IMPACT OF HEALTH INSURANCE ON HEALTH SERVICES IN JOS NORTH AREA OF PLATEAU STATE

[1]Ikponmwosa Efe Joy,
[2]Dr. Adenike Olanrewaju Owolabi
Department of Insurance, Faculty of Management Science University of Jos, Jos, Plateau State.
[1]Ikponmwosaefejoy@gmail.com
[2]owolabia@unijos.edu.ng

ABSTRACT
Life expectancy has continued to fall and the number of those with hypertension have continue to increase from 8.6% in 1995 to 32.5%in 2020 while the life expectancy continue to drop in Nigeria form 52years to 47years for male and from 63years to 52 years for female. The study investigates the impact of health insurance on health services in Jos North area of Plateau State. Descriptive survey research design was used and a sample size of three hundred and fifty-one (351) respondents completed questionnaire. Collected data were analyzed using SPSS, while the simple regression was employed to test each of the dimensional effect of health insurance on health services. The findings of this study indicated that there is a significant relationship between health insurance and health insurance patients in Jos North Local Government Area of Plateau State. However, the study established a not significant impact of health insurance on hypertension and diabetics patients. The study recommended that Government should added in their health policy hypertension illness and diabetic treatment in their health funding since it has increase health challenges in our society especially among the young people, and concludes that health insurance initiated by government for citizens depends on accessibility of the services by the patients and recommend that government should include health policy on hypertensive patients and diabetic treatment in their health funding since it has increase health challenges in our society especially among the young people.
Keyword: health, insurance, patients, hypertension, diabetics

1.1. Introduction
Health services are variety of medical activities or roles such as: patients care, education, and disease surveillance. It is a means of providing a wide spectrum of medical services through different health practitioners such as nurses, doctors and attendants in both public and private health institutions. It also plays a significant role in the determination of vital human health statistics such as life expectancy, diseases control and mortality rate among others across the nations of the world. Developed insurance markets such as the United States and the United Kingdom have established robust claims processing frameworks that prioritize transparency, efficiency, and policyholder engagement (Owolabi & Ajidagba, 2025; Ezeaka, Ochuba & Bartholomew, 2025).
The programmes and government commitment have been efficient, and also shown that the life expectancy in us has increased from 2024(79.25years) to 2025(79.40) there's a 0.18% increase from 2024-2025 depicting government intervention in the health sector in Nigeria. Consequently, the ratio of a doctor to a patient is 1 doctor to 600 patients (World health organization, 2023).
In 2018, United States of America had approximately 301 physicians per 100,000 patients equating to the ratio of about 1 doctor to 332 patients. World bank (2019) put Forward the world health organization WHO data on the ratio of a doctor to patient, recommended a minimum of 1 primary health care physician per 1000 patient to adequately meet basic health care needs in developed

countries (Adeniyi, Adebimpe & Ogunfowokan, 2020). The U.S faces a significant funding gab in health care with public health experts estimating an annual short fall of 4.5 billion dollars needed for state and local health department to provide comprehensive services and the U.S spend nearly twice as much on health care due to the health services demands in the United States (World bank, 2023).

Similarly Medicare programs was introduced as a supplementary intervention for health funding services to low income families, blind and individuals with disabilities, low income pregnant woman infants not up to 18 years in 2019. This medical program was targeted 19%of the Americans and 9.6million children (UNICEF, 2024). In addition, the US department of health and human services provide some selected agencies such as center for disease control and prevention CDC, Control and Prevention; NIH, National Institutes of Health; HRSA, Health Resources and Services Administration, AHRO ,Agency for Healthcare Research and Quality, FDA, Food and Drug Administration CHIP, Children's Health Insurance among others to provide various health services and healing in the country (UNICEF, 2024) .

Meanwhile, by 2011 more than 95% of the total population of China had basic health insurance, though out-of-pocket costs and the quality of care varied significantly, particularly when it came to serious illnesses among children. CCP leadership cadres have access to a dedicated healthcare system under the government of China (Ezeoke, Nwodu & Ezeaka, 2022).

In 2022, there were 1.34 billion people enrolled in state-subsidized basic health insurance, which was 17 million fewer people compared to 2021 (WHO, 2021). These medical interventions by the Chinese government have consequently affected insignificantly the life expectancy in china for example in 2018 the life expectancy was 77 years while between 2021-2025 it has increased to 78.3years these shows a 1.83 years in the longevity of an average Chinese Marco tend 2023 put Forward that the average percentage of people with hypertension in china from 18-69years between 2018 to 2025 has increased from 23.3%to 26.1% in 2023 this revealed that government commitment and health services on disease control particularly on hypertension in the Republic was in adequate and in efficient as measures of control (World Health Organization, 2021).

Meanwhile, some interventions was provided by the government Primary Health Fund: Covers basic care at local clinics, social health insurance funds, digital health act: Aims to digitize health records and services for improved efficiency, Emergency, Chronic, and Critical Illness Fund: Addresses emergency and long-term treatments. Abasifreke, Simeon and Bariika, (2022), in Kenya is approximately 67.47 years, reflecting a 0.38% increase from 2022 to 2025 of 67.93 in 2025. Medical science put forward that the average percentage of people with hypertension in Kenya from 18-69years has remained relatively stable around 24% from 2020 to 2024.highlighting the need for continued public health interventions focused on prevention, early detection, and management of this condition (Abasifreke, Simeon & Bariika, 2022).

According to World bank (2023), the funding gap of Kenya as of March 2024, is a $215 million on health interventions. Statista (2022), Kenya had 19% registered medical doctors per 100,000 populations, equating to approximately 1 doctor to 5263 individuals. This also depicted that government interventions in the health sector and medical practitioners are inadequate and in serious need in Kenya which in turn will affect Health service delivery in the country necessitating intervention services by both domestic and foreign organizations (Owolabi & Ajidagba, 2025).

In Nigeria the need for health services was introduced by Western Medical Services began during the Colonial period in the late 19th and early 20thCenturies with missionaries and British Colonial government establishing health facilities primarily for their personal and converts in 1898 gradually Expantiate under the colonial administration ((Owolabi, Ajidagba, Akinola, Falaye & Irinyemi, 2016).

