Primary Healthcare System and Management of Cardiovascular Disease

Risk Factors in Plateau State: An Assessment

Gladys I. Ahaneku

PRIMARY HEALTHCARE SYSTEM AND MANAGEMENT OF CARDIOVASCULAR DISEASE RISK FACTORS IN PLATEAU STATE: AN ASSESSMENT

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Published by the National Institute for Policy and Strategic Studies (NIPSS) Kuru, 2025. info@nipsskuru.gov.ng

Permission has been granted by the management of the National Institute, Kuru, for the publication of this work which was originally submitted as an individual research project for the Senior Executive Course, in partial fulfilment of the requirements for the award of Member of the National Institute (mni).

ISBN: 978-978-198-170-8

Dedication

To my father and friend, Chief Onyia Agada, who bid me farewell as I was going to NIPSS for the Senior Executive Course but it pleased God to call him home on September 22, 2020 and my parents-in-law of blessed memory; Chief (Sir) Lazarus Ihesiaba Ahaneku (KSM) and Lolo (Lady) Elizabeth Adaure Ahaneku (LSM), especially my father-in-law who kept looking forward to my Professorship.

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Foreword

Prof Gladys Ifesinachi Ahaneku, mni, studied Medicine at Nnamdi Azikiwe University Medical School, where she obtained her MBBS degree. She is a Fellow of the West African College of Physicians (FWACP) and the Medical College of Physicians (FMCP) with a subspecialty bias in Cardiology.

She is a Professor of Medicine and currently, the Dean of the Faculty of Medicine at Nnamdi Azikiwe University, Nnewi Campus, Nigeria, and a Consultant Physician/ Cardiologist at the Nnamdi Azikiwe University Teaching Hospital, Nnewi. Her major areas of research interest include: clinical epidemiology, genesis of chronic medical diseases/ Clinical Cardiology.

She has forty-one journal articles and four book chapters and has been a guest lecturer to so many organisations and scientific meetings. She has supervised/ co-supervised to the completion, one master's and three PhD Theses, one Fellowship of the West African College of Pharmacists, and five Postgraduate Medical Fellowship Dissertations, with five others still ongoing.

An examiner to the West African College of Physicians at both the Junior and Senior Residency levels, Prof Gladys is a member of the Editorial Committee of four journals and reviews articles for four other journals.

She is happily married to Professor Joseph E. Ahaneku, a researcher and professor of Chemical Pathology, a Fellow of the Academy of Science (FAS), and former Vice-Chancellor of Nnamdi Azikiwe University, Awka, Nigeria. She is a mother of four handsome boys and a dazzling daughter

Prof Gladys attended the National Institute for Policy and Strategic Studies (NIPSS), Kuru, as a member of the senior Executive Course 42, 2020, sponsored by the National Universities Commission (NUC) during the tenure of Prof. Abubakar Adamu Rasheed, mni**,** as the Executive Secretary. True to her Passion/ research inclination, her research during that policy and strategic

course assessed the Primary Healthcare System and Management of Cardiovascular Disease (CVD) Risk Factors in Plateau State.

The findings and recommendations of that research work are vital and capable of improving the PHC policy implementation strategy in the state and, by extension, other states with similar attributes, thereby positively impacting the outcome of CVDs in general and, in particular, CVD risk management at the grassroots. I strongly recommend this book to government officials/ policy makers as well as doctors and all those involved in healthcare delivery and management, especially at the PHC level, to acquaint themselves with recommendations that will be relevant in mitigating the challenges of CVD risk management.

Prof. Abubakar Adamu Rasheed, FNAL, MFR, mni

Preface

Globally, cardiovascular diseases (CVDs) and the risk factors associated with them are the leading causes of morbidity and mortality from non-communicable diseases (NCDs), developing nations like Nigeria, inclusive. Several studies have shown that the prevalence of CVD risk factors is increasing in various communities in Nigeria.

In terms of risk factor management and prevention, PHC centres play an indirect role in managing these CVDs. The primary health care (PHC) system is responsible for promoting community-level prevention, detection, and control of these risk factors. In developed nations where all health indices rank extremely high, the PHC system is primarily responsible for managing CVD risk factors. However, due to inadequate implementation of policies, plans, and systems for sustainable PHC, which, over time, should have had a positive impact on a number of diseases, including CVDs and their risk factors in developing nations like Nigeria, the PHC system has recorded below-target results.

As a result, the PHC system cannot be trusted to safeguard human health at its current operational level in Nigeria, particularly concerning the management and prevention of risk factors for CVDs. The state of the underperforming PHC system and its impact on the management of CVD risk factors in the current dispensation is yet to be fully examined in recent researches. Therefore, it is crucial to investigate whether Nigeria's rising CVD morbidity and mortality are related to the country's poor PHC performance. Individual studies of Nigeria's various states could be conducted, and the results compiled to depict the situation nationwide. So, this study closes the gap, particularly with regard to Northern Nigeria's Plateau State.

This retrospective study evaluated the PHC system and management of CVD

risk factors within a decade (2010 to 2019); with an emphasis on Plateau State; one of the first states that adopted the "PHC Under One Roof" (PHCUOR) in the country.

Twelve PHC centres; two from each of six selected Local Government Areas (L.G.As), were chosen from among the three senatorial districts to ensure coverage of the entire state.

According to earlier research in Northern Nigeria, PHC staff members' knowledge and practices regarding the identification, prevention, counselling, management and referral of patients with CVD risk factors were inadequate and suboptimal. In contrast to that study, this one found that in the great majority of cases, patients seen at the PHC centres were referred to bigger health facilities, and reasons for the referrals were communicated. Despite out-of-pocket payment and lack of ambulances at the PHC centres, the patients complied. Thus, the findings of this showed an improvement in risk factor identification, counselling and patient referral compared to the findings of previous researchers.

However, this study is similar to that of previous researchers in that worker training and retraining were inadequate, and management of CVD risk factors was suboptimal.

It is unimpressive that PHC workers' training and retraining have not improved despite 20 20-year gap between the studies carried out in two distinct Northern states (this study and the one referred to). Hence, this finding is extremely important and relevant to policy.

Enhancing PHC management of CVD risk factors would have significant advantages for preventing CVDs and the associated mortality in several areas. This study is pertinent to the Federal Ministry of Health because it draws attention to the shortcomings in managing CVD risk factors at the PHC level and the drawbacks to lowering CVD morbidity and mortality in general. It also promotes recommendations and implementation strategies to fortify and solidly integrate the PHC system in the management of CVD risk factors. Additionally, it will encourage more research and add to the body of knowledge already available regarding managing CVD risk factors in the PHC setting.

Acknowledgment

I am profoundly grateful to Prof Rasheed Abubakar, mni, the Executive Secretary of the National Universities Commission (NUC), Abuja; my sponsor to the Senior Executive Course (SEC) 42, 2020, of the National Institute for Policy and Strategic Studies, Kuru, for counting me worthy of nomination for this prestigious programme. I appreciate Mr. Chris Maiyaki, Alhaji Ibrahim Yakasai and all members of the NUC "family" who played one role or the other in facilitating my nomination, selection and sponsorship to NIPSS. I will forever cherish this honour and will consciously carry this "mni" with dignity and serve the country and humanity with every sense of responsibility wherever I find myself.

May God grant eternal rest to Prof. Habu Shuaibu Galadima; the then Director General of NIPSS who passed on barely one week after my set left. I remain grateful to him and the entire management of NIPSS for endorsing my nomination as participant of the prestigious Senior Executive Course of the National Institute. I am equally thankful to the then Vice-Chancellor of Nnamdi Azikiwe University (NAU), Awka, Prof Charles O. Esimone, FAS, and the then Chief Medical Director of Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, Prof Anthony Igwegbe, for releasing me from my work places to be able to attend that course.

I am also thankful to Prof Aremu Fatai Ayinde who supervised this research work and barely allowed my manuscripts to "hit" his e-mail box before my phone beeped to announce the arrival of his comments a few hours later. I pray for peaceful rest of Prof William who passed on after I left NIPSS. I cannot forget him, Dr Ogbonnaya and all the directing staff of NIPSS for their tutelage, encouragement, guidance and warm treatment I received from them during this course.

To my fellow participant, Mr. Moses Mwan, Permanent Secretary from Plateau State, I am immensely grateful for making out time to personally take me to all the key informants I interviewed for my Research. To all my other fellow participants of SEC 42, 2020, I am immensely grateful for the brotherly love, fellowship and conviviality we shared. I thank the members of Group 6 for giving me the opportunity to serve as treasurer/ finance officer. I cherished the rib-cracking jokes and the good times we all spent together during our study group meetings; thus, making my stay in NIPSS memorable.

I appreciate the efforts and sacrifices of Mr. Joseph Itse who assisted me with the administration of the questionnaire and typesetting/ formatting of this work as well as Mr. Henry who assisted me in the data analysis and Mr. Gambul Cornelius, Study group 6 Secretary, for being there each time I needed his assistance in secretarial duties. The Directing Staff of study group 6 at different times, I appreciate for the impact they made in my life individually. These included: Dr. I.D. Choji, mni, AIG Abubakar Haliru Gwandu, mni, DIG Oyebade Oyeleye, mni, and Prof. Musa Ena of blessed memory.

Special gratitude goes to my most beloved uncle-in-law and head of the Ahaneku dynasty, Pastor Anthony Ahaneku, his wife, Mrs Lizzy Ahaneku and my beloved sisters, Mrs. Geraldine Ogoegbulem, Mrs. Mabel Nzewi and Dr. Mrs. Yvonne Ebere Ihegihu, for their immeasurable love and prayerful support. While praying for my Father; Chief Onyia Agada and my parents-in-law to continue to rest in peace, I appreciate my mother, Mrs Nwazuluoke Onyia, my siblings and siblings-in-law for always being there for me.

To my darling husband and best friend, Prof. Joseph Eberendu Ahaneku, FAS; an indescribably unique and caring husband and father, I cannot be grateful enough. I am deeply indebted to him and our lovely children; Dr. Chibueze, Dr. Chinaza, Bar. Chimeremeze, Chukwumaijem and Chijindum, for always being there for me. They sacrificed; while the Senior Executive Course lasted, the time I should have spent with them during the lockdown occasioned by the Corona Virus pandemic. They have remained my backbone.

Finally, I sing an everlasting song of praise and thanksgiving to the only true and merciful God Almighty for seeing me through that programme. Amen.

Gladys I. Ahaneku, mni

Chapter 1

Introduction and General Overview of Primary Healthcare System and Management of Cardiovascular Disease

Primary health care (PHC) is designed to be the first point of contact for the main health problems in a community (WHO, 1978). The value of the PHC system is underscored by its principles which include: essential health care, community participation, equity, inter-sectoral collaboration, and use of appropriate technology to provide services to the majority of the people based on needs without geographical, social or financial constraints.

PHC plays an important role in the detection, treatment, and monitoring of patients with raised risk of cardiovascular diseases (CVDs) which has become the number one cause of death in developing countries. Eighty per cent of CVDs occur in low- and middle-income countries (LMIC). Those in their prime working years tend to be disproportionately affected with resultant high socio-economic burden; usually worse among the poor and disadvantaged group (Vijver et al., 2013; WHO, 2016; Omogbolagun, 2020). Whereas death rate from CVDs has been declining in most developed countries since the 1970s, death at any given age from CVDs is currently more common and increasing in many developing countries (Lee et al., 2016). Many Nigeria citizens have, in recent times, died suddenly from CVDs with Nigeria ranking 90th out of 192 countries in the world age adjusted death rate for non-communicable diseases (NCD) (WHO, 2017).

In fact, in the last two decades, interventions targeted at CVD risk factors significantly reduced deaths from CVDs in developed countries like Western Europe, Canada and America. Actually, in many European countries, the PHC physician is involved in the detection and management of patients at increased risk, particularly patients with cardiovascular conditions (e.g. hypertension, peripheral vascular diseases, etc.). He also plays role in the rehabilitation and prevention of further events in patients who have had cardiovascular events (e.g. myocardial infarction, stroke, etc). In the United

Kingdom (UK), PHC accounts for 80 per cent of patient consultations with the National Health Service (Phillips and Bazemore, 2010).

In developing countries like Nigeria, the contrary seems to be the case as the role of PHC can be said to have been inconsistent. In Northern Nigeria and Plateau state in particular; just as in all the other states in the country, the problem of poor PHC policy implementation has been a major issue. CVD risk factors are present and even rising in Nigeria with Northern states including the Plateau said to have PHC workers with poor and suboptimal knowledge and practice on detection and management of CVD risk factors (Awosan, et al, 2001; Tagurum, et. al., 2015). However, the Nigerian government is said have become more committed to strengthening PHC services delivery to ensure better access and coverage (Christian Aid, 2015). That commitment is articulated in several frameworks which among others include the National PHC Development Agency (PHCDA) Ward Minimum Health Care Package (Udomoh Eshemokha, 2019).

Over the years, the commonest causes of admission and death in tertiary hospitals in Nigeria are CVDs (Osuji C., 2012; 2014). In order to improve the mortality and morbidity of CVD and its risk factors in Plateau State specifically and Nigeria generally, the gap between the vast knowledge about prevention/ treatment of CVD and what currently obtains in that regard needs to be addressed. Since optimal control of CVD risk factors ultimately results in prevention of CVDs (Nigeria Health Watch, 2016), tackling the CVD risk factors would ultimately reduce the socio-economic consequences and the burden of CVDs on the tertiary health facilities.

Investigation Focus

In the developed countries where all the health indices rank very high, the management of CVD risk factors rests majorly on the PHC system. In developing countries like Nigeria, poor performance of the PHC system has over the years challenged its capacity to manage several diseases including CVD risk factors. Both the federal and state governments in Nigeria have several policies, plans and systems for sustainable PHC which should have impacted positively on CVDs management. However, poor implementation (Steven et al., 2013) had, over the years, resulted in outcomes that are below the target in many states in Nigeria including Plateau State. In fact, one study in Northern Nigeria showed that the knowledge and practice of PHC workers on detection and management of CVD risk factors was poor and suboptimal (Awosan, et al, 2001). Thus, the PHC system cannot be relied upon at its current operational level to protect

human health especially as regards prevention/ management of CVDs risk factors. Hence, the increased burden of CVDs on the tertiary hospitals may not be far from this. Whether the poor PHC performance has a relationship with increasing CVD morbidity and mortality in Nigeria needs to be examined. Hence, this book assessed the PHC system and management of CVD risk factors with a focus on Plateau State.

Which inquiries lay the groundwork for examination and analysis in the book?

The book sought to investigate and respond to the following inquiries:

a. What is the current state/ capacity of the PHC system in detecting and managing CVD risk factors in Plateau State?

b. What CVD risk factors are commonly seen at the PHC centres in Plateau State?

c. What are the challenges of PHC system in detecting and managing CVD risk factors in Plateau State?

d. What recommendations and implementation strategies can improve the contribution of PHC system in the management of CVD risk factors in Plateau State?

Scope of the study

The study focused on the period 2010 to 2019. This period was chosen because it was the period that has witnessed existence of PHCUOR in the country and the state. To cover all parts of the state, the study was carried out in all the three senatorial districts; 12 PHC centres selected from six LGAs (two from each of the six).

Limitations of the study

Insufficient data and information from relevant agencies involved in Plateau State limited the scope of this research on CVD management. Some of the information requested from some units/ Departments could not be supplied (Appendix 6). This was due to poor record keeping as well as sensitivity of such data. However, that constraint was mitigated by complementing data generated from the primary sources with data from secondary sources including the internet, books and other published materials.

Only 12 out of the 952 public PHC centres in the state were studied due to logistic reasons occasioned by the Covid-19 Pandemic lockdown.

Significance and Policy Relevance of the study

CVDs, the emerging number one cause of non-communicable diseases (NCD) death in developing countries like Nigeria, are often treated by the bigger sector hospitals like the tertiary and secondary hospitals. PHC centres have an indirect role in handling these CVDs as pertains prevention and management of the risk factors. Generally speaking, improving PHC management of CVD risks factors would provide substantial benefits in different areas for prevention of CVDs.

Many studies (WHO, 2019; Gheorghe, et al., 2018 Tagurum, et. al., 2015) had demonstrated rising prevalence of CVD risk factors in different communities in Nigeria including Plateau State. The PHC system which prerogative it is to champion prevention, detection and control of these risk factors at the community level has performed below the desirable in Nigeria. No recent studies have interrogated the situation surrounding the poorly performing PHC system and how it affects the management of CVD risk factors in the current dispensation. This study fills the gap. It also advances recommendations and implementation strategies to strengthen and firmly integrate the PHC system in the management of CVD risk factors. The study is, therefore, relevant to the Federal Ministry of Health as well as the Plateau State government for efficient handling of risk CVD risk factors. Furthermore, the study contributes to the existing body of knowledge about handling of CVD risk factors in the PHC setting as well as stimulate further research.

Conceptual Clarifications

Primary Health Care (PHC) System

PHC, according to Christian Aid (2015), is the first point of contact between a community and its country's health system. Alenoghena (2014), on the other hand, sees PHC as conceptualised by the Ama Ata declaration of 1978; a grass-root approach towards universal and equitable health care for all (World Health Organisation-United Nations Children Fund, WHO-UNICEF, 1978). In the same vein, PHC, according to Aigbiremolen, et. al. (2014) is a grass-root management approach to providing health care services to communities. He opined that since the concept was first published in 1978, various countries have attained different levels of progress in implementing PHC. Given the above contextualisation of PHC as encapsulated by the authors, the context postulated by Aigbiremolen, et. al. (2014) is considered as best suitable for this study and is hereby adopted because PHC system in Nigeria has over the years undergone so many modifications of implementation strategies.

Cardiovascular Diseases (CVD) Risk Factors

CVDs are diseases that involve the heart or blood vessels (Mendis et al., 2011) and include: coronary heart disease (such as heart attack), stroke, heart failure, hypertensive heart disease, rheumatic heart disease, heart muscle disease, abnormal heart rhythms, peripheral artery disease, heart valve disease, among others (Mendis, et al., 2011; The Lancet, 2015). Conditions that cause or predispose someone to having CVDs are known as CVD risk factors and include: hypertension (the commonest in Nigerians), high blood cholesterol, diabetes mellitus and their associated factors such as obesity, smoking, sedentary lifestyle, excessive alcohol intake, excessive salt intake, family history etc. These risk factors cannot be transferred from person to person and are collectively termed non-communicable diseases (NCDs). The CVD risk factors which management by the PHC system was considered in this study are hypertension, diabetes mellitus and high blood cholesterol since they are the ones mostly directly associated with CVD.

Disease Management

Disease management is a health care approach involving a group of harmonised interventions and education for patients with health conditions requiring self-care (Care Continuum Alliance, 2020). It involves combined (drug and no-drug/ life style modification) approach. With this healthcare approach, patients learn to take care of chronic diseases they are suffering from. They get a grasp of how to avoid things/issues that will worsen their health problem and indulge in ones that will improve them (Torrey, 2020). The idea of getting patients to learn how to manage their health conditions emanated from the quest to have the quality of their health care improved. For the purposes of this study, CVD management was taken as drug and non-drug approaches to handling hypertension, diabetes and high blood cholesterol.

Theoretical Framework

The theoretical framework of this study is based on the community diagnosis model which recognises three stages in preventive health programmes (descriptive, analytical, and health action). This model was fashioned using outcome of the association between the Community Health Unit at the local government level and PHC in Sweden during the 1970s. The district physician made use of information gathered from community diagnosis in his daily work. The concept is that the more the knowledge the physician has about the most prevalent diseases (like hypertension and diabetes) in the health care centre where he works in the community, the better his organisation of

treatment of these diseases. Awareness of personal and environmental health risk factors also enhances his participation in discussing with people in the community and in prevention planning (Haglund, 1983). This model suits this study because this study focuses on finding out the extent to which PHC centres are involved in CVD prevention. PHC centres are also supposed to be community based and should be concerned with CVD prevention through CVD risk factors management.

Methodology

Research Strategy

The research strategy adopted by this study was mixed approach. This enabled the researcher to collect, analyse and integrate qualitative and quantitative data. The rationale for adopting this mixed method was to guide the study in answering its research questions and consequently help in expanding and strengthening its conclusions and recommendations.

Research Design

The study adopted a cross sectional research design using field survey and interview to source both quantitative and qualitative data.

Study Population and Sampling Technique

The six LGAs studied had a total of 323 PHC centres (Jos North; 38, Barkin Ladi; 60, Mangu; 69, Wase; 51, Shendam; 52 and Kanam; 53). The study population was made up of workers in PHC facilities, patients accessing the care, their relatives, and some workers in the WHO office in Plateau State. According to data obtained from the statistics unit of the PHCDB, the total population of workers in the PHC centres in the seventeen local government areas LGAs of the state was 4928; an average of 290 per LGA. Based on this, the six LGAs studied would have about 1,740 workers. Sharing this number among the three senatorial zones of the state amounts to 580 workers. Applying the Taro Yamane formula for sample size calculation for 580, an approximate value of 237 was gotten (Appendix V). Hence, a total of 250 respondents were selected by non-probability sampling technique across the study population in the 12 PHC centres and the offices visited. Similarly, a total of 5 respondents were selected using non-probability sampling technique for the administration of in-depth-interviews across the senior officers of the Plateau State Health Service.

There are a total of 17 local government areas (LGAs) and a total of 1074 PHC centres (952, public and 122, private) in the three senatorial districts of the state. Six LGAs and the 12 PHC centres (two from each of the six LGAs) studied

were selected by multi-stage purposive/ probability sampling technique. The six LGAs were selected by random cluster sampling and the 12 PHC clinics by systematic sampling.

Method of Data Collection

Data for this study was gathered from both primary and secondary sources.

a. **Primary Sources of Data**: this was sourced through the administration of semi- closed-ended-questionnaire (Appendix I A) and key informant interviews (KII) (copy in Appendix I B) with key stakeholders involved in healthcare services in the Plateau State. These included the Permanent Secretary (Perm Sec), Plateau State Ministry of Health (MOH) and the Executive Secretary (ES), Plateau State PHC Development Board (PHCDB) in the state, the medical doctor at one of the (Fan Lor) PHCs, Director of Logistics and health commodities (DOLHC) of the Plateau State PHC Development Agency (PHCDA) as well as a final year Medical student in one of the PHCs who said he was bridging the gap between theory and practice in his studies.

b. **Secondary Sources of Data**: this was sourced from an intensive library and internet search in which reference was made to books, journals, official publications, lectures, policy papers, newspapers, news magazines etc.

Method of Data Analysis

The quantitative data collected from the administered questionnaire were keyed into Excel Sheet and analysed using Statistical Package for Social Sciences (SPSS) software while the qualitative data was analysed descriptively.

Method of Data Presentation

The results obtained from analysis of the primary and secondary qualitative data were presented descriptively while results obtained from the quantitative data analysis were presented in tables, charts and frequency distribution developed using Excel Software.

Chapter 2

Exploring the Role of Primary Healthcare in Cardiovascular Disease Management: Perspectives

Preamble

This chapter reviews relevant literature on PHC system and management of CVD risk factors and is divided into three main sections: general review, specific review, and gap in literature. The general review examines scholarly works on how the PHC system manages CVD risk factors across the world. The specific review focuses on the management of CVD risk factors by the PHC system in Nigeria in general and Plateau State in particular. This is followed by the identification of the gaps in literature which this current study attempted to fill.

