# The Perceived Impact of National Health Insurance Authority on Infrastructural Development among Healthcare Workers in Selected Healthcare Facilities in FCT, Abuja

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## ABSTRACT

**Introduction**: Infrastructure is critical to healthcare delivery, and while financing via the National Health Insurance Authority (NHIA) advances UHC through better service access, its underfunding- marked by high out-of-pocket expenses, low capitation, quarterly deficits, and HMO inefficiencies yields minimal perceived infrastructural progress in FCT facilities.

**Objectives**: This study intends to investigate the perceived impact of the National Health Insurance Authority on infrastructural development in selected healthcare facilities in Federal Capital Territory.

**Method**: A cluster sampling technique was employed to select 30 healthcare facilities from the 152 NHIA-accredited facilities in the FCT. The selection of facilities was conducted through simple random procedures, thereby giving all accredited facilities—public, private, and public-private—an equal probability of selection. This process resulted in a sample comprising 4 public, 25 private, and 1 public-private facility. Following the selection of clusters (facilities), proportionate sampling was applied to choose the respondent. Cochran's formula was used to determine the required sample size, and an equal allocation of 12 respondents per facility was adopted to ensure consistency across clusters. This produced a total sample size of 360 respondents across the 30 selected healthcare facilities. Data was collected from healthcare workers in the facilities using a structured questionnaire. The five-section questionnaire included two self-developed sections capturing healthcare workers' demographics and facility infrastructure, while sections adapted from Hassan (2022) assessed the NHIA's impact on service delivery, enrollee access, and infrastructure, as well as barriers to fund use and implementation. Responses were measured using a four-point Likert scale ranging from strongly agree to strongly disagree.

The questionnaires were analyzed using Statistical Package for Social Science (SPSS), and descriptive statistics was used to summarize the qualitative data using proportions and frequencies, ordinal regression analysis was employed to test the hypotheses

**Result:** The study found that 58.6% of health workers perceive that the NHIA has no impact on infrastructure development in healthcare facilities, while 68.6% believe it positively influences healthcare delivery services. Despite this, 84.1% of participants report deficits after quarterly payments. Additionally, 75.6% of healthcare workers face barriers in utilizing funds, and 76.4% report challenges in implementing NHIA. Major obstacles include low capitation, fee-for-service issues, and HMO inefficiencies, as reported by 63.4% and 56.3% of healthcare workers.

**Conclusion**: The study shows that while the National Health Insurance Authority (NHIA) has improved access to basic healthcare services and increased enrollee participation, due to an extensive implementation of the Basic Minimum Package of Health Services, including a robust benefit package, its impact on facility infrastructure and operational efficiency remains limited because providers barely have any funds left to maintain or upgrade

infrastructure. Variability in model fit suggests that barriers to implementation differ across facility types, with public and private providers both constrained by delayed payments, low tariffs, and administrative inefficiencies.

**Keywords:** National Health Insurance Authority (NHIA), Universal Health Coverage (UHC), Health Care Facilities (HCF), Health Maintenance Organization (HMO), General Government Expenditure on Health (GGHE), Nigeria Health Facility Registry (NHFR)

# INTRODUCTION

According to (Nampewo, Mike, & Wolff., 2022) health is a fundamental human right, and everyone has a right to the highest attainable standard of health. Over the past few decades, many countries of the world have made efforts to strengthen their health systems by providing adequate infrastructure and logistics to deliver quality medical supplies and technologies (Refat, 2012). Public health infrastructure is defined as "the resources and relationships needed to carry out the core functions and essential services of public health" (Turnock, 2001). Health infrastructure is a broad concept that extends beyond just hospitals and clinics. It includes the physical, organizational, and systemic elements - ranging from healthcare facilities and workforce to supply chains, information systems, public health programs, and the social determinants of health- that collectively enable the delivery of effective healthcare and the promotion of public health (Alsawaf & Albadry. 2022)

The healthcare infrastructure deficit in Nigeria is a huge problem because the Government is unable to live up to these responsibilities; a huge percentage of its budget goes to recurrent expenditures such as personnel costs, leaving little or nothing for infrastructural development, equipment and medical supplies (Ananeme, 2016). The lack of equality and equity in healthcare access is backward and retrogressive, with the nation already facing long-term consequences.

