and occupational grouping.[46] This suggests that although the present study did not show

statistically significant sociodemographic associations, lower educational groups and certain categories of transport workers still deserve attention during screening, because social and occupational inequalities may influence who remains undiagnosed.

Behavioural and lifestyle analysis showed that smoking and regular physical activity were significantly associated with undiagnosed hypertension, whereas years of driving experience, average working hours, regular breaks, alcohol consumption, body mass index, stress level, and access to regular medical check-ups were not statistically significant. Smokers had a higher burden of undiagnosed hypertension than non-smokers, while respondents who did not engage in regular physical activity also had a clearly higher prevalence than those who exercised regularly or even occasionally. This may be because smoking tends to cluster with other harmful cardiovascular behaviours, while physical inactivity is a direct consequence of the sedentary nature of transport work. This finding is similar to the Addis Ababa study, where lack of regular physical exercise was associated with undiagnosed hypertension among long-distance drivers.[24] In contrast, studies from Zaria and Shahroud, Iran reported that factors such as duration of driving, age, sleep disorders, and body mass index were significant predictors, unlike in the present study where these variables did not show significance at bivariate level.[44,45] The implication is that workplace health policy for transport workers should focus particularly on smoking reduction and increasing opportunities for physical activity, while also recognizing that risk profiles may vary across different driver populations.

The comparison of continuous variables showed that there were no statistically significant differences in age, monthly income, or household size between respondents with undiagnosed hypertension and those without. Respondents with

undiagnosed hypertension were only slightly younger on average, had somewhat higher income, and had a similar household size to those without undiagnosed hypertension. This may be because the respondents were drawn from a relatively similar occupational group with shared social and economic characteristics. This finding contrasts with the Zaria study, where age was positively correlated with blood pressure and longer driving duration was linked to a higher risk of hypertension.[44] It suggests that, in this particular study population, the burden of undiagnosed hypertension may have been driven more by behavioural exposures than by continuous sociodemographic differences, which means screening should be offered broadly rather than restricted only to those who appear older or more economically vulnerable.

Multivariate analysis showed that age and smoking status were not significant predictors of undiagnosed hypertension in the final model, whereas primary education and physical inactivity remained significant. Respondents with primary education had over three times the odds of undiagnosed hypertension compared with those with no formal education, and those who did not engage in physical activity had a little more than twice the odds of undiagnosed hypertension compared with respondents who were physically active. Secondary education showed increased odds but did not reach statistical significance, and those who sometimes exercised were not significantly different from those who exercised regularly. This may be because lower educational status can influence health literacy and access to accurate health information, while physical inactivity directly reflects the sedentary demands of commercial driving. These findings partly support the Addis Ababa and Bauchi studies, where inadequate awareness, low physical activity, and other social factors contributed to undiagnosed hypertension.[24,46] In contrast, the Iranian study identified age, diabetes, sleep disorders,

body mass index, and years of driving as important factors, suggesting that determinants of undiagnosed hypertension may differ across settings and populations.[45] What this means for practice is that intervention should not wait until workers become obviously high risk; promoting physical activity and improving health education, especially among less educated drivers, may help reduce the hidden burden of hypertension in this group.

## CONCLUSION

Knowledge of hypertension was only fair. Although the majority had heard of hypertension and over three-quarters knew it could be detected early, only slightly more than half had good overall knowledge, while slightly less than half had poor knowledge. Important gaps still existed in understanding risk factors, complications, and prevention.

There was a high burden of hypertension and undiagnosed hypertension. Nearly half were hypertensive, while about one-quarter had undiagnosed hypertension. Only a small proportion had normal blood pressure, with almost half prehypertensive, about one-quarter at stage 1, and less than one-fifth at stage 2.

Undiagnosed hypertension was not evenly distributed. It was more common among those aged 31–40 years, those with primary education, motorcyclists and taxi drivers, those with shorter work experience, and those who worked longer hours daily.

Behavioural and occupational risk factors were common. About 10% were smokers, the majority consumed alcohol, about one-quarter were physically inactive, and over two-fifths were overweight or obese. Over half reported high work stress, while more than two-thirds had no access to regular medical check-ups.