Gaps in health coverage, problems with access to health care and unhealthy lifestyles are thought to contribute to the many disappointingly poor health outcomes recorded in the USA. The USA performs better than most high-income countries in terms of breast and colorectal cancer survival and 30-day mortality rates for acute myocardial infarction and ischaemic stroke – probably because of high rates of screening for these conditions or their associated risk factors (Ezeoke, Nwodu & Ezeaka, 2022). In contrast, overall rates of cancer, low birth weight and infant mortality, and years of life lost in the Nigeria all exceed the median values for countries in OECD. Life expectancy is lower.

Interestingly, most of the differences in mortality between the Nigeria and high performing countries such as USA, UK, France and Japan are the result of deaths that occur before the age of 50 years. The relatively high costs and poor outcomes that characterize the performance of the Nigeria' health system are the result of many factors ((Owolabi et al., 2016). These factors include poverty, a lack of universal health coverage, a general lack of focus on primary care and public health, high rates of accidents, violence and teenage pregnancy, and poor health behaviours such as poor diets and an overreliance on automobiles for travel that lead to obesity and lack of fitness. This can be seen as some of the health services challenges needed to be addressed by health insurance policies (Olayiwola, Bakare-Aremu and Abiodun, 2021).

Health Insurance was formally introduced in Nigeria with the establishment of National Health Insurance Scheme in 1999 which became operational in 2005 to provide affordable health services mainly workers and retirees at lower cost (Alokpa, Onah & Francisca, 2024). As a deliberate health intervention by the government, national health insurance scheme (NHIS), universal health coverage (UHC)was established aimed to provide accessible and affordable healthcare to Nigerians through various programs targeting different sectors including the formal and the informal sectors the vulnerable group which included. According to Chukwuma and Obi (2025), the government made provision of this health care programs in Nigeria to address the healthcare system in Nigeria such as National Health Insurance Scheme (NHIS) Basic Health Care provision funds (BHCPF) and sake motherhood (Alokpa, Onah & Francisca, 2024).

According to Nigeria Bureau (2018) the life Expectancy for Nigerian Man 47 years and 52 for women the patient with hypertension in Nigeria are 38.9% among Nigeria and the target at the scheme (Traoré & Tetka, 2025). The myriad of problems facing the Nigerian health services could be analysed using the various levels of health care involved in health policy formulation, implementation and monitoring, that is, the Primary Health Care managed by the Local Government, the Secondary Care administered by the State Government and Tertiary Care under the control of the Federal Government (Chukwuma and Obi, 2025). However, this study focused on the local government activities and to predict the health services with health insurance approach of the government. These points form the motivation of the study which necessitated the study to investigate the impact of health insurance on health services in Jos North Local Government Area of Plateau State.

Basic health care provision funds (BHCPF) is a mechanism for providing predictable financing obligations for the provisions and maintenance of health infrastructure with 15% allocated to this purchase. Saving one million lives(SOML) programs: this is a large scale of primary health care (PHC) program aimed at improving maternal and child health outcomes. Federal ministry of health and social welfare (FMOHSW): is responsible for coordinating the formulating of public health policies and guidance supporting their implementation and evaluation WHO 2024 estimating the global average of life expectancy to be is 73.3years (Anbesu, Ebrahim & Takele, 2022).

World Health Organization (2024), approximately 1.28 billion adults aged 30–79 years worldwide have hypertension, with two-thirds residing in low- and middle-income countries. This equates to

about 32% of the global adult population within this age bracket. Notably, nearly 46% of these individuals are unaware of their condition, and less than half (42%) receive treatment. Consequently, only approximately 21% of adults with hypertension have their blood pressure under control, ratio of 1 doctor to a patient globally is 1 doctor to 600 patients (WHO, 2023).

According to PLASCHEMA (2025), despite these policies, the urban population is burdened by a soaring proportion of 9.6% in the Jos North Local Government Area of Plateau State, suffering from diabetes the health intervention for pregnant women and children below the age of 5 has been grossly been insignificant. Life expectancy has continued to fall and the number of those with hypertension have continue to increase from 8.6% in 1995 to 32.5%in 2020 while the life expectancy continue to drop in Nigeria form 52years to 47years for male and from 63years to 52 years for female. National bureau of statistics NBS(2024), stated that these can be occasioned due to inadequate government policies and increase to the current ratio of doctors to patients of 1 doctor to 2500patients in Nigeria.. It is against this background that this study is carried out in over to investigate the impact of health insurance on health services in Jos North area of Plateau State.

RESEARCH QUESTIONS

1. What is the correlation between health insurance and hypertensive patients in Jos North Local Government Area of Plateau State?
2. What is the effect of health insurance on diabetic patients in Jos North Local Government Area of Plateau State?
3. What is the relationship between health insurance and health insurance patients who are not in Jos North Local Government Area of Plateau State?

OBJECTIVES OF THE STUDY

1. To measure the effect of health insurance on hypertension in Jos North Local Government Area of Plateau State.
2. To examine the effect health insurance on diabetic patients in Jos North Local Government Area of Plateau State.
3. To evaluate the relationship between health insurance and health insurance patients who are not in Jos North Local Government Area of Plateau State.

RESEARCH HYPOTHESES

H01: There is no significant effect between health insurance and hypertensive patients in Jos North Local Government Area of Plateau State.

H02: There is no significant relationship health insurance and diabetic patients in Jos North Local Government Area of Plateau State.

H03: There is no significant effect between health insurance and health insurance patients who are not in Jos North Local Government Area of Plateau State.

2.0 LITERATURE REVIEW

2.1 Concept of Health Services

Taylor & Francis (2023) refers to health services as a broad range of services that aim to promote and protect health, prevent disease and ailment and provide treatment and rehabilitation. Chang Hu (2024) describes health serves as an essential pillar of modern societies, encompassing broad spectrum of activities aimed at maintaining and improving the physical and mental well – being of individuals and communities.