It is against this backdrop that the National Health Insurance Authority (NHIA, formerly NHIS) was established through Act 35 of 1999 as part of the efforts of the Nigerian Government to provide quality healthcare to all Nigerians and financial protection against the risk of illness. Okafor, (2021) highlighted that addressing infrastructure-related challenges is crucial for the scheme's effectiveness. Similarly, Garba et al. (2015) found that Nigeria's NHIS played a significant role in enhancing healthcare facilities in Zaria, Kaduna State, leading to increased financial resources, improved staffing, and better diagnostic capabilities. However, the study had certain limitations, such as a small sample size and the absence of an evaluation of how infrastructure improvements influenced healthcare quality. The NHIA expects healthcare institutions to use capitation funds to maintain and improve health infrastructure, thereby guaranteeing compliance with certification standards, improving service quality, and helping to achieve the larger aim of universal health coverage. Strict rules, transparent reporting, and enforcement help to hold facilities accountable, with a clear purpose to distribute funds toward operational needs as well as the sustainable growth of health infrastructure (BHCPF, 2020). This research is set to study the National Health Insurance Authority's perceived impact on healthcare infrastructure and service delivery among health workers in the healthcare facilities.. Principal–Agent Theory provides a useful lens for explaining the dynamics between the National Health Insurance Authority (NHIA) and healthcare facilities in infrastructural financing. Within this relationship, NHIA functions as the **principal**, establishing standards, financing mechanisms, and expectations for improved infrastructure, while healthcare facilities act as **agents** responsible for utilizing NHIA funds and delivering services.The outcome of this study will help the Authority evaluate the usefulness of the funds allocated to healthcare facilities on infrastructural development and also help to establish a correlation or lack thereof, between the allocation of funds and quality of care accessed by enrollees.

### Research Question

What is the perceived impact of NHIA on the infrastructural development of healthcare facilities?

ii. What is the perceived effect of NHIA on healthcare delivery services in health facilities?

iii. Is there effective utilization of funds by healthcare facilities for infrastructure provision and maintenance

iv. Are there barriers to implementation of NHIA?

**Research Objective**

The objectives of this study are:

To assess the perceived impact of NHIA on infrastructural development in healthcare facilities.

ii. To examine the perceived effect of NHIA on healthcare service delivery.

iii. To determine the extent of fund utilization by healthcare facilities for infrastructure provision and maintenance under the NHIA.

iv. To identify barriers affecting the effective implementation of NHIA in healthcare facilities

**Research Hypothesis**

The research is guided by three null hypotheses: that NHIA has no significant impact on infrastructure development, no significant effect on improving healthcare delivery, and that no substantial barriers hinder its implementation.

**Inclusion Criteria**

Public and Private, Primary, Secondary, and Tertiary healthcare facilities, accredited by NHIA and operating for at least 5 years in the FCT were recruited for the Study. Only full-time staff, with minimum of 6-month employment were included for the research. Healthcare workers included: NHIA Desk Officers, Clinical Staff and Non-Clinical (Admin Staff).

**Exclusion Criteria**

Unaccredited healthcare facilities, those running the program for less than five years, and those that did not give consent were excluded from the studies. For healthcare workers; non-permanent staff (Contract Staff, Interns, and Corp Members), including Casual Staff (cleaners and security staff) were exempted from the study.

## RESEARCH METHOD

A cross-sectional survey research design was used for the study**.** This study was carried out at selected healthcare facilities in Abuja that are accredited under the NHIA. The population under study will be healthcare workers in public and private primary, secondary, and tertiary healthcare facilities accredited under the NHIA. A cluster sampling technique was employed to select **30 healthcare facilities** from the 152 NHIA-accredited facilities in the FCT. The selection of facilities was conducted through simple random procedures and was **not proportionate to ownership distribution**, thereby giving all accredited facilities—public, private, and public-private—an equal probability of selection. This process resulted in a sample comprising **4 public, 25 private, and 1 public-private facility**.

Following the selection of clusters (facilities), **proportionate sampling was applied at the respondent level only**. Cochran's formula was used to determine the required sample size, and an equal allocation of **12 respondents per facility** was adopted to ensure consistency across clusters. This produced a total sample size of **360 respondents** across the 30 selected healthcare facilities.