Overall, undiagnosed hypertension is a significant problem in this group. The burden is high, knowledge is only moderate, and many workers are exposed to modifiable risk factors, highlighting the need for regular screening, targeted health education, and workplace-based interventions.

## RECOMMENDATIONS

### To the Federal Ministry of Health and Social Welfare

The Federal Ministry of Health should strengthen national policies on the prevention and control of non-communicable diseases by integrating routine blood pressure screening into existing public health programs, particularly those targeting high-risk occupational groups such as commercial drivers. There should also be nationwide health education campaigns focused on increasing awareness of hypertension, its risk factors, complications, and the importance of regular blood pressure monitoring.

### To the Federal Ministry of Transportation

The Federal Ministry of Transportation should collaborate with health authorities to organise mandatory periodic medical screening, including blood pressure checks, as part of the requirements for obtaining and renewing commercial driving licenses. This will facilitate early detection of hypertension and reduce the risk of complications among drivers.

### To the State Ministry of Health

State Ministries of Health should organize regular outreach screening programs at motor parks and transport hubs to provide free or subsidized blood pressure checks for commercial drivers. In addition, targeted health education programs should be conducted to improve knowledge and promote healthy lifestyle practices among drivers.

**To the Local Government Chairman**

Local Government Authorities should support community-level interventions by facilitating mobile health clinics and periodic screening exercises within their jurisdictions, especially in motor parks. They should also partner with local transport unions to ensure sustained health awareness campaigns and follow-up services for drivers diagnosed with hypertension.

**To Transport Unions and Companies**

Transport unions and companies should institute workplace health programs that include routine medical check-ups for drivers. They should also promote health education sessions, encourage adherence to medical advice, and create an enabling environment that supports healthier lifestyle choices, such as scheduled breaks during work and reduced work-related stress.

**To Commercial Drivers**

Commercial drivers are encouraged to engage in regular blood pressure monitoring, even in the absence of symptoms, and to seek medical attention promptly when abnormalities are detected. They should adopt healthier lifestyle practices, including reducing alcohol intake, avoiding smoking, engaging in regular physical activity, maintaining a healthy diet, and adhering to prescribed medications where necessary.

**To Healthcare Providers**

Healthcare providers should intensify efforts toward early detection and management of hypertension by encouraging routine screening, especially among high-risk groups

such as commercial drivers. They should also provide continuous education on the importance of treatment adherence and lifestyle modification.

**To Researchers**

Further studies are recommended to explore additional factors influencing undiagnosed hypertension and to assess the effectiveness of targeted interventions among commercial drivers and similar occupational groups.

## REFERENCES


1. World Health Organization. Hypertension. Geneva: WHO; 2019. Available from: https://www.who.int/health-topics/hypertension

2. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. Lancet. 2005;365(9455):217–223. Available from: https://doi.org/10.1016/S0140-6736(05)17741-1
3. Addo J, Smeeth L, Leon DA. Hypertension in sub-Saharan Africa: a systematic review. Hypertension. 2007;50(6):1012–1018. Available from: https://doi.org/10.1161/HYPERTENSIONAHA.107.09686
4. Adeloye D, Basquill C. Estimating the prevalence and awareness rates of hypertension in Africa: a systematic analysis. PLoS One. 2014;9(8):e104300. Available from: https://doi.org/10.1371/journal.pone.0104300
5. Asekun-Olarinmoye EO, Adebimpe WO, Odu OO, Asekun-Olarinmoye IT, Ojofeitimi EO. Prevalence of hypertension and its risk factors among transport workers in Ile-Ife, Nigeria. Glob J Health Sci. 2013;5(3):192–199. Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/6210
6. Vincent-Onabajo G, Adaji J, Umeonwuka C. Prevalence of undiagnosed hypertension among traders at a regional market in Nigeria. Ann Med Health Sci Res. 2017;7(2):97–101. Available from: https://www.annalshealthsci.org/text.asp?2017/7/2/97/222238
7. Gebresillassie BM, Tadesse DB, Ayele TA, Abegaz TM. Hypertension and its associated factors among long-distance truck drivers: a cross-sectional study. Integr Blood Press Control. 2021;14:1–10. Available from: https://www.dovepress.com/hypertension-and-its-associated-factors-among-long-distance-truck-driv-peer-reviewed-fulltext-article-IBPC
8. Oliveira PP, Silva-Junior JS, de Almeida PC, Rocha RM, de Araújo TM. Undiagnosed hypertension in a workplace: the case of a logistics company in Gauteng, South Africa. Int J Environ Res Public Health. 2021;18(16):8675. Available from: https://www.mdpi.com/1660-4601/18/16/8675

