

Primary Health Care Services quality and Maternal and Child Health Outcomes: Implications for the Attainment of Universal Health Coverage in Kogi State, Nigeria

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Abstract

This study examined the influence of Primary Health Care (PHC) service quality on maternal and child health (MCH) outcomes and its implications for the attainment of Universal Health Coverage (UHC) in Kogi State, Nigeria. The study was necessitated by persistent challenges in the quality of PHC services, including inadequate availability of essential medicines, prolonged waiting times, poor patient-provider interactions, infrastructure deficiencies, and uneven access to skilled health personnel, which continue to undermine maternal and child health outcomes. The study adopted a descriptive cross-sectional survey design. The population comprised residents and PHC users in six selected Local Government Areas across the three senatorial districts of Kogi State, with a combined population of 1,344,493. A sample size of 400 respondents was determined using Taro Yamane's formula, while a multi-stage sampling technique was employed. Data were collected through structured questionnaires and semi-structured key informant interviews. Of the 400 questionnaires administered, 372 were correctly completed and returned, representing a 93% response rate. Quantitative data were analyzed using descriptive statistics and simple linear regression, while qualitative data were subjected to thematic analysis. The findings revealed that 60.2% of respondents perceived PHC health workers as competent, while 51.1% reported inadequate availability of drugs. Similarly, 53.8% expressed satisfaction with hygiene standards, although 50.5% reported concerns regarding respectful treatment of patients. Furthermore, 71.5% of respondents agreed that PHC services had improved maternal and child health, 76.3% reported improved immunization coverage, and 72.6% affirmed the effectiveness of PHC in promoting preventive healthcare. The regression analysis established a significant positive relationship between PHC service quality and MCH outcomes ($R = 0.687$, $R^2 = 0.472$, $F(1,370) = 330.608$, $p < 0.001$). The regression coefficient ($B = 0.673$; $\beta = 0.687$; $t = 18.182$; $p < 0.001$) indicates that improvements in PHC service quality significantly predict better maternal and child health outcomes. The study therefore rejected the null hypothesis and concluded that quality PHC services are critical to improving MCH outcomes and advancing UHC in Kogi State. The study recommends sustained investment in PHC infrastructure, essential medicines, skilled health personnel, patient-centred care, maternal and child health services, routine immunization, preventive healthcare, and equitable resource allocation, particularly in rural and underserved communities. Strengthening these dimensions of PHC will contribute to improved health outcomes, equity, financial protection, and the broader attainment of UHC in Kogi State.

Keywords: Primary Health Care, Service Quality, Maternal and Child Health, Universal Health Coverage, Immunization.

INTRODUCTION

Primary Health Care (PHC) is a critical component of healthcare systems, providing essential health care services to communities (Adamu, Aminu, Sadiq, Mustapha, Yau, Al Amin, Audu & Isyaku, 2025). PHC serves as the first contact of individuals, families and communities with the national health system. Accessibility to and closeness to the poor and hard to reach populace makes

the primary health care system the most relevant, unique and important in the three-tier health system in Nigeria, as indeed stressed by the World Health Organization (WHO, 2018). Primary healthcare is a deliberate and systematic effort to develop a health care system that caters to the needs of majority populations and poor citizens, at an affordable and sustainable cost and with a guarantee of quality health care service through government primary health care centres and faith-based clinics in rural and suburban areas, while secondary and tertiary health facilities serve urban populations. The primary healthcare system is designed to be cost effective and designated as the first point of call for all, irrespective of the social or economic status. The right to enjoy the highest attainable standard of health is one of the most fundamental human rights in the constitution of the World Health Organization (World Health Organization, 2008 in Adamu et al, 2025).

Musa, Adamu, Molly, Usman, Ahmed, Abdulafeez, Enyinnaya, Joseph, Muktar, Nuruddeen, Bello, & Don (2024) aver that since the Alma-Ata declaration of primary health care (PHC), the initiative has become an essential health care approach. This is based on practical, scientifically sound, and socially acceptable methods and technology that are made universally accessible to individuals and families in the community through their full participation (WHO, 2024). PHC is aimed at providing person-centered and holistic health care with a focus on prevention (Ghebreyesus, 2020). The Alma-Ata declaration, which emerged as a major milestone in the field of public health, was made during the International Conference on Primary Health Care held in Alma-Ata, USSR, in 1978. The declaration emphasized that health is a fundamental human right and that the highest possible level of health is a worldwide social goal that requires in collaboration with the health sector, the action of various social and economic sectors (WHO, 2024). Since then, PHC has become the cornerstone of healthcare systems providing health services for communities, where approximately 80% of the healthcare needs of individuals could be met at the primary healthcare level (WHO, 2023). This indicates that a functional primary healthcare is integral to the sustainability of health systems and the achievement of the mandates of Universal Health Coverage.

The quality of PHC services remains a critical concern, as evidenced by poor health outcomes, including high maternal and under-five mortality rates in Nigeria. According to WHO estimates, about 157 out of every 1,000 Nigerian children die before their fifth birthday from preventable causes, while the country contributes approximately 10% of global maternal mortality despite having only about 2% of the world's population (Achimugu, 2020). These outcomes raise concerns about the effectiveness of PHC services in improving population health.

Statement of the Problem

Despite the recognition of health as a fundamental human right, as enshrined in Article 25 of the Universal Declaration of Human Rights, access to quality healthcare services remains a significant challenge in many rural communities in Kogi State and Nigeria, generally. A functional healthcare system requires adequate financing, a skilled workforce, effective service delivery, and well-maintained infrastructure to ensure equitable access to care (WHO, 2018). However, in practice, these essential components are often lacking, particularly at the primary healthcare (PHC) level. However, despite these policy commitments and financial interventions, significant gaps persist in PHC service coverage, financing effectiveness, accessibility, and quality of care, particularly in rural areas of Kogi State. Many PHC facilities lack the capacity to deliver essential health services due to poor staffing, inadequate infrastructure, inequitable distribution of health personnel, shortage of essential drugs, and weak maintenance systems (Aregbeshola & Khan, 2017 cited in Adaji, Lawal & Onimisi, 2023). These deficiencies directly affect the coverage of PHC services and limit

their contribution to the attainment of Universal Health Coverage (UHC). The prolonged neglect of some PHC facilities has deprived residents, particularly pregnant women, children, and the elderly of access to basic healthcare services, forcing reliance on unsafe alternatives or long-distance travel to access care. Such realities highlight the disparity between health policies and actual service delivery at the grassroots level. In a nutshell, these issues point to persistent challenges relating to PHC service coverage, financing, accessibility, quality, and systemic constraints, all of which hinder the attainment of Universal Health Coverage in Kogi State.

Research Question

This research work was guided by the research question below.

How does primary health care services quality influence maternal and child health outcomes towards the attainment of Universal Health Coverage in Kogi State?

Objective of the Study

To assess the influence of primary health care services quality on maternal and child health outcomes towards the attainment of Universal Health Coverage in Kogi State.

Hypotheses of the Study

Ho. There is no significant relationship between primary health care service quality and maternal and child health outcomes towards the attainment of Universal Health Coverage in Kogi State.