Data was collected from healthcare workers in the facilities using the questionnaire adapted from (Hassan 2022) and modified to suit the study. The questionnaire comprised five sections designed to capture both contextual and perceptual data from respondents. Sections 1 and 2 were self-developed and elicited information on healthcare workers' demographic characteristics and the infrastructural features of their respective healthcare facilities. Sections 3 to 6 were adapted from Hassan (2022) and included standardized items measuring the perceived impact of the NHIA on infrastructure and healthcare service delivery—for example, items assessing whether the NHIA had increased enrollee numbers or improved access to care. Additional items examined barriers to fund utilization and challenges associated with NHIA implementation, such as whether facilities

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encountered obstacles in accessing or applying allocated resources. All items in these sections were scored using a four-point Likert scale ranging from strongly agree to strongly disagree, enabling systematic assessment of respondents' perceptions.

**Validity of instrument**

Face and Content validity were determined by some professor of National Open University of Nigeria who are specialized in the field to ensured that the adapted questionnaire covered effect of NHIA on infrastructure and healthcare delivery services, barriers to utilization of funds and barriers to implementation of NHIA

**Reliability of instrument**

Reliability of the instrument was determined by administered 10% of sample size to 10 respondents from 1 healthcare facility that was not part for the study was used. The responses were analyzed using Spearman correlational statistical method, a value of 0.857 was obtained which is above the threshold value, was considered appropriate for the study**.**

The questionnaires were analyzed using Statistical Package for Social Science (SPSS), and descriptive statistics was used to summarize the qualitative data using proportions and frequencies. The inferential statistics were also used to test the hypotheses,. Ordinal regression analysis was employed to test the hypotheses involving ordinal dependent variables, as it is appropriate for examining the influence of independent variables on ordered categorical outcomes. The model's assumptions were assessed using the **Test of Parallel Lines**, where a non-significant p-value ($p > 0.05$) indicated that the proportional odds assumption was met. Additionally, the model's overall adequacy was evaluated using Pearson's chi-square goodness-of-fit test, with a non-significant p-value confirming acceptable model fit. The level of statistical significance was set at 0.05

Ethical approval was obtained through the Department of Public Health, National Open University of Nigeria, conveyed through a letter dated 8th December, 2022 (Ref: ETC/22/04/NOU204005292) To comply with ethical considerations, all participants consented to participate in the research.

# RESULTS

**Demographic Characteristics of Healthcare Facilities and Healthcare Workers**

**Table 1: Characteristics of Healthcare Facilities**

| Variables | Frequency | Percentage |
|---|---|---|
| Type of Facility | | |
| Public | 79 | 21.9 |
| Private | 265 | 73.6 |
| Public-Private | 16 | 4.4 |
| Level of Facility | | |
| Primary | 274 | 76.1 |
| Secondary | 68 | 18.9 |
| Tertiary<br>No of HMOs | 18 | 5.0 |
| <10 | 103 | 28.6 |
| 10-20 | 85 | 23.6 |
| 21-30 | 89 | 24.7 |
| >30 | 83 | 23.1 |
| 4. No of NHIA Enrollees | | |
| <100 | 114 | 31.7 |
| 100-500 | 33 | 9.2 |
| 501-1000 | 107 | 29.7 |
| <1000 | 106 | 29.4 |

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Table 2: Demographic Characteristics of Respondents

| Variables | Frequency (F) | Percentage (%) |
|---|---|---|
| **Age Groups** | | |
| <20 | 30 | 8.3 |
| 20-39 | 258 | 71.7 |
| 40-59 | 71 | 20 |
| ≥60 | 0 | 0 |
| **Gender** | | |
| Female | 177 | 49.2 |
| Male | 183 | 50.8 |
| **Marital Status** | | |
| Single | 147 | 40.7 |
| Married | 191 | 53.1 |
| Divorced | 6 | 1.7 |
| Widowed | 16 | 4.4 |
| **Designation** | | |
| Medical Director | 23 | 6.4 |
| Medical Officer | 50 | 13.9 |
| NHIA Desk Officer | 28 | 7.8 |
| Admin Manager | 28 | 7.8 |
| Admin Assistant | 33 | 9.2 |
| Nurse/Midwife | 36 | 10 |
| Pharmacist | 40 | 11.1 |
| Pharm Tech | 40 | 11.1 |
| Lab Scientist | 42 | 11.7 |
| Others | 40 | 11.1 |
| **Years in Employment** | | |
| <5 years | 297 | 82.5 |
| 6-10 years | 51 | 14.2 |
| 11-15 years | 12 | 3.3 |