9. Oke JA, Popoola OI, Badaru SO, et al. Prevalence of hypertension among commercial drivers in Nigeria. Afr Health Sci. 2010;10(3):264–270. Available from: https://www.ajol.info/index.php/ahs/article/view/45415
10. Ogah OS, Rayner BL. Cardiovascular risk and hypertension in Africa: current perspectives. Heart. 2013;99(7):502–508. Available from: https://heart.bmj.com/content/99/7/502
11. Anokwuru CU, Okesina BO, Abegunde DO, et al. Hypertension and its determinants among bus drivers in Nigeria. Niger J Clin Pract. 2019;22(2):203–208. Available from: https://doi.org/10.4103/njcp.njcp_108_18
12. Nwose EU, Huo D, Young M, et al. Risk factors for undiagnosed hypertension among urban populations: implications for public health. J Hum Hypertens. 2020;34(5):350–357. Available from: https://doi.org/10.1038/s41371-020-0285-3
13. Bello AK, Lawal TA, Akinwande MO. Prevalence and pattern of undiagnosed hypertension among transport workers in Lagos, Nigeria. J Public Health Afr. 2018;9(1):123–129. Available from: https://doi.org/10.4081/jphia.2018.123
14. Adeoye AO, Oke DA, Adediran MB, et al. Lifestyle factors and cardiovascular risk among long-distance drivers in Nigeria. Afr J Med Med Sci. 2021;50(4):401–407. Available from: https://doi.org/10.4314/ajmms.v50i4.11
15. International Transport Forum. Work Conditions in the Transport Industry. OECD Publishing; 2017. Available from: https://www.itf-oecd.org/work-conditions-transport-industry
16. David Hart, Omosivie Maduka, Amarachi John, Kemdirim Chinonye, Opurum Ndubuisi, Uduak Abiasianam Hypertension: risk perception and health seeking behaviour Of long-distance drivers in Port Harcourt.
17. Casmir E Amadi, Tim P Grove, Amam C Mbakwem, Obianuju B Ozoh, Oyewole A Kushimo, David A Wood, Michael Akinkunmi; Prevalence of cardiometabolic risk factors among professional male long-distance bus drivers in Lagos, south-west Nigeria: a cross-sectional study, CARDIOVASCULAR JOURNAL OF AFRICA • Volume 29, No 2, March/April 2018
18. Mohammed Ebrahim Rike, Mengistie Diress , Baye Dagnew , Mihret Getne ,Abbul Hasano Kebalo, Derese Sinamaw Damtew Solomon, Yonas

Akalu; Hypertension and Its Associated Factors Among Long-Distance Truck Drivers in Ethiopia

19. 19. Narang B, Mirpuri S, Kim SY, Akhtar S, Kopelovich R, Shin AS, et al. Lurking in plain sight: Hypertension awareness and treatment among New York City taxi/for-hire vehicle drivers. J Clin Hypertens (Greenwich). 2020;22(6):962-9. Available from: https://pubmed.ncbi.nlm.nih.gov/32436644/
20. Adal AB, Kassa RN, Habte MH, Jebesa MG, Ademe S, Tiruneh CT, et al. Undiagnosed hypertension and associated factors among long-distance bus drivers in Addis Ababa terminals, Ethiopia, 2022: a cross-sectional study. **PLoS One.** 2024;19(2):e0292890. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0292890
21. Joda A, Olugbake O, Ogunmoyole A. Knowledge and practice of selected bankers and drivers in Lagos State about hypertension. **Afr J Pharm Res Dev.** 2020;12(2):181-92. Available from: https://ajopred.com/wp-content/uploads/2020/08/AJOPRED-122-Aritcle-06.pdf
22. Adebanjo MA, Oluwasanu MM, Arulogun OS. Hypertension knowledge and willingness of government officials in a southwestern Nigerian city to self-monitor blood pressure. **Int Q Community Health Educ.** 2019;40(1):39-46. Available from: https://pubmed.ncbi.nlm.nih.gov/31216257/