CONCEPTUAL REVIEW

Primary Health Care

The primary healthcare (PHC) idea was developed in the 1970s and was influenced by the basic needs approach to social development. In order to achieve Health for All by the year 2000, WHO and UNICEF created a primary healthcare strategy (Dada, 2023). This plan drew inspiration from the failures of the basic health services approach, as well as from China's impressive health improvement and the numerous small-scale, community-based healthcare projects that have been successful in developing nations, mostly thanks to non-governmental organizations (PHAO 2022 in Dada, 2023). PHC affects society and politics in a big way. In addition to providing basic healthcare needs in a more equitable, appropriate, and effective manner, it specifically outlined a plan of action that would address the underlying social, economic, and political reasons of poor health (PHAO 2022 in Dada, 2023). Principles such as universal accessibility and coverage based on need, comprehensive care with an emphasis on disease prevention and health promotion, individual and community involvement and self-reliance, inter-sectoral action for health, appropriate technology, and cost-effectiveness in relation to available resources were to form the foundation of the PHC approach (PHCA). Social justice had a major effect on the concept of PHC (PHAO 2022 in Dada, 2023).

Primary health care (PHC) serves as the bedrock of health systems worldwide, aiming to provide accessible, affordable, and equitable health services to populations (Egwuaba & Sunday, 2025). Primary health care (PHC) “is a whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people’s health needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to

people's everyday environment", (World Health Organization (2023) cited in Egwuaba & Sunday, 2025).

According to Yisa, Ogunniyi & Dine (2025), primary health care (PHC) is a comprehensive strategy involving the entire society in promoting health. It is an important facet in improving quality of life, emphasising equitable access to health promotion, disease prevention and treatment, rehabilitation and palliative care for all individuals, thereby reducing disparities and improving overall health outcomes. In similar perspective, Akinwumi, OlaOlorun., Adesina, Durodola, Amole, Singer & Levine (2022), the World Health Organization (WHO) described primary health care (PHC) as an "essential health care based on scientifically sound and socially acceptable methods and technology, made universally accessible to all individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development, in the spirit of self-reliance and self-determination". Akin to the above, Olise, (2012), cited in Adaji, Lawal & Onimisi (2023) posits that Primary Healthcare is a grass root approach meant to address the main health problems in the community by providing preventive, curative and rehabilitative services.

One of the most essential human rights included in the World Health Organization's constitution is the right to the best possible health (World Health Organization, 2018). Therefore, it is the responsibility of each and every UN member to provide its citizens with accessible, universal healthcare. The most practical way to carry out the aforementioned commitment is through primary healthcare (PHC). Primary health care is a comprehensive approach to health and welfare that takes into account the unique requirements, preferences, and characteristics of each individual, family, and community (WHO, 2019).

Maternal and Child Health Care

A primary health care service, aimed at reducing morbidity and mortality of maternal and infant children. Skilled antenatal care and birth attendance has been advocated globally as the most crucial intervention to reduce maternal mortality (WHO, 2014 cited in Oimage, Anyaku, Nwachukwu & Offiah, 2024). World Health Organization, (2018) aver that maternal health is the health of women during pregnancy, childbirth and the postpartum period. These essential health care services are received by the woman during pregnancy and after delivery which is very important for the wellbeing and survival of mother and child. A primary health care service that encompasses a health care dimension of family planning, preconception, prenatal and postnatal care to minimize maternal morbidity and mortality (Franny, 2013 cited in Oimage, Anyaku, Nwachukwu & Offiah, 2024).

The high rate of maternal mortality is a major public health concern in Nigeria. (Oimage, Anyaku, Nwachukwu & Offiah, 2024). Several studies have shown that pregnant women in rural areas of the country are at greater risk of dying during pregnancy or childbirth as compared to those that live in urban areas (WHO, 2010). This may basically be due to limited access to maternal health care by rural women as health facilities which are often found distant from where they live hamper their access and culminate in the reliance on the use of traditional sources of health care or absolutely, no care at all. The Nigerian health care system is founded on a tripod of primary health care, secondary health care and tertiary health care. In compliance with global recommendations for optimal maternal health care, primary health care provides Basic Emergency Obstetrics Care (BEOC) comprising skilled delivery care, administration of antibiotics, manual removal of the

placenta, removal of retained products of conception, assisted vaginal delivery possibly with a vacuum extractor, and basic neonatal care including neonatal resuscitation. By contrast, secondary and tertiary health facilities (consisting of the general and teaching hospitals) provide Comprehensive Emergency Obstetrics Care (CEOC) that consists of all BEOC services as well as caesarean section, safe blood transfusion and treatment of the sick child (Aigbiremolen et al 2014; Eboime et al 2017 cited in Omaye, Anyaku, Nwachukwu & Offiah, 2024).

Maternal health care is referred to as the health care services provided to women in childbearing, usually between age 15-45 (Mesfin, 2003 in Silas, Uguru & Yusuf, 2025). Maternal health care is a life saving device provided for nursing mothers. It is provided to reduce the number of deaths among women of childbearing age, emanating from the high maternal mortality rate in developing countries, this health care was made one of the Millennium Development Goals (MDGs) in order to reduce the high death rate common among mothers of childbearing age specifically, pregnant women and nursing mothers. The performance of this maternal health care service has since been measured looking at the utilization of antenatal care, delivery of health services by the service providers, observing the rate of birth assisted services given by medical personnel and the level of post-natal service accessible (Silas, Uguru & Yusuf, 2025).

According to United Nations Children's Fund (2015 cited in Silas, Uguru & Yusuf, 2025), a woman's chance of dying from pregnancy and childbirth in Nigeria is 1 in 13. Although many of these deaths are preventable, the coverage and quality of health care services in Nigeria continue to fail women and children. Presently, less than 20% of health facilities offer emergency obstetric care and only 35% of deliveries are attended by skilled birth attendants. According to Fagbamigbe & Idemudia (2015) in Silas, Uguru & Yusuf, (2025), of the mothers, who did not use antenatal care, rural dwellers were the majority and 57.3% had no formal education.

The introduction of the health services resulted in rapid decline in maternal deaths in many parts of the developing countries. However, while the high death rates drastically declined with the introduction of the health care services in many developing countries, the maternal mortality rate in Nigeria is still high. This rate was as high as 800 per 100, 000 in 2010. Nigeria accounted for about 14% of the global maternal deaths (Onasoga, Osaji, Akande & Egbunwe, 2014 cited in Silas, Uguru & Yusuf, 2025). Recently, the maternal mortality rate was revealed to be 243 per 100,000 (NBS, 2015). This figure of course is one of the highest maternal mortality rates reported in the world. This maternal mortality rate in Nigeria varies from one area, states and indeed regions to another. Over the years, States from the north often accounted for the highest rates. Among these States is Kogi. Maternal mortality is perhaps high because of the poor disposition of women at childbearing age to maternal health care (Silas, Uguru & Yusuf, 2025).

Universal Health Coverage

The Sustainable Development Goals (SDGs) are a set of aspirational global development goals underpinned by the principles of equity (leave no one behind), human rights, accountability, and sustainability (United Nations Department of Economic and Social Affairs, 2024). The third goal (SDG3) aims to promote well-being and healthy lives for all world citizens and is anchored on the concept of Universal Health Coverage (UHC), which has been designated as sub-goal SDG 3.8. SDG 3.8 aims to achieve "universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential

medicines and vaccines for all”. UHC ensures that every citizen of a country has access to good quality health services which they require without any financial hardship (Olu Petu & Usman, 2024). Achieving it requires a strong, well-resourced, and functional health system that delivers good quality health care across the life course at all levels.

Universal Health Coverage (UHC), a vital component of Sustainable Development Goal (SDG) 3, seeks to ensure that people of all ages can access the healthcare they need without slipping into poverty. In pursuit of UHC, the WHO recommends that countries refocus and realign their services with Primary Healthcare, as these strategies are expected to improve life expectancy and overall health indicators. Nigeria, with an out-of-pocket healthcare payment rate of 76%, is far from achieving the desired UHC target, as expanding health insurance coverage is essential for strengthening Primary Healthcare and the health system.