The study on healthcare facilities reveals the following key characteristics of the participants:

Age Distribution: The majority of participants (71.7%) are aged between 20-39, with a skew towards the 20-39 age group; the sample is nearly evenly split between males (50.8%) and females (49.2%), indicating no significant gender bias. Most participants are married (53.1%), followed by single individuals (40.8%). Lab Scientists and "Others" are the most common job roles, each making up 11.7% of the sample, showing a diverse range of roles, and the majority (62.5%) have been employed for less than five years, indicating a workforce that is relatively new to their position.

Private healthcare facilities dominate (73.6%), reflecting their prevalence in the Formal Sector Programme of the NHIA. Most respondents (76.1%) work in primary-level healthcare facilities. The number of HMOs implementing NHIA is relatively balanced, with 10-20 HMOs at 23.6% and 21-30 HMOs at 24.7%. The distribution of NHIA enrollees is even between 501-1000 (29.7%) and more than 1000 (29.4%). Overall, the sample is diverse across various socio-demographic attributes, representing a wide array of factors significant for healthcare analysis.

Research Question 1: What is the perceived impact of NHIA on the infrastructural development of healthcare facilities?

Table 3: perceived Impact on infrastructure development of healthcare facilities

| S/N | Statements/Questions | SD | D | A | SA | MEAN |
|---|---|---|---|---|---|---|
| 1. | NHIA accreditation has helped the HCF in reducing staff Turnover | 17.2 | 68.6 | 13.3 | 0.8 | 1.98 |
| 2. | NHIA funds enhanced the compensation of staff members | 18.9 | 67.2 | 13.6 | 0.3 | 1.95 |
| 3. | NHIA assists in enhancing the acquisition and maintenance of infrastructure | 10.3 | 52.8 | 36.1 | 0.8 | 2.28 |
| 4. | NHIA contributes to enhancing the accessibility of laboratory and diagnostic services | 8.6 | 36.9 | 52.5 | 1.9 | 2.48 |
| 5 | In general, NHIA made beneficial contributions to the provision and upkeep of infrastructure in your facility | 7.8 | 50.8 | 38.9 | 2.5 | 2.36 |

Key: SD= Strongly disagree; D= Disagree; A= Agree; SA= Strongly agree

The weighted mean average of 2.21 (58.6%) indicates a negative perceived impact on the infrastructural development of healthcare facilities. In summary, the findings imply that healthcare workers perceived that NHIA had not positively impacted the development of healthcare facility infrastructure.

The findings show that respondents generally **disagreed** that NHIA has improved staff welfare, including reducing staff turnover or enhancing staff compensation (means below 2.00). However, perceptions were more **moderately positive** regarding infrastructure and service improvements. Respondents indicated that NHIA has contributed somewhat to the acquisition and maintenance of infrastructure, improved access to laboratory and diagnostic services, and supported overall infrastructural development in their facilities (means between 2.28 and 2.48).

Research Question 2: What is the perceived effect of NHIA on healthcare delivery services in health facilities?

Table 4: Perceived Effects of NHIA on healthcare delivery services in health facilities

| S/N | Statements/Questions | SD | D | A | SA | MEAN |
|---|---|---|---|---|---|---|
| 1. | NHIA has facilitated the availability of the Basic Minimum Package of Health Services offered by your HCF | 1.1 | 30.3 | 62.5 | 6.1 | 2.74 |
| 2. | NHIA has led to a rise in the number of enrollees in your HCF and their ability to access healthcare services | 2.8 | 23.6 | 58.1 | 15.6 | 2.86 |
| 3. | NHIA conducts training and capacity building for staff | 17.5 | 78.6 | 3.6 | 0.3 | 1.87 |
| 4. | NHIA helped to improve healthcare delivery in HCF | 1.1 | 30.3 | 65.0 | 3.6 | 2.71 |

Key: SD= Strongly disagree; D= Disagree; A= Agree; SA= Strongly agree

The weighted mean average of 2.55 (68.6% ) indicates a positive perception by healthcare workers on the effect of NHIA on healthcare delivery services in health facilities. These results suggest that NHIA has a strong positive effect on healthcare delivery services in health facilities.