2.1.2 Concept of Health Insurance

Health insurance is a type of insurance that helps cover the cost of an insured person's medical and surgical expenses. It is essentially a social security mechanism that ensures the provision of

necessary health services to individuals by paying a certain amount at regular intervals. It is designed to pay the costs of healthcare by paying the participants because of the uncertainty associated with ill health and the payments for treating it. The goal is to reduce out of pocket expenses in all forms. bills and therefore protect people from high healthcare costs by making payment in advance of falling ill. Health insurance is an insurance policy that pools health risks to offer benefits to Health insurance was defined by the National Health Insurance Scheme NHIS (2022) as a system of advance financing of health expenditure through contribution, premiums or tax paid into a common pool to pay for all or part of health services specified by a policy or plan. Health Insurances can also be broadly categorised as social or private (NHIS 2022).

Based on the NHIS definition, it is obvious that the Scheme operates social health insurance. So it is appropriate to look at the social health insurance concept in consonance with the mode of operations in the NHIS. The Nigerian National Health Insurance (NNHI) is a single/National Health Insurance Scheme (NHIS) with different kinds of programmes (formal and informal sector) (NHIS 2022). Health insurance is a type of insurance or prepayment plan, where participants pay regular fixed amounts that are pooled and used to offset the medical bills of the insured when they take ill. Health insurance thus provides an avenue for risk sharing, resource mobilization, and equity. Social health insurance is a form of health insurance based on employment and income level. It is premised on the fact that people cannot always meet the financial requirements of the consequences of sudden ill health from their resources.

Currently, all countries in the developed world and several developing countries use health insurance as a viable way of financing health care. In Nigeria, National Health Insurance Authority (NHIA), previously known as National Health Insurance Scheme (NHIS) is a corporate body established by law under the NHIS ACT 35 of 1999, to improve the health of all Nigerians at a cost the government and the citizens can afford through the following programs; Formal Sector, Voluntary Contributors, Tertiary Institution, Group Insurance, and the provision of healthcare services to the vulnerable groups; children under five years, prison inmates, disabled persons, retirees and the elderly. Its objectives are to solve the financing and accessibility problems of our health sector, as well as to correct other problems bedeviling the sector such as inefficiency, inequity, inappropriate use of health services, government bureaucracy, and poor-quality services.

The NHIA is the official Social Health Insurance Agency of the Federal Government of Nigeria, established to provide quality healthcare services to Nigerians at a cost affordable enough to address catastrophic health expenditures. One of the key indicators of quality health care services is enrollees' (patients') satisfaction and it measures the level of ease with services received in a health facility. Further, it shows to what extent patients' healthcare needs and expectations are met by the healthcare providers. Assessment of patients' satisfaction is widely used to evaluate the quality and effectiveness of various healthcare service deliveries, yet public healthcare in developing countries has failed to achieve an adequate level of service (Owolabi & Ajidagba, 2025).

NHIS is a body corporate established under Act 35, of 1999 by the Federal Government of Nigeria, to promote, regulate and administer effective implementation of Health Insurance programmes to ensure easy access to qualitative and affordable health care service to all Nigerians (NHIS, 2022). The NHIS recognised that expanding healthcare coverage is a challenge that faces many countries, both developed and developing ones; this reflects the concept of universal healthcare coverage (NHIS, 2022). Correspondingly, in order to achieve equity in healthcare coverage many

countries have committed themselves by including healthcare objectives in health policy constitutional documents and sign up to international declarations on social security (i.e. human right declarations and MDGs declarations) (NHIS, 2022).

Poor or developing countries do this in a bid to alleviate adverse health outcomes of all the population by use of a health insurance strategy and because it is considered that achieving universal health coverage (UHC) is necessary and can be achieved through expansion of social health insurance (NHIS, 2022). UHC also infers that there should be easy access to quality healthcare services by all citizens, particularly the poorest of the poor in society, and there should be security for all persons as ill health can be catastrophic as a result of out-of-pocket expenditure (NHIS, 2022). Nigeria, one of the few African countries on a quest to achieve universal healthcare coverage (UHC) by 2015, has begun an expansion of health insurance over the past few years. The NHIS has just recently reviewed its operational guidelines which hopefully will significantly improve operation of the scheme and enhance the quality of service delivered to the enrolees (NHIS, 2022).

NHIS is the implementing agency for the health reform system in Nigeria; NHIS was set up as part of the effort by the Federal government to strengthen the health system through the implementation of SHI in the country. This initiative seeks to create genuine health financing system and improve the health status of Nigeria through the adoption of the National Health Policy (NHP) in 2006. This also seeks to improve the capability of health goals such as financial protection of all citizens against cost of illness, fair healthcare financial services and openness to citizen expectations.

The objectives of the scheme are to ensure that every Nigerian has access to good healthcare services, to protect families from the financial hardship of huge medical bills, to limit the rise in the cost of healthcare services, to ensure equitable distribution of healthcare costs among different income groups, to maintain a high standard of healthcare delivery services within the Scheme, to ensure efficiency in healthcare services, to improve and harness private sector participation, to ensure adequate distribution of health facilities within the Federation, to ensure equitable patronage of all levels of healthcare, and to ensure the availability of funds to the health sector for improved services (Owolabi et al., 2016).

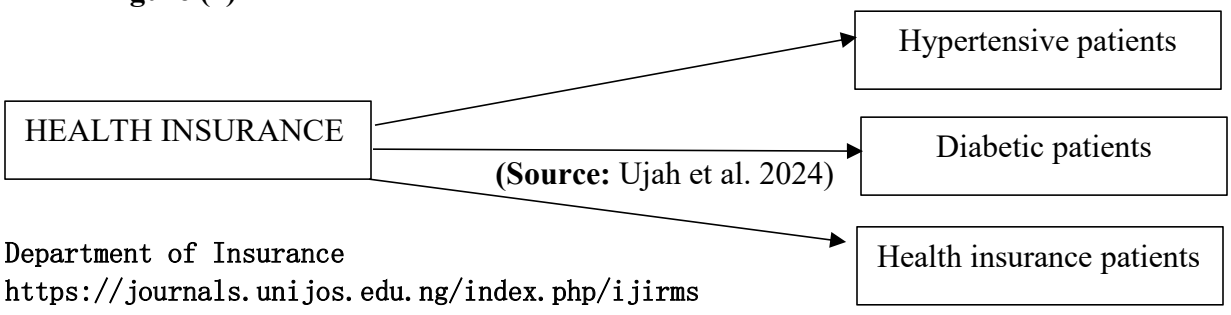
Britannica (2024) states health insurance as a system for financing of medical expenses or taxes paid into a common fund to pay for all or part of health services specified in an insurance policy or the law. Investopedia (2023) explained that health insurance is a contract that requires an insurer to pay some or all of a person's health care cost in exchange for premium.