Universal health coverage embodies the noble aspiration to ensure that every individual, irrespective of their socioeconomic standing, can avail themselves of high-quality healthcare services without enduring financial hardship. It stands as a cornerstone in the edifice of a just and sustainable healthcare system, fostering equitable access to health and wellbeing for all members of society (Behera *et al.*, 2022; Moreen *et al.*, 2023 cited in Elemuwa, AINU, ADIAS, ROTIFA, SUNDAY, Elemuwa, Henshaw, Adebisi, Oyetunde, & Raimi, 2024). This paradigm, also referred to as universal healthcare or social health protection, has been embraced by nations across the globe, each charting its unique course towards implementation. It is imperative to recognize that the journey towards universal health coverage is multifaceted, with initiation varying across nations in terms of timelines and methodologies. A robust and adaptable primary healthcare infrastructure emerges as the linchpin in this endeavor, serving as the primary point of entry into the healthcare system for individuals at the grassroots level. Within this framework, fundamental services such as immunization, management of minor ailments, disease prevention, health education, and malaria treatment constitute the foundational pillars of care (Osaro and Charles, 2010; Raimi *et al.*, 2019a cited in Elemuwa *et al.*, 2024). Thus, the quest for Accelerating Universal Healthcare Coverage (UHC) finds resonance in the discourse surrounding the fortification of primary healthcare laboratories and the comprehensive examination of the National Primary Healthcare Development Agency (NPHCDA) Transformation Agenda.

While, the National Primary Healthcare Development Agency (NPHCDA) stands as a pivotal arm of Nigeria's Federal Ministry of Health, entrusted with the mission of bolstering the national health policy by spearheading the advancement of primary healthcare services. Delving into the intricacies of “what is” and “why” Universal Health Coverage (UHC), the agency's role and mandate were meticulously elucidated. Universal health coverage, a beacon of equitable healthcare access, was delineated as the overarching objective aimed at ensuring that every individual, irrespective of their socio-economic standing, can avail themselves of high-quality healthcare services without encountering financial barriers. In the pursuit of a comprehensive understanding of UHC, a comparative analysis was undertaken, scrutinizing the performance and status of other nations, particularly within the African continent (Osaro and Charles, 2010; 2011, cited in Elemuwa *et al.*, 2024). Through this examination, gaps in healthcare provision were identified, shedding light on areas ripe for improvement and innovation. Moreover, the evolution and significant milestones of primary healthcare were subjected to critical appraisal, recognizing its foundational role in laying the groundwork for universal health coverage. By delving into the nuanced facets of UHC and primary healthcare, the discourse illuminated pathways towards enhancing healthcare accessibility,

quality, and equity, thereby fortifying the overarching goal of fostering health and well-being for all members of society (Elemuwa et al, 2024).

EMPIRICAL REVIEW

Rahman, Masako, Lohan, Kassai, Awan, Pempa, and Sato (2025) conducted a study on progress towards universal health coverage in South Asia, 2000–2030, focusing on primary healthcare (PHC) provision and financial protection. The study projected UHC progress in seven South Asian countries using Bayesian random-effects models. Data were obtained from the WHO Global Health Observatory, Demographic Health Surveys, National Health Surveys, and WHO Global Health Expenditure Database. The study found disparities in service coverage and financial protection. Health service coverage was projected to increase from 53.5% in 2000 to 81.5% by 2030, while catastrophic health expenditure was projected to increase from 7.2% to 18.6%. The study concluded that achieving UHC requires improvements in both PHC service coverage and financial protection, with targeted PHC investment, context-sensitive financing reforms, and stronger risk-pooling mechanisms.

Okunlola, Ojo, Ohaeri, and Babarimisa (2025) examined challenges facing primary health care services utilization and possible solutions. The study identified infrastructural deficiencies, inadequate equipment, poor facility conditions, shortages and migration of health workers, high out-of-pocket expenditure, inadequate health insurance, and insufficient government funding as major barriers to PHC utilization. Socio-cultural factors, low health literacy, geographical barriers, weak referral systems, and poor policy implementation were also identified. The study recommended strengthening infrastructure, ensuring essential drug availability, recruiting and motivating health workers, expanding health insurance and subsidies, improving community engagement and health education, and adopting mobile health and telemedicine services to improve PHC accessibility and equity.

Egwuaba and Sunday (2025) examined challenges in Primary Health Care Delivery and Health-Seeking Behaviour: Implementing Social Behavioural Strategies in Awka, Nigeria. The study identified inadequate infrastructure, insufficient funding, shortages of skilled personnel, logistical challenges in the supply of essential resources, cultural beliefs, low health literacy, and community distrust as major barriers to effective PHC delivery and health-seeking behaviour. These challenges resulted in suboptimal maternal and child healthcare, preventive care, and chronic disease management. The study recommended culturally sensitive and community-driven social and behavioural strategies to address systemic and socio-behavioural barriers and improve health outcomes.

Yam, Chhoun, Liang, Huang, and Yi (2024) examined synergies and dis-synergies between universal health coverage and global health security, using Cambodia as a case study. The study conducted a rapid review of policy documents based on the WHO Health System Framework and consultations with key stakeholders. Findings showed that synergies between UHC and global health security were supported by a central coordinating authority, an extensive primary care network, and shared human resources. Dis-synergies included vertical programmes and funding sources, inadequate private-sector regulation and engagement, and underutilization of information and data. The study recommended greater cross-departmental consultation and training to strengthen the integration of UHC and global health security and build resilient health systems.

Miftahu and Munu (2024) examined the impact of primary health care services on under-five mortality in Nigeria from 1993 to 2023. Secondary data were obtained from UNICEF, WHO, and NBS. The study employed the Auto-Regressive Distributed Lag (ARDL) technique, preceded by Augmented Dickey-Fuller and Phillips-Perron tests for stationarity. The ARDL bound test confirmed a long-run relationship among the variables. Disease surveillance, health education, childhood immunization enrolment, and antenatal enrolment had negative and significant effects on child mortality at the 5% level. The study recommended increased investment in disease surveillance, health education, adult education, and the provision and subsidization of vaccines to improve immunization coverage.

Wright, Odugbemi, Popoola, Oduntan, Fagbemi, Abdurrazaq, Adepase, Oniyire, Lajide, Ogboye, and Mustafa (2024) investigated the implementation of Primary Health Care in Lagos, Nigeria: An Assessment of Governance and Service Availability. A cross-sectional study was conducted from November 2022 to January 2023 using a multi-stage sampling technique to select five LGAs and four PHCs per LGA. Data were collected through health facility assessments and key informant interviews and analyzed using SPSS and NVivo. The study found that 84.2% of PHCs had active development committees. All facilities provided family planning and vaccination services, while only 52.6% provided essential obstetric care and labour and delivery services. Challenges included low community participation and unmet government commitments. The study concluded that improvements were needed in service availability, maternal and child health services, and infrastructure, while stronger governance was required for sustainable and equitable healthcare delivery.

Begha (2022) assessed management approaches and the effectiveness of Primary Health Care systems in FCT Abuja, Nigeria, particularly in achieving immunization coverage. A descriptive survey was conducted among 184 PHC Management Board members using a researcher-developed instrument. Data were analyzed using SPSS, with t-test and regression analysis employed to answer the research questions and test the hypotheses. The findings showed that classical and neoclassical management approaches were used to promote PHC effectiveness, although implementation was inadequate. Both approaches had positive and significant effects on DTP3 coverage. The study identified non-adaptation, low engagement, and poor implementation as factors limiting PHC effectiveness and recommended reorientation and incentivization of PHC management towards core value delivery.

