AEFUNAI JOURNAL OF ECONOMICS, FINANCE AND DEVELOPMENT STUDIES (AEFUNAIJEFDS)
ISSN (Print): 2536-6793 | **ISSN (Electronic):** 2536-6742 *Volume 2 (2) September, 2025*

Evaluating the Impact of the Ebonyi State Health Insurance Scheme on Healthcare Access, Outcomes, and Financial Protection

[1]Ohalete Cynthia Chekwube & [2]Ohalete Precious Ifeanyi
[1&2]Department of Economics and Development Studies,
Alex Ekwueme Federal University of Ndufu Alike Ebonyi State, Nigeria

DOI: 10.48028/iiprds/aefunaijefds.v2.i2.01 ***Corresponding Author:*** Ohalete Cynthia Chekwube

Abstract

This study evaluates the impact of the Ebonyi State Health Insurance Agency (EBSHIA) scheme on healthcare utilisation, health status, and cost reduction in Nigeria. Public health insurance schemes are designed to enhance access, improve outcomes, and reduce out-of-pocket (OOP) spending, yet subnational evidence in Nigeria remains limited. Using a mixed-methods approach, primary survey data from 314 enrollees were analysed through descriptive statistics and ordinal logistic regression, with self-reported health improvement and frequency of medicine access as dependent variables, and socio-demographics, facility type, EBSHIA package, and utilisation frequency as independent variables. Findings show that post-enrolment, 70.1% of respondents reported increased facility visits, 86% experienced improved health status, and all reported reduced OOP costs. Education, visit frequency, facility type, and package significantly predicted outcomes (Nagelkerke $R^2 = 0.724$), while income was the strongest determinant of cost reduction, with low-income groups benefiting most ($p < 0.001$). The results demonstrate that EBSHIA effectively improves healthcare utilisation, health outcomes, and affordability, particularly among economically vulnerable groups. It is recommended that policymakers expand outreach to low-education and informal sector populations, enhance equity-based enrolment, refine package design, and strengthen primary healthcare delivery to maximise scheme impact.

Keywords: *Public health Insurance, Healthcare access, Cost reduction, Health outcomes, Nigeria, EBSHIA*

Background to the Study

Universal Health Coverage (UHC) is a central health policy objective globally, yet many low- and middle-income countries (LMICs) face persistent barriers to achieving it. Nigeria exemplifies this challenge: despite policy commitments, healthcare access is undermined by chronic underfunding, inadequate infrastructure, and a financing system dominated by out-of-pocket (OOP) payments, which accounted for 75% of total health expenditure in 2022 (Sharapova, 2024). This heavy reliance on OOP spending exposes households to catastrophic costs, pushing over one million Nigerians into poverty each year (Akoji & Abaji, 2025). With government health expenditure at just 0.5% of GDP, far below the Abuja Declaration's 15% benchmark, public facilities struggle with service delivery, shortages of essential medicines, and insufficient human resources (Belay et al., 2024).

To address these systemic constraints, Nigeria launched the National Health Insurance Scheme (NHIS) in 2005, aiming to expand coverage and improve equity. However, coverage remains below 5% of the population, hampered by operational inefficiencies, limited political will, and low public awareness (Alawode & Adewole, 2021). In response, several states have implemented sub-national health insurance programmes to provide more context-specific solutions. One such initiative is the Ebonyi State Health Insurance Agency (EBSHIA), established in 2018 to deliver affordable and equitable healthcare, particularly for low-income and informal sector workers often excluded from employer-based schemes (Akokuwebe & Idemudia, 2022).

EBSHIA operates as a contributory, risk-pooling mechanism offering preventive and curative services, from chronic disease screenings to antenatal care and treatment for communicable and non-communicable diseases (Fufaa, 2024). While administrative reports indicate steady enrolment growth, these metrics alone do not reveal whether the scheme delivers on its core objectives. Critical policy questions remain: Does enrolment improve health outcomes? Does it reduce OOP spending? Are benefits equitably distributed across demographic groups? Evidence from LMICs suggests that insurance expansion can increase service utilisation but may yield limited improvements in health outcomes without complementary investments in infrastructure, workforce, and governance (Getzen & Kobernick, 2022).

Empirical research on Nigeria's NHIS is relatively well developed, yet rigorous evaluations of state-level schemes are rare. For EBSHIA specifically, there is little evidence on its impact on self-reported health, household healthcare expenditure, or health-seeking behaviour. This gap is significant: without robust evaluation, policymakers may misjudge the scheme's effectiveness, miss opportunities for improvement, or replicate design flaws in other states.

