International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

Impact of Government Health Spending on Under-5 Mortality Rates in Nigeria

YOHANNA SAMUEL
(BHU/23/MSC/ECO/011)
M.Sc. ECONOMICS

Assoc. Prof. Obumneke Ezie
Dr. S.E. Ologunla
SUPERVISORS

Date of Submission: 15-09-2025 Date of Acceptance: 30-09-2025

Abstract
This paper investigated the impact of government health spending on under-5 mortality rates in Nigeria from 1999 to 2024. The paper adopted an ex-post facto research design using annual time series data. Data on government health spending were sourced from the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS), while under-5 mortality data were obtained from the World Bank. The paper estimated both long-run and short-run dynamics using the Autoregressive Distributed Lag (ARDL) model. Findings showed that Government Recurrent Health Expenditures and Health Insurance Expenditures had significant negative effects on under-5 mortality in the long run, suggesting that increases in these spending categories contributed to reduced child deaths. Conversely, Government Capital Health Expenditure had an insignificant impact, indicating that infrastructure-related spending alone was not sufficient to drive improvements in child health outcomes during the period under review. Based on these findings, the paper recommended that the Federal Ministry of Health and the Federal Ministry of Finance, Budget and National Planning increase and sustain recurrent health spending to ensure continuous availability of essential services. The National Health Insurance Authority (NHIA) was urged to expand health insurance coverage to the informal sector and underserved communities. Furthermore, capital health investments should be better aligned with operational capacity, with oversight from the Infrastructure Concession Regulatory Commission (ICRC) to ensure proper implementation. Ultimately, the paper concluded that a balanced and well-coordinated health financing strategy is essential for further reducing under-5 mortality in Nigeria.

Keywords: *Government Health Spending, Under-5 Mortality, Recurrent Expenditure, Health capital expenditures and Health Insurance,*
JEL Codes: *H51, I18, C32, I13, I14*

I. Introduction

Globally, government health spending represents a crucial investment in the well-being of populations, serving as a fundamental determinant of health outcomes across various demographics. The allocation of financial resources to healthcare has been recognized as essential for achieving improved health indicators, including reduced mortality rates, increased life expectancy, and overall better quality of life. Government health spending worldwide has shown considerable variation across countries and regions. According to data from the World Health Organization, health expenditure as a percentage of GDP varies significantly across countries, with high-income nations typically allocating a higher proportion of their national income to healthcare than lower and middle-income countries. In 2023, high-income countries spent on average approximately 7-10% of their GDP on health, while the global average health expenditure stood at approximately 7.21% of GDP (Ahmad & Bello, 2024).

Despite global recommendations for adequate healthcare financing, many developing regions, particularly in sub-Saharan Africa, have struggled to meet established targets. The Abuja Declaration of 2001 set a target for African countries to allocate at least 15% of their annual budgets to the health sector. However, across sub-Saharan Africa, health prioritization has remained largely stagnant, with approximately half of the countries in the region allocating less than 7% of their budgets to health (ODI, 2023). Government health expenditure in sub-Saharan Africa has consistently lagged behind other regions, and despite some economic growth in recent

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

years, increased revenue mobilization has been limited, with median government revenue as a share of GDP increasing by only 2.3 percentage points, remaining below 17% in most countries (Adegboye & Alabi, 2024).

For the African region specifically, according to the WHO African Region Health Expenditure Atlas, only a limited number of countries have met the recommended threshold of spending a minimum of US$249 per capita on health. The disparities in health spending are stark, with expenditures ranging from as low as US$16.4 to US$236.6 per capita in most countries (WHO, 2023). While there has been gradual improvement in domestic government spending on health as a share of total government expenditure, only South Africa has consistently achieved and sustained the Abuja Declaration target from 2014 to 2020. In most African countries, domestic government spending on health as a share of total government expenditure ranges from 2.1% to 12%, highlighting the significant variations and limited capacity for raising public resources for health across the continent (Nwosu & Chinedu, 2024).

Nigeria's health financing scope presents a concerning picture. Despite being Africa's largest economy, Nigeria's health expenditure as a percentage of GDP has remained consistently low compared to global and regional averages. In 2021, Nigeria's health expenditure reached 4.08% of GDP, marking a 20.71% increase from the previous year and representing the highest level in recent years (Statista, 2023). However, this figure remains significantly below the recommended 5% of GDP suggested for achieving universal health coverage. Moreover, public health expenditure as a share of GDP was merely 0.65% in recent years, far below the 4-5% recommended for universal health coverage (NCBI, 2023). The percentage of government health expenditure as a share of gross government expenditure stood at approximately 4.2%, significantly below the 15% target established in the Abuja Declaration (NCBI, 2023).

The Nigerian health financing system is characterized by inadequate public funding and a heavy reliance on out-of-pocket payments. In 2021, out-of-pocket spending accounted for over 76% of health expenditure in Nigeria, with government transfers, external aid, and social health insurance contributions making up the remainder (Statista, 2024). This high proportion of out-of-pocket spending creates significant financial barriers to healthcare access, particularly for vulnerable populations, and increases the risk of catastrophic health expenditures that can drive households into poverty.

Available data from CBN (2023 and NBS (2024) reveals that Government Recurrent Health Expenditures, which encompass operational costs such as salaries, maintenance, and medical supplies, have increased substantially from ₦11.82 billion in 1999 to ₦542.37 billion in 2024. Similarly, Government Capital Health Expenditure, which involves investments in healthcare infrastructure, has grown from ₦7,386.40 million to ₦183,965.00 million over the same period. Health Insurance Expenditures have also seen significant growth, rising from ₦3,214.50 million in 1999 to ₦124,789.60 million in 2024. The analysis of this data indicates consistent growth across all three types of government health spending, albeit with some fluctuations in specific years.

Turning to the global picture of under-5 mortality, the world has made remarkable progress in child survival over the past three decades. According to UNICEF data, the global under-5 mortality rate has decreased from 93 deaths per 1,000 live births in 1990 to 37 in 2024, representing a 59% reduction (WHO, 2024). However, this progress has not been uniform across regions or countries. In 2023, approximately 4.8 million children under the age of 5 died worldwide, equating to about 13,100 children dying daily (UNICEF, 2025). Globally, infectious diseases, including pneumonia, diarrhea, and malaria, remain leading causes of under-5 deaths, along with preterm birth and intrapartum-related complications.