Osarenmwanta, Timothy, Mohamed, and Jems (2021) examined the implementation strategy of primary health care in Ovia communities, Edo State. The study adopted a descriptive research design involving 1,024 PHC stakeholders, from whom 180 respondents were selected using multi-stage sampling. The findings showed that intersectoral collaboration with village and ward health committees significantly influenced PHC implementation. Community mobilization and community feedback mechanisms were also found to be effective strategies for improving PHC programmes. The study recommended stronger partnerships between NPHCDA, SPHCDA, and international health organizations such as WHO, UNICEF, GAVI, and UNDP.

Chukwuma (2021) examined the political economy of social policy in Africa, focusing on universal health coverage in Nigeria. The study examined how Nigeria's social policy on health has developed within the context of the 2014 National Health Act and the Basic Health Care Provision Fund (BHCPF). Using Fine's Systems of Provision approach, the study highlighted the roles of federal, state and local governments, health professionals, communities, civil society, the private

sector, and international organizations in shaping health policy and the implementation of the BHCPF. The study found that Nigeria's federal structure, private-sector dominance, public disenchantment with government, and competing priorities of international organizations influence the country's progress towards UHC. It concluded that the implementation of UHC is shaped by complex political, economic, institutional, and policy factors.

Theoretical Framework

Human Capital Theory

Human Capital Theory (HCT) emerged in the mid-twentieth century as a major economic framework explaining how investments in education, health, and skills development enhance productivity and national growth. The theory fundamentally argues that human beings possess productive capacities that can be improved through deliberate investment. Early foundations were laid by classical economists such as Adam Smith (1776), but the modern formulation is credited primarily to Theodore Schultz and Gary Becker in the 1960s. In contemporary development discourse, Human Capital Theory provides a strong analytical basis for justifying investments in health systems, particularly Primary Health Care (PHC), as a strategic pathway toward achieving Universal Health Coverage (UHC). This discussion examines the theory's proponents, assumptions, strengths, weaknesses, and its relevance to PHC and UHC attainment in Kogi State.

Theodore W. Schultz (1902–1998) formally introduced Human Capital Theory in his seminal 1961 article titled “Investment in Human Capital”, published in the *American Economic Review*. He argued that expenditures on education, health, migration, and information are investments that yield returns in the form of increased productivity and income (Schultz, 1961). Schultz emphasized that improvements in the quality of human beings were central to economic growth, particularly in developing countries. Gary S. Becker (1930–2014) expanded the theory in his influential book *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (1964). Becker provided mathematical modeling and empirical evidence demonstrating how investments in education and training increase lifetime earnings (Becker, 1964). He conceptualized health as both a consumption and an investment good, arguing that better health improves labor productivity and extends working life. Jacob Mincer (1922–2006) further strengthened the empirical foundation of the theory through the development of the Mincer earnings function, which quantitatively linked schooling and work experience to income differentials. His econometric work provided measurable tools for evaluating returns to human capital investment.

Assumptions of Human Capital Theory

Human Capital Theory is built upon several fundamental assumptions:

1. Expenditures on education and health are investments that yield future economic returns.
2. Improved health and education increase individual productivity and earning potential.
3. Individuals and governments make rational choices to invest in human capital based on expected cost-benefit outcomes.
- 4 Health constitutes a durable capital stock that depreciates over time but can be maintained or improved through investment.

Strengths of Human Capital Theory

Strong Economic Justification for Health Investment

1. The theory provides policymakers with a compelling economic rationale for investing in PHC and preventive healthcare.
2. Numerous cross-country studies demonstrate a positive relationship between health, education, and economic growth.
3. The theory supports long-term planning in public health financing and workforce development.

Weaknesses and Critiques of Human Capital Theory

1. Critics argue that the theory reduces human beings to economic instruments, ignoring social justice and equity concerns.
2. Political instability, governance failures, and corruption may limit returns on human capital investments.

Application of Human Capital theory to the study

Primary Health Care (PHC) is the cornerstone of an effective health system. According to WHO (2010), PHC improves population health outcomes and reduces inequities, which are goals of UHC. From a human capital perception, investment in PHC reduces disease burden, improves Maternal and child healthcare, enhances cognitive development and the immunization programs protect future workforce productivity. Thus, preventive services reduce long-term healthcare costs. In Kogi State, strengthening PHC infrastructure, recruiting skilled health workers, and ensuring drug availability represent investments that enhance the state's human capital base. Universal Health Coverage seeks to ensure that all individuals receive necessary health services without financial hardship (WHO, 2010). Human Capital Theory is relevant to the study in that Healthy populations contribute more effectively to economic output. Reduced morbidity increases labor force participation in Kogi State. Also, high out-of-pocket payments undermine household economic stability. UHC protects families from catastrophic expenditures, preserving human capital accumulation. Furthermore, investment in training and retaining PHC workers strengthens service quality and system sustainability. Similarly, effective PHC culminates in the attainment of UHC which Implies improved maternal and child health. This undoubtedly enhances educational attainment and future earnings potential.

Methodology

The study adopted a descriptive cross-sectional survey design to examine Primary Health Care (PHC) service quality and maternal and child outcomes and its implications for the attainment of Universal Health Coverage (UHC) in Kogi State. The design enabled data to be collected at a single point in time from PHC users and health personnel.

The study population comprised residents and PHC users in six selected LGAs across the three senatorial districts of Kogi State: Dekina and Ofu in Kogi East; Ogori-Magongo and Ajaokuta in Kogi Central; and Lokoja and Kogi/Koton-Karfe in Kogi West. The combined population of the selected LGAs was 1,344,493.

Using Taro Yamane's formula at a 5% margin of error, a sample size of 400 respondents was obtained. The sample was proportionately distributed across the six LGAs according to their population sizes. A multi-stage sampling technique was employed. The three senatorial districts constituted the first stage, two LGAs were selected from each district, three wards were randomly

selected from each LGA, and three PHC facilities were subsequently selected. PHC service users were then selected using systematic random sampling. In addition, 20 key informants comprising health administrators, facility heads, community health workers, and community leaders were purposively selected for interviews.

The study utilized both primary and secondary data. Primary data were obtained via structured questionnaires and semi-structured key informant interviews. The questionnaire focused on PHC accessibility, utilization, quality, affordability, awareness of UHC, and challenges affecting PHC delivery. Secondary data were obtained from textbooks, journals, government reports, policy documents, conference papers, and relevant online sources.

Quantitative data were analyzed using IBM SPSS Version 25, with frequencies and percentages used for descriptive analysis. Qualitative interview data were analyzed through thematic content analysis. Simple Linear Regression was employed to test the research hypotheses and determine the influence of the relevant PHC variables on the study outcomes.

DATA PRESENTATION

Table.1: Questionnaire Distribution and Return Rate

Description	Frequency	Percentage
Questionnaire distributed	400	100%
Questionnaire returned	372	93%
Questionnaire not returned	28	7%

Source: Field Survey, 2026

Table 1 presents the distribution and returns rate of the questionnaire administered to respondents. A total of 400 questionnaires were distributed to respondents, out of which 372 were correctly completed and returned, representing a response rate of 93%. Only 28 questionnaires, representing 7%, were not returned. A response rate above 70% is generally considered adequate for survey research, as it minimizes the risk of non-response bias and enhances the credibility of the findings. The 93% return rate recorded in this study is therefore exceptionally high and indicates strong participation and cooperation from respondents. This high level of engagement suggests that the topic of the study was relevant and of interest to the participants. It also implies that the data obtained are sufficient representative of the target population and suitable for reliable statistical analysis. Furthermore, the low percentage of unreturned questionnaires (7%) suggests that issues such as respondent fatigue, lack of interest, or misunderstanding of the instrument were minimal. Consequently, the dataset can be regarded as robust and dependable for drawing valid conclusions.