This study addresses that gap by: (i) describing the socio-demographic characteristics of EBSHIA enrollees; (ii) examining the association between enrolment and self-reported health outcomes; and (iii) assessing the scheme's effect on healthcare expenditure patterns. By situating EBSHIA within Nigeria's evolving health financing landscape and the broader LMIC experience, this research contributes to the literature on sub-national insurance reforms, the links between insurance and health outcomes, and equity in healthcare access.

The findings aim to guide state and national health policymakers in refining scheme design and advancing progress toward UHC.

Literature Review

Equitable Access and Preventive Healthcare:

Public health insurance schemes are designed to reduce financial barriers and ensure equitable access to essential services, regardless of socio-economic status (Soraya et al., 2023; Osei Afriyie et al., 2022). In Nigeria, reliance on out-of-pocket (OOP) payments disproportionately burdens low-income households and limits service use (Ajobiewe et al., 2024). The Ebonyi State Health Insurance Agency (EBSHIA) addresses these disparities by pooling resources, targeting vulnerable groups, and extending services to underserved rural areas (WHO, 2023; Onwujekwe et al., 2021). Insurance coverage can also improve health-seeking behaviour by encouraging timely care, which reduces disease progression and long-term complications (Richards et al., 2022). Preventive healthcare, such as immunisations, antenatal care, and screenings, plays a crucial role in improving population health and reducing future treatment costs (Schaper et al., 2024). By including preventive services in its benefits package, EBSHIA removes cost barriers and promotes early intervention, consistent with evidence that insured individuals are more likely to engage in preventive behaviours (Bhugra et al., 2021), although cultural and geographic constraints can still limit uptake (Abdul-Raheem, 2023).

Healthcare Costs and Financial Risk Protection:

Reducing the cost of care and protecting households from catastrophic health expenditure are core goals of public health insurance (Vaibhavi & Vasant, 2024; Ritho, 2024). In Nigeria, OOP spending accounted for 75% of total health expenditure in 2022 (Nabena, 2024), contributing to poverty and deterring care-seeking. EBSHIA mitigates these risks through pooled contributions, subsidies, and negotiated provider payments, lowering or eliminating point-of-service costs. Studies from Nigeria and other LMICs confirm that insurance coverage reduces OOP spending and medical impoverishment (Eze et al., 2023; Huo et al., 2023). Financial risk protection is particularly vital for informal sector workers and low-income households lacking employer-based coverage (Addo, 2021). Global evidence, such as Rwanda's community-based scheme, shows that insurance can significantly reduce catastrophic spending (Koch et al., 2022). However, sustainability requires timely provider reimbursement, robust governance, and transparency to maintain trust and ensure continued impact (Asante et al., 2025).

Behavioural Economics Theory

Behavioural Economics combines psychology and economics to explain why individuals often make sub-optimal health and financial decisions, even when affordable care is available (Folland et al., 2024). In public health insurance, biases such as present bias, loss aversion, and inertia can deter enrolment or preventive care uptake (Derksen et al., 2021; Leeson & Thompson, 2023). Adverse selection may arise if only high-risk individuals enrol, while moral hazard can lead to overuse of low-value services (Esmaeilzadeh et al., 2021). To counter these behaviours, schemes can employ default enrolment, streamlined processes, targeted

messaging, and modest cost-sharing to promote cost-effective use (Ebanks, 2024). For EBSHIA, applying behavioural insights is essential to boost participation, encourage preventive service utilisation, and balance improved health outcomes with financial sustainability.

Empirical Literature Review

Several Nigerian studies highlight persistent low enrolment in health insurance schemes. Ajobiewe et al. (2024) found only 5.6% NHIS registration at a Federal Medical Centre, echoing enrolment rates of 1–10% in other African countries. Ali et al. (2024) reported that NHIS participation increased timely medical visits and preventive care uptake, though dissatisfaction remained over service quality and access to advanced diagnostics. Similarly, Abdulhakeem et al. (2019) found that despite high satisfaction among registered NHIS users, overall awareness and enrolment were low, indicating the need for broader outreach. Digital innovations have also supported expansion. Okey et al. (2022) showed that a digital insurance management system in Ondo State increased coverage, particularly among pregnant women and children under equity-based schemes. At the international level, Darius et al. (2018) reported that in 32 out of 40 LMIC studies, insurance improved healthcare facility utilisation, though service quality varied.

Reducing out-of-pocket (OOP) spending is a central goal of public health insurance. Eze et al. (2023) found that community-based insurance in southeast Nigeria lowered OOP costs and improved access. Huo et al. (2023) reported similar effects in rural China, with declines in medical impoverishment. Darius et al. (2018) also observed favourable effects on financial protection in over half of the reviewed LMIC studies, though some found no impact. In India, Bhageerathy et al. (2021) concluded that while public-funded insurance increased utilisation, evidence for financial risk protection was inconclusive. NHIS has been linked to improvements in provider communication and waiting times (Ali et al., 2024), but challenges remain. Tshilombo (2021) identified shortages of essential drugs, inadequate staffing, and reimbursement delays as major barriers to effectiveness. Hezekiah et al. (2021) found that larger, better-resourced facilities were more likely to participate in insurance schemes, raising equity concerns. Global reviews (Stéphanie et al., 2020) note that most Sub-Saharan African evidence is observational and call for more quasi-experimental studies to assess impact rigorously.