2.1.3 Conceptual Framework

Based on the framework, the study focused on the impact of health insurance on health services in Jos North area of Plateau State. Based on the framework which depict the relationship between the independent variable (Health insurance) and multiple dependents variable (life expectancy, hypertensive patient, diabetics patient, pregnant woman and health insurance patient), as depicted below;

Conceptual Framework

Figure (1)



(Source: Ujah et al. 2024)

2.2 THEORETICAL REVIEW

This study is anchored on Institutional theory as supporting theory as underpinning theory.

2.2.1 Institutional Theory

According to Greenwood, Hinings and Whetten (2014), institutional theory evolved as an antidote to the overly rationalist and technocratic perspective of 1960s. Institutional theory analyzes the organizational behavior since it can respond to empirical mismatch, whereby what is observed in the world is not aligned with contemporary theories. The central theme of the institutional theory is that organizational structures developed in industrialized countries are viewed by policy makers, donors, and other states as signals of progress towards modern institutional development and hence worthy of financial support (Silva, Macedo & Thompson, 2024). Institutional theory is a relevant theoretical tool to describe the linkages, networks, and couplings of institutions coping with fragmentation, disarticulation, asymmetries between public problems and public jurisdictions, and their high interdependence (Frederickson et al., 2016).

The ideal institutional structure ensures property rights, reduces transaction costs, and reduces conflict between agents. Property rights are constructs in economics for determining how a resource or economic good (like UHC) is used and owned (Silva et al., 2024). There are, however, situations in which the State fails to ensure efficient property rights. Some governments, along their historical processes, create property rights for their own benefit, making them inefficient and high in transaction costs. Some countries have evolved at a slower pace because they lack an efficient institutional configuration with a set of rules, laws, and customs capable of stimulating economically productive activities.

Countries must then devise policies that create and enforce efficient property rights and an institutional matrix that adapts to evolving technologies and demographic changes (Silva et al., 2024). According to Silva et al (2024), the state establishes the rules of the game, implicit in its policies. Policy action is crucial for the assurance of efficient property rights and for minimizing transaction costs, thus enabling generation of positive externalities and efficient market freedom‘‘. However, according to Chang (2011), the state is a strategic actor which plays an essential interventionist role as a market planner and coordinator. The state is an institution capable of creating new institutions, besides being responsible for the control of the existing ones. In this sense, it is evident that the state is a very important agent in determining the success of UHC by coming up with policies that can help reduce the transaction costs which have been a major hindrance to achieving universal health coverage. This can be achieved through health policy partnership strategy which is necessarily institutionalized in order to give it legitimacy and structure (Meyer & Höllerer, 2014).

A partnering policy does not determine the content of a strategy; instead, it is subordinate to strategy in that it helps in the implementation of an organizational strategy. It also 35 does not provide detailed guidance for implementation of activities – its focus instead is on the principles and rules for decision-making (Vogel et al., 2022). Policy partnerships between practitioners and policy makers are a necessary strategy to address complex challenges that require multiple stakeholders to work together toward the same goal, including the development and execution of global health policies and programs such as national costed implementation plans (CIPs). Strategic partnerships on UHC can also be between the countries and larger bodies such as the UN or regional economic blocks. The Nigeria government has partnered with several stakeholders such development agencies, the private sector,

donors, health workers and the society at large to ensure that Health services coverage is achieved in the country. Institutional Theory, which explores how institutions influence behavior and structures, faces criticism in healthcare for its potential to perpetuate inefficiencies.

The major criticisms of institutional theory have been its assumptions of organizational passivity and its failure to address strategic behaviour and the exercise of influence in its conceptions of institutionalization. Critics also argue that healthcare institutions often prioritize conformity to norms and regulations over innovation, limiting adaptability and responsiveness to patient needs (Scott, 2008). Additionally, the theory may overemphasize stability, neglecting the dynamic nature of healthcare environments that require frequent updates to best practices (Silva et al., 2024). This can lead to resistance to change, where adherence to institutional norms undermines the implementation of new, evidence-based approaches, ultimately impacting quality of care.

However, the theory was still relevant to the study in providing insight on the effect of health policy partnership strategy on the performance of Health services coverage in Jos north . Institutional theory can be applied to investigate the impact of health insurance on health services in Jos North area of Plateau State health policy initiatives in universal health 36 coverage (UHC) by examining how norms, rules, and cultural-cognitive frameworks shape the adoption and implementation of policies. Institutions—formal laws, informal norms, and shared beliefs—influence how stakeholders perceive and support health initiatives. For instance, regulatory frameworks set by governments create legitimacy for UHC programs, while professional norms among healthcare providers affect compliance. The cultural-cognitive dimension addresses how shared values, like equity and access, drive public support for UHC reforms (Silva et al., 2024). Thus, institutional forces collectively shape UHC outcomes, impacting policy success. Thus, the Institutional Theory was applied in this study to examine the impact of health insurance on health services in Jos North area of Plateau State.

2.3 EMPERICAL REVIEW

Erlangga, Suhrcke & Aw, Bloo (2019) investigated the impact of public health insurance on health care utilization, financial protection and health status in low and middle income countries from July 2010 – September 2016 utilization of health services, financial protection for the target population and changes in health status are the variables of this study. Data of from this information where drawn from medicine, embase, Econut, Alnahl plus via EBSCO and web sciences agriculture database and the outcome of the result show that increased health insurance coverage appears to increase access to health care facilities, improve financial protection and health status though the findings are not totally constant. They concluded that public health insurance influenced healthcare, utilization, financial protection low and income countries. They suggest further implementation of publicity funded health insurance to achieve better goal for usmogical health coverage. This implies that a health insurance policy with a limited scope might not influence the health status, financial problem and health care utilization of individuals in a country.