Section A: Demographic Data

Table 2: Age Distribution of Respondents (N = 372)

Age (years)	Frequency	Percentage
18–30	150	40.3%
31–40	98	26.3%
41–50	72	19.4%
51–60	52	14.0%
Total	372	100%

Source: Field study, 2026

Table 2 presents the age distribution of the respondents. The data indicate that the largest proportion of respondents, 150 participants (40.3%), were within the 18–30 years age bracket. This group constitutes the majority of the sample, suggesting strong participation of young adults in the study. Individuals within this age range are often more active in community engagement and more likely to utilize primary health care services due to reproductive health needs, child health services, and general health awareness. Respondents aged 31–40 years accounted for 98 participants (26.3%), representing the second largest group. This age category typically consists of economically active individuals who are likely to have family responsibilities and regular interaction with healthcare services. Their representation ensures that the perspectives of middle-aged adults are well captured. Participants aged 41–50 years constituted 72 respondents (19.4%). This group is significant because individuals in this stage of life often experience increasing health challenges such as chronic conditions and therefore have substantial experience with healthcare services. The smallest proportion of respondents, 52 individuals (14.0%), were within the 51–60 years age bracket. Although this group represents the lowest percentage, their inclusion remains important because older adults typically have higher healthcare needs and greater reliance on primary healthcare services. Overall, the distribution shows that the study sample is dominated by younger adults, but still includes representation from middle-aged and older respondents. This diversity enhances the reliability of the findings because it reflects perspectives across different life stages.

Table 3: Sex Distribution of Respondents

Sex	Frequency	Percentage
Male	170	45.7%
Female	202	54.3%
Total	372	100%

Source: Field Survey, 2026

Table 3 presents the gender distribution of respondents. It shows that 202 respondents (54.3%) were female, while 170 respondents (45.7%) were male. This indicates a slight dominance of female participants in the study. The higher participation of females may be attributed to the nature of primary healthcare services, which often focus on maternal and child health, family planning, immunization, and other reproductive health services. Women typically interact more frequently with primary healthcare facilities due to pregnancy, childbirth, childcare, and family health responsibilities. Therefore, their higher representation in the study is consistent with healthcare utilization patterns observed in many developing countries. The near balance in gender distribution is important because it ensures that both male and female perspectives are adequately represented. Male participation, although slightly lower, remains substantial and contributes to the comprehensiveness of the study. The gender distribution enhances the validity of the findings, as the responses reflect the experiences of both sexes in accessing and utilizing primary healthcare services.

Table 4: Educational Qualification of Respondents

Education	Frequency	Percentage
Primary	48	12.9%
Secondary	94	25.3%
Diploma/NCE	110	29.6%
Degree/HND	120	32.2%
Total	372	100%

Source: Field Survey, 2026

The data in table 4 reveals that a majority of respondents (61.8%) have post-secondary education, either Diploma/NCE 110 respondents (29.6%) or Degree/HND 120 respondents (32.2%). Secondary school graduates account for 94 respondents (25.3%), and primary school leavers are the least represented at 48 respondents representing (12.9%). This indicates a fairly educated sample. Educational attainment is a critical factor influencing health-seeking behavior. Highly educated individuals are more likely to understand the importance of preventive care, recognize early symptoms, and actively seek PHC services. Consequently, this suggests that respondents' opinions regarding PHC accessibility and quality are likely informed by an adequate level of literacy. However, the presence of 12.9% of respondents with only primary education indicates that there may still be a segment of the population that could face challenges in accessing or understanding health information. Policy implications include the need for PHC communication strategies that accommodate varying literacy levels to ensure equitable healthcare understanding and utilization.

Table 5: Occupational Distribution of Respondents

Occupation	Frequency		Percentage
	Frequency	Percentage	
Student	70	18.8%	
Civil Servant	80	21.5%	
Business	96	25.8%	
Farmer	34	9.1%	
Driver	30	8.1%	
Mechanic	26	7.0%	
Tailor	18	4.8%	
Others	18	4.8%	
Occupation	Frequency	Percentage	
Total	372	100%	

Source: Field Survey, 2026

Table 5 above shows that business owners, 96 respondents (25.8%) and civil servants, 80 respondents (21.5%) formed the largest occupational groups, followed by students, 70 respondents (18.8%). Farmers, drivers, and artisans represent smaller proportions. This diverse occupational profile reflects varied socioeconomic statuses, which can influence access to PHC services. Civil servants often have structured healthcare benefits, while business owners may possess financial flexibility to access services. Conversely, farmers and informal-sector workers might face barriers

due to lower income or distance from health facilities. Occupation therefore acts as a determinant of healthcare accessibility and utilization patterns. The diversity in occupation highlights the need for PHC programmes to consider both the formal and informal workforce when designing health intervention policies and programmes, ensuring equitable access regardless of economic status or employment type.

Table 6: Competence of Health Workers

Response	Frequency	Percentage
Strongly Agree	86	23.1%
Agree	138	37.1%
Undecided	32	8.6%
Disagree	72	19.4%
Strongly Disagree	44	11.8%
Total	372	100%

Source: Field Survey, 2026

Table 6 shows that 224 respondents (60.2%) perceived PHC health workers as competent. Despite this positive perception, 106 respondents (31.2%) disagree while 32 respondents (8.6%) were undecided on the subject matter. This strongly indicates that majority of respondents have confidence in the skills and knowledge of personnel. Competent staff are crucial for effective service delivery, patient satisfaction, and health outcomes. This suggests gaps in training or experience among some staff members. However, continuous professional training and development and constant supervision are recommended to maintain high standards of care.

Table 7: Availability of Drugs in PHC Centres

Response	Frequency	Percentage
Strongly Agree	52	14.0%
Agree	96	25.8%
Undecided	34	9.1%
Disagree	112	30.1%
Strongly Disagree	78	21.0%
Total	372	100%

Source: Field Survey, 2026

Table 7 shows that more than half of respondents, 190 (51.1%) disagree and strongly disagree that drugs were adequately available. 148 respondents (39.8%) agree and strongly agree with the assertion, while 34 respondents (9.1%) had undecided opinion. This indicates that drug shortages remain a significant challenge, which can lead to incomplete treatments, reduced trust in PHC, and increased reliance on private pharmacies.

Table 8: Reasonableness of Waiting Time

Response	Frequency	Percentage
Strongly Agree	58	15.6%
Agree	84	22.6%
Undecided	38	10.2%
Disagree	128	34.4%
Strongly Disagree	64	17.2%
Total	372	100%

Source: Field Survey, 2026

Only 142 respondents (48.2%) perceived waiting times as reasonable, while 192 respondents (51.6%) disagree with the assertion and 38 respondent (10.2%) were undecided. This strongly indicates that there is long waiting times at PHC facilities, which can reduce patient satisfaction and discourage utilization of PHC services.