Interventions targeting health-seeking behaviour can enhance insurance outcomes. Friday et al. (2022) demonstrated that community-led maternal and child health programmes increased antenatal, delivery, and postnatal service use in rural Nigeria. Angela et al. (2021) showed that engaging traditional and religious leaders improved vaccination timeliness, though full coverage gains were limited. Atousa et al. (2022) found that social media can support health promotion, but measuring long-term behaviour change remains challenging.

Methodology

This study adopts a mixed-methods approach, combining quantitative and qualitative techniques to evaluate the effects of the Ebonyi State Health Insurance Agency (EBSHIA)

scheme on health improvement and healthcare cost reduction. The design allows for triangulation of findings to enhance validity. The research takes place in Ebonyi State, southeast Nigeria, which has a population exceeding 2.8 million, a largely agrarian economy, and a mix of urban and rural settlements. EBSHIA, established in 2018, aims to provide equitable access to affordable healthcare through risk pooling and prepayment mechanisms. The target population comprises registered EBSHIA enrollees, healthcare providers, and key informants from relevant government agencies. The quantitative sample is selected using multistage sampling: first stratifying healthcare facilities by ownership (public/private) and location (urban/rural), then randomly selecting facilities and respondents.

The sample size for the quantitative survey is determined using Yamane's (1967) formula:

$$S = \frac{N}{[1 + N(e^2)]} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where;
N = population of the informal sector
S = sample size
e = level of significance (5%, in this case, indicating 95% level of confidence)

Substituting population estimates yields a minimum of 400 respondents, adjusted upward for non-response. For the qualitative component, purposive sampling selects 12 key informants, including EBSHIA officials, facility managers, and community leaders.

Quantitative data are collected via a structured questionnaire covering socio-demographic characteristics, healthcare access, utilisation, and cost-related variables. The instrument is pre-tested for clarity and reliability (Cronbach's alpha = 0.87). Qualitative data are obtained through semi-structured interviews exploring experiences, perceptions, and challenges related to EBSHIA. Interviews are audio-recorded with consent and transcribed verbatim.

The dependent variables are:

1. Health improvement – measured through self-reported changes in health status, preventive service uptake, and treatment adherence.
2. Healthcare cost reduction – measured via changes in out-of-pocket expenditure and financial protection indicators.

Independent variables include socio-demographic factors (age, gender, education, income), insurance status, facility type, and location.

Quantitative data are analysed using SPSS (version 22). Descriptive statistics summarise socio-demographic characteristics and outcome variables. Inferential analysis employs the logistic regression model:

$$Li\ (\text{Health outcomes}) = ln\frac{Pi}{1-Pi} = \beta_1 + \beta_2 Xi + \beta_3 Xj + \mu i \ldots\ldots\ldots\ldots 2$$

$$Li\ (Healthcare\ cost) = ln\frac{Pi}{1-Pi} = \beta_1 + \beta_2 Xi + \beta_3 Xj + \mu i \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

The models are explicitly stated as:

Health outcomes

$$= \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 Education + \beta_4 Employment + \beta_5 Income + \beta_6 Package + \beta_7 Rate\ overall\ health + \beta_8 EBSHIA\ impact + \mu_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

Healthcare costs

$$= \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 Education + \beta_4 Employment + \beta_5 Income + \beta_6 Package + \beta_7 Frequency\ of\ visit + \beta_8 Frequency\ necessary\ medicines + \mu_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5$$

Discussions of Results

The demographic profile of respondents in Ebonyi State is presented in the figures and Table below.