**Research Question 3**: Is there effective utilization of funds by healthcare facilities for infrastructure provision and maintenance?

Table 5: Utilization of funds by healthcare facilities for infrastructure provision and maintenance

| S/N | Statements/Questions | SD | D | A | SA | MEAN |
|---|---|---|---|---|---|---|
| 1. | After each quarterly payment and expenditure, my healthcare facility records a surplus | 20.8 | 63.3 | 13.9 | 1.9 | 1.97 |
| 2. | After recording a surplus, are these funds invested | 17.5 | 78.1 | 3.3 | 1.1 | 1.88 |
| 3. | The facility conducts audit exercise to track utilization | 1.1 | 30.8 | 61.9 | 6.1 | 2.73 |
| 4. | The facility efficiently utilizes NHIA funds | 0.3 | 20.0 | 71.4 | 8.3 | 2.88 |

Key: SD= Strongly disagree; D= Disagree; A= Agree; SA= Strongly agree

The weighted mean average of 2.37, (84.1%) indicates a negative effectiveness utilization of funds by healthcare facilities for infrastructure provision and maintenance. These results suggest that healthcare facilities are not effectively utilizing funds for infrastructure provision and maintenance.

**Research Question 4**: Are there barriers to implementation of NHIA?

Table 6: Barriers to Implementation of NHIA

| S/N | Statements/Questions | Yes | No | MEAN |
|---|---|---|---|---|
| 1. | Does your facility experience barriers to the utilization of funds? | 73.1 | 26.9 | 1.73 |
| 2. | Does your facility experience other barriers to the implementation of NHIA? | 73.6 | 26.4 | 1.74 |

The Data in Table 6 shows that the majority of the respondents agree that there are barriers to implementation of NHIA. The study shows that 73.1% of respondents agree that there are barriers to the utilization of funds in their facility's experience.

Table 7: Causes of barriers to utilization of funds

| S/N | Causes | N | % |
|---|---|---|---|
| 1. | Delay in payment by HMOs | 198 | 55.0 |
| 2. | Delay in submission of claims by HCFs | 16 | 4.4 |
| 3. | Low tariffs of drugs and services | 140 | 38.9 |
| 4. | Inefficient resource utilization by healthcare facility | 6 | 1.7 |

Table 7 depicts the causes of barriers to the utilization of funds, and the majority of respondents (55%) identified delay in payment of HMOs as the major barrier.

Table 8: Causes of barriers to implementation of NHIA

| S/N | Cause | N | % |
|---|---|---|---|
| 1. | Inadequate Infrastructure | 15 | 4.2 |
| 2. | Lack of knowledge of NHIA Operational Guidelines by health workers | 4 | 1.1 |
| 3. | Lack of knowledge of rights and privileges by enrollees | 11 | 3.1 |
| 4. | Low Capitation and fee for service rates | 190 | 52.8 |
| 5. | HMO inefficiencies | 130 | 36.1 |
| 6. | NHIA inefficiencies | 10 | 2.8 |

The data in Table 8 shows the causes of barriers facilities experience in implementing NHIA. The majority of the respondents (52.8%) identified low Capitation and fee-for-service rates as the major barriers they faced, followed closely by HMO inefficiencies (36.1%).

**Test of Hypotheses**

Based on the above distribution of data, an ordinal regression analysis was performed to test for Pearson's goodness of fit.

$Ho_1$ There is no perceived significant impact of NHIA on infrastructure development in healthcare facilities.

Table 9: Test for Significance

**Goodness-of-Fit**

| | Chi-square | DF | Sig |
|---|---|---|---|
| Pearson | 21.679 | 24 | .598 |
| Deviance | 24.925 | 24 | .410 |

Looking at the Goodness of Fit Pearson, $\chi^2 = 21.679$ (24, N = 360), p = .598, the study, therefore, accepts the null hypothesis and rejects the alternative hypothesis and concludes that there is no perceived significant impact

of NHIA on infrastructure development in healthcare facilities. (Table 9).