23. Undiagnosed Hypertension in a Workplace: The Case of a Logistics Company in Gauteng, South Africa. ResearchGate [Internet]. 2024 Dec 9 [cited 2025 Jan 9]; Available from: https://www.researchgate.net/publication/353584488_Undiagnosed_Hypertension_in_a_Workplace_The_Case_of_a_Logistics_Company_in_Gauteng_South_Africa

24. Undiagnosed hypertension and associated factors among long-distance bus drivers in Addis Ababa terminals, Ethiopia, 2022: A cross-sectional study - PubMed [Internet]. [cited 2025 Jan 15]. Available from: https://pubmed.ncbi.nlm.nih.gov/38359046/

25. Odeyinka OT, Ajayi IO. Prevalence of hypertension and diabetes and their determinants among commercial drivers in Ibadan metropolis, South-Western Nigeria. Niger J Cardiol. 2017 Dec;14(2):75.

26. Olatona FA, Abiola AO, Alomaja OJ, Amira CO, Odugbemi TO, Akodu BA, et al. Prevalence of hypertension and obesity among intercity commercial bus drivers in Lagos State, Nigeria. 2017 [cited 2025 Jan 11]; Available from: https://ir.unilag.edu.ng/handle/123456789/9233

27. Hasan MM, Tasnim F, Tariqujjaman M, Ahmed S, Cleary A, Mamun A. Examining the prevalence, correlates and inequalities of undiagnosed hypertension in Nepal: a population-based cross-sectional study. BMJ Open. 2020;10:e037592.

28. Bhatia M, Dixit P, Kumar M, Dwivedi LK. Comparing socio-economic inequalities in self-reported and undiagnosed hypertension among adults 45 years and over in India: what explains these inequalities? Int J Equity Health. 2023;22:26.

29. Nwoga HO, Ajuba MO, Igweagu CP. Prevalence of undiagnosed hypertension among staff of a tertiary institution in Enugu State, Nigeria. Ann Clin Biomed Res. 2023;4:331.

30. Anuli I, Jideuma E, Frank O, Chinonye O, Chiagozie N, Hope I, Victor D. The burden of undiagnosed hypertension and associated risk factors among adults in a rural community in Imo State, South-East Nigeria. Int J Clin Med. 2024;15:101-122.

31. Setorglo J, Abban A, Steiner-Asiedu M, Gorleku P, Egbi G, Christiana, et al. The prevalence and predictors of undiagnosed hypertension among commercial long-distance bus drivers (CLDBs) in cape coast, ghana. 2020;4:73–81.

32. Abdulrasheed MM, Bosan IB, Agbaji O, Ibrahim A. Factors Associated with Hypertension among Commercial Motor Drivers in Zaria, Nigeria. J Med Basic Sci Res. 2021 ;2(1):91–7.

33. ResearchGate [Internet]. 2024 [cited 2025 Jan 10]. (PDF) Prevalence of hypertension and its associated factors among professional drivers: a population-based study. Available from: https://www.researchgate.net/publication/362718507_Prevalence_of_hypertension_and_its_associated_factors_among_professional_drivers_a_population-based_study

34. Bappah BS, Shittu A, Usman JS, Nuhu JM, Sumaila FG, Ahmad AA, et al. Prevalence and correlates of undiagnosed hypertension among staff of a Nigerian university community. Pan Afr Med J [Internet]. 2022 May 31 [cited 2025 Jan 15];42(80). Available from: https://www.panafrican-med-journal.com//content/article/42/80/full