Figure 1: Gender distribution of respondents

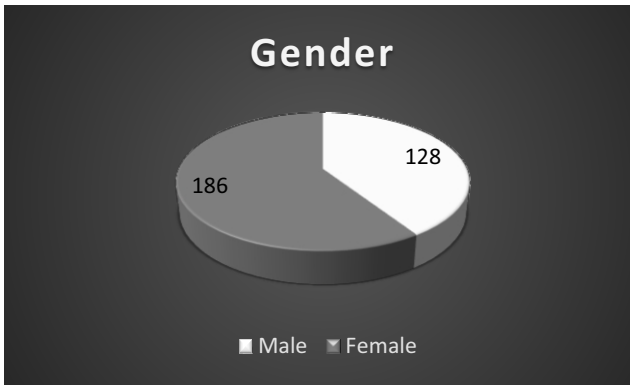


Figure 2: Ages of respondents

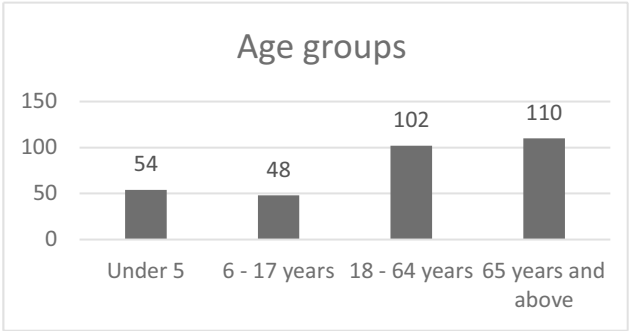


Figure 3: Educational Qualification distribution among the respondents

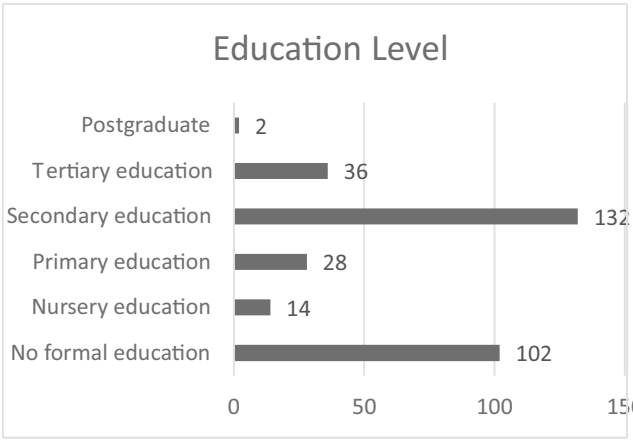


Figure 4: Employment status of Respondents

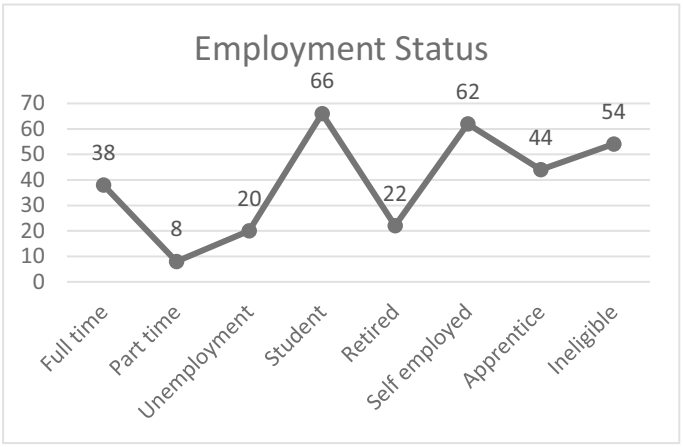
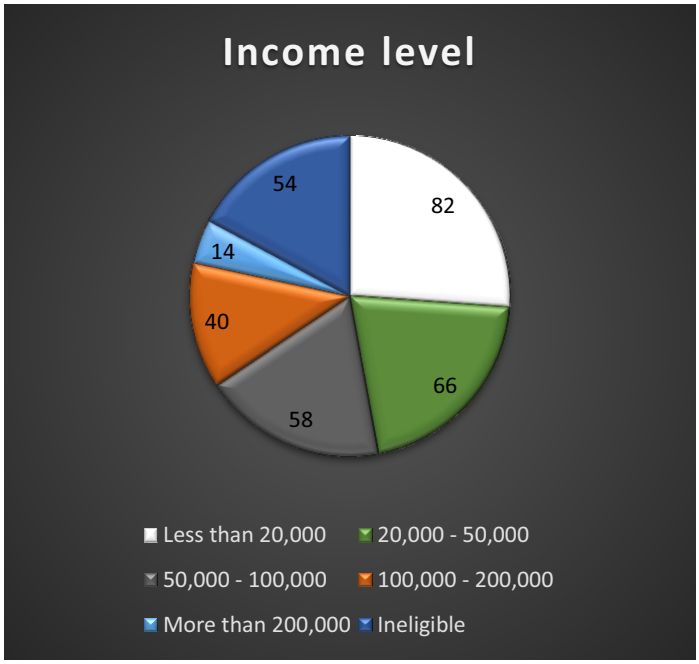


Figure 5: Income level of Respondents



Source: Author's Compilations using SPSS 22

Figure 1 shows that 59% (186) of respondents are female, while 41% (128) are male, indicating a female-majority enrollee base. As shown in Figure 2, most respondents (110) are aged 65 years and above, followed by 18–64 years (102), under-5 years (54), and 6–17 years (48). This indicates that EBSHIA serves a significant proportion of older adults. Figure 4.3 reveals that secondary education is the most common qualification (132 respondents), followed by no formal education (102), tertiary (36), primary (28), nursery (14), and postgraduate (2). The substantial number without formal education suggests potential challenges in health literacy and scheme navigation. Figure 4 indicates that students (66) and the self-employed (62) are the largest groups, followed by ineligible dependents (54), apprentices (44), full-time workers (38), retirees (22), unemployed (20), and part-time workers (8). This reflects a population with high informal sector participation and economic instability. Figure 5 shows that most respondents earn less than ₦20,000 per month (82), followed by ₦20,000–₦50,000 (66), ₦50,000–₦100,000 (58), ₦100,000–₦200,000 (40), and above ₦200,000 (14). Additionally, 54 are dependents with no income. This low-income profile underscores the importance of subsidised health coverage.