Nigeria's under-5 mortality rate, despite showing improvement over the years, remains alarmingly high. According to the data provided, Nigeria's under-5 mortality rate has declined from 187.8 deaths per 1,000 live births in 1999 to 101.7 in 2024. This represents a significant reduction of approximately 45.8% over this 25-year period. However, Nigeria still has one of the highest under-5 mortality rates globally, with approximately 1 in 8 children dying before reaching their fifth birthday (Degruyter, 2024).

Given that sustained public health financing is a critical enabler of improved health outcomes, equitable access to care, and the development of robust health systems, it is imperative to examine how government health spending, represented by Government Recurrent Health Expenditures, Government Capital Health Expenditure, and Health Insurance Expenditures, has influenced under-5 mortality rates in Nigeria. Therefore, it is in the interest of this paper to conduct an analysis of how these components of government health spending

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

have impacted the reduction in under-5 mortality over the period 1999 to 2024.

II. Literature Review

Conceptual Review

Government Health Spending

Government health spending has been widely recognized in the literature as a foundational mechanism through which the state fulfills its responsibility to ensure the health and well-being of its citizens. According to Akinyemi and Olalekan (2023), government health spending encompasses all public sector expenditures directed towards the provision, maintenance, and expansion of health services, including preventive, curative, and rehabilitative care.

One important component of government health spending is government recurrent health expenditure, which refers to ongoing or operational costs necessary for the day-to-day functioning of the health system. These include salaries and wages of healthcare workers, purchases of medical consumables, utility services, and routine facility maintenance. Recurrent expenditures are essential for sustaining the functionality and reliability of health services. As stated by Musa and Olatunji (2022), recurrent health spending reflects the financial resources allocated to maintain service delivery capacity, retain skilled personnel, and ensure the uninterrupted supply of essential drugs and materials. Without consistent and adequate recurrent funding, health systems risk becoming inefficient, under-resourced, and inaccessible.

In contrast, government capital health expenditure has been conceptualized as investments in long-term physical infrastructure and durable assets in the health sector. This includes the construction and renovation of hospitals, acquisition of advanced medical equipment, and expansion of health information systems. Capital expenditures are typically irregular but high-cost, and they aim to build or improve the structural capacity of health systems. According to Eze and Abubakar (2023), capital health investments not only increase the physical availability of healthcare services, particularly in underserved areas, but also enhance the overall efficiency and sustainability of healthcare delivery over time. They argued that while recurrent spending sustains operations, capital spending determines the scope and scale of those operations.

A third and increasingly important dimension of public health financing is health insurance expenditure, which refers to government contributions towards the funding of health insurance schemes. These schemes are designed to reduce out-of-pocket spending by pooling financial risks across populations. In Nigeria, for example, the National Health Insurance Scheme (NHIS) and similar initiatives have benefited from government subsidies to ensure broader coverage. According to Johnson and Okon (2024), health insurance expenditures represent a strategic shift toward demand-side financing, where the government subsidizes individuals' access to health services through pre-paid mechanisms, thus improving access and financial protection. They emphasized that such spending not only increases utilization rates but also enhances equity by enabling low-income populations to access needed care without suffering financial hardship.

Under-5 Mortality Rate

Under-5 mortality rate has been a central indicator in global health research and policy, serving as a crucial measure of a country's health system performance, socio-economic conditions, and overall well-being of children. Conceptually, under-5 mortality refers to the probability (expressed per 1,000 live births) that a child born in a specific year will die before reaching the age of five, assuming current age-specific mortality rates remain constant. Scholars have widely agreed that it encapsulates a range of underlying health determinants, including maternal health, nutrition, access to clean water, sanitation, availability of medical care, and socio-economic factors. According to Adeoye and Ibrahim (2023), under-5 mortality is not only a health indicator but also a developmental indicator, reflecting the extent to which governments and societies are able to provide essential services that sustain life in the earliest and most vulnerable stages.

Under-5 mortality has been conceptualized in public health literature as both an outcome and a symptom of systemic inequality and health system weakness. It is often used as a proxy for evaluating the effectiveness of child health interventions, such as immunization, breastfeeding promotion, malaria control, and improved neonatal care. As noted by Osei and Aluko (2022), high under-5 mortality rates often point to deficiencies in the continuum of care from pregnancy through childbirth and into early childhood. They emphasized that interventions targeting just one stage of child development are insufficient; a comprehensive, life-course approach to maternal and child health is required to reduce mortality sustainably. This understanding aligns with the World Health Organization's broader framework, which sees under-5 mortality as an integrated outcome of health system quality, financial protection, and accessibility of care (WHO, 2022).

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

Recent conceptual contributions have also expanded the interpretation of under-5 mortality to include structural and policy dimensions. For example, Nwosu and Chinedu (2024) argued that under-5 mortality rates are influenced not only by medical or health-related factors but also by the political economy of health. They asserted that public policy choices, including how health budgets are structured and allocated, significantly shape the health environment in which children are born and raised. Thus, under-5 mortality is both a consequence of immediate medical issues and a manifestation of broader governance, equity, and investment patterns in health infrastructure.

According to Bello and Hassan (2023), under-5 mortality serves as a "developmental thermometer," gauging how social progress in areas like education, gender equity, and poverty alleviation translate into tangible health gains for children. In this context, the rate of under-5 mortality becomes more than a statistic, it symbolizes the intersection of health policy, economic growth, and social justice.

Theoretical Review

Underpinning Theory

The theoretical underpinning for this paper is the Health Production Function Theory, as developed by Michael Grossman in 1972. The Health Production Function Theory conceptualized health as a durable capital stock that individuals and societies invest in and maintain over time, much like physical or human capital. The theory posited that health outcomes, such as under-5 mortality rates, are the result of multiple inputs, including medical care, education, income, nutrition, and most crucially for this paper, government health spending. According to Grossman's model, individuals or governments allocate resources to improve or maintain health, and the efficiency of this investment determines the level of health achieved. Within the context of this paper, government recurrent health expenditures, capital health expenditures, and health insurance expenditures serve as the principal inputs in the production of child health, particularly in reducing under-5 mortality.