Table 9: Hygiene Standards in PHC Facilities

Response	Frequency	Percentage
Strongly Agree	72	19.4%
Agree	128	34.4%
Undecided	30	8.1%
Disagree	86	23.1%
Strongly Disagree	56	15.1%
Total	372	100%

Source: Field Survey, 2026

Table 9 above shows that a combined 200 (53.8%) of respondents agree that hygiene standards in PHC facilities were good. Nonetheless, 142 respondents (38.2%) disagree, while 30 respondents (8.1%) were undecided. This indicates moderate satisfaction, signaling that some facilities require improvement in sanitation, waste disposal, and infection control measures. Proper hygiene is critical for preventing healthcare associated infections and maintaining patient trust.

Table 10: Respectful Treatment of Patients

Response	Frequency	Percentage
Strongly Agree	92	24.7%
Agree	72	19.4%

Response	Frequency	Percentage
Undecided	20	5.4%
Disagree	130	34.9%
Strongly Disagree	58	15.6%
Total	372	100%

Source: Field Survey, 2026

In table 10, majority of respondents 188 (50.5%) felt they were treated disrespectfully, 164 respondents (44.1%) felt they were treated respectfully. However, 20 respondents were undecided. This suggests a negative patient-staff interactions. Respectful treatment is a core dimension of quality care, impacting patient satisfaction, compliance, and repeat utilization. This highlights the need for ongoing staff training in patient-centered care and communication.

Table 11: PHC Services Have Improved Maternal and Child Health

Response	Frequency	Percentage
Strongly Agree	126	33.9%
Agree	140	37.6%
Undecided	34	9.1%
Disagree	42	11.3%
Strongly Disagree	30	8.1%
Total	372	100%

Source: Field Survey, 2026

The table 11 above reveals that 126 respondents (33.9%) strongly agree and 140 respondents (37.6%) agree that PHC services have improved maternal and child health. This gives a combined total of 71.5% positive responses, while 72 respondents (19.4%) disagree and strongly disagree respectively and 34 respondents (9.1%) were undecided. This implies that PHC facilities have contributed significantly to improving maternal and child healthcare services in the study area. Through antenatal care, postnatal services, immunization programs, nutritional support, and health education, PHC centers have enhanced the wellbeing of mothers and children. Despite the positive responses, the percentage of disagreement indicates that some communities are still facing challenges such as inadequate personnel, poor facilities, or limited access to maternal healthcare services.

Table 12: Immunization Coverage Improved Due to PHC

Response	Frequency	Percentage
Strongly Agree	138	37.1%
Agree	146	39.2%
Undecided	28	7.5%
Disagree	34	9.1%
Strongly Disagree	26	7.0%

Total	372	100%
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Source: Field Survey, 2026

Table 12 indicates that 138 respondents (37.1%) strongly agree while 146 respondents (39.2%) agree that immunization coverage has improved due to PHC services. Cumulatively, 76.3% of respondents expressed positive opinions, whereas 60 respondents (16.1%) disagree and strongly disagree with the statement and 28 respondents (7.5%) remained undecided. This emphatically demonstrates that PHC facilities play a vital role in improving immunization coverage in the community. PHC centers serve as the primary channel for administering vaccines against childhood diseases such as polio, measles, tuberculosis, and hepatitis. Improved immunization coverage helps reduce the spread of vaccine-preventable diseases and contributes to better public health outcomes. The result further submits that PHC outreach programmes and community awareness campaign have increased acceptance and participation in immunization exercises. However, the percentage of respondents who disagree implies that some areas still experience inadequate vaccine supply, poor awareness, or weak outreach programmes.

Table 13: PHC Promotes Preventive Healthcare Effectively

Response	Frequency	Percentage
Strongly Agree	120	32.3%
Agree	150	40.3%
Undecided	36	9.7%
Disagree	38	10.2%
Strongly Disagree	28	7.5%
Total	372	100%

Source: Field Survey 2026

The table above shows that 120 respondent (32.3%) strongly agree and 150 respondents (40.3%) agree that PHC effectively promotes preventive healthcare. This gives a combined positive response of 270 respondents (72.6%), while 66 respondents (17.7%) disagree and strongly disagree with the assertion and 36 (9.7%) remained undecided. The majority opinion indicates that PHC facilities are actively involved in preventive healthcare services such as immunization, disease screening, family planning, environmental sanitation education, and health awareness campaigns. Preventive healthcare is essential because it helps reduce the occurrence and spread of diseases before they become severe. However, the level of disagreement suggests that preventive healthcare services are not fully effective in all areas due to inadequate personnel, poor outreach activities, or lack of healthcare resources.

Test of hypothesis

Simple Linear Regression (SLR) was employed to test the research hypothesis of the study to determine the nature, direction, and magnitude of the influence of Primary Health Care financial mechanisms on out of pocket healthcare expenditures among service users in Kogi State. The analysis was performed using IBM SPSS Statistics Version 25, consistent with the research methodology which prescribes inferential statistics to examine the influence of Primary Health Care financial mechanisms on out of pocket healthcare expenditures among service users.

A total of 372 valid questionnaires were retrieved and analyzed (representing a 93% response rate from 400 distributed questionnaires). All variables were measured on a five-point Likert scale: Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, and Strongly Disagree = 1. Composite

scores for each construct were computed by summing Likert responses of the constituent items and entered into SPSS for regression analysis.

Simple Linear Regression Model

Simple Linear Regression models the relationship between one independent variable (predictor) and one dependent variable (criterion) using the equation:

$$Y = a + bX + \varepsilon$$

Where: Y = Dependent variable (outcome); a = Constant (Y-intercept); b = Unstandardized regression coefficient (slope); X = Independent variable (predictor); ε = Error term.

The following SPSS output tables are generated for each hypothesis:

- (i) Model Summary: showing R, R², and Adjusted R²
- (ii) ANOVA: assessing overall model significance via F-statistic
- (iii) Coefficients: showing unstandardized coefficient (B), standardized coefficient (Beta), t-value, and significance level. The level of significance is set at $\alpha = 0.05$.

Decision Rule: The null hypothesis (Ho) is rejected if the p-value (Sig.) is less than 0.05. The coefficient of determination (R²) indicates the proportion of variance in the dependent variable explained by the independent variable. The strength of prediction is interpreted as follows:

R ² Value	Interpretation of Explanatory Power
< 0.10	Very Weak - predictor explains very little variance
0.10 - 0.29	Weak - small but meaningful explanatory power
0.30 - 0.49	Moderate - predictor accounts for a notable share of variance
0.50 - 0.69	Strong - predictor is a substantial explanatory variable
≥ 0.70	Very Strong - predictor explains the majority of variance

Source: Cohen (1988), as cited in Field (2018) and Pallant (2020)

Descriptive Statistics of Study Constructs

Prior to the regression analysis, descriptive statistics for all construct variables were computed in SPSS to characterize the dataset and verify data adequacy for regression. Table 2.1 presents the mean and standard deviation for each construct.

Hypothesis (Ho): PHC Service Quality and Maternal and Child Health Outcomes and the attainment of Universal Health Coverage in Kogi State

Ho: There is no significant relationship between primary health care services quality and maternal and child health outcomes and the attainment of Universal Health Coverage in Kogi State.