Narota (2023), consumption of health services in the United States from 2023 utilization of health care services and demographic factors are the variables found in this research. They used experimental research design ethnicity and details were obtained from different raise and ethnic group the result to the large velocity of the estimate relationship between insurance and health care utilizations due to confounding valuables a new study is recommended by the research similar to the Rand Hie Study. To provide insight into the current relationship between healthcare utilization taking into consideration changes in legislation, this implies that random method of investigation may lack internal and external validity as a basis for generalization.

Dugan(2020), effect of health insurance on patient demand for physician from 2020s services. Returme care and emergency room care as physician service. The mythology of this study is medical expenditure panel survey and multinomial logistic regression the result shows that both the public and the private reported higher use of the mixture of care therefore, from the outcome of research the conclusion of the research of health insurance was linked higher use of physics services. This implies both the public and health care systems are needed for health service delivery the researchers recommended higher use of routine care and more use of emergency room care as part of health insurance service.

Afriye, Kwesiga, Achungura, Tedioso and Fink (2023) effect of health insurance on quality of care of in low income countries, from January 2010 to August 2022 the variables are insurance service and quality of care they method used for this study are systematic and meta analysis, Charisma non experimental design medicine, Ebase, Elonlot, Phycinfor, websciene, COCH Rane, central rejecting trial, and WHO Global index Medicus. The researcher suggested that Health Insurance has limited effect on structural quantity and us effect on the process of care remain mixed. The researchers recommend most effective strategy to ensure quality within insurance programme and also focus son mechanism that underline the impact of health insurance on the quality of care these implies that insurance programme in Uganda is not geared toward festoring a holistic health status but a perial desirable quality of health services. There by undermining insurance programme

Fan, Su, Zhaos, Swang (2022) examine the effect of health insurance policy on the health out comes of the middle – agent and elderly. This research study was from 2011 to 2018 the variables is chronic disease among rural and urban area participants particularly on the health outcome from the middle age and the elderly in chonamuti stage probably sampling method which involves the CHARLSE GIS software and questionnaires, bio chemical test, physical examination, social economic status a generalized linear mixed model used for analyzed the effect of the urban and rural resident basic medical insurance (URRBMI) for the middle age and elderly. The result of this study shows that they were at the risk of having a chronic disease decrease by 81%employing a posture effect of the URRBMI policy and a recommended a continuity in the recommendation in the policy. This implies that urban and rural health insurance policy was effective and should be pragmatic.

Kwame (2019) examined the impact of Health Insurance on the Health Care utilization of children below the age of 18 years from 2019. The variable used by the researcher considered as health Insurance enrollment on the household head, as the main variable of interests or not a person had a general health examination, to a visit to the clinical hospital. The method used by the researcher are demography and health Survey of Ghana (DHS) data collected from Ghana Statistic Studies (GSS) with Ghana Health Services (GHS) the logic regression the result from the analysis of the research indicate that each outcome statistically significant effect on health insurance and healthcare used where who is insured utilizes at least one measure of health care. The researcher recommend that the health insurance does encourage people to take their children to visit the health facility to access health care. The government, the insurance company should make effort on how to make citizens of Ghana enroll in health insurance to create awareness, to provide a pleasing packages to make the individual enroll for health insurance.

Eze, Ikechukwu, Lawani (2023) viewed impact of community – based of health insurance in low income countries from 2022 the variables are schemes on health care utilization and financial risk protection in low and middle income countries (LMICs) the method of used by the researcher Cochrane's Risk bias 2.0 and Risk of Bias in non randomized studies of interventions tools for Random Control Traits RCTs and quasi/non – RCTs, respectively they also performed random control

traits. A narrative synthesis of all included studies and meta analysis of comparable studies. They data for this study were sourced from Pubmed, Clnaltl, Cochrane Central CNK, Psycinfor scopus, WHO Global index Medicus and Web Science including greylotum google scholars and citation tracking for random control traits (RCTs). The result shown that community – based – health Insurance in low income countries generally improved health care utilization but inconsistently delivers financial protection from heath expenditures shocks. The study recommend that with pragmatic context specific policies and operational modification could be a promising mechanism for achieving universal health coverage. They use of health insurance should be encouraged and pushed in communities based with low income.

2.4 RESEARCH GAP

Most of the literature reviewed focus on the impact of health services on a wider scope in Asia and other developed countries shows a positive relationship. Factors contributing to these outcomes included inadequate staffing (with only 17% of the targeted healthcare workers recruited), slow resource disbursement, and logistical issues such as drug shortages (Owino, Wangong'u, Were & Maleche, 2020). The influx of patients also led to overcrowding at referral hospitals, highlighting the need for better coordination between levels of care. Based on the gap, the study was able to established contextual gap, meaning that the study has not be conducted in Jos North LGA of Plateau State, which make study to fill the gap. Based on the concepts, the study was able to established that most health insurance and services studies were mainly conducted in South-South, South-East and other part of the countries with variables mainly on health care services. However, this study discovered the gap by introducing each multiple dependent and independent variables aligning themselves to form the objectives, research question and research hypotheses. Therefore, the necessity to investigate the impact of health insurance on health services in the community of Jos North Local Government Area of Plateau State is the main focus of the study.

3.0 METHODOLOGY

This research used the descriptive survey research design. Bryman (2019), explain that descriptive research design is typically structured with clearly stated hypotheses or research questions, describes a phenomena or characteristics associated with the subject population (the who, what, when, where and how of a topic), defines estimates of the proportions of a population that have these characteristics, and discovers associations and relationships that exists among the different variables. Therefore, open ended and informal conversation by allowing participants to speak freely is also a method chosen for this study this is due to the insight that might have been missed with a more rigorous approach. Means such as questionnaires, mails, telephone etc to study the characteristics of the population (Bryman, 2019).