The significance of this theory in the paper lies in its structured analytical framework, which allows for an understanding of how different categories of government health spending function as inputs that influence health outcomes. Through this means, increased government spending on health infrastructure (capital expenditure), healthcare personnel and services (recurrent expenditure), and risk-pooling mechanisms (health insurance) are expected to yield improvements in child survival rates. This framework is particularly relevant in a country like Nigeria, where systemic underfunding and inequities in health access have historically contributed to high under-5 mortality rates.

However, the Health Production Function Theory has faced notable criticism. Adegoke and Suleiman (2023) argued that the theory overly relies on rational behaviour assumptions and tends to ignore non-economic and socio-cultural determinants of health service utilization, such as traditional beliefs, gender norms, and geographical barriers. These critics contend that while financial investment is a critical determinant, it may not always lead to improved outcomes if structural and behavioural barriers persist. Nonetheless, the Health Production Function Theory remains a suitable foundation for this paper, as it effectively captures the core relationship being investigated: the extent to which public health financing, measured through recurrent, capital, and insurance expenditures, serves as an input in the production of improved health outcomes, specifically the reduction in under-5 mortality in Nigeria over time.

Empirical Reviews

The following reviews offer insights into how this relationship has been empirically explored in both national and international settings, using a range of methodological approaches and datasets.

Adegboye and Alabi (2024) assessed the effects of disaggregated public health expenditure on under-5 mortality in Nigeria from 2001 to 2022, applying the vector error correction model (VECM). Their results confirmed that government recurrent health expenditure had the strongest inverse relationship with under-5 mortality, followed by capital expenditure. Surprisingly, health insurance expenditure had a lagged and weaker effect, which the authors attributed to low insurance penetration and administrative inefficiencies. Despite the methodological robustness of VECM in capturing both short- and long-run dynamics, the study's failure to incorporate demographic and behavioural health indicators may have limited the depth of its explanatory variables. Moreover, it focused solely on Nigeria, limiting the potential for cross-country comparisons and generalizability.

In their cross-national study, Ahmad and Bello (2024) examined how different health financing structures impacted under-5 mortality in North African countries between 2005 and 2023. The researchers applied a random effects panel regression model and found that government capital health expenditures had the greatest long-term impact on reducing child mortality, particularly when linked

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

with investments in rural health facilities. Recurrent health spending showed short-term gains, while insurance expenditures had inconsistent effects, especially in countries without effective regulatory oversight. Despite the breadth of the study, it was constrained by its narrow selection of explanatory variables, omitting critical determinants like maternal education, immunization rates, and sanitation infrastructure, which are known to influence child mortality.

Another valuable contribution was made by Al-Mahdi and Rahman (2024), who assessed the effects of health spending components on under-5 mortality in Middle Eastern countries from 2003 to 2023 using a fixed-effects regression model. Their findings suggested that capital expenditures were more effective in countries that had previously experienced conflict, as rebuilding infrastructure had direct implications for access to maternal and child health services. Recurrent expenditures were also significant but only when supported by stable political governance. Insurance spending had negligible effects in countries where private out-of-pocket payments dominated. The limitation of the study lay in its limited ability to account for governance quality and political instability, which often confound the relationship between public spending and health outcomes in the region.

Yusuf and Adesina (2024) examined the Nigerian context using annual data from 1999 to 2023. Employing an autoregressive distributed lag (ARDL) model, they found strong evidence that government recurrent health expenditure had a substantial and consistent negative relationship with under-5 mortality. Capital health expenditure was also significant, though its effect was more lagged, becoming evident only after several fiscal cycles. Health insurance expenditure had minimal impact, attributed largely to the limited reach and operational inefficiencies of national insurance programs like the NHIS. Though methodologically sound, the study's exclusion of regional-level data failed to capture disparities in health access between northern and southern Nigeria, thus limiting the spatial applicability of its conclusions.

Mwale and Chikoko (2023) focused on the Southern African Development Community (SADC) region, using panel data from 2000 to 2022 to investigate the link between public health expenditure and child mortality. Using the system generalized method of moments (GMM), the authors found that increases in government recurrent health expenditures significantly reduced under-5 mortality across the region. Capital health expenditures were only effective in countries with higher baseline infrastructure, while health insurance expenditures had a positive effect in countries where social health insurance schemes had achieved wide coverage. However, the study relied heavily on aggregate regional data, which did not adequately capture country-specific differences or the diversity in implementation of health insurance programs. This limited the granularity and specificity of its policy implications.

In Kenya, Omondi and Wekesa (2023) explored the relationship between public health funding and child mortality using quarterly data from 2010 to 2022. Through cointegration analysis and error correction modeling, they concluded that government recurrent health expenditure had a more immediate and significant effect on reducing under-5 mortality than capital spending. Insurance expenditures were found to be insignificant in the short term due to low insurance enrolment among poor households. While the study provided valuable time-sensitive insights, it did not factor in the role of donor health funding, which has historically supplemented government spending in Kenya, potentially skewing the attribution of effects solely to public expenditure.

In a cross-country analysis, Luo and Nguyen (2023) explored the impact of health insurance coverage expansion on under-5 mortality in Southeast Asia, focusing on Indonesia, Vietnam, and the Philippines between 2005 and 2020. The study adopted a difference-in-differences (DiD) methodology to isolate the effects of national health insurance policy rollouts on child mortality outcomes. The results showed a significant reduction in under-5 mortality associated with increases in health insurance coverage, especially among rural and low-income households. This supported the argument that insurance-based interventions could reduce financial barriers to care. Nevertheless, the study narrowly focused on health insurance as the sole explanatory variable, neglecting the potential interactive effects of recurrent and capital expenditures. Moreover, data limitations in measuring health infrastructure availability reduced the explanatory power of their capital investment variable.

Another notable contribution came from Tandon et al. (2022), who investigated the relationship between public health financing and child health outcomes across 24 low- and middle-income countries in sub-Saharan Africa from 2000 to 2020. Employing a panel data fixed-effects model, the study disaggregated health expenditure into recurrent, capital, and social health insurance spending. Their findings revealed that recurrent health expenditure significantly reduced under-5

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

mortality, while capital health expenditure only showed significant effects in countries with established health infrastructure. Health insurance expenditures, particularly where community-based health insurance schemes were widespread, contributed to marginal improvements in child survival. A major limitation of the study, however, was the aggregation of countries with diverse health systems into a single analytical unit, which may have masked country-specific effects. The study also did not consider variations in health policy implementation across the countries, which could affect how effectively funds were utilized.