General Review

CVDs refer to diseases of the heart and blood vessels and include angina and myocardial infarction (heart attack), stroke, congestive heart failure (CHF), arteriosclerosis (hardening of the arteries), other vascular diseases including reno-vascular disease and peripheral arterial (PAD) and other circulatory system diseases.

According to WHO, CVDs are the commonest causes of morbidity (disability) and mortality (death) globally and the burden has been increasing (WHO, 2020). It is currently becoming greater in developing countries than developed countries with an expectation that the greatest increase might occur in years to come if not tackled. For a greater part of the 20th century, CVD was noted to have occurred more in industrialized, higher income countries (Muray, 1996). In the past few decades, however, developing countries have borne a greater burden of it which has been projected to become greatest in the 21st century (Hakeem, Thomas and Badruddin, 1999). Between 1990 (30 years ago) and now (2020), the reported approximate number of global deaths from CVDs has increased from 14 to 17.9 million with the lower- and middle-income countries

being more affected (WHO, 2020). The latest WHO report also estimated that by 2030, CVD would be responsible for almost 23.6 million deaths from heart disease and stroke which are projected to remain the single commonest causes of death globally. Researchers forecasted that the difference in annual CVD burden between the lower and higher income countries is expected to increase further (WHO, 2020).

Although NCDs are known to occur more in the older age groups, 15 million NCD deaths have been shown to occur in people aged 30 to 69 years within which the majority of a nation's work force falls. The low- and middle-income countries have been estimated to have more than 85% of these "premature" deaths. Both the young and old in these poorer countries have been known to be more vulnerable to the NCDs risk factors and hence higher incidence of NCDs. CVD was found to be the commonest cause of death in America. Back in 2004, it was noted to cause one death every 33 seconds and more than 40 per cent of deaths annually (Ara, 2004). In 2016, every 40 seconds one American was said to likely have myocardial infarction (heart attack) (Benjamin, et al, 2019). In Australia, it was also found as the leading cause of disability and death (Begg, et al., 2008; Australian Institute of Health and Welfare, 2011). In Nigeria, CVDs like stroke, heart disease and heart failure on a background of hypertension and diabetes were found to be significant causes of hospital admissions as well as the highest contributors to out of hospital cardiovascular-related deaths (Adegoke, Awolola and Ajuluchukwu, 2018; Osuji et al, 2012). In 2016, about 29 per cent of deaths in Nigeria were estimated to have occurred from NCD (Uchenna-Ibe and Ihejirika, 2019) of which CVD was number one. It has been projected that 20 per cent of Nigerian adults above 30 years would likely die prematurely from CVDs (Nigeria Health Watch, 2016).

Globally, hypertension has been declared as the leading risk factor attributable to CVD as 19 per cent of all global deaths are attributed to it with diabetes, increased cholesterol level and obesity following (WHO, 2019). All of these, individually and in combination, have been shown to increase occurrence of CVDs (the leading NCD causing premature deaths) (WHO, 2020; Osuji, Omejua, Onwubuya and Ahaneku, 2014; Tibazarwa, Ntyintyane and Sliwa, 2009; Illoh, et al, 2013). The World Health Organisation (WHO) attributed the projected increase in CVD deaths to sociodemographic change (particularly ageing and urbanization). Physiologic and psychologic stress as well as rapidly changing life style (such as sedentary lifestyle and tobacco use), and limited access to health services were also implicated (WHO, 2019, 2020). These as well as poor awareness, harmful cultural practices, beliefs and misconceptions are all

attributed to development of CVD and other NCDs (Amani and Sherifi, 2014; Olawale, 2016). Others include low vegetables and fruits intake and other modifiable and non-modifiable predisposing factors. WHO also noted likely indulgence of a great percentage of Nigerians (with social disadvantage) to unhealthy diet and harmful life style as equally culpable (WHO News room, 2020).

Several studies have shown that these risk factors are present and have been increasing in Africans. Different age groups ranging from students to the working population to retirees in different parts of Nigeria including Plateau State; both rural and urban have been shown to be affected (Tagurum, et. al, 2015; Ahaneku, et al, 2011; Ahaneku, et al, 2015; WHO, 2020; Ogah, et. al., 2013; Nwaneli, 2010; Pearson, Jamison, and Trejo-Gutierrez, 1993; Zibaeenezhad, 2011; Nyombi, 2016; Ahaneku, Nwosu, Ahaneku and Farotimi, 2001; Copertaro, 2008). Blood pressure has been shown to rise consistently with age (Ahaneku, et al, 2011; Ahaneku, et al, 2015; Beckett, et al, 1992 and Van-Rooyen, Kruger, Huisman, 2000). The urban populations typically have higher mean body mass index and mean cholesterol levels than rural populations (Ahaneku, et al, 2011; Ahaneku, et al, 2015; Hakeem, Thomas, and Badruddin 2001; Hakeem, Thomas, and Badruddin, 1999). These risk factors are said to be modifiable in that they can be treated or controlled by certain interventions. Stroke and heart diseases which seem to be the commonest CVDs resulting in death are often caused by the above listed modifiable factors. In fact, up to 90 per cent of CVDs are estimated to be preventable (Gheorghe, et al., 2018).

Similarly, the older age group and a higher percentage of the urban population have higher prevalence of diabetes mellitus (Taylor, 1991). Although the trends and levels of CVD risk factors differ between developed countries and lower income countries (The WHO Monica Project, 1988), the associations of these risk factors with cardiovascular events in them are somewhat similar (Prospective Studies Collaboration, 1995 and Eastern Stroke and Coronary Heart Disease Collaborative Research Group, 1998). Increased number of cardiovascular events in the developing countries and occurrence of these events at younger ages may have been one reason for the projected increase in disability adjusted life years (DALYs) credited to CVDs over two decades ago (Murray, 1996). The current and estimated sociodemographic characteristics of the developed and developing countries are closely associated with the current and estimated differences in the burden of CVD in each of them (World Health Development Report, 1993). The absolute burden of CVD in these countries is particularly associated with their population size, population age structure

(WHO, 1995) and urban inhabitance (World Bank, 1999). In addition to expansion in size and urbanization over time, it was estimated in 1996 that the global population would age considerably (Murray, 1996). Hence, according to World Bank projection, the proportion of the global population expected to be 60 years and older by that 2050 would outnumber those that would be 14 years or younger with significant implications for both provision of health care and the entire world economy (World Bank, 1999).

Globally, CVDs and their risk factors are often a burden to the different healthcare institutions. At least one modifiable risk factor was found in about 90% of the adult population in Australia and 64% was found to have at least three risk factors (Australian Institute of Health and Welfare, 2011). In Nigeria, all parts of the country have been reported to have increasing prevalence of CVD risk factors (Tagurum, et. al, 2015; Ahaneku, et al, 2011; Ahaneku, et al, 2015; WHO, 2020, Ogah, et. al., 2013). In a rural population study, many of the CVD risk factors were found among the participants with more than 50 per cent of them having at least one. (Tagurum, et. al., 2015). Tagurum, et. al. (2015) conducted a study among adults in Gindiri Community of Plateau State to determine the risk factors for NCDs and the prevalence of hypertension, diabetes mellitus and obesity. It was discovered that understanding the risk factors for NCDs was vital in tackling the increasing prevalence of NCDs in rural and urban communities. The results of the study revealed that risk factors were present in relatively high levels and were associated with increasing age. However, there was no targeted interventions put in place as ways to reduce the burden of NCD among the population. The authors recommended targeted interventions like educational and behavioural change communication as ways to reduce the burden of NCD among the population.

Increasing global incidence of chronic disease has been one of the key public issues identified by the WHO with CVDs being estimated to be responsible for about one-third of all deaths. The middle- and high-income countries have been noted to particularly have a high burden of it (World Health Organisation (2004). In management of CVDs, the problem of risk factors are myriad because multiple factors play roles in the development of CVD (National Vascular Disease Prevention Alliance, 2012). CVD risk factors like blood lipid abnormalities, smoking, raised BP, diabetes, abdominal obesity, psychosocial factors, physical inactivity and inadequate intake of fruits and vegetables have been linked with the risk of myocardial infarction (MI) observed worldwide (about 90% of the time) (Yusuf, 2004). Since CVD is largely preventable, comprehensive risk assessment guidelines have been developed in Australia and

other countries for primary care to allow for efficient management of identified modifiable risk factors by lifestyle modification and pharmacological therapy (Tonkin, 2005; National Heart Foundation of Australia, 2008; Scottish Intercollegiate Guidelines Network, 2007 and Grundy, 1999). It is necessary to develop such uniform guideline for use in PHC centres in Plateau State and Nigeria.

In 2018, WHO noted that progress had been slow and not uniform in tackling NCDs globally despite notable commitments and interventions (WHO, 2018). Globally, many researchers have studied strategies for prevention and treatment of CVDs in the second half of the past century. Many premature heart attacks and strokes have likely been prevented in the past few decades in developed countries due to intervention programmes which have been widely implemented (WHO, 1995 and Uemura & Pisa, 1998). However, there is uncertainty as to whether the findings from intervention studies in developed countries can be adopted for developing countries. The socio-economic and demographic differences between developed and developing countries make the findings of intervention studies unlikely to be directly transferable. There are still limited data on the effectiveness of CVD prevention programmes in developing countries with few ongoing projects in an attempt to address the issue. CVD deaths is said to be declining in Australia but expectations are that the total burden of CVD may rise in a few decades to come because of ageing population. In attending to the burden of CVD, the National Vascular Disease Prevention Alliance (NVDPA) developed guidelines for the Management of absolute CVD Risk in Australia. This provided guidance on CVD risk assessment and recommended strategies for their management in the setting of primary prevention. In developed countries, premature CVD may have been averted by programmes designed and implemented primarily for CVD prevention in the past few decades. However, such prevention programmes designed for developed countries are unlikely to directly suit the need of developing countries (Neal, Chapman and Patel, 1996).

A number of bodies have noted the paucity of reliable information about CVD management strategies in developing countries (Pearson, Jamison, & Trejo-Gutierrez, 1993; Ad Hoc Committee on Health Research Relating to Future Intervention Options, 1996 and Institute of Medicine Board on International Health. Control of CVDs in Developing Countries, 1997) and as such, CVD control strategies in developing countries have been recommended to be researched into. Even with increasing disease burden in developing countries, the World Bank noted that available resources for programmes on

management of CVD was likely to be few relative to the developed countries (World Bank, 1999). Consequently, the cost of disease management programmes in developing countries are likely to be of even greater importance than in developed countries. Preventive therapies targeted at individuals at high risk, such as diabetics or vascular disease patients, are among the most cost-effective strategies in use in developed countries (Jackson, Barham & Bills, 1993). Increasing CVD incidence has a commensurate increase in financial consequences both from cost of managing the disease and reduced income due to morbidity (Abegunde, Mathers, & Adam, 2007). Primary prevention of cardiovascular (CV) events should be a priority for this trend to be reversed or halted and the needed state of health achieved. Efficient CVD risk-assessment/ prevention should be the key to achieving this as this allows the intensity of total CVD risk at baseline to be adequately matched to risk interventions.

Since the global target of "Health for All" was declared in 1978, PHC has been adopted and accepted universally to be the approach to achieving this lofty goal (Aigbiremolen, et al, 2014). The world will only become healthy when we achieve health for all the categories of people in the globe. The main health problems in the community are meant to be addressed by the PHC system using a grass-root approach by providing preventive, curative and rehabilitative services (Gofin, 2005, Olise, 2012). In the Alma Ata declaration, PHC definition captured this as:

> "essential care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination" (WHO, 2012).

The hope of achieving universal health coverage hinges on the very efficient principles of a strong PHC system whereby a community participates in the planning, implementation and evaluation of health programmes and services. It implies drawing resources from within and outside the health sector and utilizing technologies on the basis of suitability. The WHO formalised its commitment to PHC in 1978, identifying it as central to the achievement of the goal of "Health for All" and as a key instrument for improving health throughout the world (WHO, 1978). In many high-income countries, various publications have shown that positive influence of various aspects of primary care resulted in improvement in outcome, appropriateness of care and health cost of most of the

major health indicators (Bindman, et al., 1996; Forrest & Starfield, 1996, 1998; Starfield, 1998; Starfield et al., 2005a, 2005b). There is also evidence over the years that countries where primary care is strong have better and more equitable health outcomes compared to those orientated towards specialty care (Macinko, et al., 2003; Starfield, 1996; Starfield & Shi, 2002). For the low- and middle-income countries, there have been arguments on how effective PHC has been in improving the health of the population (Filmer, et al., 2000; Lewis, et al., 2004). At the meeting marking the 30-year anniversary of the Alma Ata declaration of PHC, there was a re-energised and revitalized approach to development of health systems based on PHC in the developing countries. This was due to the changing health challenges and an overall dissatisfaction with what was on ground (Pan American Health Organisation, 2005; WHO, 2008).

PHC is the first point of contact between a community and its country's health system and according to World Bank, it can meet 90% of all health needs (WHO, 2008). It has been described as a cost-saving investment for universal health care (UHC) because it reduces the need for more complex, more expensive care through illness prevention and promotion of general health. Investing in quality, accessible and equitable PHC services has been described as the most practical, efficient and effective first step in delivering UHC (The Save the Children Fund, 2017). Thus, strengthening primary care is a central starting point for many health-system reforms to achieve greater effectiveness, efficiency and patient orientation. The primary care physician with whom patients often have a continuous relationship, usually is the first care provider whom patients turn to for health problems. These PHC centres should ordinarily be close to the communities for health education, screening, early detection and effective management (treatment and monitoring) of CVD risk factors as well as early referral of non-complicated CVDs to avert death.

Early diagnosis and delivery of quality preventive, curative and palliative care all through a patient's life anchors on strong PHC services. PHC plays very vital role in the detection, treatment, and monitoring of patients with CVDs risk factors. Many countries in Europe have large scale programmes through which they improve prevention and management of CVDs risk at primary care level. Examples of such programmes include: educational outreach visits (in the Netherlands), disease management (in Germany), indicator-based incentive contracts (in the United Kingdom) and the local and regional quality improvement projects (in France and Belgium) (Lieshout, Wensing, & Grol, 2008).

The importance of PHC in shaping the health status of nations has been demonstrated in many studies around the world. The family health programme (FHP) in Brazil is said to probably be the world's biggest community-based PHC system. In 2007, that programme involved more than twenty-seven thousand (27,000) community based teams meant to provide care to about 85 million people (Brazilian Ministry of Health, Department of Primary Care, 2006). Its strategy was to provide all key primary care functions which included being the first access to contact for every new need and giving person-focused care on a long-term basis. It also provided comprehensive care for most health needs, and coordinated care when there was need to source it elsewhere. It focused on the community and the family. To achieve all these, the organisation of the programmes was decentralised, copayment removed, incentives given to local governments for increasing access to the programme and the teams were multidisciplinary. These teams were made up of a nurse and a physician who gave clinic-based care and community health workers (CHWs) that made frequent home visits (Ministry of Health of Brazil, 2006). These CHWs performed health-promotion activities in the community. In Nigeria, the National Health Policy of 1988 made PHC the bedrock of the Nigerian health system (FMOH, 2004). This was part of efforts to improve equity in accessing and utilisation of basic health services. Despite this move, its impact has remained sub-optimal (Gupta, et al., 2004).

Some studies may not specifically quantify the contribution of PHC to improvement in health or test the impact of clearly defined PHC intervention. These, nonetheless, still they recognise the role of PHC in improving population health. The 2008 World Health Report on PHC documented many case studies of PHC experiences. These did not contain a systematic review of the evidence on the benefits of PHC. They, however, reviewed the evidence for the benefits of PHC components. That report concluded that justification for a focus on developing and strengthening PHC in all countries was overwhelming (WHO, 2008). It is evident that on their own, health systems do not naturally move towards the goals of universal health through PHC as articulated in the declaration of Alma Ata. The directions ordinarily towed by health systems do not contribute significantly to social justice and equity and do not get the best health outcomes for the money invested.

PHC is supposed to be driven by major interest requirements which include: the values of fairness, consensus and social justice for an effective response to the global health challenges. In an attempt to get the full benefit of PHC system, WHO Report (2008) structured four groups of reforms. These

reflected a meeting point between those major requirements and the increasing expectations of the populace in societies getting modernised. That WHO Report (2008) suggested that health services should be centred round people's needs and expectations. As such, they should be more socially relevant to produce better outcomes while being more responsive to the changing world. In other words, universal health should be pursued by integrating public health actions with primary care and instituting healthy public policies across sectors. That should include public policy reforms that replace disproportionate reliance on command and control on one hand, and laissez-faire disengagement of the state on the other (leadership reforms).

Specific Review

Comprehensive population-based and other interventions in the health system are steps which have been noted to reduce CVD burden significantly. In both developed and developing countries, strengthening PHC interventions have been shown to significantly improve cardiovascular morbidity and mortality and to generally reduce the burden of CVD management by secondary and tertiary health institutions (Nigeria Health Watch, 2016; Robert, et al., 2010; Rasella, et al., 2014). Thus, the benefit of primary care to the entire healthcare system has been demonstrated in studies which showed improved access to healthcare services, better health outcomes, reduced hospital admission and less visits to emergency department. According to Afolaranmi (2018), the referral system for continuity of care in Nigeria across the levels of health care appears to have a weak link. Hence, the demand for health care on the secondary and tertiary levels tends to be huge.

Studies on PHC and management of CVD risk factors are few. Community health insurance programmes have been put forward as a means to improve patient access to healthcare. Operational difficulties, however, was noted to still hamper the successful development of such insurance schemes. The first two health insurance programmes in Nigeria started in early 2007 in Lagos and Kwara States under the name, Hygeia Community Health Plan (HCHP). Hendriks (2011) conducted a study to assess the feasibility of CVD prevention care in rural Nigeria (according to international guidelines), in the context of a community based health insurance scheme. This he did under the operational research project, “Quality Improvement Cardiovascular care Kwara - I (QUICK-I)”. He hypothesised that the Hygeia Community Health Plan (HCHP) programme could be used to provide high quality CVD prevention care by covering the costs of the CVD prevention care (access to care). The context of the insurance programme aimed to provide insight into the opportunities which

community health insurance might offer to attain sustainable chronic disease management programmes in low resource settings. The study revealed that guidelines for CVD care in LMIC have been developed but little evidence-based information is available on strategies for effective and successful implementation of such care in settings with low resources. It finally concluded that the results of QUICK-I could be used to develop implementation strategies for CVD prevention programmes in settings with limited resources.

A community-based study in South East Nigeria found increasing incidence of CVD risk factors and suggested establishment and strengthening of NCDs surveillance in the state (Ogah, et. al. 2013). That study concluded by suggesting on-going/ bi-annual conduct of NCD surveillance in the state in line with the WHO stepwise surveillance for NCDs. Another study in Northern Nigeria assessed the knowledge of chronic heart disease (CHD) (one major CVD) and practices regarding detection and management of its risk factors among PHC workers. It found that the workers were aware of CHD but had poor knowledge about its prevention and treatment (Awosan, et. al., 2001). That study noted that, although most (96.7 per cent) of the participants were aware of CHD, 58.6 per cent (more than half) had never attended any seminar or workshop on prevention and control of CHD. The participants' practices on detection and management of the risk factors of CHD were sub-optimal. Barely one third of them screened their clients and patients for the risk factors of CHD on a regular basis and less than half of them counsel, treat or refer their clients and patients appropriately. Hence, the authors recommended in-service re-training of PHC workers periodically on detection and management of CHD risk factors in other to curtail the emerging CHD epidemic in developing countries. Another study done in young people in Plateau State concluded that cardiovascular epidemiological transition is already ongoing in the state including the rural areas (Yilgwan, 2018). It suggested that a multi-faceted approach is necessary to tackle the increasing morbidity and mortality from CVD. Health education during early and middle school ages was suggested as prevention strategy in that regard noting that improvement in infrastructure for curative measures was also important. All the suggestions by all the authors ranging from surveillance, prevention, education to treatment are usually part of PHC programme buttressing the need to strengthen PHC programme in Plateau State and Nigeria at large.

Gaps in Literature

At the 2016 National Summit of the Nigerian Heart Foundation, the Federal Ministry of Health feared that the NCD (of which CVDs are major)

burden in the country would possibly rise if efforts at improving control strategies failed (Olawole, 2016). It noted that if Nigerians do not give support to strengthen the surveillance system, the success recorded by establishing the NCD control programme would be in futility. Compared to studies done elsewhere, it is evident from the reviewed literature that many articles on PHC System and Management of CVD Risk Factors in Nigeria (Zibaeenezhad, et al. 2011; Australian National Vascular Disease Prevention Alliance, 2012; US Centers for Disease Control and Prevention, 2017; Kar, 2008; Awosan, 2017; Aigbiremolen, 2014, Dungy, 1979; Ambakederemo, 2018; Tagurum, et. al., 2015; Ogah, 2013 and Yilgwan, 2018) have not really brought out the role of PHC in managing CVD risk factors in Nigeria. A nationally coordinated "one shoe-fits-all" approach which seems to have been the case in administering PHC in Nigeria, clearly has not yielded the desired positive result. Consequently, handling of CVD risk factors at PHC level in Nigeria has not been optimal and Plateau State is not exempted. It is therefore pertinent to carry out a studies like this one to find out the main issues hampering CVD risk factors management at PHC level and determine suitable platforms of localised response mechanisms to tackle the issues.

In addition, most studies have highlighted increased prevalence of CVD risk factors in and around the country. It is literarily troubling from literature to discover that there is no clearly planned and coordinated protocol for the management of CVD risk factors at the PHC level in Plateau State. This study helps in filling this these gaps by providing basic information to aid the development of such protocol in future. Therefore, this research is relevant as it deepens the understanding of the PHCs and the Plateau State health services sector in general, on especially, CVDs management. It and brings to the fore the main problems created by absence of such specific protocols. The fact that management of these factors at the most basic health care level is yet to be locally well explored in different parts of the country and in this specific case, Plateau State, makes this research particularly germane. It advocates for state-specific actionable steps (recommendation and implementation strategies) to improve the system with a view to tackling the CVD risk factors at PHC (grass root) level. These will ultimately reduce the increasing CVD morbidity and mortality in the state and by extension Nigeria. It is also to further develop the literature.

Chapter 3

Historical and Policy Context of Primary Healthcare System and Management of Cardiovascular Disease Risk Factors in Plateau State

Preamble

This chapter reviews the policy on PHC system and management of CVDs risk factors in Nigeria and Plateau State in particular. It is divided into three main sections: Historical Development of Management of CVDs by PHC system in Nigeria followed by the section on Policy and Legal Frameworks on the management of CVD risk factors by PHC in Plateau State. The final section deals with the Policy and Institutional Challenges in the management of CVD risk factors by PHC in Plateau State.