Table 1: Service Utilisation, Health Outcomes, and Costs Post-Enrollment

Variable	**Category**	**Frequency**	**Percentage (%)**
Visits to health facilities since enrollment	Nothing changed	94	29.9
	More often	220	70.1
Access to medicines/services since enrollment	Nothing changed	94	29.9
	More often	220	70.1
Overall health since enrollment	Nothing changed	44	14.0
	Better	270	86.0
Impact of EBSHIA on health	Nothing changed	44	14.0
	Positive	270	86.0
Healthcare costs decreased since enrollment	Yes	314	100.0
Health outcome improvement since enrollment	Nothing changed	50	15.9
	Significant improvement	264	84.1
Illness prevention since enrollment	Never	26	8.3
	Sometimes	24	7.6
	Always	264	84.1

Source: Author's Compilations using SPSS 22

The results indicate substantial improvements in healthcare utilisation, with 70.1% visiting facilities more often and accessing medicines/services more frequently. Health outcomes also improve, with 86% reporting better health post-enrollment. Cost reduction is universal, as all respondents report decreased healthcare expenses. Preventive care is notable, with 84.1% able to prevent illness from escalating. These findings suggest that EBSHIA has a strong positive impact on both access and affordability of healthcare.

Our findings align with prior evidence that public health insurance improves healthcare utilisation, access, and financial protection. Similar to Ali et al. (2024) and Darius et al. (2018), EBSHIA enrolment is associated with increased facility visits (70.1%) and improved access to medicines/services (70.1%). The reported health gains, 86% rating their health better post-enrolment, mirror results from NHIS and community-based schemes in Nigeria (Eze et al., 2023) and rural China (Huo et al., 2023), where insurance enhanced preventive care and reduced medical impoverishment. The universal reduction in healthcare costs in our study is consistent with evidence that public schemes lower out-of-pocket spending (Eze et al., 2023), particularly benefiting low-income groups, as also observed by Okey et al. (2022). Preventive care benefits, with 84.1% preventing illness escalation, reflect the behavioural impact noted by Friday et al. (2022), where insurance combined with community engagement improved service uptake. However, persistent challenges in other contexts, drug shortages, limited diagnostic capacity, and uneven facility participation (Grace et al., 2017; Hezekiah et al., 2021) underline the need for sustained investment and equitable service provision within EBSHIA. Overall, our results reinforce global evidence that well-designed

public health insurance substantially enhances access, affordability, and preventive healthcare outcomes in low- and middle-income settings.

Table 2: Ordinal Logistic Regression Results for Determinants of Self-Reported Health Status

Predictor Variable	Category	Coefficient (β)	p-value	Significance
Gender	Male (1)	0.567	0.390	ns
	Female (ref)	0a	—	—
Education	No formal education (1)	14.351	0.000	***
	Primary (2)	14.438	0.987	ns
	Secondary (3)	16.983	0.000	***
	Tertiary (4)	16.918	0.000	***
	Nursery (5)	16.176	—	—
	Postgraduate (ref)	0a	—	—
Frequency of healthcare visits	No change (2)	-4.355	0.000	***
	More often (ref)	0a	—	—
Facility type	Primary health centre (1)	2.444	0.003	***
	General hospital (ref)	0a	—	—
EBSHIA Package	Under-5 (1)	14.853	0.975	ns
	Maternity (2)	-0.625	0.486	ns
	Sick (4)	-3.247	0.002	***
	Other (5)	0a	—	—
Employment status	Student (1)	0.300	0.848	ns
	Civil servant (2)	14.215	0.987	ns
	Private worker (3)	14.608	0.980	ns
	Apprentice (4)	0.276	0.846	ns
	Retired (5)	18.964	0.979	ns
	Self-employed (6)	2.128	0.059	†
	Unemployed (7)	0a	—	—
	Ineligible (8)	0a	—	—

Source: Author's Compilations using SPSS 22

Notes:

Model Fit and Diagnostics

Model χ^2 (df = 17) = 161.350, $p < 0.001$ — predictors significantly improve model fit over the intercept-only model.