Ejem and Uzonwanne (2021), the focus was placed on the Nigerian health sector to examine the effects of public health expenditure on child health outcomes between 2000 and 2019. Using a multiple regression analysis within a time-series econometric framework, the authors found that government recurrent health expenditure had a statistically significant negative relationship with under-5 mortality, indicating that increased recurrent spending led to reductions in child deaths. Government capital health expenditure also showed a mild but positive impact, while health insurance expenditure had no statistically significant influence. The study's findings highlighted the immediate importance of recurrent spending in improving health service delivery. However, the research was constrained by its exclusion of several socioeconomic control variables, limited to only health spending proxies, which may have led to omitted variable bias. Additionally, the reliance on secondary time-series data without accounting for structural breaks or policy shocks limited the robustness of the results.

In Ghana, Boadu and Appiah (2020) evaluated the influence of government health spending on child mortality from 1995 to 2018 using an autoregressive distributed lag (ARDL) model. Their study showed that while capital health expenditure had long-run effects in reducing under-5 mortality, recurrent expenditure produced more immediate short-run benefits. Health insurance expenditures under the Ghana National Health Insurance Scheme were associated with mixed results, with effectiveness depending on regional implementation efficiency. Although the study offered a detailed understanding of temporal effects of various spending types, its limited data resolution and lack of disaggregated regional analysis weakened the applicability of findings across the diverse regions of Ghana. The reliance on national-level averages also obscured rural-urban disparities in health outcomes.

Another notable contribution came from Mebratie et al. (2020), who focused on Ethiopia's healthcare financing reform and its impact on child and infant health outcomes between 2005 and 2016. Utilizing a difference-in-differences methodology to compare districts with and without reforms, the study found that increased public spending through community-based health insurance schemes significantly lowered infant mortality. The role of out-of-pocket spending remained critical, as districts with higher reliance on household payments saw slower improvements. While the study provided a robust quasi-experimental design, it did not fully integrate external funding data into its model, limiting its ability to assess how international aid interacted with domestic health financing strategies.

III. Methodology

This paper adopted an *ex-post facto* research design, which involved the analysis of existing data to investigate the relationship between government health spending and under-5 mortality in Nigeria from 1999 to 2024. The design was appropriate because it allowed the researcher to examine the effects of government recurrent health expenditure, capital health expenditure, and health insurance expenditure on a non-manipulable outcome, under-5 mortality. Since the variables had already occurred and could not be controlled or manipulated, the ex-post facto design enabled the paper to identify patterns, associations, and trends over time.

The paper utilized secondary, time-series data spanning from 1999 to 2024. Data on government health expenditures, specifically recurrent, capital, and health insurance spending, were sourced from the Central Bank of Nigeria (CBN, 2023; CBN, 2024) and the National Bureau of Statistics (NBS, 2024). Under-5 mortality rates were obtained from the World Bank (2024). These sources provided credible and consistent health indicators necessary for the empirical analysis.

The paper adopted and tailored the model framework previously used in assessing the impact of healthcare financing on child and infant health outcomes in Ethiopia. To suit the context and objectives of the present research, the model was modified accordingly. The foundational regression equation for this paper is expressed as follows:

$$U5M_t = \alpha_0 + \alpha_1 GRH_t + \alpha_2 GCH_t + \alpha_3 GHI_t + u_t \quad (1)$$

Where:
U5M = Under-five mortality rate
GRH = Government recurrent health expenditures
GCH = Government capital health expenditures

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

GHI = Government health insurance expenditures

α_0 = Autonomous parameter

$\alpha_1 - \alpha_3$ = Slope coefficients of Government Recurrent Health Expenditures, Government Capital Health Expenditure and Government Health Insurance Expenditures

u_t = error term.

The analysis began with the application of unit root tests as a preliminary diagnostic to determine the stationarity properties of the data. This step, grounded in the work of Dickey and Fuller (1979), was crucial in assessing whether the time series variables exhibited stochastic trends that required differencing to achieve stationarity. Ignoring this process could result in misleading regression outputs and unreliable statistical inferences.

Following the confirmation of stationarity, the paper proceeded to investigate the existence of long-run relationships among the variables. To accomplish this, the bounds cointegration testing approach was employed, consistent with the recommendations of Pesaran (1999). This technique was instrumental in identifying stable, long-term equilibrium relationships among non-stationary variables without losing vital information through excessive differencing.

To further estimate the long-run and short-run dynamics between government health expenditure proxies, namely recurrent, capital, and insurance spending, and under-5 mortality, the paper utilized the Bounds testing approach to cointegration within the Auto-Regressive Distributed Lag (ARDL) modeling framework, as developed by Pesaran *et al.* (2001). The ARDL model offered flexibility by accommodating variables that are integrated at different orders, thus making it particularly appropriate for this paper. This methodological strategy enabled a simultaneous evaluation of both the immediate and long-term effects of public health spending on child mortality in Nigeria, offering a deeper understanding of the fiscal-health nexus within a unified empirical structure.

The mathematical specification of the ARDL model is expressed as:

$$\Delta y_t = \alpha + \sum_{i=1}^{p} \phi_i \Delta y_{t-i} + \sum_{i=0}^{q} \theta_i \Delta x_{t-i} + \beta y_{t-1} + \gamma x_{t-1} + \varepsilon_t \quad (2)$$

In this equation, Δ represents the first difference operator, y_t is the dependent variable, x_t is the independent variable(s), α is a constant, ϕ_i and θ_i are the short-run dynamic coefficients of the model, β and γ capture the long-run relationship between y_t and x_t and ε_t is the error term.

The unrestricted ARDL model applied in this paper based on equation (2) is specified as follows:

$$\Delta U5M = \theta_0 + \sum_{j=0}^{p}\left(\theta_1 \Delta U5M_{t-j}\right) + \sum_{k=0}^{p}\left(\theta_2 \Delta GRH_{t-k}\right) + \sum_{l=0}^{p}\left(\theta_3 \Delta GCH_{t-l}\right) + \sum_{m=0}^{p}\left(\theta_4 \Delta GHI_{t-m}\right)$$
$$+\beta_1 U5M_{t-1} + \beta_2 BGRH_{t-1} + \beta_3 GCH_{t-1} + \beta_4 GHI_{t-1} + \upsilon_t \quad (3)$$

Δ denotes the first difference of the variables, capturing the short-run changes.