Historical Development of Management of CVDs by PHC system in Nigeria

Historically, three major attempts have been made to evolve and sustain a people-oriented/ community health system in Nigeria. The first one occurred between 1975 and 1980. The main fulcrum of that era was the Basic Health Services Scheme (BHSS) which was introduced in 1975 as part of Nigeria's Third National Development Plan (NDP) (1975 – 79) (Dungy, 1979, Adeyomo, 2005; (Udomoh Eshemokha, 2019). The BHSS focused on providing health facilities and health personnel training while application of appropriate technology and community involvement were de-emphasised. In that programme, twenty health clinics were spread across each LGA to make up "basic health units" (BHUs). With back-up from four (4) PHC centres and the support of mobile clinics, each of these BHUs were to serve an approximate population of 150,000.

A second attempt which was led by late Professor Olukoye Ransome-Kuti as the then Health Minister occurred between 1985 and 1992. In 1985, the Federal Ministry of Health adopted PHC in fifty-two local government areas in Nigeria as models based on Alma Ata declaration of 1978. The ministry also introduced a comprehensive health care policy with a focus on PHC placing emphasis on preventive medicine and healthcare services at the grassroots. The

main target of the 1988 National Health Policy (FMOH, 2004) was to use PHC as key instrument to address the lingering issue of equity and accessibility in the Nigerian health system.

The PHC in Nigeria has gone through different developmental stages since then. It has faced series of management challenges which has kept its performance and outcome below the target. Attempts at addressing these challenges led to the establishment of the National PHCDA in 1992 as a structure to coordinate the management of PHC systems/ services at state level (NPHCDA, 2013b). The agency, which was meant to provide the technical support for planning, implementing and managing the PHC, heralded the third attempt at making basic healthcare accessible at the grassroot level (Kuti, et al, 1991).

By 2005, more than 85 per cent of health care facilities in Nigeria were made up of PHC facilities (FMOH, 2010). Poor performance of the health system; especially the PHCs, occasioned by the weak administrative structures it is prone to at State and LGA levels informed the introduction of "PHC Under One Roof" (PHCUOR). This PHCUOR was brought on board in 2011 as a unified approach to strengthen the PHC system using the "three ones" principle. It applies the concept of one administration (management), one master plan and one supervision/ assessment (monitoring and evaluation) to enhance PHC performance (Uthman, 2017; Kike, 2019). This historical context therefore leads to search for policy and legal frameworks in the management of CVD risk factors by PHCs in Plateau State.

Policy and Legal Frameworks in the management of CVD risk factors by PHC in Plateau State

The tertiary hospitals are meant to receive referrals from primary and secondary health facilities for complex medical and surgical conditions that require specialist care/intervention, PHC, on the other hand, is meant to provide health care services in the communities as a management approach at grass-root level. The prevention of diseases, including CVDs risk factors, is one of the major mandates of PHC (WHO-UNICEF, 1978). Hypertension and diabetes mellitus; the two most common causes of CVD in Nigeria, are among the medical conditions to be handled at the PHC level (Trio, 2016).

The vision set forth in Alma-Ata's values has not always translated to efficient health systems transformation both in Plateau State and in Nigeria as a whole despite increasing expectations and beautiful policies put on paper. One of the reasons for this is that there are situations and trends outside the health

sector which the PHC had little or no influence or control over such as structural adjustment. Furthermore, most times, the message of PHC movement gets oversimplified leading to recipe of "one-size-fits-all" that are poorly adapted to different problems and situations. Because of this, rather than seeing PHC as a set of reforms (the real intention), national and global health authorities see it as one of the health-care delivery programmes that provide poor people with poor care. Early attempts at implementing PHC have been considered, in different aspects, to be in contrast with current health care approaches.

Reducing premature deaths from non-communicable diseases (NCDs) by one-third by 2030 is one of the 2030 Sustainable Development Goals (SDGs). CVDs are known to be the number one among the NCDs resulting in these deaths. According to WHO, poverty is closely linked with NCDs (WHO, 2020). It stated that by increasing health care costs of households, the increasing NCDs impedes the expected effect of initiatives put in place for poverty reduction in low-income countries. Hence, investing in better NCD management is critical to achieving this. WHO declared that key components of the response to NCDs include detection, screening, treatment and giving palliative care to those that need them. An important way to control NCDs is to focus on reducing the risk factors associated with these diseases. These interventions are important to achieve the targeted 25 per cent relative decrease in the risk of premature NCD death globally by the year 2025. They are also key to achieving the SDG of premature death reduction by one-third by the year 2030. WHO intends to drive these through disease prevention and treatment. In countries where coverage for health insurance is inadequate, universal access to essential NCD interventions are said by WHO to be unlikely. WHO noted that the PHC approach can be used to deliver efficient interventions that will strengthen timely detection and prompt treatment of NCDs. Studies have shown such interventions as excellent economic investments since the need for more expensive treatment can reduce when appropriate patients get those interventions early. Low-cost solutions exist for governments and other stakeholders to reduce the common modifiable risk factors. Monitoring progress and trends of NCDs and their risk is important for guiding policy and priorities.

The 1975 BHSS had a vision of having one PHC centre to provide service to about 10,000 persons (Udomoh Eshemokha, 2019). As a way of delivering improve and equitable health service to the communities, implementation of PHC in Nigeria is currently done using the Ward Minimum Health Care Package (WMHCP). In this case, the basic operational units of the PHC are the electoral

wards. *This* entailed *the PHC centres to regularly deliver some easily accessible, cost-effective health promoting interventions to reduce illness and death from common illnesses.* That package was designed to have 6 components. CVD risk factors management directly fall into the last two components which are: Non-Communicable Diseases Prevention as well as Health Education and Community Mobilisation. According to the policy establishing it, the planning, implementation, monitoring and evaluation of the PHC process should be taken charge of by various management committees in the different LGAs for effective service delivery (Uzochukwu B. et al., 2015, (Udomoh Eshemokha, 2019). Plateau State which currently has no such commitees functioning should do so without further delay for the key purpose of establishing the PHC centres to be achieved.

In an attempt to improve the outcome and impact of PHC, the Nigerian Government launched the National Health Act (NHAct) (2014). The Basic Health Care Provision Fund (BHCPF) was brought on board as a major component of the Act to increase funding of the PHC for better service delivery. Fifty per cent of BHCPF was to be used in providing basic services package in the PHC facilities through the National Health Insurance Scheme (NHIS). Of this, 20 per cent was meant to go to Local government health authorities for Primary Health Care Services which also gets support directly from National Primary Health Care Development Agency as necessary (Uzochukwu B. et al., 2015). Conditions which each state and their local governments must fulfill to qualify to benefit from the BHCPF were listed (Uzochukwu B. et al., 2015; Kemi Busari, 2019). These include contribution of a counterpart funding of 25% towards PHC projects, the establishment of state PHCDB and State Health Insurance Scheme (SHIS). Commendably, Plateau State was one of the states listed as having registered for the fund as at 2019 (Kemi Busari, 2019).

The policy establishing administration and management of PHC in Nigeria recognised that under certain situations, a patient can be transferred on a permanent or temporary basis to continue receiving health care from another health care facility or professional. This includes situations requiring expert advice, higher investigations/ procedures, prolonged admission or on patient request**.** It noted that except for emergencies, referrals should be bottom up i.e. from the lowest to the highest level of care viz: from health post, Basic Health Centre, Primary Health Centre, Community Health Centre then to Hospitals, in that order. A referral practice is adjudged as good when it is two way. Hence, relevant feedback should get back to the referring (lower) centre from the referral facility (higher centre) after attending to the referred patient. Aside

exchange of ideas between health care personnels, referral encourages knowledge transfer and better interaction (Udomoh Eshemokha (2019). The policy and institutional challenges in the management of CVD risk factors in PHCs in Plateau State will help situated the true state of affairs of the case in study.

Policy and Institutional Challenges in the management of CVD risk factors by PHC in Plateau State

The different developmental stages which PHC in Nigeria has gone through since then has usually been faced with series of management challenges. Hence, all the major attempts so far made to evolve and sustain a people-oriented/ community health system in Nigeria have not yielded the desired results. These have kept the performance and outcome below the target. The Basic Health Services Scheme (BHSS) introduced in 1975 as part of Nigeria's Third National Development Plan (1975 – 79) (Dungy, 1979, Adeyomo, 2005) was said to lack sustainability because the local communities who were the beneficiaries of the services were not involved in its planning and execution (Aigbiremolen, et al, 2014). Another one (the 1988 National Health Policy (FMOH, 2004)) which came on board between 1985 and 1992 with a comprehensive health care policy had its implementation marred by the handover of the PHCs to the Local Government administration; the weakest arm of government, in 1980s. Nigeria is one of the few countries in the developing world that have systematically decentralized the delivery of basic health and education services to locally elected governments.

The National Primary Healthcare Development Agency (NPHCDA) of 1992 also suffered an ill fate. In its early years, the formulation, establishment and implementation of policies to rightly place it as PHC steward actually started in earnest. Thus, according to (Aigbiremole, 2014), some modest achievement was made then. However, it also performed below expectation still owing to management challenges. Currently, "PHC Under One Roof" (PHCUOR) programme has recently been introduced; also in an attempt to get PHC to work as expected. This programme is yet to take off fully in many states of Nigeria including Plateau State. Whether this will give the desired result depends again on proper administration of its contents.

Years after the Alma Ata declaration, several LMICs like Nigeria have undergone transformation in several areas. These include democratic, economic, health and social services system and hence redefining their existential roles (Macinko & Starfield, 2009). It is known that not all health

reforms have strengthened the PHC. On a similar note, they have not uniformly improved health nor its equitable distribution (Infante & de Mata, 2000; Mackintosh, 2000; Varatharajan & Thankappan, 2004). Streamlining healthcare financing and decentralisation of authority for planning and implementation of health which are the main aim of health reforms. These have not been done in Nigeria and Plateau State. Hence, a focused health system requires a set of context-sensitive and specific reforms that will address current health challenges and prepare for future ones. Therefore, comprehensive steps need to be taken to safeguard the citizens from CVD deaths now increasing in the most productive age group. In Nigeria as a whole and Plateau State particularly, this can be achieved by ensuring adequate and effective healthcare to tackle cardiovascular morbidity and mortality through PHC intervention at the level of risk factors. For effectiveness, this has to occur at the level of government policies, the health system itself and the individual as well.

According to the Plateau State Ministry of Health, (2010), the challenges in the health system in Plateau state are enormous as it has to do with improved health status of its population, particularly for women, newborn and young children, the poorest and most vulnerable. The health system is weak and requires the gaps in the thematic areas of health financing, leadership & government as well as human resource for health to be addressed initially before health services can be scaled up to avoid a full crash of the system. In addition, equipment and infrastructure in the health facilities need to be updated while essential drugs supply needs to be provided for. The state also has to collaborate with the LGA councils in the area of health in order to ensure equal access to minimum health package for all its citizens

The BHCPF has also noted to be faced with numerous implementation and accountability challenges and that may be why many States including Plateau State and LGAs in particular have not been accessing the funds. These include: delays in funds transfer, Interferences coming from higher government, poor management finance and data, funds diversion/ mismanagement (corruption) among others. In order to circumvent these challenges, certain conditions were put in place to be fulfilled before such funds can be released. This was a way of strengthening the capacity of the recipients to manage the funds. The Plateau State government need to put in place, modalities to fulfill these conditions so as to ensure that the State PHC accessed the funds due to it maximally (Uzochukwu B. et al., 2015).

Chapter 4

Primary Healthcare System and Management of Cardiovascular Disease Risk Factors in Plateau State, Nigeria: Data Presentation and Analysis

Preamble

This chapter presents an analysis of the quantitative primary data obtained through questionnaire administered to selected respondents from PHC centres, Ministry of Health, Plateau State PHC board, and World Health Organisation office in Plateau State. It also presents an analysis of primary qualitative data sourced from interview of some selected key respondents in the PHC system. The tables from the data analysis are in Appendix II.

Analysis of Response Rate

Two hundred and fifty (250) questionnaire were administered to the selected sample. Out of these, one hundred and eighty-eight (188; 75.2%) were retrieved as shown in figure 4.1 below. The response rate shows the enthusiasm, commitment and the importance the respondents attached to this study which deals with the PHC system in Plateau State.

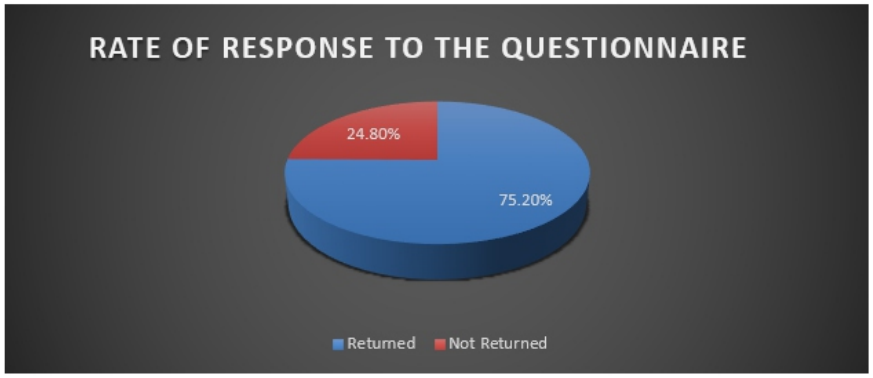

Figure 4.1: Rate of Participants' Response to the Administered Questionnaire

Demographic Analysis

This section presents the demographic analysis of respondents in the various clusters of sex, age-group, highest educational qualification, marital status, occupation, years of working experience and number of years lived in Plateau State.

Sex of Respondents

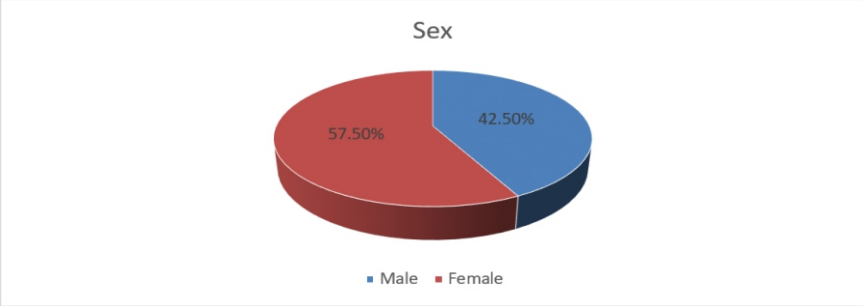

Figure 4.2: Distribution of Respondents by sex
Source: Participants Field Survey, 2020

Figure 4.2 above shows that out of the 188 respondents, there were more female respondents (57.50 percent) compared to males (42.50 per cent). The higher response from the females may be due to the greater number of female personnel in the PHCs hence, the gender disparity does not distort the validity of the outcomes of the study.

Age of Respondents

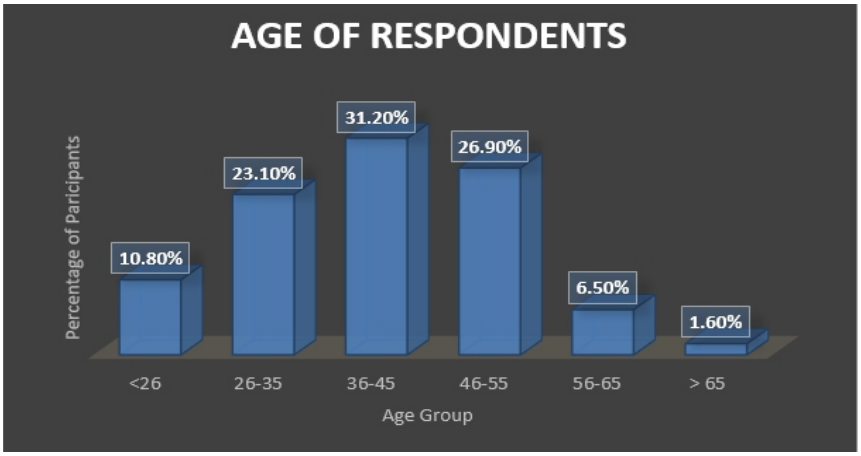

Figure 4.3: Distribution of Respondents by Age Group
Source: Participants Field Survey, 2020

Figure 4.3 above shows that the majority of the respondents were distributed within the age range of 26 and 55 years viz: ages of 26 to 35 years; 23.10 percent, ages of 36 to 45 years; 31.20 percent, ages of 46 to 55 years; 26.90 percent. The age group over 65years had the least respondents (1.6 percent) followed by those ages of 56-65 years (6.5 percent) and then those <26 years (10.8 percent). It is not surprising that the least respondents were those above 65 years and then those 56 to 65 years. The bulk of the respondents were workers in the PHC. Retirement age for public servants in Nigeria is 60 years and majority. Thus, respondents between 56 to 65 years are more likely be fewer.

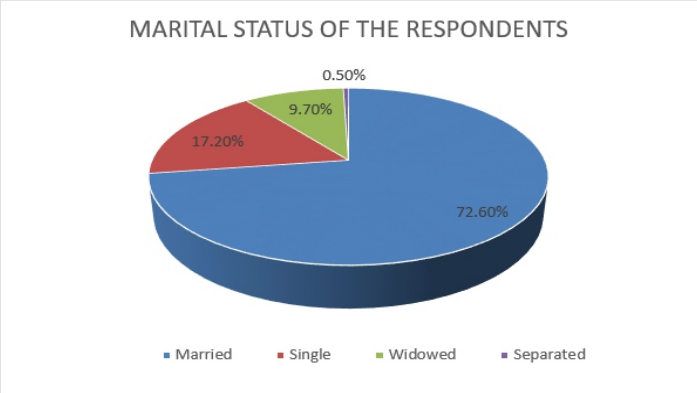

Figure 4.4: Distribution of Respondents by marital status
Source: Participants Field Survey, 2020

As shown in Figure 4.4 above, majority (72.60 percent) of respondents were married while 17.20 percent were single.

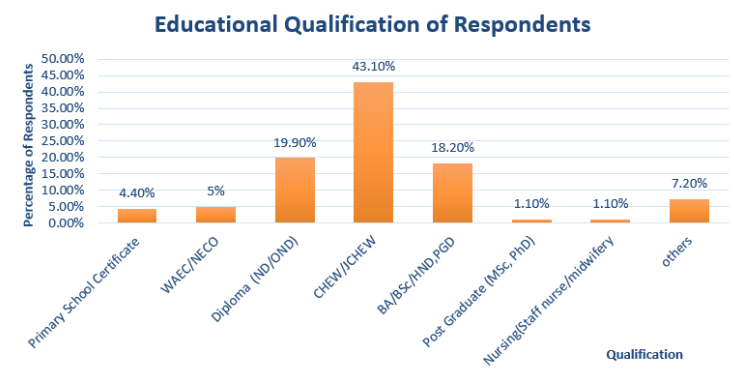

Figure 4.5: Distribution of Respondents by Educational Qualification
Source: Participants Field Survey, 2020

Figure 4.5 above shows that the majority of respondents hold certificates as Community Health Extension Workers (CHEW/JCHEW) (43.10%). The qualification of the other respondents included National Diploma (ND)/ Ordinary National Diploma (OND) (19.90 per cent), WAEC/NECO (5 per cent), First School Leaving Certificate (FSLC) (4.4 per cent) and Post Graduate Degree (1.1 per cent) or Nursing certificate (1.1 per cent). The distribution, therefore, reflects a fairly well educated study sample.

Occupation of Respondents

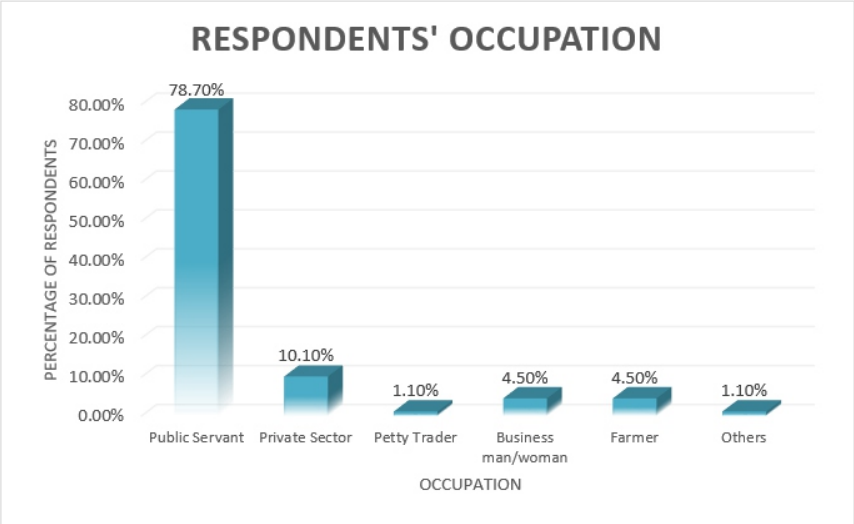

Figure 4.6: Distribution of Respondents by Occupation
Source: Participants Field Survey, 2020

Figure 4.6 above depicts the various occupation of the respondents. Most of the respondents were public servants (78.70%). The occupation of others were 10.10 percent from the private sector, 4.5 percent for business men/ women and farmers respectively and 1.1% petty traders/ others. The finding that majority of the respondents were public servants may explain why majority of them (81.3 per cent) were aged between 26-56 years. This is the age group within which majority of the work force in Nigeria falls.

Residency in Plateau State

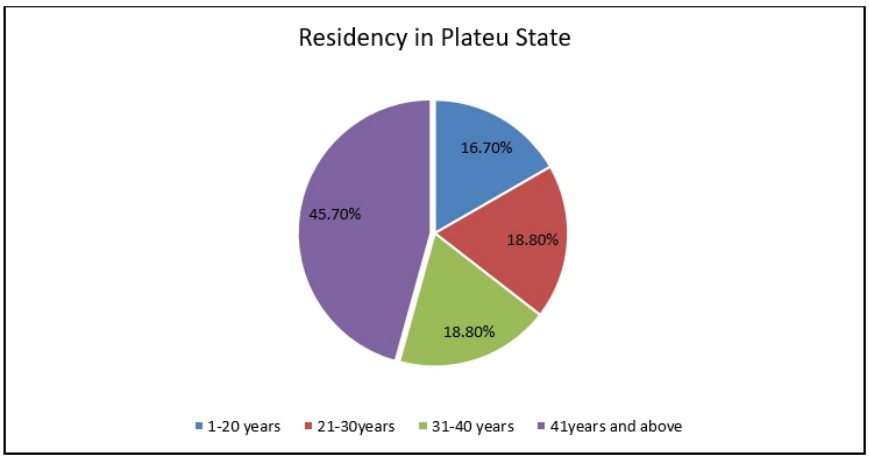

Figure 4.7 Years lived in Plateau State

Source: Participants Field Survey, 2020

Figure 4.7 above shows that 45.70 percent of the respondents have lived in Plateau State for 41 years and above, 18.80 percent for 21-30years and 31-40 years respectively and 16.7 percent for 1-20 years. This implies that most of the respondents have lived in Plateau State for reasonable number of years to be acquainted with issues in the State.