3.2 POPULATION OF THE STUDY

A population is defined as the total collection of elements about which we wish to make some inferences (Cartocci, Cherubino, Rossi, Modica, Maglione, di Flumeri, & Babiloni, 2019). According to National Bureau of Statistics (2022), Jos North LGA is estimated to be between 6 and 7 hundred thousand people in population. At present the people with hypertension implying 12,250, 000 people are suffering from high blood pressure which is the population of the study in the community.

3.3 SAMPLE SIZE DETERMINATION

According to Creswell (2020), sampling is part of the drawing sample from a population. He further sees sample as a subset of the population, a portion chosen to stand in for entirely all the subjects or observation under consideration. The study made use of the Taro Yamane formula (1967) to determine appropriate sample size for the study.

The Taro Yamane (1967) formula for populations that are known and finite was used. The formula and computation are show as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = the desired sample size,
N = the total population under study,
1 = a constant,
e = signifies the allowable error limit (0.05) in Management Sciences Research,
2 = square of e.

Therefore,

$$n = \frac{122500}{1 + 122500(0.05)^2}$$

$$n = \frac{122500}{1 + 306.25}$$

$$n = \frac{122500}{307.25}$$

$$n \approx 398\ respondents$$

3.3.1 Sampling

Creswell (2020), stated that it is appropriate to select samples on the basics of the knowledge of the population sample. Simple random sampling was adopted. This is because if a population representative does not have the population characteristics the outcome might be appropriate for policy formulation

3.6 METHOD OF DATA ANALYSIS

According to Mugenda and Mugenda (2019), data analysis is the process of inspecting, cleaning, transforming and modeling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Simple regression method was used for proper computation of each variable obtained in the questionnaire, since the study more than two independent and dependent variables and is also used to predict the dependent variables with the help of two or more independent variables. The choice of simple linear regression is because the regression model involves more than a single independent variable (Mugenda & Mugenda, 2019). Variables data was analyzed using Statistical Package for Social Science (SPSS) version 26.0. SPSS is the suitable technique for this analysis for this studies why because of the use of primary data and the ability to accommodate large quantity of data. The researcher adapted questionnaires from Adomi, Asogun, RwuaanRK, Iliya and Adebanjo (2024),on the health insurance, while for health services the questionnaire was adapted from the study conducted by (Kubetta, Omary Mugula & Victoria, 2024).

4.0 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 DATA PRESENTATION

Based on the questionnaire, out of the 398 questionnaires that were administered on the respondents, only 351 were properly filled and returned. This represent 88.1% retrieval rate as presented in Table 1 The retrieved questionnaires were properly coded in statistical package for Social Sciences (SPSS v. 29). The data were properly cleaned before analysis, while simple linear regression was used to test the hypothesis formulated for the study and results were sufficiently discussed.

4.1.1 Response Rate

Table 1: Questionnaire Response Rate

Questionnaire Distribution	Frequency	Percentage
Questionnaire Administered	398	100
Lost Questionnaire	Nil	Nil
Not Retrieve	47	11.9
Retrieved	351	88.1
Usable Questionnaire	351	88.1%

Source: Field Survey, 2025

4.1.2 Demographic Profile of the Respondents

The first part of the questionnaire consists of four items about demographic data of the respondents such as: gender of respondents, marital status, highest level of education and year of taking health services; this helped the study to comprehend the features of respondents with in different categories and the following table summarized the demographic data of the respondents as shown in table 2

Table 2: Respondents Personal Information

	Frequency	**Percent**
	Gender	
Male	198	56.4
Female	153	43.6
Total	351	100
	Marital Status	
Married	127	36.2
Single	224	63.8
Total	**351**	**100.0**
	Highest Level of Education	
SSCE	100	28.4
B.Sc/HND	83	23.6
M.Sc	27	7.6
Others	141	40.1
Total	**351**	**100.0**
	Years of taking health services	
2years or less	123	35.0
3-5years	130	37.0
6years and above	98	28.0
Total	**351**	**100.0**

Source: Field Survey, 2025

Table 2 Based on gender which showed that 198 respondents with (56.4%) are male, while 153 respondent with (43.6%) are female. This means that majority of the respondents were male. Based on marital status, for married 127(36.2%), while for single had 224(63.8%). For educational qualification, for SSCE had 100 respondents with (28.4%), B.Sc/HND had 83 respondents with (23.6%), MSC had 27(7.6%) while for others had 141 respondents with (40.1%). On the year of taking health services, 2years or less had 123(35.0%), 3-5years had 130(37.0%), while 6years and above had 98(28.0%).

4.1.3 Descriptive Statistics

The study used descriptive statistics, which include frequencies, percentages, mean and standard deviation. The evaluation of mean was done in accordance to Hair, Babin, Anderson and

Black, (2019), who indicated that a mean of 1.00 to 2.49 is evaluated to be very weak, 2.50 to 3.49 weak, 3.50 to 4.49 Strong and 4.50 to 5.00 Very Strong (Hair et al., 2019). For standard deviation, value greater than 0.5 was evaluated to indicate homogeneity and a standard deviation less than 0.5 indicates heterogeneity of data. On the other hand, if the data is homogeneous, then it means that the respondents had a similar understanding of the question and they gave similar responses (see table 3).

Table 3 Summary of Descriptive Statistics

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for mean Lower Bound	Upper Bound	Minimum	Maximum
HP	351	14.8248	2.48682	.127	14.5110	15.1386	3.00	5.00
DP	351	15.1429	3.07369	.127	14.9091	15.3766	2.00	5.00
HiP	351	14.6170	2.48682	.127	14.5332	15.0409	3.00	5.00
HIN	351	14.7871	2.48682	.127	14.5332	15.0409	3.00	5.00

Source: Researcher (2025) HP=Hypertension, DP= Diabetics, HiP=Health insurance patient, HIN= Health Insurance

From the scores in Table 3, Patient visit, Health insurance dimensions as health expenditure had the second highest mean value of 14.82, 14.78 indicating that respondents agreed that the cumulative Health Policy contributes to health services. Health Policy had a mean value of 15.1429 which implies that respondents do not understand what Health Policy is all about. However, given that these means were close to the mark of agreeing, it means that there were also a number of respondents that agreed to the propositions in these variables. This is neutral outcome is likely due to the fact that which suggest a greater variability in the distribution of the scores which would also result in greater variability in the dependent variable, which are life expectancy, hypertension, diabetics, pregnant woman and health insurance patients also recorded positive outcome when predicted by health insurance.