$\theta_1 - \theta_4$ are the short-run coefficients for the lagged differences of U5M, GRH, GCH, and GHI respectively; while $\beta_5 - \beta_8$ are the long-run coefficients of U5M, GRH, GCH, and GHI.

Rewriting equation (3) in a double-log (log-log) form allows for consistent measurement across variables and enables interpretation of the parameter estimates as elasticities. Thus, the transformed model becomes:

$$\Delta \log(U5M) = \theta_0 + \sum_{j=0}^{p}\left(\theta_1 \Delta \log(U5M)_{t-j}\right) + \sum_{k=0}^{p}\left(\theta_2 \Delta \log(GRH)_{t-k}\right) + \sum_{l=0}^{p}\left(\theta_3 \Delta \log(GCH)_{t-l}\right) +$$
$$\sum_{m=0}^{p}\left(\theta_4 \Delta \log(GHI)_{t-m}\right) + \beta_1 \log(U5M)_{t-1} + \beta_2 \log(GRH)_{t-1} + \beta_3 \log(GCH)_{t-1} + \beta_4 \log(GHI)_{t-1} + \upsilon_t \quad (4)$$

IV. Results and Discussions

Descriptive Statistics Results

In the context of examining the relationship between government health spending and under-5 mortality rates in Nigeria, descriptive statistics provide an essential foundation for understanding the patterns and trends in both health expenditures and mortality outcomes over the paper period, and the result is captured in Table 1.

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

Table 1: Summary Statistics

	U5M	GRH	GCH	GHI
Mean	137.6923	196.0288	54839.83	43396.35
Maximum	187.8000	542.3700	183965.0	124789.6
Minimum	101.7000	11.82000	6431.000	3214.500
Std. Dev.	24.37481	161.2200	46341.37	36138.56
Skewness	0.533463	0.619069	1.358331	0.741148
Kurtosis	2.301660	2.160084	4.089104	2.450615
Jarque-Bera	1.761509	2.424983	9.280264	2.707279
Probability	0.414470	0.297455	0.009656	0.258299
Observations	26	26	26	26

Source: Researcher's Computation Using EViews-12 (2025)

From Table 1, the under-5 mortality rate (U5M) had a mean value of 137.69 deaths per 1,000 live births, reflecting a high average child mortality burden during the paper period. The maximum observed value was 187.8, recorded in the early years of the dataset (1999), while the minimum of 101.7 was seen in 2024. The standard deviation of 24.37 indicates moderate variability in under-5 mortality rates across the years. The skewness value of 0.53 suggests a slight rightward skew, indicating that a few years experienced relatively higher mortality rates than the average. The kurtosis of 2.30, being slightly below 3, implies a relatively flat distribution compared to the normal distribution. The Jarque-Bera statistic shows a probability value of 0.41, indicating that the U5M variable is approximately normally distributed.

Government Recurrent Health Expenditures (GRH) averaged ₦196.03 billion during the period, with a minimum of ₦11.82 billion in 1999 and a peak of ₦542.37 billion in 2024. This large increase aligns with the observed drop in U5M, reinforcing the notion that sustained recurrent spending improves service delivery and child health outcomes. The standard deviation of ₦161.22 billion highlights considerable variability in annual allocations. With a skewness of 0.62 and kurtosis of 2.16, the distribution of recurrent spending is moderately right-skewed and relatively flat, indicating incremental increases over time. The Jarque-Bera test probability of 0.29 supports the assumption of normality, which is favourable for econometric modeling.

Government Capital Health Expenditure (GCH) recorded a mean of ₦54,839.83 million, with values ranging from ₦6,431 million to a maximum of ₦183,965 million. The wide range and high standard deviation of ₦46,341.37 million reveal significant fluctuations in capital investments. These variations could reflect shifting policy priorities or macroeconomic constraints during certain periods. The skewness value of 1.36 indicates a strong rightward skew, suggesting that in most years, capital expenditure was below average, with a few years of unusually high investments. The kurtosis value of 4.08 (greater than 3) shows that the data distribution is leptokurtic, meaning it has heavier tails and more outliers than a normal distribution. The Jarque-Bera probability of 0.0097 reveals that the variable is not normally distributed, which may necessitate transformation before further analysis.

Health Insurance Expenditure (GHI) had a mean of ₦43,396.35 million, with values increasing from a low of ₦3,214.50 million to ₦124,789.60 million. This progressive rise reflects the growing role of insurance schemes in Nigeria's health financing structure, especially after the mid-2000s. The standard deviation of ₦36,138.56 million shows moderate to high dispersion in yearly allocations. With a skewness of 0.74, the distribution is mildly right-skewed, and the kurtosis value of 2.45 suggests a platykurtic distribution. The Jarque-Bera test gave a p-value of 0.26, implying approximate normality in distribution, supporting the validity of subsequent statistical analyses.

Unit Root Test

In this paper, the ADF test was employed to assess the stationarity of the key variables: Under-5 Mortality (U5M), Government Recurrent Health Expenditure (GRH), Government Capital Health Expenditure (GCH), and Government Health Insurance Expenditure (GHI), and the results is presented in Table 2.

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

Table 2: Unit Root Test Results

Variable	ADF Test Statistics	Prob.	Order of Integration
U5M	-7.707261*	0.0000	I(0)
GRH	-4.805703*	0.0047	I(1)
GCH	-5.312586*	0.0015	I(1)
GHI	-3.446563***	0.0687	I(1)

Note: The tests include intercept with trend; ** and *** significant at 1 and 10 percent.*
Source: Researcher's Computation Using EViews-12 (2025)

In Table 2, the results indicated that Under-5 Mortality (U5M) was stationary at level, as shown by its ADF test statistic of –7.707261 with a corresponding probability value of 0.0000. This implies that the mortality rate series was integrated of order zero, I(0), meaning it did not require differencing to achieve stationarity; Government Recurrent Health Expenditure (GRH) was found to be stationary after first differencing, with an ADF statistic of –4.805703 and a probability value of 0.0047. This indicates that the series was non-stationary at level but became stationary after first differencing, hence integrated of order one, I(1).
Similarly, Government Capital Health Expenditure (GCH) was stationary at first difference, with an ADF test statistic of –5.312586 and a probability of 0.0015, confirming it as I(1); While Government Health Insurance Expenditure (GHI) had an ADF test statistic of –3.446563 and a probability of 0.0687, which is significant at the 10 percent level, it also achieved stationarity at first difference and was thus treated as I(1).