Number of Years worked/ accessed healthcare in the PHC centre

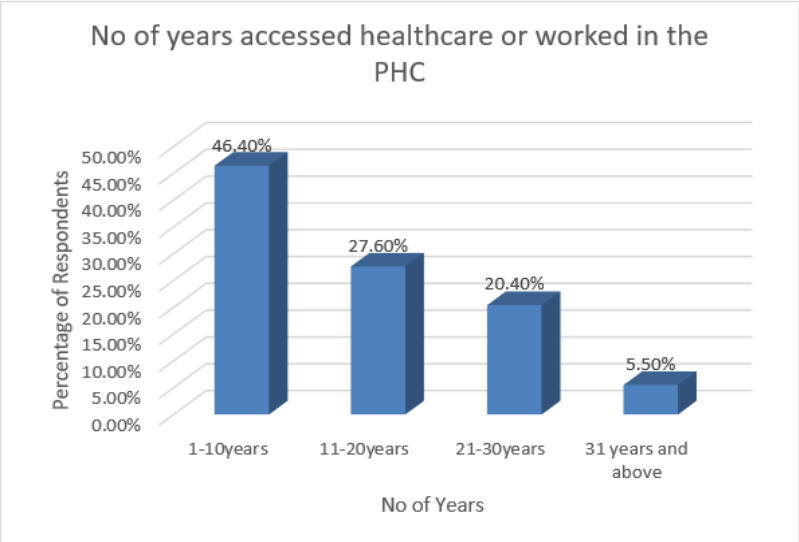

Figure 4.8:Number of years accessed healthcare or worked in the PHC Centre
Source: Participants Field Survey, 2020

As figure 4.8 above shows, 46.40 percent of the respondents had either worked or accessed health care from the PHCs for between 1 and 10 years, 27.60 percent between 11 and 20 years, 20.4 percent between 21 and 30 years and 5.5 percent for 31 years and above.

Data Analysis on the Primary Healthcare System and Management of CVD Risk Factors in Plateau State

This Section highlights the analysis of data on PHC System and Management of CVD Risk Factors in Nigeria. The analysis is guided by the research objectives. The tables from the analysis of the survey are in Appendix II.

Current State of the PHC System in detecting and managing CVD risk factors in Plateau State.

In this sub-section, the study sought to identify the current state of the PHC system in the management of CVD risk factors in Plateau State.

a. Understanding the CVD risk factors

The question sought to find out the knowledge of the respondents about conditions which constitute CVD risk factors. They had the liberty to select as many of the options as they thought were correct and their responses are shown below in Figure 4.9 below.

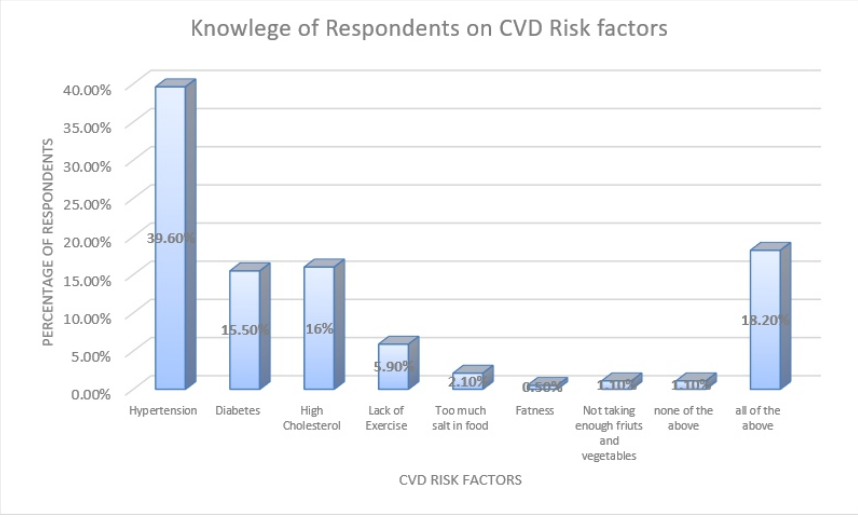

Figure 4.9: Knowledge of respondents on CVD risk factors

Source: Participants Field Survey, 2020

When asked to identify risk factors of CVD, Figure 4.9 showed that 18.2 percent of the respondents indicated "all of the above". The others indicated their answers as follows: hypertension (39.6 percent), diabetes (15.5 percent), high cholesterol (16 percent), lack of exercise (5.9 percent), too much salt in food (2.1 percent), obesity (0.5 percent), not taking enough fruits and vegetables (1.1 percent) and none of the above (1.1 percent). This implies that on individual basis, hypertension, followed by diabetes and then cholesterol were the conditions known to most of the respondents as CVD risk factors. Only 18.2 percent of the respondents were aware that all the listed conditions are risk factors for CVD. Thus, majority (81.8 Percent) did not know this fact.

b. Common CVD Risk Factors in Plateau State

The question sought to identify the common risk factors of CVD in Plateau State. The figure below depicts responses from respondents.

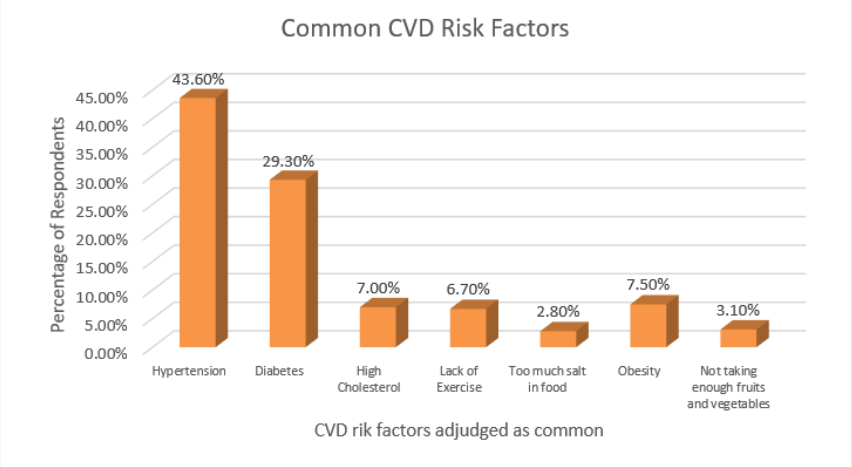

Figure 4.10 Common CVD Risk Factor in Plateau State
Source: Participants Field Survey, 2020

The figure 4.10 above shows that hypertension was the condition most indicated (43.6 percent) by the respondents as the most commoN CVD risk factor followed by diabetes mellitus (29.3 percent). Others as indicated in numerical order were fatness (7.5 percent), high cholesterol (7 percent), lack of exercise (6.7 percent), not taking enough fruits and vegetables (3.1 percent) and too much salt in food (2.8 percent). It can be deduced that hypertension and diabetes were cumulatively indicated as the most common risk factors by 72.9 percent of the respondents. This finding agrees with the views of the key stake holders interviewed by the researcher. All of them in separate interviews with

the researcher stated that hypertension and diabetes were the dominant CVD risk factors common among patients. Both the doctor and the medical student interviewed at different PHCs noted that hypertension and diabetes had been the major diseases they attended to.

c. Availability of screening for CVD risk factors in the PHCs

Respondents were asked if there was screening for CVD risk factors in the PHCs. The views of the respondents are depicted below in Figure 4.11.

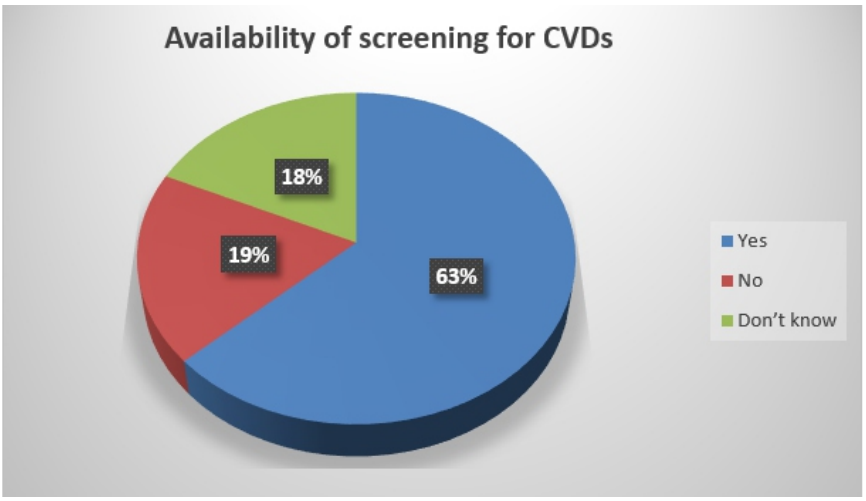

Figure 4.11 Availability of screening for CVD risk factors in the PHCs

Source: Participants Field Survey, 2020

Figure 4.11 shows when respondents were asked if there existed a unit that worked to detect/ screen for diseases, 63 per cent of the respondents indicated "Yes", 19 per cent indicated "No" and 18 per cent indicated "don't know". With this, it can be deduced that there exists a disease unit in Plateau State. However, when the Executive Secretary, Plateau State PHCDB was interrogated on the presence or otherwise of a disease surveillance unit in the PHCs, he neither answered "yes: nor "no". Instead, he stated that the PHCs were quite effective in screening for and detecting different CVD risk factors. The secretary does not work directly in the PHC centres and so may not know if such a unit exist or not but he at least knew that the PHCs screen for and detect CVD risk factors effectively.

d. The capacity of the PHC in detecting CVD risk factors in Plateau State

The study also sought to find out from respondents, the capacity of the disease screening unit in detecting CVD risk factors in Plateau State. Respondents' opinion are depicted below in Figure 4.12.

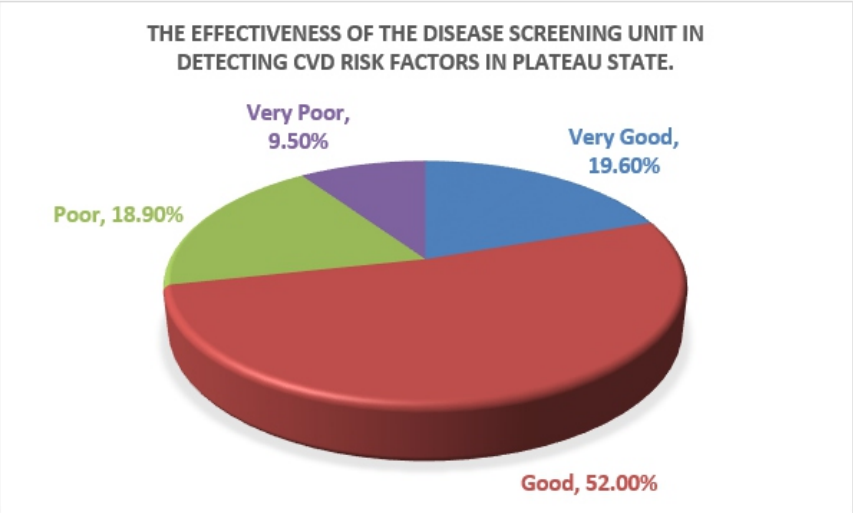

Figure 4.12 The effectiveness of the PHC in detecting CVD risk factors.

Source: Participants Field Survey, 2020

To the question, what is the effectiveness of the disease screening unit in detecting CVD risk factors in Plateau State, figure 4.12 above shows that 52 per cent of the respondents indicated "good", 19.6 per cent indicated "very good", 18.9 per cent indicated "poor" and 9.5 indicated "very poor". Cumulatively, 71.6 per cent of the respondents indicated "good/ very good", hence, the capacity to screen for and detect CVD risk factors by the PHC centres in Plateau State can be adjudged as good. This finding is in accordance with the view of the Permanent Secretary, Plateau State Ministry of Health who stated, "So to me, I think they are quite effective". This was also substantiated by the Executive Secretary, Plateau State PHCDB who opined that PHCs are quite effective in detecting CVD risk factors. For example he stated that they screen blood samples for risk factors routinely, check for sugar level, heights, weights, and blood pressure. The revelation is corroborated by the Director of Logistics and Health Commodities, PHCDA who categorically affirmed that management of CVD risk factors is handled at the secondary/tertiary institutions but the PHCs have been

effective and efficient is detecting and referring appropriate patients with CVD risk factors. On the same note, on that question as to whether the PHCs were effective in detecting CVD risk factors, the doctor at the PHC Fan Lor also responded in the affirmative.

e. Current State of management of CVD risk factors in Plateau State

This question sought to ascertain the current state of management of CVD risk factors in Plateau State as perceived by respondents. Their views are shown in Figure 4.13 below.

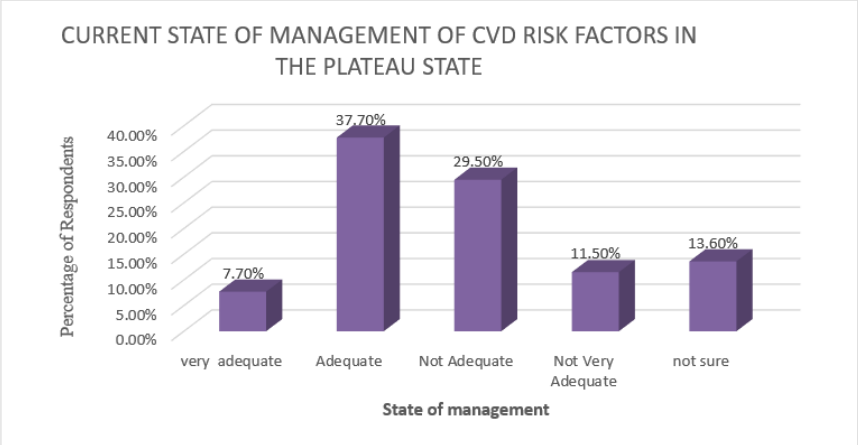

Figure 4.13 Current State of the management of CVD risk factors

Source: Participants Field Survey, 2020

Figure 4.13 above showed that 45.4 per cent of the respondents cumulatively indicated that the state of management of CVD risk factors in the PHCs was adequate and 41 per cent of respondents indicated inadequate. This clearly shows that the disparity between the answers (adequate; 45.4% and inadequate; 41%) is not sufficient to make deductions on the current state of management of CVDs risk factors in Plateau State. This lack of significant disparity between the respondents' answers may not be unexpected because the Executive Secretary, PHCDB noted that there had been lots of obstacles in the provision of PHC services but also added that government was already taking steps to address those obstacles.

f. How concerned are you with the current State of PHC in the management of CVD risk factors in Plateau State?

This question sought to ascertain how concerned the respondents were with the current state of PHC in the management of CVD risk factors in Plateau State. Respondents' views are shown in Figure 1.14 below.

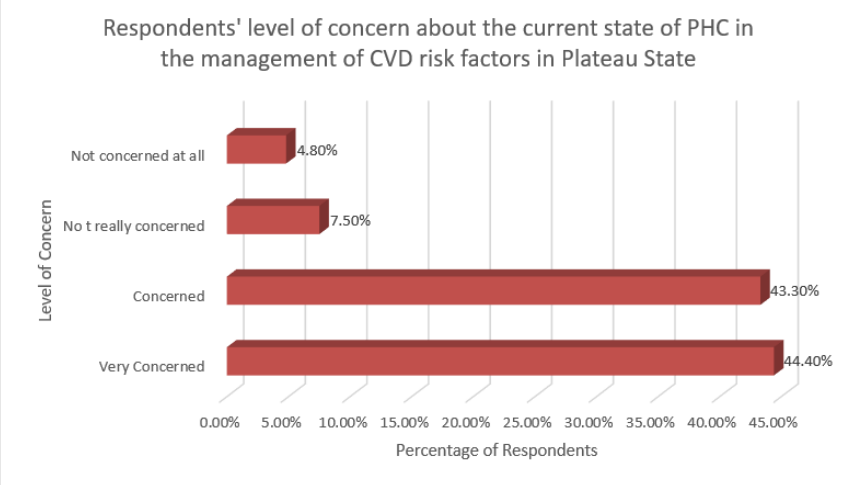

Figure 4.14 How concerned are you about the current State of PHC in the management of CVD risk factors in Plateau State

Source: Participants Field Survey, 2020

The above Figure 4.14 shows that 87.7 percent of the respondents cumulatively were concerned about the current state of PHCs in the management of CVD risk factors, 13.3 percent cumulatively indicated "not concerned" while none indicated "not sure". This implies that most of the respondents were concerned with the current state of PHC in the management of CVDs risk factors in Plateau State. This finding agreed with the views of all the stakeholders interviewed all of whom expressed some concern about the state of the PHC in CVD risk management. However, the Director Logistics, PHCDA and the Permanent Secretary, Ministry of Health expressed enthusiasm that the government was poised to improve on what was on ground.

g . Reasons for being concerned about the current State of PHC in the management of CVD risk factors in Plateau State

This question was posed to determine the reasons why respondents were concerned about the current state of PHC in the management of CVD risk factors in Plateau State. Respondents' views are shown below

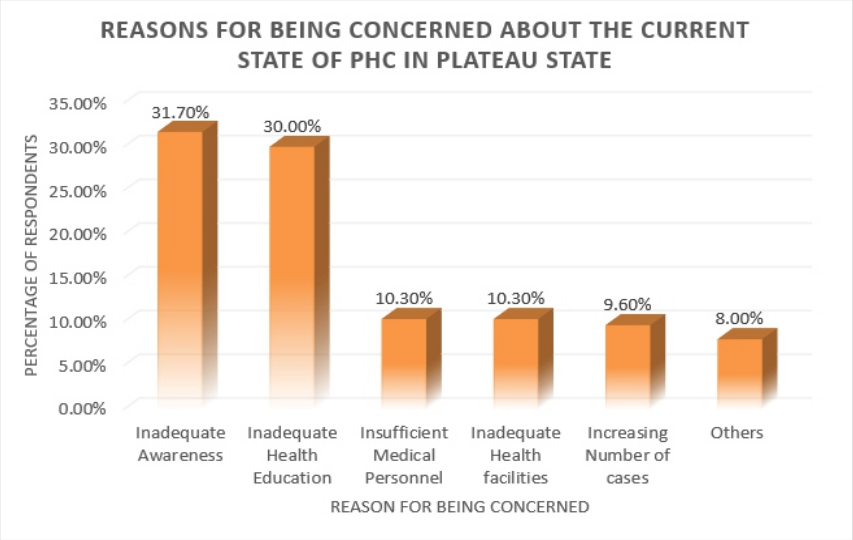

Figure 4.15 Reasons why respondents are concerned about the current State of PHC in the management of CVDs risk factors in Plateau State

Source: Participants Field Survey, 2020

The above figure 4.15 showed that 31.70 percent of the respondents were concerned about inadequate awareness about CVD risk factors and 30.0 per cent about inadequacy of health education talks given by the health workers. Insufficient number of medical personnel and inadequate health facilities were indicated by 10.30 per cent of the respondents respectively. Increasing number of cases was indicated by 9.6 per cent of respondents as the reason for their concern. It can be deduced from the above that there are various reasons why respondents are concerned with the current State of PHC in the management of CVD risk factors in Plateau State. In agreement with those who indicated inadequate medical personnel and inadequate medical facility as reasons for their concern, the Executive Secretary, Plateau State PHCDB, during an interview with him, equally expressed concern about these. He noted that there was scarcity of relevant medical personnel and lack of employment of new staff to take over from retiring ones.

h. Do you think the Plateau State government is making effort in improving the management of CVD risk factors?

There was also the need to find out from respondents how much effort the Plateau State government was making in the management of CVD risk factors. Respondents' opinions are depicted below in Figure 4.16.

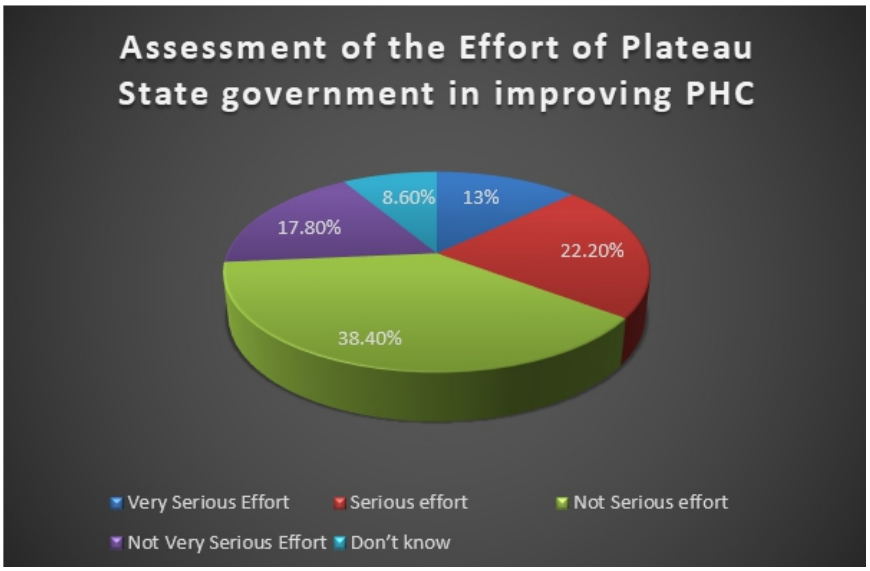

Figure 4.16 Seriousness of Plateau State government's effort in improving the management of CVD risk factors

Source: Participants Field Survey, 2020

Figure 4.16 above depicts that 13 per cent of the respondents indicated that the Plateau State government was making very serious effort in improving the management of CVD risk factors. Others were 22.2 per cent who indicated that it was serious effort and 38.4 per cent indicated that the effort was little. However, 17.8 per cent indicated that government effort was very little while 8.6 per cent indicated "don't know/ not sure". In an interview with the medical doctor at PHC, Fan Loh, he said that PHC in Plateau State was not very much different from what obtained in other parts of Nigeria. He said, "I will say it is generally weak, which is a constant, it's a national concern". He noted that PHC requires strengthening and expressed hope when he said, "there are measures definitely being put in place at different levels to see how we can strengthen it".

I. Do the PHC centres in Plateau State adequately manage CVD risk factors?

The study sought to find out from respondents whether the PHCs in Plateau State adequately manage CVD risk factors. Respondents' views are depicted below.

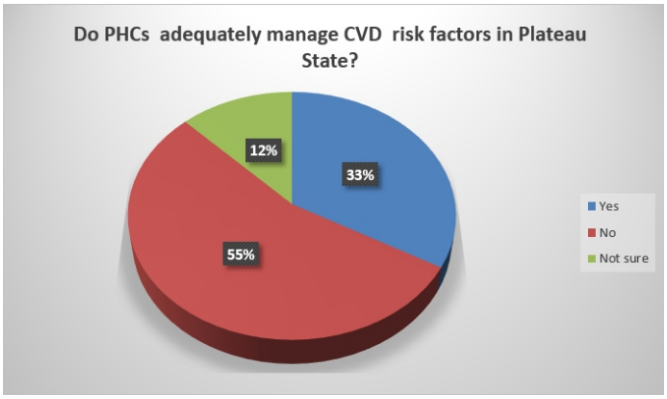

Figure 4.17 Do the PHCs adequately manage CVD risk factors?

Source: Participants Field Survey, 2020

Figure 4.17 above showed that in 55 per cent of the respondents opined that management of CVD risk factors by the PHCs in Plateau State was inadequate, 33 per cent felt it was adequate while 12 per cent indicated "not sure". From the data gotten from the statistics department, only two PHCs in the entire 17 local government areas of Plateau State had one medical doctor each attached to them (Table 4.34; Appendix II). Hence, majority of the respondents indicating that CVD risk factor management was inadequate may not be far from being a fact.

j. How satisfied are you with the response of the Plateau State government on improving the treatment of cases of CVD risk factors in the state?