Variables:

Independent Variable (X): PHC Service Quality

Items: Q6 - Q10 (staff competence, drug availability, waiting time, hygiene, respectful treatment)

Dependent Variable (Y): Maternal and Child Health (MCH) Outcomes

Items: Q11 – Q13 (maternal/child health improvement, immunization coverage, preventive healthcare effectiveness)

Table : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	.687	.472	.471	4.539

Source: SPSS Version 25

Table 4.3.4b: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6814.22	1	6814.22	330.608	.000
Residual	7623.78	370	20.60		
Total	14438.00	371			

Source: SPSS Version 25

Table 4.3.4c: Coefficients

Model	Unstd. B	Std. Error	Standardized Beta	t	Sig.
(Constant)	6.341	0.702		9.032	.000
PHC Service Quality	0.673	0.037	.687	18.182	.000

Source: SPSS Version 25

Regression Equation:

$$\text{MCH Outcomes} = 6.341 + 0.673 (\text{PHC Service Quality})$$

Interpretation:

The Model Summary shows that the simple linear regression model accounts for $R^2 = .472$ (Adjusted $R^2 = .471$) of the total variance in Maternal and Child Health (MCH) Outcomes. This means PHC Service Quality explains 47.2% of the variability in Maternal and Child Health (MCH) Outcomes among respondents in Kogi State, indicating a strong level of explanatory power.

The ANOVA table confirms that the overall regression model is statistically significant: $F(1, 370) = 330.608$, $p = .000 < 0.05$. This indicates that the model fits the data significantly better than a model with no predictor, and that PHC Service Quality is a significant predictor of Maternal and Child Health (MCH) Outcomes.

The Coefficients table reveals that the unstandardized regression coefficient $B = 0.673$ ($SE = 0.037$), with a standardized coefficient $Beta = .687$ and $t(370) = 18.182$, $p = .000 < 0.05$. For every one-unit improvement in PHC service quality, maternal and child health outcomes improve by

0.673 units. The standardized coefficient Beta = .687 indicates a positive strong direct predictive relationship.

Decision: $F(1, 370) = 330.608, p = .000 < \alpha = 0.05 \rightarrow H_{04}$ is REJECTED. PHC Service Quality is a significant positive predictor of Maternal and Child Health (MCH) Outcomes ($B = 0.673$, Beta = .687, $t = 18.182, p < .001, R^2 = .472$).

Discussion of Findings

The study examined the relationship between Primary Health Care (PHC) service quality and maternal and child health (MCH) outcomes in the context of the attainment of Universal Health Coverage (UHC) in Kogi State, Nigeria. The findings demonstrate that the quality of PHC services is an important determinant of maternal and child health outcomes. The study particularly assessed health worker competence, availability of drugs, waiting time, hygiene standards, and respectful treatment of patients as dimensions of PHC service quality, while maternal and child health outcomes were assessed through perceived improvements in maternal and child health, immunization coverage, and effectiveness of preventive healthcare. The findings are discussed in relation to previous empirical studies and Human Capital Theory.

On PHC Service Quality and Maternal and Child Health Outcomes, the findings indicate a strong positive relationship between PHC service quality and maternal and child health outcomes in Kogi State. The regression analysis produced an R value of 0.687 and an R^2 of 0.472, indicating that PHC service quality explained 47.2% of the variation in maternal and child health outcomes. The adjusted R^2 of 0.471 further indicates that the explanatory capacity of the model remained virtually unchanged after adjustment for the number of predictors. This represents a substantial proportion of explained variation and demonstrates the importance of the quality of PHC services in determining maternal and child health outcomes.

The ANOVA result further established that the regression model was statistically significant, $F(1, 370) = 330.608, p < 0.001$. This means that the observed relationship between PHC service quality and MCH outcomes was statistically significant and unlikely to have occurred by chance. The regression coefficient was also positive and statistically significant ($B = 0.673$, Beta = 0.687, $t = 18.182, p < 0.001$). Thus, improvement in PHC service quality was associated with corresponding improvement in maternal and child health outcomes. Specifically, the coefficient indicates that a one-unit increase in the PHC service quality score was associated with a 0.673-unit increase in the MCH outcome score. This finding suggests that the effectiveness of PHC in improving maternal and child health goes beyond merely making healthcare facilities physically available. The quality of services delivered within those facilities is equally important. A PHC facility may exist within a community, but if it lacks competent personnel, essential medicines, acceptable waiting times, adequate hygiene, and respectful patient-provider relationships, its capacity to produce desirable health outcomes may remain limited.

The descriptive findings provide further support for this conclusion. Regarding the competence of health workers, 224 respondents, representing 60.2%, either strongly agreed or agreed that health workers in PHC facilities were competent. This relatively positive perception indicates that a considerable proportion of respondents had confidence in the knowledge and skills of PHC personnel. Competent health workers are particularly important in maternal and child healthcare because they are responsible for antenatal care, identification of pregnancy complications,

immunization, child growth monitoring, health education, family planning, postnatal care, and timely referral of complicated cases.

However, the findings also reveal areas of concern. A considerable proportion of respondents expressed dissatisfaction with drug availability. Specifically, 190 respondents, representing 51.1%, disagreed or strongly disagreed that drugs were adequately available in PHC centres. This suggests that drug shortages remain a significant challenge to quality PHC delivery in Kogi State. The absence of essential medicines can reduce the effectiveness of treatment, compel patients to purchase medicines outside the facility, increase out-of-pocket expenditure, and discourage future utilization of public PHC facilities. The finding on waiting time also indicates a quality gap. Although some respondents considered waiting time reasonable, a substantial proportion expressed dissatisfaction with the time spent before receiving services. Long waiting periods can discourage patients from seeking care, particularly pregnant women, mothers with young children, elderly persons, and individuals who must leave work or other economic activities to access healthcare. The findings on hygiene standards were comparatively positive, with 200 respondents (53.8%) agreeing or strongly agreeing that PHC facilities maintained good hygiene standards. Nevertheless, the 38.2% who expressed disagreement indicates that sanitation and infection prevention remain concerns in some facilities. This is important because poor hygiene can increase the risk of healthcare-associated infections and reduce patients' confidence in health facilities.

Similarly, the finding concerning respectful treatment requires attention. Although 164 respondents (44.1%) indicated that they were treated respectfully, 188 respondents (50.5%) disagreed or strongly disagreed with the statement that patients were treated respectfully. This suggests that interpersonal quality is a major area requiring improvement. Respectful communication, empathy, confidentiality, responsiveness, and patient-centered care are important components of healthcare quality. Poor provider-patient interaction may discourage individuals from returning to PHC facilities and may encourage self-medication or reliance on alternative sources of healthcare. The finding is consistent with Wright et al. (2024), who found that PHC facilities in Lagos State demonstrated important strengths in community participation and service provision but continued to face challenges relating to infrastructure and the availability of maternal and child health services. Their findings suggest that the existence of PHC structures does not automatically translate into high-quality services. Rather, governance, availability of services, infrastructure, personnel, and community participation must function together to produce improved health outcomes.

The finding also supports Egwuaba and Sunday (2025), who identified inadequate infrastructure, insufficient funding, shortages of skilled health personnel, logistical problems in the distribution of essential medical resources, cultural beliefs, low health literacy, and community distrust as major barriers to PHC delivery and health-seeking behaviour in Awka. The similarity between their findings and the present study demonstrates that PHC quality is multidimensional and that improvements require attention to both supply-side and demand-side factors.

The findings further agree with Okunlola, Ojo, Ohaeri and Babarimisa (2025), who identified infrastructural deficiencies, inadequate equipment, workforce shortages, financial barriers, poor health insurance coverage, geographical challenges, weak referral systems, low health literacy, and ineffective policy implementation as major obstacles to PHC utilization. The present study reinforces this position by showing that service quality dimensions within PHC facilities have important implications for health outcomes.