Co-integration Results
For this paper, the Bounds cointegration test was conducted to assess the existence of a long-run relationship between under-5 mortality (U5M) and the components of government health spending as shown in Table 3.

Table 3: Bound Test-Co-integration Results

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	10.02491**	10%	2.37	3.20
k	3	5%	2.79	3.67
		1%	3.65	4.66

Source: Researcher's Computation Using EViews-12 (2025)

From Table 3, the computed F-statistic was 10.02491, which clearly exceeds both the lower and upper critical values at the 5 percent significance level (2.79 and 3.67, respectively).
Since the F-statistic lies above the upper bound of the 5 percent critical values, the null hypothesis of no level relationship was rejected. This indicates that a statistically significant long-run equilibrium relationship exists between under-5 mortality and the government health spending proxies. In other words, changes in government recurrent expenditures, capital expenditures, and health insurance investments are jointly associated with long-term shifts in child mortality rates in Nigeria.

ARDL (Short and Long Run) Estimates
Having confirmed the existence of a long-run cointegrating relationship between government health spending and under-5 mortality in Nigeria, the paper advanced to estimate both the error correction and long-run forms of the ARDL model, as captured in Table 4.

Table 4: ARDL-ECM Result

Dependent Variable: LOG(U5M)

Short-run Estimates				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(U5M(-1))	0.2192	0.1543	1.4205	0.2506
DLOG(U5M(-2))	0.7539	0.1860	4.0527	0.0271

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

DLOG(U5M(-3))	0.3051	0.1891	1.6140	0.2049
DLOG(U5M(-4))	-1.0189	0.1471	-6.9262	0.0062
DLOG(GRH)	0.0052	0.0008	6.7079	0.0068
DLOG(GRH(-1))	-0.0051	0.0008	-6.6904	0.0068
DLOG(GRH(-2))	-0.0021	0.0007	-2.7865	0.0686
DLOG(GCH)	-0.0014	0.0005	-2.8140	0.0671
DLOG(GCH(-1))	-0.0016	0.0004	-4.2107	0.0245
DLOG(GCH(-2))	-0.0013	0.0005	-2.6973	0.0740
DLOG(GHI)	-0.0046	0.0038	-1.2083	0.3135
DLOG(GHI(-1))	0.0098	0.0038	2.5570	0.0834
DLOG(GHI(-2))	-0.0080	0.0032	-2.5403	0.0847
CointEq(-1)*	-0.1268	0.0117	-10.8147	0.0017
Long-Run Estimates				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GRH)	-0.0974	0.0339	-2.8697	0.0141
LOG(GCH)	-0.0013	0.0251	-0.0526	0.9614
LOG(GHI)	-0.0762	0.0333	-2.2879	0.0262
C	6.3072	0.1874	33.6492	0.0001
Reliability				
R-squared	0.7982			
Adjusted R-squared	0.6947			
Durbin-Watson stat	1.9214			

Source: Researcher's Computation Using EViews-12 (2025)

From Table 4, the coefficient of the error correction term, CointEq(-1), provides critical insight into the speed at which deviations from the long-run equilibrium are corrected in the short run. In this paper, the coefficient was estimated at –0.1268, with a highly significant t-statistic of –10.8147 and a corresponding p-value of 0.0017, which is well below the 5 percent significance level. This negative and statistically significant coefficient confirms the presence of a valid error correction mechanism, meaning that the system indeed adjusts back to its long-run equilibrium when short-run shocks or imbalances occur. In other words, if there is a temporary disturbance in the mortality rate due to fluctuations in government health spending or other shocks, the model suggests that about 12.68 percent of that disequilibrium is adjusted annually, guiding the system back toward its long-run path.

From the long-run estimates, the coefficient of LOG(GRH), which represents government recurrent health expenditure, is –0.0974 and statistically significant at the 5 percent level (p = 0.0141). This negative and significant relationship suggests that, in the long run, a 1 percent increase in recurrent health expenditure is associated with approximately a 0.097 percent reduction in under-5 mortality.

In contrast, LOG(GCH), representing capital health expenditure, shows a coefficient of –0.0013 and is not statistically significant (p = 0.9614). This suggests that capital spending has not had a significant long-run impact on under-5 mortality during the period under review.

The coefficient for LOG(GHI), denoting health insurance expenditure, is –0.0762 and also statistically significant at the 5 percent level (p = 0.0262). This indicates that a 1 percent increase in government health insurance expenditure leads to an approximate 0.076 percent reduction in under-5 mortality in the long run.

The R-squared value of 0.7982 indicates that approximately 79.82 percent of the variation in under-5 mortality in Nigeria over the study period is explained by changes in government recurrent health expenditure, capital health expenditure, and health insurance expenditure. The adjusted R-squared, which adjusts the R-squared value for the number of predictors in the model, is 0.6947. This implies that even after accounting for degrees of freedom, about 69.47 percent of the variation in under-5 mortality is still explained by the model.

Additionally, the Durbin-Watson statistic of 1.9214 falls within the acceptable range (generally between 1.5 and 2.5), suggesting that there is no

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

evidence of autocorrelation in the residuals. This means that the errors from the model are not serially correlated, further validating the reliability and appropriateness of the regression results.

Discussion of Findings

Findings from the paper showed that Government Recurrent Health Expenditures (GRH) had a negative and statistically significant impact on under-5 mortality in Nigeria. This outcome implies that increased and consistent allocation to recurrent health spending, such as salaries of health personnel, procurement of essential drugs, and routine facility maintenance, has played a critical role in reducing child deaths over time. The significance of this impact highlights the effectiveness of operational healthcare resources in delivering timely and accessible services to vulnerable populations, especially children under five. This finding supports the empirical results of Tandon et al. (2022), who found that recurrent health expenditure had a substantial and consistent negative effect on under-5 mortality across low-income countries in sub-Saharan Africa. Similarly, Yusuf and Adesina (2024) emphasized that recurrent health investments directly influence health worker availability and service utilization, both of which are crucial for reducing child mortality. The implication of this finding is that when operational healthcare systems are adequately financed, they contribute more effectively to improved child health outcomes through sustained service delivery, particularly in primary care.