The extent to which the respondents were satisfied with the response of the Plateau State government on the treatment of cases of CVD risk factors in the state was also established. Respondents' views are depicted below.

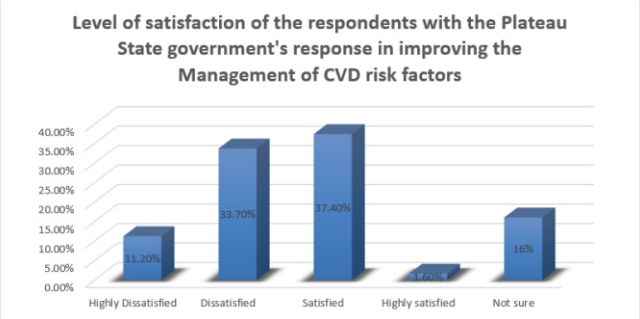

Figure 4.18Level of satisfaction with the response of Plateau State government on improving the treatment of cases of CVD risk factors in the state
Source: Participants Field Survey, 2020

Figure 4.18 showed that 44.9 per cent of the respondents were cumulatively dissatisfied (Highly dissatisfied; 11.2 per cent, Dissatisfied; 33.70 per cent) with response of the Plateau State government on improving the treatment of cases of CVD risk factors. On the other hand, 39 per cent were satisfied while 16 per cent indicated "not sure". Since 44.9 per cent of the respondents were dissatisfied with the response of the state government in improving the management of CVD risk factors (Fig 4.18), it tends to suggest that either the government's effort is either not sufficient or not yielding the desired result. It may not be surprising that in table 4.11, the disparity in the opinions of the respondents was not sufficient to make deduction on the participants' perception of the adequacy of the current state of the management of CVD risk factors in Plateau State. Hence, it is not surprising that more of the respondents expressed dissatisfaction with the state government's response in improving treatment of CVD risk factors in the state (44.9% vs. 39%).

The Director of Logistics and Health Commodities, Plateau State PHCDA, in his own interview, seemed to also agree that government needed to do more in terms of infrastructural upgrade. When interrogated on the issue of adequacy of funding of the PHC centre, he said that he might not be able to comment on that with certainty noting that the director of the facility might be in a better position to do so. The doctor at Fan Lor PHC said, in an interview with him, that the government had been trying to give priority to healthcare facilities and equipment at the PHC level. He however quickly added, "But as they used to say, I just want to give you an adage, just like Oliver Twist, always ask for more. We are praying that the government should give more attention and more funding to taking care of the PHC facilities".

Another area of deficiency on the part of government which was discovered during the interview with the aforementioned director was in the area of proper mapping and coordination of the PHCs. When asked to give an idea of the population that each of the PHCs are supposed to take care of, the Director of Logistics; who was fairly new in office, noted that there was no such records. He said that they were working on getting a minimum service package document to come up with actual statistics and figures to answer that question. He expressed optimism that when that is done, they would know where the PHC facilities are located and where exactly and which area each covers. Hence, from the above, one can deduce that although there are as many as over one thousand PHCs in the state, their activities still seem not to be properly coordinated or mapped out.

k. How many medical doctors are present in the PHCs visited/work?

In a bid to identify the number of medical doctors in a particular PHC, respondents were asked to state the number of medical doctors in PHCs they visited or worked. The respondents' views are shown below.

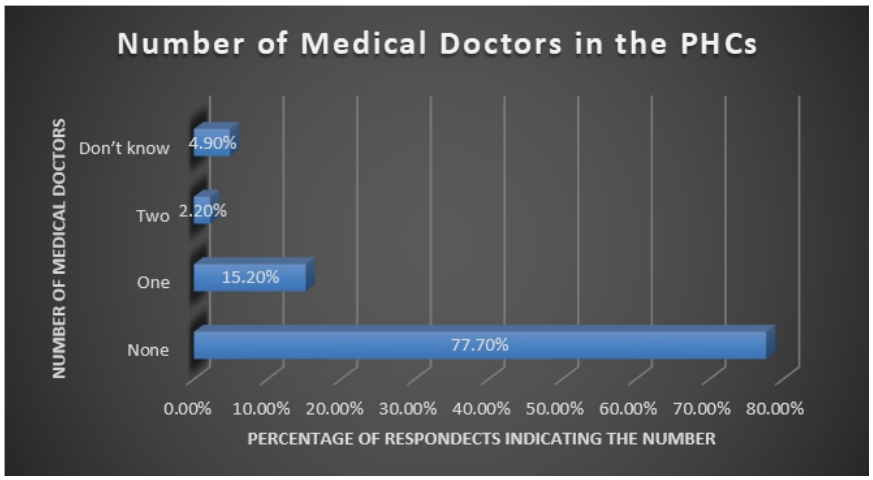

Figure 4.19 The number of Medical Doctors available in the PHCs visited
Source: Participants Field Survey, 2020

Figure 4.19 above depicts that most (77.7 per cent) of the respondents indicated that there was no doctor, 2.2 per cent indicated two doctors, 15.2 per cent indicated one doctor whereas 4.9 per cent indicated "I don't know". It can be deduced from the foregoing that majority of the PHCs had no doctors posted to them. Thus, suggesting that the management of CVDs risk factors may still be far from the desired because the doctors who are meant to handle the patients are not present in the PHCs. This finding supports the assertion by the Permanent Secretary, Ministry of Health of Plateau State, who stipulated that there are no consultants at the PHCs but these consultants are available at secondary and tertiary health institutions. He further stated that where there were doctors available in a PHC, it was only temporarily. This was corroborated by the Executive Secretary, Plateau State PHCDB who averred that majority of workers in PHCs were nurses and CHEWs.

Furthermore, the Director, Logistics and Commodities PHCDA categorically affirmed that there were no doctors at the PHCs. In fact, when the question of the number doctors in each PHCs was asked, he paused and then answered, "That's the bigger question. I think to my knowledge, in our PHCs... I

think I know one in Barkin Ladi that has a doctor... even in our secondary facilities, we have shortage of doctors. So it's a big problem for us. We don't have doctors in our PHCs". Actually, the data from the statistics department of the PHCDA clearly showed that only 2 out of the one thousand and seventy-four (1074) PHCs in Plateau state have medical doctors as shown in Appendix II; Table 4.34. With this figure, the assertion by Adegoke that the number of PHCs were inadequate may not be true for Plateau State (Adegoke, 2018).

In addition, to the issue of lack of doctors in the PHCs, the Director, Logistics added that moving some of the other workers (non-doctors) from the health department to WASH (Water, Sanitation and Hygiene) department was another blow to the detecting and management of CVD risk factors by the PHCs. In his words, "Nurses and pharmacists, CHEWs/ JCHEWs recently had to be moved to the WASH department which is another big blow to our system now". He also explained that they were trying to move staff from the local government to the PHCDA after which they would know the gap. Government, he said, would employ based on capacity to pay the minimum wage.

Do you feel the number of doctors in the PHCs is adequate?

To find out the respondents' views about the adequacy of the number of doctors in PHCs, their views are shown below.

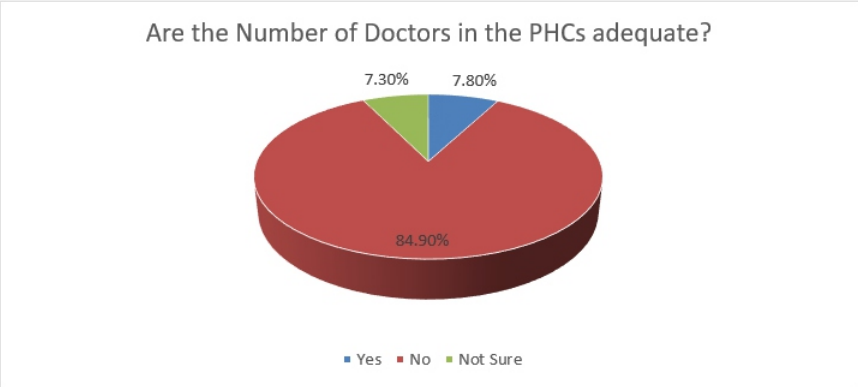

Figure 4.20 Are the number of Medical Doctors in the PHCs is adequate? Source: Participants Field Survey, 2020

As depicted in Figure 4.20, most (84.9 per cent) of the respondents felt that the number of doctors in the PHCs was inadequate, 7.8 per cent indicated "adequate" and 7.3 per cent indicated "not sure". It can be deduced from the foregoing that there is the need to employ more doctors to work in the PHCs for

better management of the CVD risk factors. In an interview with the Executive Secretary, Plateau State PHCDB, he corroborated this. He recalled that during a recent staff audit carried out for PHCs in the state, it was discovered that most of the staff in the PHCs were environmental health officers and attendants. Actually, majority of the respondents possessed certificates that qualified them to be employed in those two categories as Figure 4.5 showed (community health extension workers (CHEW/ JCHEW); 43.10 per cent, diploma holders; 19.9 per cent). In fact, all those interviewed noted that the number of doctors in the PHCs was grossly inadequate. Hence, the need for the state government to employ more doctors to work in the PHCs cannot be over-emphasised.

l. The frequency of referral of patients to other health facilities

The study sought to find out from respondents, how often PHC patients with CVD risk factors were referred to other health centres. Respondents' opinions are depicted below.

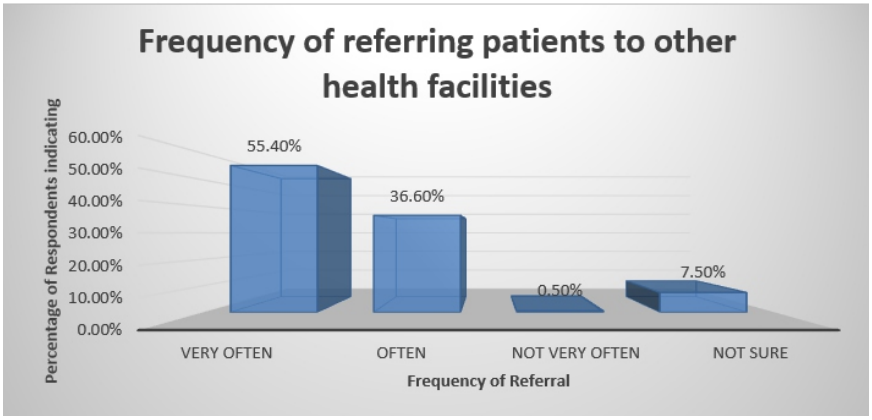

Figure 4. 21 Frequency of referral of patients with CVD risk factors to other health facilities.
Source: Participants Field Survey, 2020

Figure 4.21 shows that 55.4 per cent of the respondents indicated that patients with CVD risk factors were very often referred to other health facilities, 36.6 per cent indicated "often", 7.5 per cent indicated "Not sure" and 0.5 percent indicated "Not very sure". None of the respondents indicated "Not often". It can be deduced from the above that majority (92%) of patients with CVD were often/ very often referred to other health facilities to access better health/professional services. This tallied with the statement made by the Permanent Secretary, Plateau State Ministry of Health during the interview session with him. He averred that most times, upon identifying that they could

no longer handle the patients' illness, the PHCs referred patients to secondary/tertiary institutions. This finding was also corroborated by the Executive Secretary, Plateau State PHCDB who said that most times, the PHCs only diagnosed and referred patients to other health institutions. On a similar note, the Director, Logistics and Health Commodities of the PHCDA declared that PHCs were advised to always refer patients the moment they could not manage such patient. Furthermore, a final year medical student with the University of Jos who was in one of the PHCs for practical experience stated same. He said that once they encountered patients with CVD risk factor(s), they only tried to stabilise the patient, which once achieved, was referred immediately to other health institutions with better capability to manage the patient. While commenting on the effectiveness of the PHCs at detecting CVD risk factors and referring out to higher health facilities when appropriate, the Permanent Secretary, Ministry of Health stated that they were quite effective. He recalled Plateau State that presented a memo to the federal government during the national council on health held in Abeokuta. That memo, he said, reiterated the need to strengthen referral services in all the levels of care, primary, secondary and tertiary. On the question, "what is Frequency of referral of CVD risk factors patients?", the doctor at Fan Loh PHC stated that they were the first point of call within the communities and noted that after careful assessment of a patient, they could then determine if it was a major case to be referred out.

m. Where are patients with CVD referred to?

The study sought to find out from respondents, where patients with CVD risk factors were referred to. Their opinions are represented below in Fig 4.22.

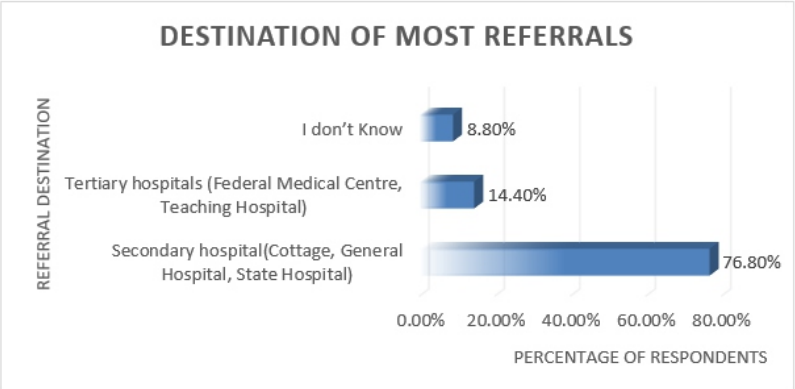

Figure 4.22 Destination of most referrals
Source: Participants Field Survey, 2020

Figure 4.22 above shows that most of the respondents (76.80 per cent) indicated that the referrals from the PHC centres were to secondary hospitals. 14.40 per cent said the referrals were to tertiary medical facilities and 8.8 per cent indicated that they did not know. This clearly implies that most patients with CVDs risk factors were referred to secondary health facilities. The Director of the Plateau State PHC Board reiterated this in an interview with him when he said, "Most of them, I mean most of this conditions, we refer, we just encourage them to refer to secondary health facilities or tertiary health facilities, depending on the severity of the cases"

n. How often patients complied when referred

The study also sought to find out how often patients complied when they were referred to other health care facilities from the PHCs. The views of the respondents are depicted below.

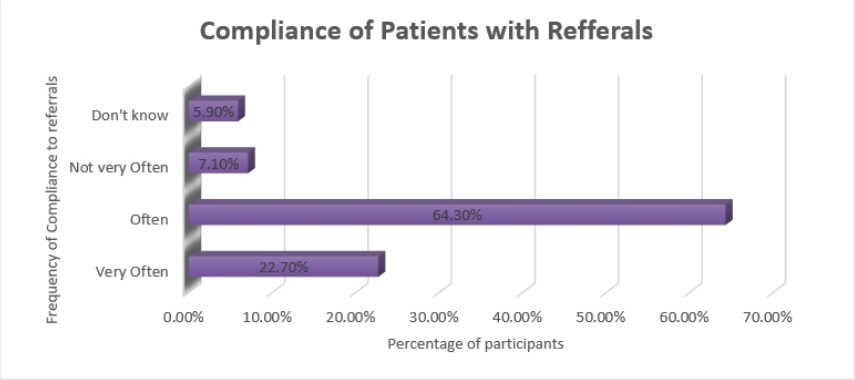

Figure 4. 23 Compliance of patients with Referrals
Source: Participants Field Survey, 2020

Figure 4.23 above showed that most of the respondents (64.3 per cent) indicated that the patients complied with the referrals often while 22.7 per cent indicated "very often". Seven per cent indicated "not very often", 5.9 per cent, "don't know" and none indicated "not often". Both the Director, Logistics and the Medical Student interviewed indicated that patients accessed the health care out-of-pocket. Despite this, it can be inferred that a good number of times, patients complied with the referrals to other health facilities. This is so inferred because, cumulatively, a total of 87 per cent of patients complied with referrals (64.30; often and 22.7; very often). From the interview with the Director of Logistics, it was gathered that only a couple of PHCs had ambulances. Such ambulances, where available should ordinarily have been used to transfer patients to referral health facilities. Lack of ambulances in the PHCs would mean

that these patients, when referred, always transported themselves to the referral hospitals. With up to 87 per cent complying with referral, one can infer that they patients value their health.

o. Reasons why patients didn't comply with referrals

There was also the need to find out from respondents why some patients didn't comply with referrals from PHCs. Respondents' opinion are depicted in Fig 4.24.

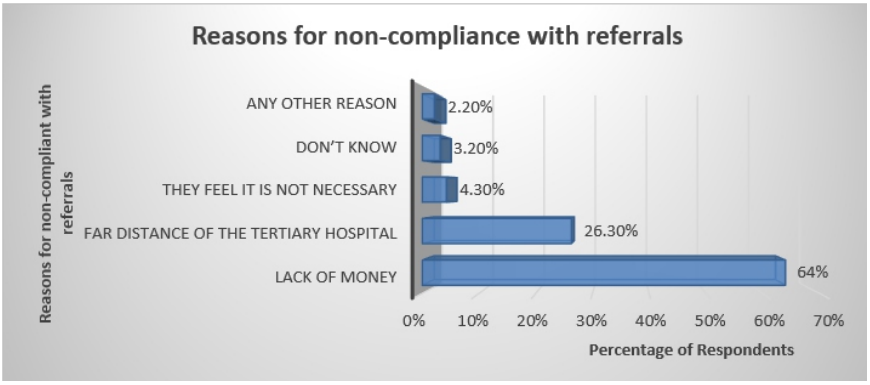

Figure 4. 24 Reasons why patients did not comply with referrals
Source: Participants Field Survey, 2020

From Figure 4.24 above, data sourced from respondents revealed that majority of them (64per cent) indicated lack of money as the reason why patients did not comply with referrals. "Far distance of the referral health facilities" was indicated by 26.30 per cent as the reason. Among them, 4.3 per cent indicated that referred patients felt the referrals were not necessary and 3.2 per cent indicated they didn't know why. It can be deduced from the above that the major reason why some patients flouted their referrals was because of lack of money followed by far distance of the referral facilities. During a key stakeholder interview with the Director, Logistics and Health Commodities, Plateau State PHCDA, he corroborated this finding by stating that "most patients become jittery, the moment they are referred because they assume that they spend more money". The Executive Secretary, Plateau State also concurred during his own interview by saying that one would not expect them to comply with the referral when they couldn't even afford money to take a bike. This was corroborated by the interviewed Medical student who noted that these diseases tend to occur in the older people who he described as the less buoyant age group. He suggested that there should be subsidy for anti-hypertensives and antidiabetics even if not hundred per cent emphasising that these CVD risk

factors seemed to have come to stay with them in Plateau State. Again, far distance being the second major reason why patients flout referrals may not be unconnected to bad road which often goes hand in hand with poor transportation system. All these suggest that making healthcare at the PHC level readily available, accessible and affordable, it would likely translate to better health in line with the vision of the Alma Atta declaration of health for all (WHO, 1980).

p. Actions taken by patients who didn't comply with referrals

Respondents were asked about the actions usually taken by patients who didn't comply with referrals. Their opinion are depicted in Figure 4.25 below.

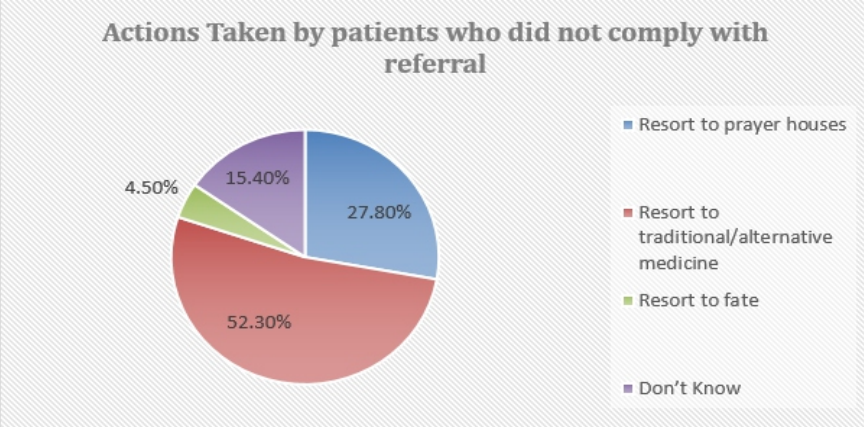

Figure 4.25 Actions taken by patients who did not comply with referral
Source: Participants Field Survey, 2020

When asked to indicate what action was taken by patients who failed to comply with referrals, figure 4.23 shows that the majority of the respondents (52.3 per cent) indicated that they resorted to traditional/alternative medicine. Another 27.8 per cent indicated that they resorted to prayer houses, 15.4 percent "don't know", 4.5 percent indicated that they resorted to fate while 0.6 per cent indicated other reasons. It can be inferred from the responses that majority of patients who did not comply with referrals resorted mostly to traditional/alternative medicine and the rest either resorted to prayer or to fate. This may not be unexpected since majority of the respondents noted that lack of money was a major issue hampering patients' compliance to referrals. Even all the key informants interviewed were of the same opinion that poverty was a major hindrance. They all indicated that the patients paid out-of-pocket for their health care.

Even for those who complied with the referrals, lack of money may prevent them from receiving optimum health care. This was highlighted during the interview with the final year medical student in one of the PHCs. He lamented that even when there was need to prescribe a certain drug for a patient, he/ she (for lack of money) would prefer to stick to a cheaper alternative even when you explain to them the need to change it. Little wonder they would easily resort to fate, prayers or traditional medicine which are generally cheap or free of charge.

q. Frequency of giving explanation to patients for their referrals to other health facilities

Respondents were asked how often explanations were given to patients

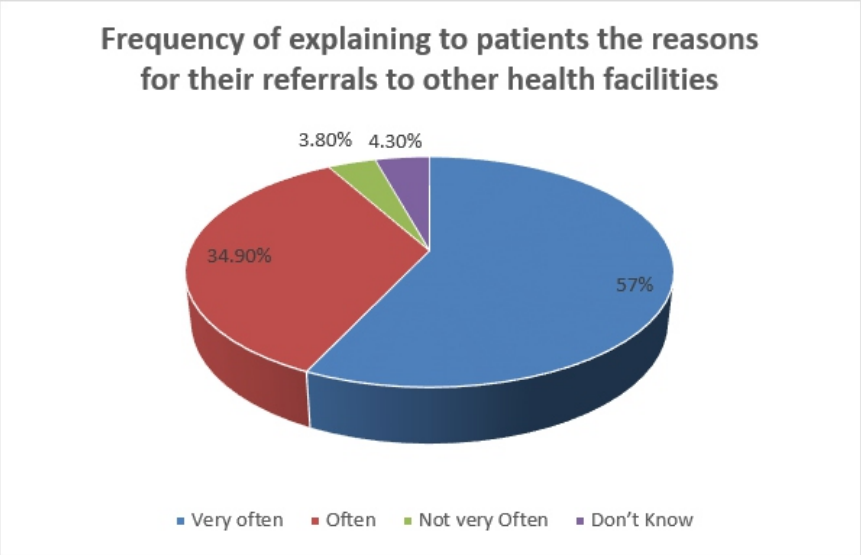

Figure 4.26 Frequency of explaining to patients the reasons for their referrals to other health facilities
Source: Participants Field Survey, 2020

The above Figure 4.26 depicts that 57 per cent of the respondents indicated that explanations were given to patients very often about their referral. "Often" was indicated by 34.9 per cent of the respondents and 3.8 per cent indicated that explanation was given "not very often" while 4.3 per cent indicated "don't know". None of the participants indicated "not often". This implies that most patients received explanation for their referrals. In fact, the workers at the PHCs can be said to be committed to duty since cumulatively, 91.9 per cent of the times explanation was given to patients why they needed

referrals. These workers' commitment to duty was highlighted in an interview with the Director of Logistics and Health Commodities, Plateau State PHCDA who noted that the PHC workers were quite committed despite their few numbers and non-motivating salary. This commitment to duty and explanation before referral may account for why up to 87 per cent of patients complied with referrals. However, since only 22.7 per cent of patients complied very often despite the adequate explanation (Figure 4.23), it tends to corroborate the statement by all the key informants interviewed who stated that poverty was a major issue militating against CVD risk factor management. This tends to suggest that if PHC is made more affordable, the 64.3 per cent that complied often (Figure 4.23) may begin to comply very often and in fact, possibly, all the time.

r. Do health workers at the PHC levels get feedback from the referral health facilities regarding the referred patients?