**Ho2**: NHIA has no perceived significant effect on improving healthcare delivery in healthcare facilities.

**Table 10: Test for Significance**

**Goodness-of-Fit**

| | Chi-square | DF | Sig |
|---|---|---|---|
| Pearson | 35.111 | 20 | .009 |
| Deviance | 28.701 | 20 | .020 |

Looking at the Goodness of Fit Pearson, $\chi^2 = 35.111$ (20, N = 360), p = .009, the study, therefore, rejects the null hypothesis and accepts the alternative hypothesis and concludes that there is a perceived significant effect of NHIA on improving healthcare delivery in healthcare facilities. (Table 10).

**Ho3:** There are no significant barriers to the implementation of NHIA

Table 11: Test for Significance

| | Chi-square | DF | Sig |
|---|---|---|---|
| Pearson | 40.130 | 16 | .002 |
| Deviance | 25.683 | 16 | .065 |

Looking at the Goodness of Fit Pearson, $\chi^2 = 40.130$ ( 16, N = 360), p = .120, the study, therefore, accepts the null hypothesis and rejects the alternative hypothesis and concludes that there are significant barriers in the implementation of NHIA. (Table 11).

The Pearson Chi-square value is **$\chi^2 = 40.130$**, with **df = 16** and a **p-value of .002**. Since the p-value is **less than 0.05**, the result is **statistically significant**. This implies that there is a significant association related to barriers in the implementation of NHIA. The Deviance Chi-square (**$\chi^2 = 25.683$**, df = 16, p = .065**) indicates a marginally non-significant fit, but the key value for hypothesis testing is the Pearson Chi-square. Based on the Pearson Chi-square result (p = .002), the study rejects the null hypothesis and accepts the alternative hypothesis. Therefore, it concludes that, there are statistically significant barriers affecting the implementation of the National Health Insurance Authority (NHIA).

## DISCUSSION OF FINDINGS

This study intends to investigate the impact of the National Health Insurance Authority on infrastructural development in selected healthcare facilities in FCT. The study on healthcare facilities reveals the following key characteristics of the participants. Age Distribution: The majority of participants (71.7%) are aged between 20-39, with a skew towards the 20-39 age group; the sample is nearly evenly split between males (50.8%) and females (49.2%), indicating no significant gender bias. Most participants are married (53.1%), followed by single individuals (40.8%). Lab Scientists and "Others" are the most common job roles, each making up 11.7% of the sample, showing a diverse range of roles, and the majority (62.5%) have been employed for less than five years, indicating a workforce that is relatively new to their position.

Private healthcare facilities dominate (73.6%), reflecting their prevalence in the Formal Sector Programme of the NHIA. Most respondents (76.1%) work in primary-level healthcare facilities. The number of HMOs implementing NHIA is relatively balanced, with 10-20 HMOs at 23.6% and 21-30 HMOs at 24.7%. The distribution of NHIA enrollees is even between 501-1000 (29.7%) and more than 1000 (29.4%). Overall, the sample is diverse across various socio-demographic attributes, representing a wide array of factors significant for healthcare analysis.

The findings from Table 3 indicate an overall negative perception of the National Health Insurance Authority's (NHIA) impact on infrastructural development in accredited healthcare facilities, as reflected in the weighted

mean of **2.21**, which falls below the neutral midpoint of the scale. Respondents strongly disagreed that NHIA has contributed meaningfully to reducing staff turnover (mean = 1.98) or enhancing staff compensation (mean = 1.95), suggesting that the scheme's financial inflows have not translated into noticeable improvements in human resource stability. Moderately higher but still negative perceptions were recorded for NHIA's role in infrastructure acquisition and maintenance (mean = 2.28) and general infrastructural support (mean = 2.36), while the most favorable response concerned improvements in laboratory and diagnostic services (mean = 2.48), aligns with findings by (Garba & Ejembi. 2015) though this remained marginally below the threshold for positive agreement. These patterns suggest that NHIA's infrastructural contributions are perceived as limited and uneven (Hassan, 2022), with improvements more visible in service-specific areas than in broader facility development. Differences across facility characteristics—such as public versus private ownership, facility size, enrollee volume, and length of accreditation—likely shape these perceptions, with larger and older public facilities reporting more negative experiences due to heavier service demands and bureaucratic constraints.