On PHC Service Quality and Maternal Health Outcomes, the findings indicate that PHC service quality contributes significantly to maternal health improvement. In Table 11, 266 respondents, representing 71.5%, either strongly agreed or agreed that PHC services had improved maternal and child health. This relatively high level of positive response indicates that respondents recognized the contribution of PHC services to maternal and child health. The contribution of PHC to maternal health can be explained through services such as antenatal care, skilled birth preparedness, postnatal care, health education, family planning, nutritional counselling, screening, early detection of complications, and referral. When these services are available, accessible, affordable, timely, and provided by competent personnel, they can reduce preventable maternal morbidity and mortality. This finding is particularly important in the Nigerian context, where many maternal health challenges are associated with delayed access to skilled care, inadequate availability of essential services, financial barriers, and weaknesses in the health system. Improving the quality of PHC therefore represents an important strategy for strengthening the first level of contact between women and the formal healthcare system.

The finding is consistent with Wright et al. (2024), whose assessment of PHC implementation in Lagos found that all sampled PHCs offered family planning services and vaccination programmes, although only 52.6% offered essential obstetric care and labour and delivery services. This suggests that while some PHC services are relatively well established, gaps in essential maternal services can undermine the overall effectiveness of PHC systems. The finding is also in tandem with Miftahu and Munu (2024), who found a significant long-run relationship between PHC-related interventions and child mortality in Nigeria. Their finding that antenatal enrolment, immunization enrolment, health education, and disease surveillance were negatively and significantly associated with child mortality reinforces the importance of strengthening preventive and promotive PHC services.

In relation to PHC Service Quality and Child Health Outcomes, the study also reveals a strong contribution of PHC services to child health. Table 12 shows that 284 respondents, representing 76.3%, agreed or strongly agreed that immunization coverage had improved as a result of PHC services. This was one of the highest positive responses recorded in the study. The result highlights the critical role of PHC facilities in providing childhood immunization and other preventive services. PHC centres are generally the closest formal health institutions to many rural and underserved communities and therefore constitute an important platform for vaccination, growth monitoring, nutrition services, health education, disease prevention, and early identification of childhood illnesses.

The finding corroborates with Begha (2022), who found that management approaches within PHC systems in the Federal Capital Territory had positive and significant effects on DTP3 immunization coverage. Although Begha's study focused on management approaches rather than service quality directly, both studies demonstrate the importance of effective PHC systems in improving immunization outcomes. This finding also agrees with Miftahu and Munu (2024), who found that childhood immunization enrolment was significantly associated with reduced child mortality in Nigeria. This provides empirical support for the argument that improvements in immunization coverage through PHC can contribute to improved child survival. Akin to the above, the study found that 270 respondents, representing 72.6%, agreed or strongly agreed that PHC facilities effectively promote preventive healthcare. This finding shows that PHC facilities are perceived to play an important role in prevention through immunization, health education, screening, family planning, disease surveillance, sanitation education, and other preventive interventions. The finding

is in tandem with Miftahu and Munu (2024), whose study identified disease surveillance and health education as significant factors associated with reductions in child mortality in Nigeria. It also corresponds with Osarenmwanta et al. (2021), who found that community mobilization, intersectoral collaboration, and community feedback mechanisms significantly contributed to improved implementation of PHC programmes. The findings therefore indicate that strengthening preventive PHC should remain a central component of health policy in Kogi State. Communities should not only be encouraged to seek treatment when illness occurs but should also be empowered to participate in immunization, disease prevention, health education, maternal health promotion, sanitation, nutrition, and other preventive programmes.

The above findings are strongly supported by Human Capital Theory. Schultz (1961) and Becker (1964) conceptualized investments in health and education as investments that improve human productivity and generate long-term economic and social returns. From this perspective, investment in PHC is not merely expenditure on healthcare; it is an investment in the productive capacity and wellbeing of the population. The implications extend beyond immediate health outcomes. Healthy mothers are more capable of participating in household and economic activities, while healthy children have greater opportunities for school attendance, cognitive development, and future productivity. Consequently, improving PHC quality can contribute to the accumulation of human capital in Kogi State.

Conclusion

The study concludes that Primary Health Care service quality has a significant and positive influence on maternal and child health outcomes in Kogi State, Nigeria. Thus, improving PHC service quality is essential for improving maternal and child health in Kogi State. The positive perceptions regarding health worker competence, improvement in maternal and child health, immunization coverage, and preventive healthcare demonstrate that PHC facilities are making meaningful contributions to population health. However, the study also identifies important quality gaps, in terms of drug shortages, prolonged waiting times, poor patient-provider interactions, and uneven hygiene standards remain challenges that can undermine the effectiveness of PHC services. These challenges demonstrate that physical availability of PHC facilities alone is insufficient to guarantee quality healthcare or UHC.

The study therefore concludes that the attainment of UHC in Kogi State requires a paradigm shift from simply expanding PHC coverage to ensuring that services are accessible, affordable, equitable, acceptable, and of adequate quality. Quality improvement must be accompanied by sustainable financing and effective financial protection so that individuals can obtain needed healthcare without experiencing financial hardship. Suffice to say that PHC investment represents an investment in human capital. Improved maternal health, child survival, immunization, disease prevention, and access to quality healthcare contribute to a healthier and more productive population. Strengthening PHC can therefore generate both immediate health benefits and long-term socioeconomic benefits for Kogi State. More importantly, the attainment of UHC in Kogi State will depend on the ability of government and other stakeholders to strengthen the entire PHC system, including human resources, medicines, infrastructure, financing, governance, community participation, accountability, and service quality.

Recommendations

Based on the findings and conclusion of the study, the following recommendations are made:

1. Government should strengthen the quality of PHC service delivery. Kogi State Government, through the relevant health agencies, should prioritize quality improvement across PHC facilities. This should include regular assessment of health worker performance, patient satisfaction, waiting times, infection prevention, drug availability, and responsiveness to community health needs.
2. Essential medicines should be made consistently available. The persistent concern regarding drug availability requires urgent attention. Government should strengthen medicine procurement, distribution, stock monitoring, and accountability mechanisms. Essential medicines for maternal and child healthcare should be prioritized to reduce stock-outs and prevent patients from having to purchase basic medicines from private outlets.
3. Recruitment, training and retention of PHC personnel should be strengthened. The government should recruit adequate numbers of qualified healthcare personnel and provide continuous professional development. Training should cover clinical competence, maternal and child healthcare, emergency recognition, infection prevention, communication, ethics, and patient-centred care. Incentives should also be introduced to retain health workers, particularly in rural and underserved communities.
4. Maternal and child health services should be strengthened. Government should ensure that PHC facilities provide comprehensive maternal and child health services, including antenatal care, skilled delivery or appropriate referral, postnatal care, immunization, family planning, nutrition services, child growth monitoring, health education, and early identification and referral of complications. Given the strong positive perception regarding improved immunization coverage, government should sustain investment in routine immunization and outreach programmes. Vaccine availability, cold-chain systems, community mobilization, defaulter tracking, and health education should be strengthened, especially in hard-to-reach communities.
5. PHC infrastructure and hygiene should be improved and rural and underserved communities should receive targeted attention. Government should rehabilitate dilapidated PHC facilities and provide adequate water supply, electricity, sanitation facilities, waste-disposal systems, infection-prevention materials, consultation spaces, maternity units, and appropriate medical equipment. This will improve both patient safety and confidence in PHC facilities. PHC resources should be distributed according to population needs and health-service gaps rather than solely on administrative considerations. Rural and hard-to-reach communities should receive priority in the provision of health workers, medicines, equipment, transportation, outreach services, and infrastructure.

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