Respondents were asked if health workers at the PHC levels got feedback from secondary/tertiary institutions on the results/ conditions of patients they (the PHCs) referred to them. Respondents' opinion are represented in Figure 4.27 below.

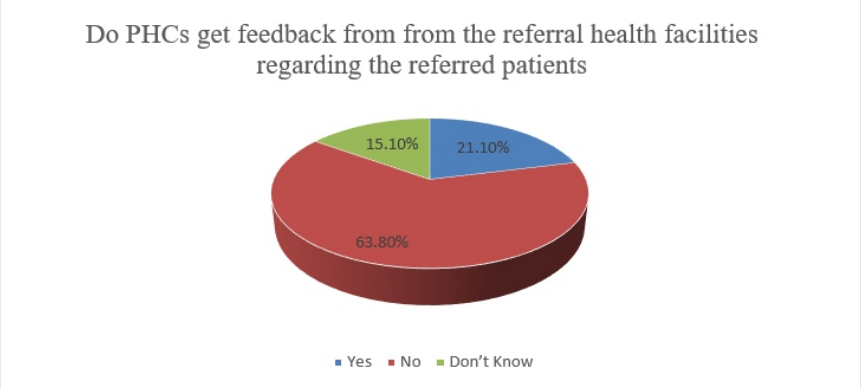

Figure 4.27: Do health workers at the PHC levels get feedback from the referral health facilities regarding the referred patients?
Source: Participants Field Survey, 2020

When asked if health workers at the PHC level got feedback from secondary/tertiary health institutions on the results/ condition of patients they referred, 63.8 per cent of the respondents indicated "No". "Yes" was indicated by 21.1 per cent and 15.1 per cent indicated "Don't know" as depicted in figure 4.27 above. It can be inferred from the above that most health workers at the PHC levels did not get feedback from secondary/tertiary institutions on the results of

patients they referred. All the key stakeholders interviewed during the study were unanimous in stating that lack of adequate feedback from referral hospitals had been one major limitation in the management of CVD risk factors. The Director of Logistics and Health Commodities, Plateau State PHCDA said that he definitely expected that there should be a feedback when somebody is referred for a higher level of care. Contrary to that expectation, however, the only medical doctor in one of the PHCs clearly said, "Usually, the feedback is very poor and the only feedback we may receive from them is if they may need us to continue the monitoring". The doctor noted that even when the doctor from the referral hospital wants the patients' management to continue at the PHC, the doctor, instead of writing an appropriate referral note, would just scribble some notes and give it to the patient as feed back to him. In fact, the final year medical student in one of the PHCs expressed disappointment that they received no feed backs from referral health facilities. He said that as it stood, they had no way of knowing whether their diagnosis on the patients they referred was correct or not and so their chance of getting better knowledge about such cases was jeopardized. It is therefore pertinent to strengthen and improve the two way referral system as that will at the long run result in improved CVD risk factor management in Plateau State.

s. Relationship between the staff in the PHCs and those in the Secondary/tertiary Hospitals

Respondents were asked about the relationship between the staff in the PHCs and those in the Secondary or tertiary Hospitals. Respondents' opinions are depicted below in Figure 4.28.

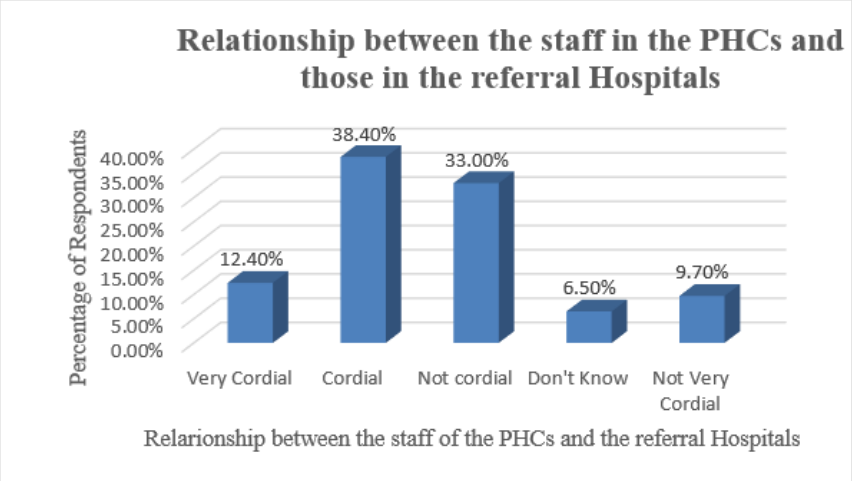

Figure 4.28 Status of relationship between PHCs and secondary/ tertiary Institutions

Source: Participants Field Survey, 2020

When asked of the status of the relationship between the staff in the PHCs and those in the Secondary or tertiary hospitals, figure 4.28 above shows that 33 per cent of the respondents indicated "not cordial" and 38.4 per cent indicated "cordial". "Very cordial" was indicated by 12.4 per cent, "not very cordial" by 9.7 percent and "don't know" by 6.5 percent of the respondents. Cumulatively, more people felt that the relationship was cordial/ very cordial (50.8%) than "not very cordial/ not cordial" (42.7 per cent). The statement by the Executive Secretary, Plateau State PHCDA corroborated this. When asked to comment on the relationships between PHCs and secondary/tertiary institutions (during an interview with him), he answered, "Yeah, it's quite good". One can, thus, infer that the relationship was good in the sense that patients are accepted when they are referred but the referral hospitals need to improve on the relationship by improving on their feedbacks to the referring centres (the PHCs).

t. Availability of follow-ups on patients

The study tried to identify if there were follow-ups by PHCs on patients with CVD risk factors in Plateau State. Respondents' views are shown below

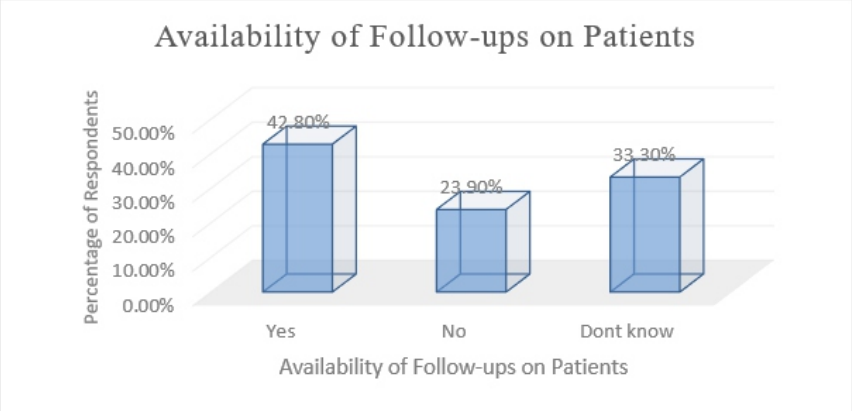

Figure 4. 29 The availability of follow-ups on patients
Source: Participants Field Survey, 2020

The above Figure 4.29 showed that 42.8 per cent of the respondents indicated "yes", 23.9 per cent indicated "no" while 33.3 per cent indicated "don't know". It may not be surprising that cumulatively more people (42.8 per cent) indicated "yes" because nearly about the same percentage of people (44.2 per cent) were nurse and community health extension workers (CHEWs/ JCHEWs) (Figure 4.5). These are the people directly involved in patient care in PHCs and are the ones likely to know if there are follow-ups on patients or not'. Thus, with this, one can say that there is follow-ups on patients with CVD risk factors in

Plateau State. This assumption can be said to be substantiated by the only Doctor in Fan Loh PHC centre when he was interviewed. In that interview, while lamenting on the poor feed backs from doctors at the referral hospitals, he complained that they just scribbles something and gives to the patients to bring to him only when they wants him to follow-up the patients.

Effectiveness of the PHC system in managing CVD risk factors in Plateau State

This section highlights the analysis of how effective the PHC System is in detecting CVD risk factors in Plateau State. The analysis is guided by the research objectives (As shown in the Tables in Appendix III).

a. Do the medical staff of the PHCS in Plateau State have the capacity to handle cases of CVD risk factors?

The study further sought to establish if the personnel and medical officials of PHCS in Plateau State had the capacity to handle cases of CVD risk factors. Respondents' opinion are depicted in Figure 4.30 below.

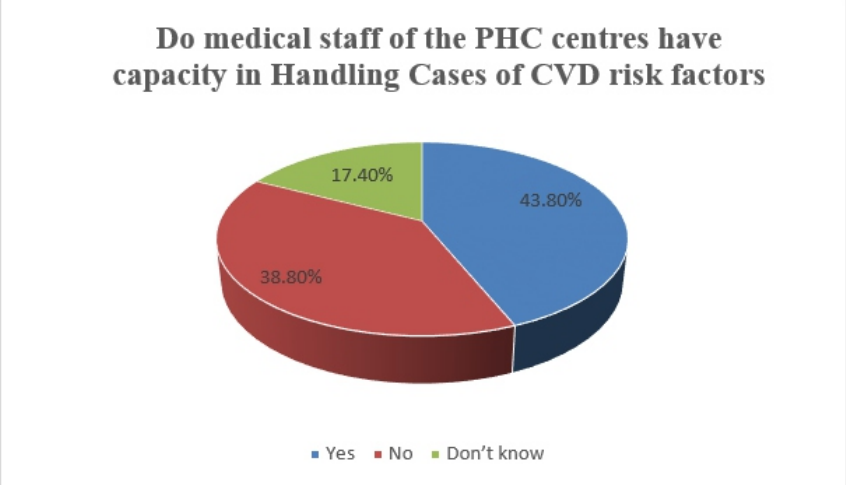

Figure 4.30 Do the medical staff of the PHC centres in Plateau State have the capacity to handle cases of CVD risk factors?
Source: Participants Field Survey, 2020

From figure 4.30 above, 43.8 per cent of the respondents indicated "yes", 38.8 per cent indicated "no" and 17.4 per cent indicated "don't know. Looking at this, it can be seen that more of the respondents indicated that the medical staff had the capacity to handle CVD risk factors. The percentage of respondents indicating "yes" (43.8%)is nearly the percentage of nurses and

CHEWS (44.2%; Fig 4.5) who constitute majority of the PHC workers. Hence, their response may be biased.

b. Rating of the performance of the medical personnel of the PHCs in handling CVD risk factors

The study also sought to establish how the respondents rated the performance of the medical personnel of the PHCs in handling CVD risk factors. Respondents' opinion as shown in Figure 4.31 below.

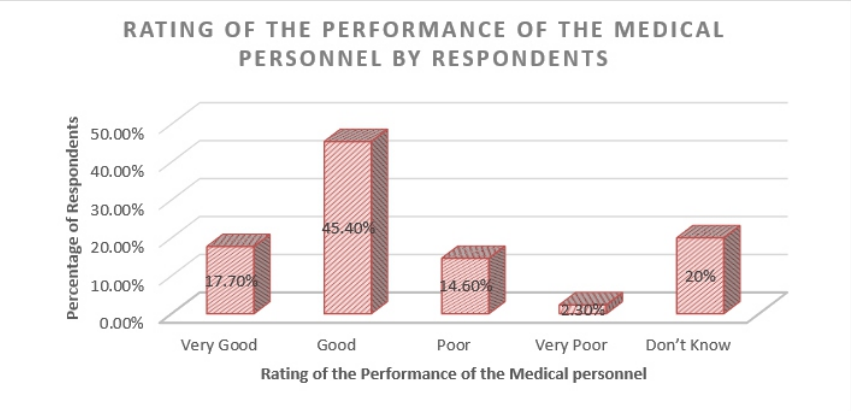

Figure 4.31 Rating of the performance of the medical personnel in handling cases of CVD risk factors.
Source: Participants Field Survey, 2020.

The figure 4.31 above shows that 45.40 per cent of the respondents indicated that the performance of the medical personnel in the PHCs was "good" while 17.7 per cent indicated "very good". On the other hand, 14.6 per cent indicated "poor", 2.3%, "very poor" and 20 per cent indicated "don't know". This implies that cumulatively 63.1 per cent of the respondents indicated that their performance was "good". With this finding, the medical personnel can be said to be performing well in handling cases of CVD risk factors. However, as already noted in the interpretation of Figure 4.5, majority of the respondents were medical personnel (nurses and CHEWs) who are directly involved in healthcare delivery. They are, therefore, more likely to adjudge their own performances as "good". This may constitute conflict of interest in this case and so may not really represent the true situation.

Challenges limiting the detection and management of CVD risk factors by PHCs in Plateau State

In this sub-section, the book sought to determine the challenges

limiting the detection and management of CVD risk factors by PHCs in Plateau State.

a. Challenges limiting the activities of PHCs in the treatment of CVD in Plateau State

Respondents were asked to identify the challenges limiting the activities of PHCs in the treatment of CVD in Plateau State. Cumulatively, the challenges indicated by the respondents as limiting the activities of PHCs in the management of CVD risk factors are depicted in Table 4.32 in Appendix II. These included: lack of well-trained personnel (80.9%), lack of adequate medical facilities (86.6%), lack of enlightenment/ awareness (86.6%), lack of adequate funding of health facilities (87.3%), lack of commitment on the part of workers (57.3%), lack of monitoring (82.9%) and non-sanctioning of truant workers (63.4%). In agreement with the poor staffing mentioned, the Executive Secretary, Plateau State PHCDB, in an interview with the researcher, noted that staffing was the major challenge facing PHCs in Plateau State. He described this as posing a serious challenge to the running of the PHCs. To buttress this further, he lamented that the problem was such that even when NYSC doctors were posted to PHCs, they usually found a way to redeploy to secondary/ tertiary institutions. In fact, the Director Logistics noted that Youth Corp doctors were not being posted to the PHCs as at time of the interview. The submission of a final year medical student of University of Jos who was in one of the PHCs to bridge the gap between theory and practice in his training agreed with most of the challenges the respondents indicated. He pointed out that inadequate health facilities and poor feedbacks from secondary/tertiary intuitions posed serious challenges for the PHCs in the State. Furthermore, he noted that there had scarcely been a forum organized to educate people on the dangers of CVD risk factors and reiterated the need for lifestyle change. His final words were that it was time for community education on CVD risk factors to be inculcated into their programme.

On a similar note, during the interview with the medical doctor in PHC, Fan Lor, he corroborated all the challenges indicated by the respondents. The doctor also frowned at the poor state of the facilities and lamented thus, "Most of the facilities you tend to look at, the structures are in shambles. They are not even worth to be called facilities". On the issue of lack of appropriate personnel, he lamented thus, "It is quite outrageous to hear that there is only one or two medical doctors within the PHC system in Plateau State". The doctor cited Kaduna state where he pointed out that the local government service commission employed most of the doctors. He, thus, emphasised that the state

government should (in his words), "go back to retrospect and have a look at the staff strength, particularly the caliber of staff such as medical doctors".

The Secretary, PHCDB in his own interview agreed with all the challenges outlined by the respondents as well. He said that the major problem actually affecting PHC was that the number of healthcare workers at that level was poor. He, however, said that they had a large number of volunteer workers trying to assist. Pointing out that the state government was aware of the problem, he assured that interview had been conducted for employment of all cadres of workers from doctors to attendants. According to him as soon as the issue of the new minimum wage is resolved, the shortlisted people will assume duty. With all these lamentations, there is, therefore, the PHC centres both in staffing and facilities. He passionately emphasized that government needed to look into the PHC centres to develop them, raise structures and stock them with necessary commodities. He said government should also give attention towards training, retraining and recruitment of health personnel; most especially doctors, if need be.

In all, this study agrees with the assertion made by Adegoke that the capacity of available PHCs to deliver quality PHC service is weak (Adegoke, 2018). In this study, 57.3 per cent of the respondents indicated that lack of commitment of workers was one of the major hindrances to management of CVD risk factors in the state. In his own interview, however, the Director, Logistics and Health Commodities tended to disagree on the issue of lack of commitment of workers as posing a challenge to CVD risk factors management. While recognising that some workers may not be committed, he said that majority had good commitment to their duty. In fact, he commended the workers for being committed to their duties despite their poor remuneration. He spoke thus, "You know you cannot be everybody of course, there are those ones that are not, but I think a good majority of the workers, I think they are committed to the work and I think they are doing their best despite……"

Recommendations for the improvement of the PHC system in the management of CVD risk factors in Plateau State

In this sub-section, the study sought to find out suggested recommendations from the respondents for the improvement of the PHC system in the management of CVD risk factors in Plateau State. Their suggestions are shown in Figure 4.32 below.

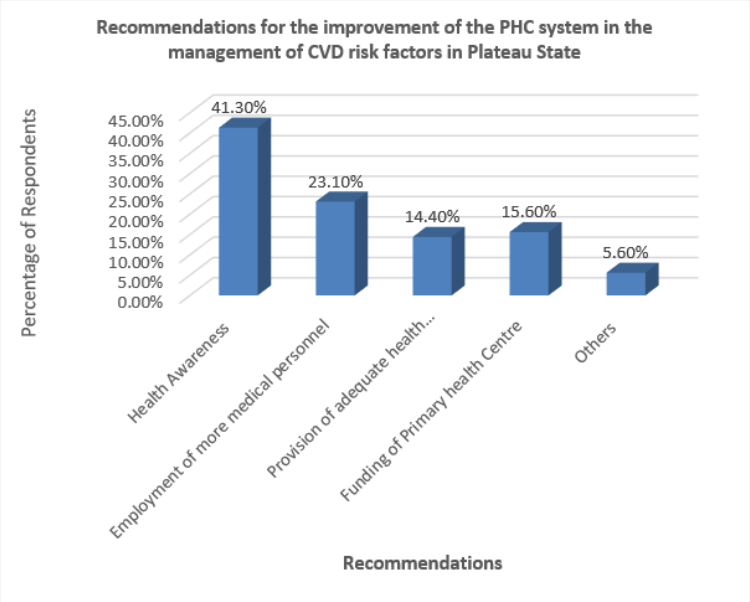

Figure 4.32 Respondents' Recommendations for the improvement of the PHC system in the management of CVD risk factors in Plateau State.
Source: Participants Field Survey, 2020

Figure 4.32 showed that the suggested recommendations from the respondents included: creation of health awareness (41.3%), employment of more medical Personnel (23.1%), provision of adequate health facilities (14.4% each), improved funding of PHC (15.6% each) and other reasons (5.6%).

Discussion of Findings

The discussion of the findings of this research is based on the different interpretations of the data analysis. It is therefore presented in the following order in line with the research objectives.

What is the current state of PHC system in the detecting and management of CVD risks factors in Plateau State?

The study established that hypertension (43.6%) and diabetes (29.3%) were the major CVD risk factors in Plateau State with hypertension being the commonest (Figure 4.10). This finding agrees with many previous studies in different parts of Nigeria and elsewhere in the world (Tagurum, et. al, 2015; Ahaneku et al, 2011; Ahaneku et al, 2015; WHO, 2020, Ogah, et. al., 2013). As many as 87.70 per cent of the respondents were concerned about the current state of PHCs in the management of CVD risk factors in Plateau State (Figure 4.14). As shown in figure 4.13, 41 per cent of the respondents opined that the

current state of management of CVD risk factors in Plateau State was inadequate. Findings from this study also revealed that 55 per cent of the respondents opined that the PHCs in Plateau State inadequately managed CVD risk factors (Figure 4.17) and 77 per cent of the respondents agreed that there were no medical doctors in PHCs where they worked or had sought medical care (Figure 4.19, Figure 4.20). Adegoke (2018) who stated that in his study that the health sector lacked both human and financial capacity to treat or prevent CVD seems to be proven right here.

The PHCs referred patients with CVD risk factors (Figure 4.21) to secondary hospitals (76.80%) and tertiary hospitals (14.40%); Figure 4.22. This study revealed that more often than not (91.9%), health works explained the reasons for such referrals to patients (Figure 4.26). This may have resulted in majority of the patients (cumulatively 87 per cent) complying with referrals despite their out of pocket pay and lack of ambulances in the PHCs. However, the finding in this study tends not to agree with a study done in a different Northern state in Nigeria which found that PHC workers had poor knowledge about prevention of CVD as well as poor treatment or referral for their clients and patients (Awosan, et. al., 2001). In that study, the participants' practices on detection of the CVD risk factors, counselling, treatment or referral of patients were poor. In this study, however, detection of the risk factors, counselling, treatment or referral of patients were good. This study and that one are, however, similar in that CVD risk factors management was sub-optimal and training and retraining of workers, poor. With a time interval of nearly two decades between that study and this one and the two studies conducted in two different Northern states, it is not encouraging that training/ re-training of PHC workers has remained poor.

Lack of money (64%) and far distance of the tertiary hospital (26.3%) (Figure 4.24) were also found as major reasons why few patients did not comply with referrals. The findings also showed that certain patients who did not comply either resorted to traditional/alternative medicine (52.3%), prayer houses (27.8%) or would even go home and resort to fate (14.8%) (Figure 4.25). This their choice of cheaper but less desirable alternatives tends to buttress lack of money as an important reason for their non-compliance. Sadly, Figure 4.27 revealed that most (63.8%) of the times, health workers did not get feedbacks from secondary/ tertiary institutions on the patients they referred. Such feedbacks should have helped the care givers at the PHC level to improve on their care of similar patients in future but this is lacking. In Figure 4.29, only 42.8 per cent of the respondents indicated that there was follow-ups

on patients with CVD risk factors in Plateau state. All these findings show that the PHC system in Plateau State operates far below the requirement laid in the Alma Ata declaration for an effective response to the global health challenges viz: fairness, consensus and social justice (WHO, 2008).

How effective is PHC system in detecting and managing CVD risk factors in Plateau State?

The study was also able to investigate how effective the PHC system was in detecting CVD risk factors in Plateau State. The findings showed that 63 per cent of respondents indicated that the PHCs screening for CVD risk factors (figure 4.11) and 71.6 per cent of the respondents (figure 4.12) agreed that the PHCs had good capacity in detecting CVD risk factors in the State. Findings further revealed that 63.1 per cent (figure 4.31) of the respondents indicated that the capacity and training of the personnel and medical officials in PHCs in handling the cases of CVD risk factors was good.