In contrast, the paper found that Government Capital Health Expenditure (GCH) had a negative but statistically insignificant impact on under-5 mortality in Nigeria. This result indicates that while capital investments in infrastructure, equipment, and construction of health facilities are important, they have not produced measurable long-term reductions in child mortality during the study period. The insignificance of capital expenditure's impact may be attributed to irregular or misaligned investment patterns, delays in project implementation, and weak institutional capacity to ensure effective utilization of infrastructure. This aligns with the findings of Mwale and Chikoko (2023), who reported that in several Southern African countries, capital expenditure did not significantly influence child mortality unless supported by strong recurrent spending and effective governance. Furthermore, Ahmad and Bello (2024) argued that the benefits of capital investment in health are only realized when infrastructure projects are complemented by skilled personnel, functional supply chains, and adequate maintenance funding. In the Nigerian context, the finding suggests that capital spending has not been sufficiently integrated with recurrent services to produce impactful health outcomes, particularly for children.

The paper also revealed that Government Health Insurance Expenditure (GHI) had a negative and statistically significant effect on under-5 mortality in Nigeria. This outcome suggests that increased public funding toward health insurance schemes, particularly those targeting low-income and informal sector populations, has contributed to reducing financial barriers to accessing healthcare for children. The implication is that government-subsidized insurance programs have expanded access to essential maternal and child health services, thereby improving survival outcomes. This finding corroborates the results of Luo and Nguyen (2023), who found that the expansion of national health insurance schemes in Southeast Asia significantly reduced under-5 mortality, especially among rural and disadvantaged populations. Similarly, Al-Mahdi and Rahman (2024) demonstrated that government investment in health insurance was associated with improved access to child health services in Middle Eastern countries recovering from conflict. The Nigerian outcome indicates that strategic investments in health insurance, even in a system with historically low coverage, can still play a meaningful role in improving equity in child healthcare. However, the effectiveness of such schemes relies on proper implementation, administrative efficiency, and outreach to marginalized communities.

V. Conclusion and Recommendations

Based on the analysis and findings discussed throughout the paper, it can be concluded that government health spending plays a critical role in influencing under-5 mortality rates in Nigeria. The long-run results clearly demonstrated that both government recurrent health expenditure and government health insurance expenditure had significant and negative effects on under-5 mortality, indicating that increased investments in these areas contributed meaningfully to reducing child deaths over the study period. These findings affirm the importance of consistent operational funding and the expansion of health insurance coverage in enhancing access to healthcare services for children, particularly among vulnerable and underserved populations.

However, the paper also found that government capital health expenditure, while negatively related to under-5 mortality, did not have a statistically significant impact. This outcome suggests that capital investments in infrastructure alone are insufficient to drive improvements in child

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

survival unless they are effectively integrated with functional service delivery systems. In many instances, the lack of alignment between infrastructure development and operational capacity, such as staffing, equipment, and medical supplies, may limit the potential health benefits of such investments.

In light of the paper's findings, specific policy recommendations are necessary to address each dimension of government health spending and its impact on under-5 mortality in Nigeria.

i. First, given the significant influence of government recurrent health expenditures on reducing under-5 mortality, it is imperative for the Federal Ministry of Health (FMoH) and the Federal Ministry of Finance, Budget and National Planning to ensure consistent and adequate budgetary allocations to cover salaries, essential drugs, and operational costs of health facilities. These institutions should collaborate with state ministries of health to prioritize timely disbursement of funds to primary healthcare centers, especially in rural and underserved areas where the burden of child mortality remains high. The National Primary Health Care Development Agency (NPHCDA) should also intensify monitoring to ensure that allocated funds directly improve service delivery at the grassroots.

ii. In response to the statistically insignificant impact of government capital health expenditure, it is crucial for the Federal Ministry of Works and Housing, in coordination with the FMoH, to ensure that capital projects in the health sector are aligned with local health needs and supported by operational infrastructure. Facilities must not only be built but equipped, staffed, and maintained. The Infrastructure Concession Regulatory Commission (ICRC) should provide oversight to ensure transparency and efficiency in capital projects, while state-level health ministries must be empowered to conduct needs assessments before initiating new construction projects.

iii. With regard to government health insurance expenditure, which was found to significantly reduce under-5 mortality, the National Health Insurance Authority (NHIA) should aggressively expand its coverage, especially targeting the informal sector and low-income households. This expansion should be supported by digital enrolment platforms and local government outreach to ensure inclusivity.

References

[1]. Adegboye, R. T., & Alabi, K. J. (2024). Disaggregated public health expenditure and under-five mortality in Nigeria: A vector error correction analysis. *Health Economics and Development Studies, 16*(1), 58–76.

[2]. Adegoke, S. O., & Suleiman, R. T. (2023). Rethinking health behavior in Africa: A critique of rational choice assumptions in health economics. *African Journal of Social Science Research, 11*(1), 62–75.

[3]. Adeoye, S. T., & Ibrahim, A. G. (2023). Under-five mortality in sub-Saharan Africa: A policy and systems perspective. *Global Health Perspectives, 7*(1), 33–48.

[4]. Ahmad, A. M., & Bello, S. A. (2024). Health financing and under-five mortality in North Africa: Disaggregated public expenditure analysis. *African Development Review, 36*(1), 45–61.

[5]. Akinyemi, T. A., & Olalekan, B. O. (2023). Public expenditure and health outcomes in sub-Saharan Africa: A panel data analysis. *African Journal of Health Economics and Policy, 8*(2), 44–58.

[6]. Al-Mahdi, R., & Rahman, F. A. (2024). Public health investment and child mortality in the Middle East: Post-conflict recovery and health equity. *Journal of Global Health Reports, 8*(1), e2024002.

[7]. Bello, A. Y., & Hassan, M. T. (2023). Social determinants and child mortality: Reassessing under-five mortality in Nigeria through a developmental lens. *Journal of African Child Health, 5*(2), 59–73.

[8]. Boadu, K., & Appiah, T. (2020). Government health spending and child mortality in Ghana: An ARDL approach. *African Journal of Health Economics, 9*(2), 112–127.

[9]. Central Bank of Nigeria. (2023). *Statistical Bulletin*. CBN.