Goodness-of-fit: Pearson $\chi^2 = 0.598$; Deviance $\chi^2 = 0.968$ (ns) — indicates good fit.

Pseudo R^2: Cox & Snell = 0.402, Nagelkerke = 0.724, McFadden = 0.634 — strong explanatory power.

*** $p < 0.01$, † $p < 0.10$, ns = not significant. "0a" indicates the reference category.

Interpretation for Journal Format

The ordinal regression analysis demonstrates that education, frequency of healthcare visits, facility type, and certain EBSHIA packages significantly predict self-reported health outcomes among enrollees. Higher education levels (particularly secondary and tertiary) are strongly associated with improved health status ($\beta > 14$, $p < 0.001$), underscoring the role of health literacy in maximizing scheme benefits. Increased healthcare visits since enrollment positively correlate with better health, while no change in visit frequency significantly reduces the likelihood of improved outcomes ($\beta = -4.355$, $p < 0.001$).

Facility type also matters, using primary health centres is linked to higher odds of reporting improved health ($\beta = 2.444$, $p = 0.003$). However, package type influences outcomes; enrollees in the "Sick" package are less likely to report improved health ($\beta = -3.247$, $p = 0.002$). Employment status shows marginal significance for the self-employed ($p = 0.059$), while gender is not a significant predictor. The high Nagelkerke R^2 (0.724) indicates that the model explains a substantial proportion of the variation in health status.

Empirical literature underscores the importance of socio-demographic and service utilisation factors in shaping health outcomes under public health insurance schemes. Previous Nigerian studies (Ali et al., 2024; Abdulhakeem et al., 2019) highlight that education enhances awareness and navigation of insurance benefits, consistent with the finding that higher education levels strongly predict better self-reported health. Increased healthcare visits, as observed in Ali et al. (2024) and Darius et al. (2018), are linked to improved health, reinforcing the positive association between utilisation frequency and outcomes in our analysis.

Facility type has also been noted as a determinant of service quality and accessibility. Hezekiah et al. (2021) reported that larger or better-equipped facilities often have an advantage in scheme participation; however, our finding that primary health centres are associated with better health mirrors Eze et al. (2023), who found improved access in community-based settings. Package design influencing outcomes aligns with global reviews (Stéphanie et al., 2020) that emphasise tailoring benefit structures to population needs. The non-significance of gender reflects mixed evidence in LMIC literature, where socio-economic and institutional factors often outweigh gender effects. Overall, these patterns support existing research that targeted design, service access, and health literacy are central to maximising insurance impact.

Table 3: Ordinal Regression Results – Influence of EBSHIA Enrolment on Reduction in Healthcare Costs

Predictor Variable	Coefficient (β)	p-value
Income		
< ₦20,000 (Income=1)	6.259	0.001 **
₦20,000 – ₦50,000 (Income=2)	7.111	<0.001 **
₦50,000 – ₦100,000 (Income=3)	7.582	<0.001 **
₦100,000 – ₦200,000 (Income=4)	2.611	0.259
> ₦200,000 (Income=5)	-15.772	0.995
Reference: No income (Income=6)	–	–
Employment Status		
Full-time (Emp=1)	-0.839	0.629
Student (Emp=2)	14.477	0.997
Part-time (Emp=3)	12.796	0.995
Unemployed (Emp=4)	0.327	0.802
Retired (Emp=5)	-4.006	0.060
Self-employed (Emp=6)	-4.682	0.014 **
Reference: Ineligible/Dependent	–	–
Age Group		
< 5 years (Age=1)	–	–
6–17 years (Age=2)	-1.880	0.295
18–64 years (Age=3)	-2.658	0.052
Reference: 65+ years (Age=4)	–	–
Gender		
Male (Gender=1)	-0.016	0.971
Reference: Female (Gender=2)	–	–
Education		
No formal education (Edu=1)	-2.957	0.038 **
Primary (Edu=2)	-2.668	0.090
Tertiary (Edu=3)	-1.704	0.344
Secondary (Edu=4)	-3.168	0.004 **
Nursery/Postgrad (Edu=5)	-3.095	–
Reference: Postgraduate (Edu=6)	–	–
Facility Type		
Primary Health Centre (Fac=1)	-0.394	0.419
Reference: General Hospital	–	–
EBSHIA Package		
Pregnant Women (Pkg=2)	0.935	0.427
Sick (Pkg=4)	2.239	0.080
Reference: Under-5 (Pkg=1) / Others (Pkg=5)	–	–
Overall Health Rating		
"Nothing Changed" (Rate=2)	-2.473	0.001 **
Reference: "Better" (Rate=3)	–	–

Source: Author's Compilations using SPSS 22

Notes:
Model Fit and Diagnostics
$\chi^2(23) = 212.731$, $p < 0.001$; Pearson = 0.570; Deviance = 0.746
Pseudo R^2: Cox & Snell = 0.492; Nagelkerke = 0.698; McFadden = 0.555
$p < 0.05$ indicates statistical significance.