4.1.4 Test for Linearity

The second assumption to be tested out is linearity or assumption of linear relationship observed between two variables. Linearity implies that slope of the population regression function is constant thus, non-linearity means, in other words, that a change in the dependent variable does depend on the value of one or more of the independent variables (Mfaeka, 2021). Linearity assumption of regressions was tested using scatter plot test and it was found that there is linear relationship between independent and dependent variables. The dots at the p-p plot should be closer to the diagonal line, Normal p-p plot points should lie in reasonably straight diagonal line from bottom left to top right. In this case the p-p plot the dots are drawn closer to the diagonal line, indicating that assumption of normality is met.

4.1.5 Multicollinearity Test

Multicollinearity refers to the situation in which the independent/predictor variables are highly correlated. In this study multicollinearity was checked with tolerance and Variance Inflation Factor (VIF) statistics. Andy (2006) suggests that a tolerance value less than 0.1 almost certainly describes a serious collinearity problem. Mfaeka, (2021), also stated that a VIF value greater than 10 is also a concern. Similarly, Field (2009), underlines that, values for tolerance below 0.1 indicate serious problems, although several statisticians suggest that values for tolerance below 0.2 are worthy of concern. In this study, all of the independent variables found to have a tolerance of more than 0.1 and a VIF value of less than 10.

Table 4: Multicollinearity Test Results

Coefficient[a]		
Model	**Collinearity statistics**	
	Tolerance	**VIF**
Hypertension	.160	6.236
Diabetics	.827	1.209
Health insurance patients	.169	5.917

a. Independent variable: Health insurance

Source: Field Survey, 2025

Based on the table 6, If the value of Tolerance is very small (less than .10), it indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity. The second value given is the VIF (Variance inflation factor), which is just the inverse of the Tolerance value (1 divided by Tolerance). If VIF values shows above 10 would indicating multicollinearity. Hence, multicollinarity assumption was fulfilled in this study, all of the independent variables found to have a tolerance of more than 0.1 and a VIF value of less than 10.

4.2 DATA ANALYSIS AND INTERPRETATION

4.2.1 Test of Hypotheses

4.2.2 Hypothesis One

Hypothesis one is restated as follows:

$H0_1$**:** There is no significant effect between health insurance and hypertensive patients in Jos North Local Government Area of Plateau State.

Test Statistic: Simple Linear Regression Analysis

Formula:

$HP_i = \beta_1 + \beta_2 HIN_i + \varepsilon_i$ … (2)

Where;

HP_i = hypertensive patient

β_1, = Constant term

β_2, = coefficient of health insurance

u_i = error term.

Decision Rule: Reject Ho if $P<0.05$

Accept Ho if $P>0.05$

The decision rule is that if the p-value is less than the level of significance of 0.05, the null hypothesis will be rejected while the alternate hypothesis is accepted. But if the p-value is greater than the level of 0.05, accept the null hypothesis and reject the alternate

Table 5: Model Summary

Model Summary[b]						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig.
1	.880[a]	.775	.775	.89247	.775	.000

a. Predictors: (constant), health insurance

b. Dependent variable: hypertensive patient

Source: Field Survey, 2025

Based on the table above, the value of R2 (R Square) is 0.775. This shows that the percentage contribution of the independent variable to the dependent variable is 77.5% or the variation of the independent variable used in the model (health insurance is able to explain 77.5% of the dependent variable (hypertensive patient), while the remaining is 22.5% (100% - 77.5%) was influenced by other factors not included in this study.

Table 6: ANOVA

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1013.297	2	10.13297	1272.181	.000[b]
	Residual	293.910	349	.797		
	Total	1307.208	351			

a. Dependent Variable: hypertensive patient
b. Predictors: (Constant), health insurance
Source: Field Survey, 2025

The Table 7 shows that the results of the calculation of the F test obtained F count value of 10.1329 with a significant level of 0.000 < 0.05. While the value of F table is 3.03 this means that F count 10.1329 > F table 3.03. So it can be concluded that this model is declared feasible.

Table 8: Regression result: health expenditure and hypertensive patient

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	22.252	.231		9.729	.000
	Health insurance	.648	.018	.880	5.668	.051

a. Dependent Variable: hypertensive patient
Source: Field Survey, 2025

Given that the p-value 0.051 is higher than the significance level of 0.05 as shown in Table 8, the study to reject the alternate hypothesis which states that there is a significant effect on health insurance on hypertensive patients in Jos North Local Government Area of Plateau State, while the null hypothesis which states there is no significant effect of health insurance on hypertensive patients in Jos North Local Government Area of Plateau State was accepted. Implying that there is no significant influence between health insurance and hypertensive patient**.** Therefore, the null hypothesis one (H_{01}) was accepted.

4.2.3 Hypothesis two

Hypothesis three is restated as follows:

$H0_2$**:** There is no significant relationship health insurance and diabetic patients in Jos North Local Government Area of Plateau State.

Table 8: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig.
1	.699[a]	.488	.487	1.34673	.488	.003

a. Predictors: (constant), health insurance
b. Dependent variable: diabetic patient
Source: Field Survey, 2025

Based on the table above, the value of R2 (R Square) is 0.488 This shows that the percentage contribution of the independent variable to the dependent variable is 48.8% or the variation of the independent variable used in the model, while the remaining is 51.2% (100% - 48.8%) was influenced by other variables not included in this study.

Table 9: ANOVA

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.7955	2	63.7955	351.744	.008[b]
	Residual	669.252	349	1.814		
	Total	1307.208	351			

a. Dependent Variable: diabetic patient
b. Predictors: (Constant), health insurance
Source: Field Survey, 2025

The Table 15 shows that the results of the calculation of the F test obtained F count value of 63.7955 with a significant level of 0.000 < 0.05. While the value of F table is 3.03 this means that F count 63.7955> F table 3.03. So it can be concluded that this model is declared feasible.