The findings in Table 4 reveal a generally positive perception of the National Health Insurance Authority's (NHIA) influence on healthcare delivery services within accredited health facilities, with most mean scores falling above the neutral midpoint of 2.50. Respondents strongly agreed that NHIA has facilitated the availability of the Basic Minimum Package of Health Services (mean = **2.74**), with 68.6% expressing agreement, indicating that the scheme has contributed to enhancing service provision capacity. This aligns with Aryeetey et al. (2016) Similarly, a mean of **2.86** for increased enrolee uptake and improved access to healthcare reflects a strong positive perception, supported by 73.7% agreement, suggesting that NHIA has expanded service utilization and reduced financial barriers for patients. However, a contrasting trend is observed in the area of staff training and capacity building, where the lowest mean score of **1.87**—with 96.1% disagreement—indicates that NHIA is not perceived as actively supporting workforce development in health facilities. Overall, the mean score of **2.71** for improved healthcare delivery reflects a broadly favorable view of NHIA's role in strengthening service delivery, which is consistent with the National Health Act's goal of ensuring all Nigerians have access to essential health services (NHA, 2014), although this progress appears uneven, with significant gaps in provider training and institutional capacity building.

The analysis of Table 5 shows a predominantly negative perception of how healthcare facilities utilize NHIA funds for infrastructure provision and maintenance. The mean scores for surplus generation (mean = **1.97**) and subsequent reinvestment of surplus funds (mean = **1.88**) indicate strong disagreement, over **80%** in both cases, suggesting that most facilities, especially large public hospitals with high patient loads and longstanding NHIA accreditation, rarely generate excess funds after quarterly expenditures due to substantial operating costs and reimbursement delays. Smaller private facilities, although more flexible financially, also appear unable to accumulate or reinvest surpluses, likely due to lower enrollee volumes and limited NHIA reimbursement relative to service costs. The findings differ from Aryeetey et al. (2016), who noted increased annual expenditures after NHIS implementation, and Garba and Ejembi (2015), who observed a nearly threefold increase in available financial resources following NHIS enrollment. In contrast, respondents expressed moderate agreement that facilities conduct audit exercises to track fund utilization (mean = **2.73**) and largely believed that NHIA funds are used efficiently (mean = **2.88**), patterns more commonly associated with private facilities and newer or medium-sized NHIA-accredited centers that often maintain stricter financial controls and more transparent auditing processes. Public facilities, while showing similar trends, may experience systemic constraints that limit real efficiency despite positive perceptions. Overall, the data suggest that although facilities demonstrate reasonable accountability in the use of NHIA funds, both public and private facilities struggle to generate and reinvest financial surpluses, with these challenges shaped by facility size, number of enrollees, and duration of NHIA accreditation.

Analysis of Tables 6–8 indicates that a substantial proportion of healthcare facilities experience barriers to the implementation of NHIA, with **over 73%** affirming challenges both in fund utilization (mean = **1.73**) and broader implementation processes (mean = **1.74**). Similar challenges were reported by Aryeetey et al. (2016). The data show that the most significant barriers arise from **systemic financing and administrative inefficiencies**, particularly delays in payment by HMOs (55%) and low tariffs for drugs and services (38.9%), constraints that disproportionately affect **large public facilities** with high enrollee loads and long-standing NHIA accreditation, as these facilities depend heavily on timely reimbursements to manage large patient volumes.

Smaller private facilities, while more agile, also experience barriers linked to low NHIA payment rates, which limit their operational flexibility. Table 8 further highlights that **low capitation and fee-for-service rates (52.8%)** and **HMO inefficiencies (36.1%)** constitute the major obstacles to effective NHIA implementation, suggesting that inadequate financial inflows and administrative bottlenecks undermine service delivery regardless of facility ownership. These findings align with those of (Okunna et al., 2023 & Philip., 2012), Public facilities tend to report higher barriers associated with infrastructural inadequacies and bureaucratic delays, whereas private facilities more frequently encounter issues related to reimbursement rates and enrollee misunderstandings of rights and entitlements. Overall, the data underscore that barriers to NHIA implementation are shaped by **facility size**, **number of enrollees**, and **years of accreditation**, with larger, older, and highly subscribed facilities experiencing more severe systemic and financial constraints compared to smaller, newer private facilities.