35. Edo State Ministry of Arts, Culture, Tourism & Diaspora Affairs https://edostateministryofartsandculture.wordpress.com/edo-state/
36. Geotechnical Mapping of Benin City and Its Environs https://ngsa.gov.ng/geotechnical-mapping-of-benin-city-and-its-environs/ African American History contributed by Ayodele Braimah
37. https://www.blackpast.org/global-african-history/benin-city-nigeria-10th-century/
38. Assessment of the Urban Climate of Benin City, Nigeria by A. Okhaku. Journal of Environment and Earth Science www.iiste.org ISSN 2224-3216 (Paper) ISSN 2225-0948 (Online) Vol.6, No.1, 2016
39. Akinpeloye OO, Onoja AO, Alabi AA. Determinants of hypertension among transport workers in Ibadan, Nigeria: a structural equation modeling approach. J Hum Hypertens. 2025;39(1):1-12. Available from: PubMed Central
40. National Center for Health Statistics. National Health and Nutrition Examination Survey (NHANES): blood pressure procedures manual [Internet]. Hyattsville (MD): Centers for Disease Control and Prevention; 2019 [cited 2026 Apr 19]. Available from: https://wwwn.cdc.gov/nchs/data/nhanes/public/2019/manuals/2019-Blood-Pressure-Procedures-Manual-508.pdf
41. National Center for Health Statistics. National Health and Nutrition Examination Survey (NHANES): anthropometry procedures manual [Internet].

Hyattsville (MD): Centers for Disease Control and Prevention; 2021 [cited 2026 Apr 19]. Available from: https://wwwn.cdc.gov/nchs/data/nhanes/public/2021/manuals/2021-Anthropometry-Procedures-Manual-508.pdf

42. World Health Organization. Moderate and severe thinness, underweight, overweight, obesity [Internet]. Geneva: World Health Organization; [cited 2026 Apr 19]. Available from: https://apps.who.int/nutrition/landscape/help.aspx?helpid=420&menu=0

43. National High Blood Pressure Education Program. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Bethesda (MD): National Heart, Lung, and Blood Institute (US); 2004 Aug. Classification of Blood Pressure. Available from: https://www.ncbi.nlm.nih.gov/books/NBK9633/

44. World Health Organization. Moderate and severe thinness, underweight, overweight, obesity [Internet]. Geneva: World Health Organization; [cited 2026 Apr 19]Available from:https://apps.who.int/nutrition/landscape/help.aspx?helpid=420&menu=0

45. Sani MU, Wahab KW, Yusuf BO, Gbadamosi M, Johnson OV, Gbadamosi A. Prevalence and risk factors for hypertension among commercial drivers in Zaria, Nigeria. Niger J Clin Pract. 2019;22(3):350–356.

46. Malekzadeh MM, Etemadi A, Pourshams A, Sepanlou SG, Poustchi H, Esmaili S, et al. Undiagnosed hypertension and associated factors among drivers in Shahroud, Iran: a cross-sectional study. BMC Public Health. 2018;18:1151.

47. Sulaiman SK, Isezuo SA, Anka AU, Ibrahim MT, Waziri AM. Prevalence and determinants of undiagnosed hypertension in an adult population in Bauchi, Nigeria. Sahel Med J. 2020;23(2):92–98.

## APPENDIX

## QUESTIONNAIRE

**Section A: Socio-Demographic Data**

1. Age: ___ (years)

2. Gender: ☐ Male ☐ Female ☐ Other

3. Marital Status: ☐ Single ☐ Married ☐ Divorced ☐ Widowed

4. Level of Education: ☐ No formal education ☐ Primary ☐ Secondary ☐ Tertiary

5. Ethnicity: ☐ Bini ☐ Esan ☐ Igbo ☐ Yoruba ☐ Other (specify) _____

6. Religion: ☐ Christian ☐ Islam ☐ ATR ☐ Other (specify) _____

7. Marital Status: ☐ Single ☐ Married ☐ Divorced ☐ Widowed

8. Occupation: ☐ Bus driver ☐ Taxi driver ☐ Truck driver ☐ Motorcyclist ☐ Delivery personnel ☐ Others (Specify)

9. Years of experience in transport and logistics: ___ years

10. Average working hours per day: ___ hours

11. Average monthly income _____

12. Household size _____

**Section B: Knowledge of Hypertension**

13. Have you heard of hypertension (high blood pressure)? ☐ Yes ☐ No

14. Where do you get information about hypertension? ☐ Health professionals ☐ Social media ☐ Friends/Colleagues ☐ Television/Radio ☐ Others (Specify)

15. What do you understand by Hypertension? ☐ Hypertension (high blood pressure) is when the pressure in your blood vessels is too high (140/90 mmHg or higher). ☐ It is a highly infectious disease ☐ It can be treated with Drugs ☐ It is caused by Mosquitoe bites (Multiple answers)