In Figure 4.5, nurses and CHEWs who are the medical staff mostly working at the PHC were shown to make 44.2 per cent of the respondents in this study. Hence, it is possible that the indication by 43.8 per cent of the respondents that the staff of the PHCs had the capacity to handle cases of CVD risk factors may be a biased opinion from these medical staff. It is usually said that one cannot be a judge in his own case. It may, therefore, not be sufficient to rely on the finding of this study to ascertain if the medical staff of PHCs in Plateau State had the capacity to handle CVD risk factors. However, in an interview with the researcher, the Executive Secretary of the Plateau State PHCDB averred that the state government had partnered with an NGO (Heart Aid) to train and retrain medical personnel of PHCs. In his own interview, the director, Logistics and Health Commodities of the PHCDA noted that training and retraining was one of the key responsibilities of the Board. He pointed out that though they were struggling to settle and get some things straight, they did trainings at intervals.

On the finding of poor feedbacks from secondary/tertiary institutions in this study, the study by Afolaranmi (2018) tends to have been corroborated. In that study, he stated that the referral system for continuity of care in Nigeria across the levels of health care appeared to have a weak link. Again, the fact that the impact of the numerous PHCs in the state has not been felt in the state tends to be in line with the assertion by Hendriks (Hendriks, 2011). His study revealed that guidelines for CVD care in LMIC have been developed but little evidence-based information is available on strategies for effective and successful implementation of such care in settings with low resources. This supports the

assertion that the impact of PHC has remained sub-optimal (Gupta et al., 2004) despite being the bedrock of the Nigerian health system since 1988 (FMOH, 2004).

The existence of screening for CVD risk factors in the PHCs is in accordance with the suggestion made in a study of a community in South East Nigeria (Ogah, et. al. 2013) which found increasing incidence of CVD risk factors and suggested that non-communicable diseases surveillance should be established and strengthened in the state.

Although a good number of the respondents (73.6 per cent) believed there was some effort by the state government at improving CVD risk management, proportionally, a greater percentage (38.4 per cent) as against 22.2 percent believed that the effort was not serious (Fig 4.16). This finding was not in total agreement with the views of the Permanent Secretary, Plateau State Ministry of Health. He opined in an interview session with him, that though the PHCUOR was a federal government initiative, the state had supported PHC by establishing a PHCDA. This, he stated, provided a conducive environment for the PHC to provide services to people and also supervise the activities of PHCs in the State.

Furthermore, the Permanent Secretary said that the state government had also ensured that every ward in the state had a PHC. He explained that employment of trained medical personnel in various fields and provision of imprest for every PHC in the State was in the pipeline. The Director, Logistics and Health Commodities, Plateau State PHCDA also averred that the state government had ensured that health services were domiciled in every ward in the state. In his opinion, health services were available to every citizen in the state with one thousand and ninety-eight PHCs covering the seventeen local governments in the state. Corroborating that submission, the Permanent Secretary of the Plateau State Ministry of Health highlighted the efforts of the state government in trying to encourage and improve activities in the PHC system. He said that the state was trying to key into the federal government policy of implementing PHCUOR to ensure that the PHC clinics were run properly. He noted that the policy led to the formation of the PHCDB in Plateau State under the leadership of the Executive Secretary (ES). This agency, he noted, was directly responsible for the daily running of PHC clinics in the state. As such, the main responsibility of his office as permanent secretary was mostly supervisory. According to him, his office drew out the policies and also made a conducive ground for the PHCDB to execute them for the benefit of the people while his office supervised their (the PHCDB) activities.

Establishment of PHCDB and SHIS as well as payment of counterpart funding were conditions which the state had fulfilled, hence their enlistment among the states to benefit from the BHCPF (Kemi Busari, 2019). The Permanent Secretary, PHCDB, noted that the government had various interventions for the improvement of the state health services. One of such, according to him was the state contributory SHIS established to make healthcare accessible to the financially and geographically disadvantaged people. In his explanation, from the money to be generated from this BHCPF, every PHC clinic was going to have an imprest. This he said would help them solve some basic problems without relying on the bureaucratic bottlenecks in running those places. This initiative tends to be in line with the suggestion captured by Hendriks nearly two decades ago putting forward community health insurance programmes as a means to improve patient access to healthcare (Hendriks, 2011). It is therefore necessary for the government to earnestly bring this forth in the state.

The Permanent Secretary also said that they ensured that every ward had a PHC centre for easy accessibility to everyone. According to him, renovation of dilapidated facilities and plans to supply equipment were in the pipeline. This, he stated, was in partnership with other organisations like the Federal Ministry of Health and other international organisations. In his words, the permanent Secretary emphasised, “no matter what you are doing, if there is no quality, you have not done anything yet”. He said that in their programme was not just training of workers but also supervision to ensure that those trained were practicing what they had been trained to do. Government, he also said, was attempting to improve on data generation, collation and management from the PHCs in the local government areas. According to him, “no matter how much you do, how many hours you put in a day and you don't document what you do or you document but you don't read, you wouldn't be able to do any research and you would not be able to use it to develop any policy”.

On the strategic development plan for the PHC clinics, the Permanent Secretary revealed that there was plan to improve on the number of the different categories of the healthcare workers. Consumables, drugs and other things in the PHC centres, he said, would also be improved on. He emphasised that all those would come from the state coffers. In his words, “because if you are to rely on what the local government will give them, you will not be able to provide any quality service to them”. Unfortunately, information gathered from both the medical student and the doctor (front liners in PHC patient care) interviewed did not agree with the above claims as to government making enough impact in

improving the PHC clinics. This conflicting views regarding adequacy of governments effort at improving the PHC system suggests that assistance of NGOs needs to be sought to augment whatever government is doing in that regard.

The Permanent Secretary also talked about formation of ward development committees made up of community and religious leaders. According to him, they were key partners in ensuring that the PHC clinics were run smoothly. Interview of the front liners in the PHC clinics did not indicate that the impact of this committee has been felt in any way at improving the running of the PHC centres. Therefore, more needs to be done to strengthen and awaken the consciousness of the committee to their duty in other for the citizens to benefit maximally.

Challenges limiting the detection and management of CVD risk factors by PHCs in Plateau State

In an attempt to determine the challenges facing the detection and management of CVD risk factors by PHCs in Plateau State, findings (Table 4.32) revealed the challenges cumulatively as: lack of well-trained personnel (80.9%), lack of adequate medical facilities (89.8%), lack of enlightenment/ awareness (86.6%), lack of adequate funding of health facilities (87.2%), lack of commitment on the part of workers (57.3%), lack of monitoring (82.9%) and non-sanctioning of truant workers (63.4%). The finding of lack of awareness was corroborated by the Director, PHCDA. He stated that most people were very ignorant of the health conditions posing a challenge to the health of the individuals. He also averred that poor health facilities and inadequate manpower were major challenges limiting the detection and management of CVD risk factors by PHCs. His comments "And you see, some of the facilities you look at are as a cubicle but yet they refer to it as a facility". He expressed that government needed to look into the PHC centres, raise structures and stuck them with necessary facilities. He emphasised the need to train the staff and recruit more; particularly doctors. The lack of well-trained personnel was obvious in that one of the PHCs visited had a final year medical student bridging the gap for lack of a medical doctor in that facility. Ideally, proper implementation of PHC in Nigeria, requires a community health officer (medical doctor) to head a PHC centre and where none is available, an experienced nurse (Udomoh Eshaemokha, 2019). It is, therefore, obvious that the state needs to train and employ at least 1000 doctors to seal the gap in the PHC centres. The curriculum of the Nursing School and the School of Health Technology in Plateau State need to be upgraded to improve the knowledge of

the nurses and CHEWs on detection and management of CVD risk factors.

During an interview with the medical student, he acknowledged that his training was still limited and said, “the knowledge too, somehow, the training is limited, just that nowadays we have the medical doctor here he has put many of us through”. The student noted that training is also key to good service delivery at the PHC centres. He also reiterated lack of basic diagnostic equipment as a limitation in CVD risk factor management, thus agreeing with the 89.8% of the respondents. His submissions agreed with the finding that lack of enlightenment/ awareness was a major factor hampering CVD risk factor management as 86.6% of the respondents declared. The senior medical student said, “because some of them too when they are unable to know exactly what their condition is, it also affects the way they adhere to the medications”. Hence, health education is very paramount in driving CVD risk factor management at the PHC level.

The finding that majority of the few patients who flouted their referral to other health facilities did so because of lack of money throws up the reason why the Brazillian model of removing copayment (Brazilian Ministry of Health, Department of Primary Care, 2006) for PHC services should be encouraged in other climes. It is therefore a major reason why the community health insurance scheme talked about by the Permanent Secretary, Plateau State Ministry of Health should be pursued more seriously.

Socio-Economic Factors that Influence CVD Risk Factors and Management

Plateau state has adopted the evidence based NSHDP Framework with its overarching goal of improving and maintaining the health status of its more than 3million people as well as meeting the MDGs in 2015 and beyond. Plateau state's overall health system performance is far from efficient in terms of policy, leadership and governance, health financing, health service delivery, human resource for health among others. In addition, there is gross underfunding of the health sector especially in the last decade, at both state and LGA levels, with 6% of the state budget and 15% of the LGAs budget allocated to health respectively. Health service delivery in the state is seriously hampered by low human resource for health occasioned by embargo on employment, mal-distribution of available healthcare professionals (doctors and nurses/midwives), frequent drug stock outs, high cost of medical services, no health insurance as well as geographic inaccessibility of some LGAs.

Other factors or bottlenecks include inadequate human resource and commodities and funds, poor utilization of services, poor accessibility and low

coverage in some of the components of WMHPC. The causes of these bottlenecks ranged from poor political will, poor funding, donor dependency, lack of awareness of benefits of some of the health interventions such as Exclusive Breastfeeding for 6 months by mothers as well as poor data collection and management. Also, inadequate manpower, poor supply logistics and socio-cultural and socio-economic constraints played key role.

Recommendations for the improvement of the PHC system in the management of CVD risk factors in Plateau State

The study further sought to determine practical recommendations for improving the role of the PHC system in the management of CVD risk factors in Plateau State.

Findings from Figure 4.33 revealed that higher percentage of respondents recommended creation of health awareness (41.3%) as a way to improve CVD risk factors management in the PHCs. Employment of more medical personnel was recommended by 23.1 per cent, improved funding of PHC by 15.6 per cent, provision of adequate health facilities by 14.4 per cent each and other reasons by 5.6 per cent.

It is not surprising that health awareness creation and rganiyment of more medical personnel ranked highest as recommendation to improve CVD risk factor management at the PHC level. This tend to agree with the view of the Director, Logistics who opined that for CVD risk factor management to improve at the PHC level, quality care has to be driven to the lower level. He said that the capacity of the healthcare providers at that lower level needs to be improved to be able to identify CVD risk factors and make adequate/ appropriate referrals. This his submission is very important because as he asserted; “I think it will go a long way to reduce the rate of CVDs…..” He added that at the government level, staff motivation, improvement of the facilities and working environment needed to be tackled. The Director also revealed that they (the Board) was establishing the Plateau State Contributory Health Insurance Scheme (CHIS), which he said was just taking off. Not being very sure of the state of the newly established Contributory Health Insurance Scheme, he said that it was just established this year with a new executive appointed to mobilise the community to engage in it. It is important to note that the government's intention to get the CHIS working is apt. The World Health Organisation (WHO) has warned that universal access to essential NCD interventions would be most unlikely where health insurance coverage is inadequate. (WHO, 2020).

The Permanent Secretary, Plateau State PHCDB suggested that

rganizett should stop/ de-emphasise opening of new PHC clinics and consolidate on maintaining the already existing ones as part of ways to improve the management of CVDs by the PHCs. On the issue of maintenance/ repair of the few existing equipment, he said that engineers for medical equipment were very difficult to find. In that case, any faulty equipment would just be dumped even when the fault might be minor. It is therefore very pertinent that medical equipment engineers/ technicians be employed. As any equipment is purchased, these engineers/ technicians should be trained on servicing and maintenance of such equipment.

Summary of Key Findings

The key findings emanating from this study include the following:

a. Hypertension and diabetes are the two major CVD risk factors with hypertension being the commonest and a good number of the patients lack enlightenment/ awareness about CVD risk factors.

b. The PHCs had good capacity to screen for and detect CVD risk factors but the current state of management of CVD risk factors by PHC in Plateau State is not good enough.

c. Workers at the PHCs referred patients with CVD risk factors to other health facilities and explain to patients, the reasons for referrals but received no feedback from the referral facilities on the patients they referred.

d. Lack of money and far distance of the tertiary hospitals were the major reasons why patients did not comply with referrals and they resorted mostly to traditional/alternative medicine or prayer houses.

e. Medical personnel in PHCs had good capacity in detecting CVD risk factors but are unacceptably few in number and are not sent for training and retraining as appropriate.

Chapter 5

Key Takeaways: Primary Healthcare System and CVD Risk Factor Management In Plateau State

The study established that hypertension and diabetes were the major CVD risk factors in Plateau State with hypertension being the commonest. It also shows that the PHC system in Plateau State operates far below the standard laid in the Alma Ata declaration for an effective response to the global health challenges viz: fairness, consensus and social justice. The study further revealed that the major challenges facing the PHC in Plateau State include: patient's lack of money, lack of well-trained personnel and adequate medical facilities as well as lack of enlightenment/awareness. Other challenges include lack of adequate funding of health facilities, lack of commitment on the part of workers, lack of monitoring and non-sanctioning of erring workers. Although a good number of the respondents believed that there was some effort by the state government at improving CVD risk management, proportionally, a greater percentage believed that the effort was little.

Recommendations and Implementation Strategies

In view of the findings of this research, the following recommendations and implementation strategies are proffered:

Recommendation One

The Plateau State government should strengthen the PHC system for effective service delivery.

Implementation Strategies

i. The Plateau State government, in conjunction with the Plateau State PHCDB to recruit at least five hundred doctors to meet the one doctor or an experienced nurse per PHC centre as stipulated by the law establishing PHC in Nigeria, before the end of first quarter 2021.

ii. The Plateau State government to ensure that each PHC centres has

basic facilities viz: at least two sphigmomanometers, two functional weighing scale and one functional laboratory that can perform blood sugar and lipid test, before the end of first quarter 2021.

iii. The Plateau State government to collaborate with communities in provision of these basic facilities for the PHC centres and also drive the community health insurance scheme for the citizens before the end of second quarter 2021.

iv. The PHCs should be properly mapped out and the area of coverage of each streamlined for effective supervision and coordination, monitoring and evaluation by the PHCDA before the end of third quarter 2021.

v. The Plateau State Ministry of Health in collaboration with the PHCDA to develop a clearly planned and coordinated protocol for the management of CVD risk factors at the PHC level in Plateau State before the end of third quarter 2021.

Recommendation Two

The Plateau State government should train personnel at the PHC system for more effective management of CVD risk factors.

Implementation Strategies

i. The Plateau State government in conjunction with the Plateau State PHCDB and NGOs to send existing staff and new ones for more trainings at least yearly to keep them afloat at all times on modalities to prevent and effectively manage CVD risk factors before the end of second quarter 2021.

ii. The Plateau State PHCDB to collaborate with other NGOs to employ and train at least two medical equipment engineers/ technicians on the repair and maintenance of equipment used in the PHCs before the end of fourth quarter 2021.

iii. The Plateau State PHCDB to post at least two doctors to the Teaching Hospital to work on shift duties to act as liaison between the PHCs and the Teaching Hospital to improve the feedback between the two before the end of first quarter 2021.

iv. The Plateau State government through the state Ministry of Health to liaise with the Plateau State School of Nursing and the State college of

Health Technology to review the curriculum of studies and training of the graduating nurses and CHEWS improve their knowledge on detection and management of CVD risk factors at the grassroots before the end of third quarter 2021.

v. The Plateau State government to give scholarship starting from next academic session in 2021 to her citizens who have pre-requisite credentials and are interested in studying Medicine to encourage more young people to go into studying medicine to become doctors.

Recommendation Three

The Plateau State PHCDBA and the PHCDB should ensure that there is effective monitoring and evaluation of all PHC centres in the state.

Implementation Strategies

i. The Plateau State government through the PHCDA to ensure that the BHCPF is fully accessed and appropriately injected into running of the PHC in line with the stipulated guideline to ensure effective monitoring and evaluation of all PHC centres in the state beginning from second quarter of 2021.

ii. The Plateau State PHCDB to ensure that qualified and relevant medical personnel are posted to the PHCs after a careful needs assessment before the second quarter of 2021.

iii. The Plateau State PHCDB to liaise with the Ministry of Health to provide facilities such as ambulances and motor cycles to the PHCs for effective and efficient service delivery to the communities before the end of second quarter 2021.

iv. The Plateau State PHCDA to set aside one percent of the BHCPF to pay rural posting allowance as incentive to encourage doctors and other health personnel to work in the PHC centres in remote areas of the state.

v. The Plateau State Government to ensure that it clearly outlines biometric indicators for evaluating the success of the implementation of PHC activities in the state

Recommendation Four

The Plateau State government should ensure optimal utiliSation of the PHC centres after strengthening the system.

Implementation Strategies

i. The PHCDA to embark on massive awareness campaign on radio and television and other media to educate the populace on the need to use the PHCs for their medical needs and health checks beginning from first quarter of 2021.

ii. The PHCDA to mandate the PHCs to liaise with traditional rulers to rganize screening for CVD risk factors in the communities during their village meetings at least twice a year beginning from first quarter of 2021.

iii. The PHCDA to mandate the PHC CHEWS and nurses in collaboration with religious and market leaders to organize health awareness programmes at market squares (on market days) and in the religious worship places at least twice a year beginning from the second quarter 2021.

iv. The Plateau State government to declare the state health insurance scheme (SHIS) mandatory for all inhabitants of the communities to discourage out of pocket payment for health services at the PHC centres from the second quarter of 2021.

v. The Plateau State government having been listed among the states to benefit from the BHCPF to ensure that all the conditions laid down are upheld and pursue the release of the fund as appropriate, Part of the fund meant for the PHC system should also be ensured to be used for running the PHC system.

Recommendation Five

The Plateau State Government should leverage technology to enhance PHC service delivery in the state.

Implementation Strategies

i. The Plateau State Government to incorporate the activities of the state digital hubs into the working of the PHCs for enhanced performance

ii. The Plateau State digital hubs to implement programmes that will be user friendly by the PHCs in the management of its activities

iii. The Plateau State Ministry of Health to sensitise its citizens into adopting digitalisation in its PHCs

Recommendation Six

The Plateau State Government should provide more funding for the PHC centres in the state.

Implementation Strategies

i. The Plateau State Government to make adequate budgetary provisions fpr the fining of primary healthcare centres in the state

ii. The Plateau State House of Assembly to appropriate more funds for the PHCs in the state

iii. The Plateau State Ministry of Health to collaborate with donor agencies in the funding of primary healthcare centres in the state

Communities to adopt PHC centres in the provision of basic amenities for use by the PHCs

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Appendix I A

National Institute for
Policy and Strategic
Studies, Kuru-Jos
1st July, 2020.

Dear Respondent,

RESEARCH QUESTIONNAIRE

I am a participant of the Senior Executive Course (SEC) 42, 2020 of the National Institute for Policy and Strategic Studies, (NIPSS), Kuru, Jos. I am carrying out a research project on **Primary Healthcare System and Management of Cardiovascular Diseases Risk Factors in Plateau State: An Assessment**.

As one of the stakeholders, I will be grateful if you could please create time to fill the questionnaire. All information/answers supplied will be treated with strict confidentiality.

Thank you for your cooperation.

Yours faithfully,

Gladys Ifesinachi Ahaneku
Senior Executive Course 42, 2020

QUESTIONNAIRE

ON

PRIMARY HEALTHCARE SYSTEM AND MANAGEMENT OF CARDIOVASCULAR DISEASE RISK FACTORS IN NIGERIA: AN ASSESSMENT

Instructions
Please tick [√] as appropriate in the boxes provided

SECTION A - BIO-DATA OF RESPONDENT

1. Sex: Male [ ] Female [ ]

2. Age
   a. <26 [ ]
   b. 26 - 35 [ ]
   c. 36 - 45 [ ]
   d. 46- 55 [ ]
   e. 56- 65 [ ]
   f. > 65 [ ]

4. Marital Status
   a. Married [ ]
   b. Single [ ]
   c. Widowed [ ]
   d. Separated [ ]

5. Highest Educational Qualification (please tick only one)
   a. Primary School Certificate [ ]
   b. WAEC/NECO [ ]
   c. Diploma (OND/HND) [ ]
   d. BA/BSc/HND, PGD [ ]
   f. Post graduate (Msc, PhD) [ ]
   g. Nursing (Staff Nurse/ Midwifery) [ ]
   h. Others [ ]

6. Occupation
   a. Public Servant [ ]
   b. Private Sector [ ]
   c. Petty trader [ ]
   d. Business man/ woman [ ]
   f. Farmer [ ]
   g. Artisan/ Others [ ]

7. How many years have you lived in Plateau State?
   a. 1 – 20 years [ ]
   b. 21 – 30 years [ ]
   c. 31 – 40 years [ ]
   d. 41 years and above [ ]

8. How many years have you accessed healthcare or worked in the PHC centre?

a. 1 – 10 years ☐
b. 11 – 20 years ☐
c. 21 – 30 years ☐
d. 31 years and above ☐

SECTION B – RESEARCH INFORMATION

RQ 1. Current State of the PHC System in detecting and managing of CVD risk factors in Plateau State.

a. Understanding the CVD risk factors

Knowledge on CVD risk factors

1. **Which of the following conditions do you consider as cardiovascular diseases risk factors? (Tick as many as you wish to).**
   a. Hypertension ☐
   b. Diabetes ☐
   c. High cholesterol ☐
   d. Lack of exercise ☐
   e. Too much salt in food ☐
   f. Not taking enough fruits and vegetables ☐
   g. Fatness ☐
   h. None of the above ☐
   i. All of the above ☐

2. **Among the conditions in question 1 which you consider as cardiovascular diseases risk factors, which one/ ones do you think is/ are common in Plateau State? (Tick as many as you wish to).**
   a. Hypertension ☐
   b. Diabetes ☐
   c. High cholesterol ☐
   d. Lack of exercise ☐
   e. Too much salt in food ☐
   f. Not taking enough fruits and vegetables ☐
   g. Fatness ☐
   h. None of the above ☐
   i. All of the above ☐

3. **Is there availability of screening for CVD risk factors in the PHCs?**
   a. Yes ☐
   b. No ☐
   c. I don't know ☐

4. **How effective is the PHC centre in detecting CVD risk factors?**
   a. Very good ☐
   b. Good ☐
   c. Very Poor ☐
   d. Poor ☐
   a. I don't know ☐

5. Current State of the management of CVD risk factors

a. Very adequate ☐
b. Adequate ☐
c. Not Adequate ☐
d. Not Very Adequate ☐
e. Not sure ☐

6. **How concerned are you about the current State of PHC in the management of CVD risk factors in Plateau State**

a. Very Concerned ☐
b. Concerned ☐
c. Not really concerned ☐
d. Not concerned at all ☐
e. Don't Know/ Not sure ☐

7. **Reasons why respondents are concerned about the current State of PHC in the management of cardiovascular diseases risk factors in Plateau State**
   a. Awareness about CVDs is poor ☐
   b. Inadequate Health Education ☐
   c. Insufficient Medical Personnel ☐
   d. Inadequate Health facilities ☐
   e. Increasing Number of cases ☐
   f. Others ☐

8. How Seriousness do you think the Plateau State government's effort is in improving the management of CVD risk factors

Very Serious Effort	
Serious effort	
Not Serious effort	
Not Very Serious Effort	
Don't know	

9. Do the PHCs adequately manage CVD risk factors?

Yes	
No	
Not sure	

10. How satisfied are you with the response of Plateau State government on improving the treatment of cases of CVD risk factors in the state?