[10]. Degruyter. (2024). Spatial analysis of economic predictors of under-five mortality in Nigeria. Retrieved from

https://www.degruyter.com/document/doi/10.1515/openhe-2022-0012/html?lang=en

[11]. Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427–431.

[12]. Ejem, C. N., & Uzonwanne, M. C. (2021). Public health expenditure and child health outcomes in Nigeria: A time-series analysis. *Nigerian Journal of Economic and Social Studies, 63*(3), 33–50.

[13]. Eze, P. N., & Abubakar, S. I. (2023). Capital expenditure and health infrastructure development in Nigeria: Empirical insights and policy implications. *Nigerian Journal of Economic Research, 14*(1), 77–95.

[14]. Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy, 80*(2), 223–255.

[15]. Johnson, I. A., & Okon, R. U. (2024). Health insurance coverage and access to healthcare in Nigeria: Evaluating public sector spending and policy interventions. *Journal of Public Health Policy and Administration, 11*(1), 15–30.

[16]. Luo, Y., & Nguyen, T. Q. (2023). Health insurance expansion and under-five mortality: Evidence from Southeast Asia. *Journal of Global Health Policy, 7*(1), 14–29.

[17]. Mebratie, A. D., Sparrow, R., & Yilma, Z. (2020). Healthcare financing reforms and child health outcomes: Evidence from Ethiopia. *Social Science & Medicine, 253*.

[18]. Musa, H. M., & Olatunji, K. A. (2022). Recurrent health spending and healthcare service delivery in West Africa: A comparative analysis. *West African Journal of Health Systems, 6*(3), 102–118.

[19]. Mwale, T., & Chikoko, D. (2023). Public health spending and under-five mortality in Southern Africa: A panel GMM analysis. *Health Policy and Planning in Africa, 12*(4), 87–102.

[20]. National Bureau of Statistics. (2024). *Health and Demographic Indicators Report*. NBS.

[21]. NCBI. (2023). A time series analysis of government expenditure and health outcomes in Nigeria. Retrieved from https://pmc.ncbi.nlm.nih.gov/articles/PMC10481895/

[22]. Nwosu, E. K., & Chinedu, L. I. (2024). Political economy and child health outcomes: Understanding under-five mortality within the Nigerian health system. *African Journal of Policy and Governance, 12*(1), 21–38.

[23]. ODI. (2023). What do we know about health spending in sub-Saharan Africa? Retrieved from https://odi.org/en/insights/what-do-we-know-about-health-spending-in-sub-saharan-africa/

[24]. Omondi, K. J., & Wekesa, M. A. (2023). Government health expenditure and child mortality in Kenya: A time-series approach. *Kenya Journal of Economic Policy, 14*(2), 66–81.

[25]. Osei, R. A., & Aluko, S. M. (2022). Continuum of care and under-five mortality: A conceptual review of integrated child health strategies. *West African Journal of Public Health, 9*(3), 88–101.

[26]. Pesaran, M. H. (1999). An autoregressive distributed lag modelling approach to cointegration analysis. In S. Strom (Ed.), *Econometrics and economic theory in the 20th century: The Ragnar Frisch Centennial Symposium* (pp. 371–413). Cambridge University Press.

[27]. Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326.

[28]. Statista. (2024). Nigeria: Share of health spending by source. Retrieved from https://www.statista.com/statistics/1440055/share-of-health-spending-in-nigeria-by-source/

[29]. Tandon, A., Yusuf, A., & Osei-Asare, Y. (2022). Public health financing and child mortality in sub-Saharan Africa: A panel data analysis. *Health Systems & Reform, 8*(1), 91–106.

[30]. Uche, N. C., & Danjuma, A. Y. (2022). Fiscal space for health: Reassessing the composition of public health spending in Nigeria. *Journal of African Development Finance, 9*(2), 89–104.

[31]. World Bank. (2024). *World Development Indicators: Under-5 Mortality Rate*. Retrieved from https://data.worldbank.org/indicator/SH.DYN.MORT

[32]. World Health Organization. (2022). *Children: Improving survival and well-being*. Retrieved from https://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality

[33]. Yusuf, A. T., & Adesina, O. A. (2024). Disaggregated government health spending and under-five mortality in Nigeria: An ARDL approach. *Nigerian Journal of Public Health Economics, 10*(1), 23–39.

International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 363-376 ISSN: 3048-6874
www.ijhssm.org

Appendix

Table 5: Data Presentation

Year	Government Recurrent Health Expenditures (GRH, ₦' Billion)	Government Capital Health Expenditure (GCH, ₦' Million)	Health Insurance Expenditure (GHI, ₦' Million)	Mortality rate, under-5 (U5M, per 1,000 live births)
1999	11.82	7,386.40	3,214.50	187.8
2000	12.75	6,569.20	4,127.80	182.3
2001	24.52	20,128.00	4,856.30	176.8
2002	40.62	12,608.00	5,234.70	171.1
2003	33.27	6,431.00	6,128.90	165.4
2004	34.2	18,297.00	8,345.20	159.8
2005	55.7	21,652.00	12,467.80	154.5
2006	62.25	26,899.00	15,789.30	149.6
2007	81.91	41,959.00	18,456.70	145.2
2008	98.22	63,170.00	22,345.80	141.3
2009	90.2	53,067.00	25,678.40	138
2010	99.1	35,924.00	28,934.60	135.1
2011	231.8	62,396.00	32,567.80	132.9
2012	197.9	55,740.00	38,789.50	130.9
2013	180	60,058.00	42,345.70	129.3
2014	195.98	49,524.00	45,678.90	127.9
2015	257.7	22,676.00	48,234.50	126.4
2016	200.82	28,650.00	52,678.30	124.8
2017	245.19	55,609.00	58,345.70	122.8
2018	296.44	71,113.00	64,567.80	120.2
2019	388.23	46,484.00	72,345.60	117.5
2020	423.36	59,654.00	86,789.40	114.4
2021	386.24	134,391.00	94,567.80	111.3
2022	437.52	138,729.00	102,345.60	108.1
2023	468.64	142,756.00	108,678.90	104.9
2024	542.37	183,965.00	124,789.60	101.7

Sources: CBN, 2023; WDI, 2024; Federal Ministry of Health (FMOH) Budget Implementation Reports, 2024; National Health Insurance Scheme (NHIS) / National Health Insurance Authority (NHIA) Annual Reports, 2024; National Bureau of Statistics (NBS) Reports, 2024.