16. Do you know that hypertension can exist without symptoms? ☐ Yes ☐ No

17 Do you know that Hypertension can be diagnosed early by regularly checking your blood pressure?

18 Have you ever checked your blood pressure? ☐ Yes ☐ No

19. If yes, how often do you check?

☐ Monthly ☐ Every 3-6 months ☐ Once a year ☐ Rarely ☐ Never

20 Do you know the risk factors for hypertension? ☐ Yes ☐ No

21. If yes, which of the following do you think are risk factors? (Tick all that apply)

☐ Smoking ☐ Excess alcohol intake ☐ Lack of exercise ☐ High salt intake

☐ Stress ☐ Family history ☐ Being overweight ☐ Don't know

22. Are you aware of the complications of hypertension ?

23. If yes, ☐ Heart attack ☐ stroke ☐ Lack of exercise ☐ Diabetes

☐ renal failure

24. Do you know that Hypertension can be controlled? ☐ Yes ☐ No ☐ Not sure

25. Do you believe hypertension can be prevented? ☐ Yes ☐ No ☐ Not sure

If yes How can hypertension be prevented? ☐ Healthy diet ☐ regular exercise ☐ Adequate rest ☐ Low salt intake (multiple answers)

**Section C: Prevalence of Undiagnosed Hypertension**

26. Have you ever had your blood pressure measured by a doctor or other health worker? ? ☐ Yes ☐ No

27. If yes, when was the last time you checked your blood pressure? ☐ a Month ago ☐ less than 6 months ☐ lass then a year ☐ more than a year