Highly Dissatisfied	
Dissatisfied	
Satisfied	
Highly satisfied	
Neutral or not sure	

11. How many Medical Doctors work in the PHCs where you work or visited

None	
One	
Two	
I don't know	
More than Two	

12. Are the number of Medical Doctors in the PHCs is adequate?

Yes	
No	
Not sure	

13. How often do the PHC refer patients to other health facilities?

Very often	
Often	
Not Very Often	
Not sure	
Not Often	

14. Where are the patients usually referred to?

Secondary hospital(Cottage, General Hospital, State Hospital)	
Tertiary hospitals (Federal Medical Centre, Teaching Hospital)	
I don't Know	

15. How often do patients comply with Referrals to other hospitals?

Very often	
Often	
Not Very Often	
Not sure	
Not Often	

16. What is the main reasons why patients do not comply with referrals?

Lack of money	
Far Distance of the tertiary hospital	
They feel it is not necessary	
Don't know	
Any other reason	

17. What Actions are usually taken by patients who did not comply with the referral?

They resort to prayer houses	
They resort to traditional/alternative medicine	
They go home and resort to fate	
I don't Know	
Any other	

18. How often do the PHC workers explain to patients the reasons for their referrals to other health facilities?

Very often	
Often	
Not Very Often	
Not sure	
Not Often	

19. Do health workers at the PHC levels get feedback from the referral health facilities regarding the referred patients?

Yes	
No	
Don't Know	

20. How cordial is the relationship between PHCs and secondary/ tertiary Institutions

Very Cordial	
Cordial	
Not cordial	
Don't Know	
Not Very Cordial	

21. Do the PCs have follow-ups on patients?

Yes	
No	
Don't Know	

22. Do the medical staff of the PHCS in Plateau State have the capacity to handle cases of CVD risk factors?

Yes	
No	
Don't Know	

23. How would you rate the performance of the medical personnel at the PHCs in handling cases of CVD risk factors?

Very Cordial	
Cordial	
Not cordial	
Don't Know	
Not Very Cordial	

24. How would you rate/ score the performance of the medical personnel in handling cases of CVD risk factors?

Very Good	
Good	
Poor	
Very Poor	
Don't Know	

25. What challenges in your own view limit the activities of the PHC in managing CVD risk factors?

	Challenges	Strongly Agree (%)	Agree (%)	Don't Agree (%)	Strongly Don't Agree (%)	Don't Know (%)
A	Lack of well-trained personnel					
B	Lack of adequate medical facilities					
C	Lack of enlightenment/ awareness					
D	Lack of adequate funding of health facilities					
E	Lack of commitment on the part of workers					
F	Lack of monitoring of workers					
G	Non-sanctioning of erring workers					
H	Other Reasons-					

26. Recommendations for the improvement of the PHC system in the management of CVD risk factors in Plateau State? (Tick as many as you wish)

What in your opinion do you think will improve PHC systems in the management of CVDs risk factors in Plateau State? (Please write as many as you wish)

a. _____
b. _____
c. _____
d. _____
e. _____

Appendix I B

STRUCTURED KEY INFORMANT INTERVIEW QUESTIONS

QUESTIONS

i. What is the current effort of the Plateau State Government in the management of cardiovascular disease in the State?

ii. How effective has these efforts being towards reducing the level of infection and recovery of patients?

iii. What is the current state of the PHC system in the management of CVD risk factors in Plateau State?

iv. Do the health personnel at the primary healthcare level know how to handle cases of cardiovascular health diseases at that level?

v. How often does the primary healthcare centres refer patients with severe cases of cardiovascular diseases?

vi. How effective is PHC System in detecting and managing CVD risk factors in Plateau State?

vii. What is the role of community/religious leaders in the fight against early marriage in curbing CVD in Plateau State?

viii. How effective is PHC System in detecting and referring CVDs in Plateau State?

ix. What is the relationship between the PHCs and other tertiary institutions or organisations in the management of CVDs in Plateau State?

x. What are the challenges limiting the detection and referral of CVDs by PHCs in Plateau State?

xi. What are the challenges of PHC system in the management of CVD risk factors in Plateau State?

xii. What are the suggested recommendations for the improvement of the PHC system in the management of CVD risk factors in Plateau State?

Appendix II

Result Tables

4.1: Response Rate of Administered Questionnaire

	Questionnaire	Percentage
Number Returned	188	75.2
Number Not Returned	62	24.8
Total Number Administered	250	100.0

Table 4.2 Sex of Respondents

Sex					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	74	39.4	42.5	42.5
	Female	100	53.2	57.5	100.0
	Total	174	92.6	100.0	
	No Response	14	7.4		
Total		188	100.0		

Table 4.3 Age of Respondents

Age Group					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-25	20	10.6	10.8	10.8
	26-35	43	22.9	23.1	33.9
	36-45	58	30.9	31.2	65.1
	46-55	50	26.6	26.9	91.9
	56-65	12	6.4	6.5	98.4
	Over 65 Years	3	1.6	1.6	100.0
	Total	186	98.9	100.0	
	No Response	2	1.1		
Total		188	100.0		

Table 4.4 Marital Status of Respondents

Marital Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	135	71.8	72.6	72.6
	Single	32	17.0	17.2	89.8
	Widowed	18	9.6	9.7	99.5
	Separated	1	.5	.5	100.0
	Total	186	98.9	100.0	
	No Response	2	1.1		
Total		188	100.0		

Table 4.5 Educational Qualification of Respondents

Highest Educational Qualification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary School Certificate	8	4.3	4.4	4.4
	WAEC/NECO	9	4.8	5.0	9.4
	Diploma (ON/OND)	36	19.1	19.9	29.3
	CHEW/JCHEW	78	41.5	43.1	72.4
	BA/BSc/HND, PGD	33	17.6	18.2	90.6
	Post Graduate (MSc, PhD)	2	1.1	1.1	91.7
	Nursing (Staff nurse/midwifery	2	1.1	1.1	92.8
	others	13	6.9	7.2	100.0
	Total	181	96.3	100.0	
	No Response	7	3.7		
Total		188	100.0		

Table 4.6 Occupation of Respondents

Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public Servant	140	74.5	78.7	78.7
	Private Sector	18	9.6	10.1	88.8
	Petty Trader	2	1.1	1.1	89.9
	Business man/woman	8	4.3	4.5	94.4
	Farmer	8	4.3	4.5	98.9
	Others	2	1.1	1.1	100.0
	Total	178	94.7	100.0	
	No Response	10	5.3		
Total		188	100.0		

Table 4.7 Residency in Plateau State

How long have you lived in Plateau State?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-20 years	31	16.5	16.7	16.7
	21-30years	35	18.6	18.8	35.5
	31-40 years	35	18.6	18.8	54.3
	41years and above	85	45.2	45.7	100.0
	Total	186	98.9	100.0	
	No Response	2	1.1		
Total		188	100.0		

Table 4.8 Number of Years accessed healthcare or worked in the PHC centre

How long have you accessed health care or worked in this primary healthcare (PHC)?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-10years	84	44.7	46.4	46.4
	11-20 years	50	26.6	27.6	74.0
	21-30years	37	19.7	20.4	94.5
	31years and above	10	5.3	5.5	100.0
	Total	181	96.3	100.0	
	No Response	7	3.7		
Total		188	100.0		

Table 4.9 Knowledge of respondents on CVD risk factors

q1					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hypertension	74	39.4	39.6	39.6
	Diabetes	29	15.4	15.5	55.1
	High Cholesterol	30	16.0	16.0	71.1
	Lack of Exercise	11	5.9	5.9	77.0
	Too much food in salt	4	2.1	2.1	79.1
	Fatness	1	.5	.5	79.7
	Not taking enough food and vegetables	2	1.1	1.1	80.7
	none of the above	2	1.1	1.1	81.8
	all of the above	34	18.1	18.2	100.0
	Total	187	99.5	100.0	
	No Response	1	.5		
Total		188	100.0		

Table 4.10 Common CVD Risk Factor in Plateau State

$question2 Frequencies				
		Responses		Percent of Cases
		N	Percent	
question2	Hypertension	156	43.6%	100.0%
	Diabetes	105	29.3%	67.3%
	High Cholesterol	25	7.0%	16.0%
	Lack of Exercise	24	6.7%	15.4%
	Too much food in salt	10	2.8%	6.4%
	Fatness	27	7.5%	17.3%
	Not taking enough fruits and vegetables	11	3.1%	7.1%
Total		358	100.0%	229.5%

Table 4.11 Availability of screening for CVD risk factors in the PHCs

q21			
		Valid Percent	Cumulative Percent
Valid	Yes	63.20%	63.2
	No	18.70%	81.9
	Don't know	18.10%	100
	Total	100	

Table 4.12 Effectiveness of the PHC in detecting CVD risk factors.

q22			
		Valid Percent	Cumulative Percent
Valid	Very Good	19.60%	19.6
	Good	52.00%	71.6
	Poor	18.90%	90.5
	Very Poor	9.50%	100
	Don't Know	0.0%	100
	Total	100	

Table 4.13 Current State of the management of CVD risk factors

q3			
		Valid Percent	Cumulative Percent
Valid	very adequate	7.70%	7.7
	Adequate	37.70%	45.4
	Not Adequate	29.50%	74.9
	Not Very Adequate	11.50%	100
	not sure	13.60%	88.5
	Total	100	

4.14 How concerned are you about the current State of PHC in the management of CVD risk factors in Plateau State?

q4					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Concerned	83	44.1	44.4	44.4
	Concerned	81	43.1	43.3	87.7
	Not really concerned	14	7.4	7.5	95.2
	Not concerned at all	9	4.8	4.8	100.0
	Don't Know/ Not sure	0	0	0	100.0
	Total	187	99.5	100.0	
	No Response	1	.5		
Total		188	100.0		

4.15 Reasons why respondents are concerned about the current State of PHC in the management of CVDs risk factors in Plateau State

$question5 Frequencies				
		Responses		Percent of Cases
		N	Percent	
$question5[a]	Inadequate Awareness	138	31.7%	95.8%
	Inadequate Health Education	131	30.0%	91.0%
	Insufficient Medical Personel	45	10.3%	31.3%
	Inadequate Health facilities	45	10.3%	31.3%
	Increasing Number of cases	42	9.6%	29.2%
	Others	35	8.0%	24.3%
Total		436	100.0%	302.8%

Table 4.16 Seriousness of Plateau State government's effort in improving the management of CVD risk factors

q6					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Serious Effort	24	12.8	13.0	13.0
	Serious effort	41	21.8	22.2	35.1
	Not Serious effort	71	37.8	38.4	73.5
	Not Very Serious Effort	33	17.6	17.8	91.4
	Don't know	16	8.5	8.6	100.0
	Total	185	98.4	100.0	
	No Response	3	1.6		
Total		188	100.0		

Table 4.17 Do the PHCs adequately manage CVD risk factors?

q7					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	62	33.0	33.2	33.2
	No	102	54.3	54.5	87.7
	Not sure	23	12.2	12.3	100.0
	Total	187	99.5	100.0	
	No Response	1	.5		
Total		188	100.0		

Table 4.18 Level of satisfaction with the response of Plateau State government on improving the treatment of cases of CVD risk factors in the state

q9					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly Dissatisfied	21	11.2	11.2	11.2
	Dissatisfied	63	33.5	33.7	44.9
	Satisfied	70	37.2	37.4	82.4
	Highly satisfied	3	1.6	1.6	84.0
	Neutral or not sure	30	16.0	16.0	100.0
	Total	187	99.5	100.0	
	No Response	1	.5		
Total		188	100.0		

Table 4.19 The number of Medical Doctors available in the PHCs visited

10					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	143	76.1	77.7	77.7
	One	28	14.9	15.2	92.9
	Two	4	2.1	2.2	95.1
	I don't know	9	4.8	4.9	100.0
	More than Two	0	0.0	0.0	100.0
	Total	184	97.9	100.0	
	No Response	4	2.1		
Total		188	100.0		

Table 4.20 Are the number of Medical Doctors in the PHCs is adequate?

q11					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	7.4	7.8	7.8
	No	152	80.9	84.9	92.7
	Not Sure	13	6.9	7.3	100.0
	Total	179	95.2	100.0	
	No Response	9	4.8		
Total		188	100.0		

Table 4. 21 Frequency of referral of patients with CVD risk factors to other health facilities.

q12					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very often	103	54.8	55.4	55.4
	Often	68	36.2	36.6	91.9
	Not Very Often	1	.5	.5	92.5
	Not sure	14	7.4	7.5	100.0
	Not Often	0	0	100.0	100.0
	No Response	2	1.1		
Total		188	100.0		

Table 4.22 Destination of most referrals

q13					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary hospital(Cottage, General Hospital, State Hospital)	139	73.9	76.8	76.8
	Tertiary hospitals (Federal Medical Centre, Teaching Hospital)	26	13.8	14.4	91.2
	I don't Know	16	8.5	8.8	100.0
	Total	181	96.3	100.0	
	No Response	7	3.7		
Total		188	100.0		

Table 4. 23 Compliance of patients with Referrals

q14					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Often	42	22.3	22.7	22.7
	Often	119	63.3	64.3	87.0
	Not Very Often	13	6.9	7.0	94.1
	Don't know	11	5.9	5.9	100.0
	Not Often	0	0	100.0	100.0
	Total	185	98.4	100.0	
	No Response	3	1.6		
Total		188	100.0		

Table 4. 24 Reasons why patients did not comply with referrals

q15					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lack of money	119	63.3	64.0	64.0
	Far Distance of the tertiary hospital	49	26.1	26.3	90.3
	They feel it is not necessary	8	4.3	4.3	94.6
	Don't know	6	3.2	3.2	97.8
	Any other reason	4	2.1	2.2	100.0
	Total	186	98.9	100.0	
	No Response	2	1.1		
Total		188	100.0		

Table 4.25 Actions taken by patients who did not comply with referral

q16					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	They resort to prayer houses	49	26.1	27.8	27.8
	They resort to traditional/alternative medicine	92	48.9	52.3	80.1
	They go home and resort to fate	8	4.3	4.5	84.7
	I don't Know	26	13.8	14.8	99.4
	Any other	1	.5	.6	100.0
	Total	176	93.6	100.0	
	No Response	12	6.4		
Total		188	100.0		

Table 4.26 Frequency of explaining to patients the reasons for their referrals to other health facilities

q17					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very often	106	56.4	57.0	57.0
	Often	65	34.6	34.9	91.9
	Not Very Often	7	3.7	3.8	95.7
	Don't Know	8	4.3	4.3	100.0
	Not often	0	0.0	0.0	100.0
	Total	186	98.9	100.0	
	No Response	2	1.1		
Total		188	100.0		

4.27: Do health workers at the PHC levels get feedback from the referral health facilities regarding the referred patients?

q18					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	20.7	21.1	21.1
	No	118	62.8	63.8	84.9
	Don't Know	28	14.9	15.1	100.0
	Total	18	98.4	100.0	
	No Response	3	1.6		
Total		188	100.0		

Table 4.28 Status of relationship between PHCs and secondary/ tertiary Institutions

		Valid Percent	Cumulative Percent
Valid	Very Cordial	12.40%	12.4
	Cordial	38.40%	50.8
	Not cordial	33.00%	83.8
	Don't Know	6.50%	90.3
	Not Very Cordial	9.70%	100.0
	Total	100.0	

Table 4. 29 The availability of guidelines for follow-ups on patients

q20					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	77	41.0	42.8	42.8
	No	43	22.9	23.9	66.7
	Dont know	60	31.9	33.3	100.0
	Total	180	95.7	100.0	
	No Response	8	4.3		
Total		188	100.0		

Table 4.30 Do the medical staff of the PHCS in Plateau State have the capacity to handle cases of CVD risk factors?

q23					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	78	41.5	43.8	43.8
	No	69	36.7	38.8	82.6
	Don't know	31	16.5	17.4	100.0
	Total	178	94.7	100.0	
	No Response	10	5.3		
Total		188	100.0		

Table 4.31 Rating of the performance of the medical personnel in handling cases of CVD risk factors

q24			
		Valid Percent	Cumulative Percent
Valid	Very Good	17.70%	17.7
	Good	45.40%	63.1
	Poor	14.60%	77.7
	Very Poor	2.30%	80
	Don't Know	20%	100
	Total	100	

Table 4.32: Challenges limiting the activities of PHCs in managing CVD risk factor

	Challenges	Strongly Agree (%)	Agree (%)	Don't Agree (%)	Strongly Don't Agree (%)	Don't Know (%)
A	Lack of well-trained personnel	43.2	37.7	14.8	1.6	2.7
B	Lack of adequate medical facilities	53.4	36.4	6.3	1.7	2.3
C	Lack of enlightenment/ awareness	33.1	53.5	10.5	1.2	1.7
D	Lack of adequate funding of health facilities	46.8	40.5	9.2	1.2	2.3
E	Lack of commitment on the part of workers	15.2	42.1	35.1	2.3	5.3
F	Lack of monitoring of workers	22.9	60.0	14.1	0.6	2.4
G	Non-sanctioning of erring workers	17.7	45.7	26.8	1.8	7.9
H	Other Reasons-	66.7	33.3	-	-	

Table 4.33 Recommendations for the improvement of the PHC system in the management of CVD risk factors in Plateau State? (Tick as many as you wish)

$Q27 Frequencies			
		N	Percent of Cases
Q27[a]	Health Awareness	66	41.3%
	Employment of more medical personnel	37	23.1%
	Provision of adequate health facilities/drugs	23	14.4%
	Funding of Primary health Centre	25	15.6%
	Others	9	5.6%
Total		160	100.0%

Table 4.34 Distribution of Doctors across the PHCs

s/n	LGA	Medical officer
1	Quanpan	0
2	B Ladi	**1**
3	Bassa	0
4	Bokkos	0
5	Jos East	0
6	Jos North	0
7	Mangu	0
8	Mikang	0
9	Pankshin	0
10	Riyom	0
11	Shendam	0
12	Wase	0
13	Kanam	0
14	Langtan North	0
15	Langtan South	**1**
16	Jos South	0
17	Kanke	0

Source: Records of the Director Statistics

Table 4.35 Distribution of PHCs in Plateau State

LIST OF PRIMARY HEALTH CARE CENTRES IN PLATEAU STATE				
		FACILITY TYPE		
S/No	LGA	PUBLIC	PRIVATE	Total PHC
1	BARKIN LADI	60	5	65
2	BASSA	50	2	52
3	BOKKOS	76	4	80
4	JOS EAST	49	0	49
5	JOS NORTH	38	37	75
6	JOS SOUTH	43	17	60
7	KANAM	53	4	57
8	KANKE	64	0	64
9	LANGTANG NORTH	65	2	67
10	LANGTANG SOUTH	45	0	45
11	MANGU	69	25	94
12	MIKANG	36	1	37
13	PANKSHIN	84	3	87
14	QUAANPAN	64	10	74
15	RIYOM	53	4	57
16	SHENDAM	52	6	58
17	WASE	51	2	53
	STATE TOTAL	952	122	1074

The six LGAs studied had a total of 323 public PHC centres (Jos North; 38, Barkin Ladi; 60, Mangu; 69, Wase; 51, Shendam; 52 and Kanam; 53).

Appendix III

Approval of Research Topic

Appendix IV

Ethical Approval

Appendix V

Taro Yamane formula for sample size calculation:

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

where n = Sample Size, N= Total population size, e – error margin (95% confidence interval) and 1 = constant.

The total population of workers in the PHC centres in the state was 4928 (an average of 290 per LGA for the 17 LGAs)

For the 6 LGAs studied: 290 X 60 = 1740

Sharing this among the 3 Senatorial zones = 1740/ 3 = 580

Applying the Taro Yamane formula for sample size calculation:

n = 580/ 1+ (580 x (0.05 x 0.05))

n = 580/ (1 + 1.45)

n = 580/ 2.45 =236.7

n = 237

Appendix VI

E-mail to the Director of Statistics, Plateau State (PHCDB), Jos on 19th June, 2020.

Dear Dr Dada,

Based on the Research Theme given to the Senior Executive Course 42, 2020 by the President of the Federal Republic of Nigeria, " Population Growth and Human Capital Development in Nigeria.: Challenges and Prospects", I am researching on “Primary Health Care systems and Management of Cardiovascular Diseases Risk Factors in Plateau State: An Assessment”. Kindly find attached the

Questionnaire/ Key Informant Interview questions for the research work. Kindly give your answers and return same back to me. I will equally be grateful if you supply me information on the following:

1. Total Number of Primary Health Care centres (PHC) in the state

2. Total number of Health workers in the state and if possible their distribution (number in each PHC)

3. How many of these workers live within or close to the centre

4. Average number of CVD risk factors (in this case, Hypertension, Diabetes Mellitus and High Cholesterol) diagnosed in the centres monthly

5. Number or percentage of those diagnosed that continue receiving treatment in the PHC centres

6 Any other information you deem necessary.

Thank you and God bless you

Prof Gladys I. Ahaneku (MBBS, FWACP, FMCP, FNCS, PHF, JP)

Group 6, SEC 42, 2020

NIPSS, Kuru

Chief Consultant Physician/ Cardiologist,

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19/6/2020

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About the Author

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Prof Gladys Ifesinachi Ahaneku, mni, is a Professor of Medicine/ Consultant Physician & Cardiologist at Nnamdi Azikiwe University/ Teaching Hospital (NAU/TH), Nnewi, Anambra State, Nigeria and is on the verge of completing a two year tenure as the Dean of the Faculty of Medicine of the University. As a member of the Senior Executive Course (SEC) 42, 2020, her research work titled; the Primary Healthcare System and Management of Cardiovascular Disease (CVD) Risk Factors in Plateau State: an assessment, buttressed her research interests/ inclination which include: clinical epidemiology, genesis/ risk factors of chronic medical diseases and Clinical Cardiology.

She has been a guest lecturer at many scientific conferences and to so many organisations and has authored forty-one scientific publications and four book chapters. For the West African College of Physicians, she serves as an examiner at both the membership and fellowship levels and also serves as an editorial committee member to four journals and a manuscript reviewer to four others.

Her completed supervision of post-graduate students' thesis include among others, one Masters and three PhD Theses, and five Postgraduate Medical Fellowship Dissertations, with five others still at different stages of supervision.

She is happily married and is a mother of five children.