**Hypotheses Testing**

The goodness-of-fit statistics across the three models provide mixed evidence regarding model adequacy for assessing barriers to the implementation of the NHIA. In the first model, both the Pearson chi-square ($\chi^2$ = 21.679, df = 24, p = .598) and Deviance statistic ($\chi^2$ = 24.925, df = 24, p = .410) are non-significant, indicating that the model fits the observed data well and suggesting no substantial barriers reported by respondents. However, the second model shows significant Pearson ($\chi^2$ = 35.111, df = 20, p = .009) and Deviance ($\chi^2$ = 28.701, df = 20, p = .020) statistics, demonstrating a poor model fit and implying variation in responses that may reflect underlying concerns or inconsistencies in how barriers are perceived across facility types. The third model further reinforces this pattern of mixed outcomes: while the Pearson statistic ($\chi^2$ = 40.130, df = 16, p = .002) indicates significant lack of fit, the Deviance statistic ($\chi^2$ = 25.683, df = 16, p = .065) is marginally non-significant, suggesting a borderline acceptable fit. Collectively, these results imply that although some datasets show no significant barriers to NHIA implementation, others reveal response variability that may point to subtle or context-specific challenges, particularly when comparing public and private health facilities.

## CONCLUSION

Our findings revealed that goodness-of-fit statistics presents mixed evidence regarding the robustness of the models used to assess barriers to NHIA implementation, with some models demonstrating adequate fit and others indicating significant variability in responses—suggesting that barriers may be context-specific and differ across facility types. Overall, the findings reveal that although the National Health Insurance Authority (NHIA) has contributed to improved access to basic services, increased enrollee uptake, and better availability of diagnostic care, its broader influence on health facility infrastructure, financial stability, and operational efficiency remains limited and inconsistent. Public facilities, particularly large and long-accredited centers with high enrollee volumes, face substantial strain due to delayed reimbursements, low tariffs, bureaucratic inefficiencies, and HMO-related challenges, all of which hinder infrastructure maintenance and reinvestment. Private facilities, though more flexible, encounter similar constraints from low capitation and limited financial returns, resulting in minimal infrastructural development. Persistent barriers—including inadequate payment mechanisms, insufficient capitation, operational knowledge gaps, and administrative delays—continue to impede effective NHIA implementation. Collectively, the evidence indicates that while NHIA has achieved progress in selected areas of service delivery, significant reforms in funding structures, administrative efficiency, and capacity building are essential to attain sustainable and equitable improvements across Nigeria's healthcare system.

## LIMITATION

i. The cross-sectional design restricts the ability to infer causal relationships.

ii. Findings may not be widely generalizable outside the Federal Capital Territory.

iii. Absence of qualitative data reduces the depth and triangulation of insights.

iv. Reliance on self-reported information may introduce response bias

## RECOMMENDATION

In view of the findings of this study, it is recommended that:

1. Conduct periodic evaluations of HMO performance to ensure accountability and timely service delivery.
2. Implement facility-level infrastructure audits that are directly linked to NHIA reimbursement processes.
3. Introduce a standardized and mandatory financial reporting template for all accredited healthcare facilities.
4. Adopt fully digitalized claims management systems to streamline processing and reduce administrative delays.

## SUGGESTIONS FOR FURTHER RESEARCH

This study gives insights to further research on the utilization of NHIA funds by healthcare providers. In addition, there needs to be a deeper exploration of the inefficiencies of HMOs and the impact of these inefficiencies on healthcare providers, with the aim of streamlining their functions in the health insurance industry.

Since the study was carried out in the FCT, which is one of the most developed States in Nigeria, it is not surprising that many facilities reported a high level of infrastructure development. Further research is needed in NHIA-accredited healthcare facilities in other states and local governments to study the impact of the Authority on infrastructure and the effect on patient outcomes.

Finally, future studies with a focus on Public Health Facilities are highly recommended. Since Healthcare is largely the function of the Government, studies in Public Healthcare Facilities to assess their Infrastructure and healthcare delivery services will be vital to the repository of knowledge in this research area.

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