28. How often do you check your blood pressure ☐ Monthly ☐ Every 3-6 months ☐ Once a year ☐ Rarely ☐ Never

29. Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension? ☐ Yes ☐ No

30. Where you first told in the past 12 months? ☐ Yes ☐ No

31. In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker?

32. If yes, was it prescribed by a healthcare professional?

33. Have you ever sought medical advice after checking your blood pressure? ☐ Yes ☐ No

34. Have you ever seen a traditional healer for raised blood pressure or hypertension?

35. Are you currently taking any herbal or traditional remedy for your raised blood pressure?

36. Do you experience symptoms such as headaches, dizziness, or blurred vision? ☐ Yes ☐ No

37. Does any of your relatives have Hypertension? ☐ Yes ☐ No

**Section D: Pattern of Undiagnosed Hypertension**

38. Age: _____

39. Sex: ☐ Male ☐ Female

40. Marital Status: ☐ Single ☐ Married ☐ Divorced ☐ Separated ☐ Widowed ☐ Cohabiting

41. Level of Education: ☐ No formal education ☐ Primary ☐ Secondary ☐ Tertiary

42. Type of Work: ☐ Bus driver ☐ Taxi driver ☐ Truck driver ☐ Other: _____

43. Years of Experience: ☐ Less than 5 years ☐ 5–10 years ☐ 11–15 years ☐ Greater than 15 years

44. Average Hours Worked Per Day: ☐ Less than 8 hours ☐ 8–10 hours ☐ Greater than 10 hours

45. Do you take regular breaks during the day? ☐ Yes ☐ No☐ Sometimes

46. Have you ever checked your blood pressure? ☐ Yes ☐ No

47. If yes, how often?

☐ Weekly

☐ Monthly

☐ Every 6 months

☐ Only when sick

☐ Other: _____

48. Have you ever been told you have high blood pressure? ☐ Yes☐ No

49. If yes, are you on any medication? ☐ Yes ☐ No

50. Do you experience any of these symptoms? (Tick all that apply)

☐ Dizziness

☐ Chest pain

☐ Palpitations

☐ Blurred vision

☐ None

**Section E: Factors affecting the Prevalence of Hypertension**

51. Factors affecting prevalence of Hypertension? Do you smoke? ☐ Yes☐ No

52. If yes, how many per day? _____

53. Do you drink alcohol? ☐ Yes ☐ No

54. If yes, how often? ☐ Regularly ☐ Occasionally ☐ Daily

55. Do you engage in regular physical activity? ☐ Yes ☐ Sometimes ☐ No

Weight (kg): _____

Height (m): _____

BMI: _____

6. How would you rate the stress level of your work? ☐ Low ☐ Moderate ☐ High

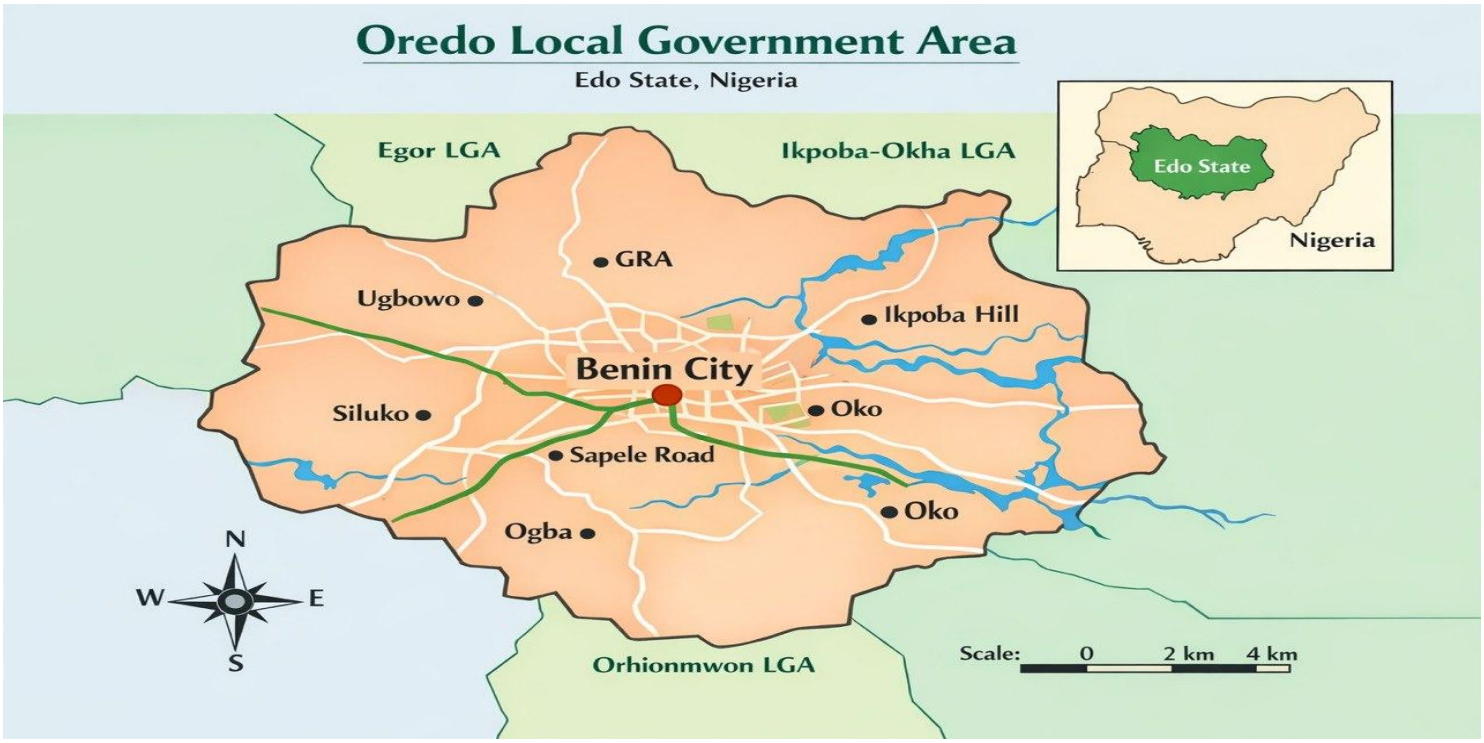
57. What are your common stress triggers? ☐ Traffic congestion ☐ Long working hours ☐ Financial pressures ☐ Family issues ☐ Poor road conditions ☐ Other

58. Do you have access to regular medical check-ups ☐ Yes ☐ No

59. If no, what is the main reason? ☐ Lack of time ☐ Lack of money ☐ Not a priority

☐ No nearby health facility Other_____

**MAP OF OREDO LOCAL GOVERNMENT AREA**



**MAJOR MOTOR PARKS IN OREDO LOCAL GOVERNMENT AREA**

1. Benin Central Park / Central Motor Park
2. New Benin Motor Park
3. Ring Road Motor Park
4. Bob Izua Motor Park