The ordinal logistic regression model was statistically significant ($\chi^2 = 212.731$, df = 23, $p < 0.001$) and showed strong fit (Nagelkerke $R^2 = 0.698$). Income was the strongest predictor: enrollees earning below ₦100,000, especially those under ₦20,000 ($p = 0.001$), ₦20,000–50,000 ($p < 0.001$), and ₦50,000–100,000 ($p < 0.001$), were significantly more likely to report improved access to medicines, reflecting greater cost-reduction benefits. Higher-income groups showed no significant change. Self-employed ($p = 0.014$) and, to a lesser extent, retired respondents ($p = 0.060$) were less likely to experience improved access. Low education also predicted reduced benefit, with no formal education ($p = 0.038$) and secondary education ($p = 0.004$) linked to lower odds of improvement. Other factors, including gender, age, facility type, and most package categories, were not significant, except for a marginal positive effect for the "Sick" package ($p = 0.080$). Respondents reporting no change in health status were also less likely to have frequent medicine access ($p = 0.001$).

Empirical evidence consistently shows that income strongly shapes the benefits derived from public health insurance, particularly in reducing out-of-pocket costs. Eze et al. (2023) and Huo et al. (2023) found that low-income groups experience the greatest financial protection, aligning with our result that enrollees earning below ₦100,000, especially those under ₦20,000, report significantly improved access to medicines. Similar patterns in Ondo State (Okey et al., 2022) demonstrate that equity-based schemes disproportionately benefit economically vulnerable populations. The reduced likelihood of improved access among self-employed and retired respondents parallels findings from Grace et al. (2017) and Hezekiah et al. (2021), which suggest that informal sector workers and non-active earners may face barriers in service navigation or benefit realisation. Educational disparities in our results, where no formal or secondary education predicts reduced benefit, echo Ali et al. (2024), who identified health literacy as a critical determinant of effective scheme use. The absence of significant effects for gender, age, and facility type aligns with mixed LMIC findings (Darius et al., 2018), where structural and economic variables dominate over demographic characteristics. Overall, these findings reinforce the literature's emphasis on targeting low-income and low-education groups to maximise the cost-reduction potential of public health insurance schemes.

Conclusion
The findings of this study indicate that the Ebonyi State Health Insurance Agency (EBSHIA) scheme has made a substantial contribution to improving healthcare access, utilisation, and affordability among its enrollees. A large majority reported increased visits to health facilities, more frequent access to necessary medicines, improved health outcomes, and a notable reduction in out-of-pocket healthcare expenses. The analysis further revealed that socio-economic characteristics, particularly education, income, frequency of healthcare visits,

facility type, and package design, significantly shape the extent of these benefits. Low-income earners and those with higher education levels appear to derive the greatest gains from the scheme. In contrast, informal sector workers, retirees, and individuals with limited education are less likely to experience the same level of improvement. These patterns are consistent with both Nigerian and international evidence, underscoring that public health insurance can deliver substantial equity gains when supported by inclusive design and effective service delivery.

Based on these findings, it is recommended that policy interventions prioritise the expansion of health literacy initiatives to better equip low-education groups with the knowledge to fully utilise scheme benefits. Targeted enrolment strategies for economically vulnerable populations should be strengthened to sustain equity impacts, while tailored engagement approaches are needed to address barriers faced by informal sector workers and retirees. The design of benefit packages, particularly those showing lower effectiveness, such as the "Sick" package, should be reviewed to ensure they meet the health needs of enrollees. Furthermore, investment in primary healthcare centres should be sustained and expanded, given their association with improved health outcomes, while systemic challenges such as shortages of essential drugs, staffing constraints, and reimbursement delays must be addressed to safeguard the long-term effectiveness of the scheme.

References:

Abdulhakeem, O. Abiola, T. W., Ladi-Akinyemi, O. A., Oyeleye, G. K., Oyeleke, O. I,. Olowoselu, U. & Aisha, T. A. (2019), Knowledge and utilisation of national health insurance scheme among adult patients attending a tertiary health facility in Lagos State, South-Western Nigeria, *African Journal of Primary Health Care & Family Medicine ISSN*: (Online) 2071-2936.

AbdulRaheem, Y. (2023). Unveiling the significance and challenges of integrating prevention levels in healthcare practice, *Journal of primary care & community health*, *14*, 21501319231186500.

Addo, M. (2021). *Exploring income volatility and financial health among middle-income households* (Doctoral dissertation, University of Pennsylvania).