Table 10: Regression result: health policy and diabetic patient

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	41.952	.296		16.749	.000
	Health insurance	.514	.027	.699	18.755	.062

Dependent Variable: **diabetic patient**
Source: Field Survey, 2025

Given that the p-value 0.062 is higher than the significance level of 0.05 as shown in Table 16, the study reject the alternate hypothesis and accept the null hypothesis which states that There is no significant relationship between government health insurance and diabetic patients in Jos North Local Government Area of Plateau State. Therefore, the null hypothesis three (H_{02}) was accepted.

4.2.4 Hypothesis three

Hypothesis three is restated as follows:
$H0_3$**:** There is no significant effect between health insurance and health insurance patients who are not in Jos North Local Government Area of Plateau State.

Table 11: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig.
1	.759[a]	.576	.572	1.34673	427[a]	.000

a. Predictors: (constant), health insurance
b. Dependent variable: health insurance patient
Source: Field Survey, 2025

Based on the table above, the value of R2 (R Square) is 0.576 This shows that the percentage contribution of the independent variable to the dependent variable is 57.2% or the variation of the independent variable used in the model, while the remaining is 42.8% (100% - 43.4%) was influenced by other variables not included in this study.

Table 12: ANOVA

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.7955	2	2179.667	7.746	.000[e]
	Residual	669.252	349	13.151		
	Total	1307.208	351			

a. Dependent Variable: health insurance patient
b. Predictors: (Constant), health insurance
Source: Field Survey, 2025

The Table 12 shows that the results of the calculation of the F test obtained F count value of 7.746 with a significant level of 0.000 < 0.05. While the value of F table is 3.03 this means that F count 63.7955> F table 3.03. So it can be concluded that this model is declared feasible.

Table 13: Regression result: health service and health insurance patient

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	31.952	.216		12.049	.001
	Health insurance	.604	.042	.756	4.231	.000

b. Dependent Variable: health insurance patient
Source: Field Survey, 2025

Given that the p-value 0.001 is less than the significance level of 0.005 as shown in Table 22, the study rejects the null hypothesis which states that there is no significant effect between health insurance and health insurance patients in Jos North Local Government Area of Plateau State, while the alternate hypothesis was accepted which states that there is a significant effect between health insurance and health insurance patients in Jos North Local Government Area of Plateau State. Hence, there is a significant effect of health insurance patient and health insurance. Therefore, the null hypothesis three (H_{03}) was rejected, while the alternative hypothesis was accepted.

Table 14: Summary of Hypotheses Testing

Hypothesis	Relationship	Std Beta (β)	Std. Error	T-Value	P-Value	Decision
H1	HIN→ HP	0.880	.018	5.668	0.051	Not Supported
H2	HIN→DP	0.699	.027	18.755	0.062	Not Supported
H3	HIN→HiP	0.659	.031	4.231	0.000	Supported

Source: **Field Survey, 2025**

4.3 DISCUSSION OF FINDINGS

The findings of hypothesis one indicated that there is no significant effect of health insurance on hypertensive patients in Jos North Local Government Area of Plateau State. Implying that there is no significant influence between health insurance and hypertensive. The result from the simple linear regression analysis showed a negative significant effect. Hence, the null hypothesis was supported. This finding does not agree with the findings of Fan, Su, Zhaos, Swang (2022), shows that they were at the risk of having a chronic disease decrease by 81%, thereby employing a posture effect of the health policy and a recommended a continuity in the recommendation in the policy. This implies that urban and rural health insurance policy was effective and should be pragmatic and that some ailment such hypertensive petitions needed to be covered on government health expenditure.

The findings of hypothesis two indicated that there is no significant relationship between health insurance and diabetic patients in Jos North Local Government Area of Plateau State. The result from the simple linear regression analysis showed a negative effect. Hence, the null hypothesis was supported. This finding is in agreement with the findings of Sharnai, Tabrizi & Nosratnejad (2019), the study found that insured people increase the utilization rate of health service depending on the type of health services. The result from the simple linear regression analysis showed that there is a significant effect between health insurance and health insurance patients who are not in Jos North Local Government Area of Plateau State. Hence, there is a significant effect of health insurance patient and health insurance. Hence, the null hypothesis was not supported and thus the study concluded that there is a significant effect between health insurance and health insurance patients in Jos North Local Government Area of Plateau State. This finding is in agreement with the findings of Narota (2023), insight into the current relationship between healthcare utilization taking into consideration changes in legislation, this implies that random method of investigation may lack internal and external validity as a basis for generalization, also health care systems are needed for health service delivery the researchers recommended higher use of routine care and more use of emergency room care as part of health insurance.

5.0 CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

The study examines the impact of health insurance on health services in Jos North area of Plateau State. Data was sources from primary sources and analysis using simple regression analysis. The result shows that health insurance has a significant positive relationship with dependent variables such as life expectancy, pregnant women and health insurance patient, while hypertensive and diabetic patients had negative effect. Therefore, the study concludes that health insurance initiated by government for citizens depends on the kind of accessibility of the services. Assessment of patients' satisfaction is widely used to evaluate the quality and effectiveness of various healthcare service deliveries, yet public healthcare in developing countries has failed to achieve an adequate level of service. Based on the above the study concluded that there is need to have a meaningful resources pooling and investment partnership between the federal, states and the local governments for SHI implementation based on the concept of social capital based on the fact that all are autonomous in their health system.

5.2 RECOMMENDATIONS

i. Government should added hypertension in their health funding since it has increase health challenges in our society especially among the young people.
ii. Government should added in their policy diabetic treatment in their health funding since it has increase health challenges in our society especially among the young people.
iii. Citizens are encouraged to enroll on health insurance, since it will reduce health expense on their part, these can achieved through proper sensitization.

5.3 SUGGESTION FOR FURTHER RESEARCH

Subsequent studies may seek the opinion of policy makers in relevant government establishment in bridging social capital at the community level should be explored by the NHIA in order to bind community based health insurance implementation with social capital by aligning it with the values, power and goal of the community.

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