Ajobiewe, J., Kefas, A. W., Ajobiewe, H., Oyetunde, A., Pillah, P., Pillah, V., & Yashim, A. N. (2024). National health insurance scheme: Effect of out-of-pocket payment and access to health services. A case study of federal medical center, FMC, Jabi, Abuja. *Acta Scientific Microbiology*, *7*(2).

Akoji, S. J., & Abaji, A. S. (2025). The 2022 multidimensional poverty index of Nigeria: A sociological review, *PanAfrican Journal of Governance and Development*, *6*(1), 141-168.

Akokuwebe, M. E., & Idemudia, E. S. (2022). A comparative cross-sectional study of the prevalence and determinants of health insurance coverage in Nigeria and South Africa: A multi-country analysis of demographic health surveys, *International Journal of Environmental Research and Public Health, 19*(3), 1766.

Alawode, G. O., & Adewole, D. A. (2021). Assessment of the design and implementation challenges of the National health insurance scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers. *BMC Public Health, 21*, 1-12.

Ali, P. A., James, O. , & Omadachi, O. (2024). Effect of National Health Insurance Scheme on healthcare utilization patterns and quality of services in FCT, Nigeria. *Kashere Journal of Politics And International Relations 2(*2) ISSN Online: 3027-1177.

Angela, O. I., Xavier, B. C., Amanda, R., Afiong, O., Ekpereonne, E, Soter, A., Olabisi, O., Dachi, A., & Martin, M. (2021). *Effects of engaging communities in decisionmaking and action through traditional and religious leaders on vaccination coverage in Cross River State, Nigeria*: A cluster randomised control trial. PLoS ONE 16(4): e0248236. https://doi.org/10.1371/journal. pone.0248236.

Asante, A., Bonney, R. A., & Twum, P. (2025). Financing healthcare services: a qualitative assessment of private health insurance schemes in Ghana, *BMC Health Services Research, 25*, 217.

Atousa Ghahramani, Maximilian de Courten, and Maria Prokofeva (2022), The potential of social media in health promotion beyond creating awareness: an integrative review, *BMC Public Health* (2022) 22:2402 https://doi.org/10.1186/s12889-022-14885-0.

Bhageerathy, R., Bhaskaran, U., Eti, R. Shradha, S., Parsekar, R. V., & Bhumika, T. V. (2021), *Impact of public-funded health insurances in India on health care utilisation and financial risk protection: A systematic review*, BMJ Open 2021; 11:e050077. https://doi.org/10.1136/bmjopen-2021-050077.

Bhugra, P., Grandhi, G. R., Mszar, R., Satish, P., Singh, R., Blaha, M., & Nasir, K. (2021). Determinants of influenza vaccine uptake in patients with cardiovascular disease and strategies for improvement, *Journal of the American Heart Association, 10*(15), e019671.

Darius, E. Marc, S, Shehzad, A. & Karen, B. (2018). The impact of public health insurance on health care utilisation, financial protection and health status in low- and middle-income countries: A systematic review., *PLoS ONE 14*(8), e0219731. https://doi.org/10.1371/journal.pone.0219731.

Derksen, L. Jason, K. Natalia, O. R. & Olivier, S. (2021). Appointments: A more effective commitment device for health behaviors, *arXiv preprint arXiv:2110.06876*

Ebanks, B. (2024). *Breaking the procrastination barrier*.

Esmaeilzadeh, P., Mirzaei, T., & Dharanikota, S. (2021). Patients' perceptions toward human–artificial intelligence interaction in health care: experimental study, *Journal of medical Internet Research, 23*(11), e25856.

Eze, P., Ilechukwu, S., & Lawani, L. O. (2023). Impact of community-based health insurance in low-and middle-income countries: a systematic review and meta-analysis, *PLoS One, 18*(6), e0287600.

Folland, S., Goodman, A. C., Stano, M., & Danagoulian, S. (2024). *The economics of health and health care*, Routledge.

Friday, O., Lorretta, F. N., Sanni, Y., Brian, I., Ojuolape, S., Chioma, E., Ermel, A., Kpogbe, J., Issiaka, S., & Wilson, I. (2022). *Effect of a multifaceted intervention on the utilisation of primary health for maternal and child health care in rural Nigeria: A quasi-experimental study*, BMJ Open 2022;12:e049499. https://doi.org/10.1136/bmjopen-2021-049499.

Fufaa, G. D. (2024). The role of preventive health care in preventing chronic diseases.

Getzen, T. E., & Kobernick, M. S. (2022). *Health economics and financing*, John Wiley & Sons.

Hezekiah, O. S., Ibironke, D., Njide, N., Emmanuella, Z., Frank, F. & Tobias, R. W. (2021), Determinants and perception of health insurance participation among healthcare providers in Nigeria: A mixed-methods study, *PLoS ONE 16*(8), e0255206. https://doi.org/10.1371/journal.pone.0255206.

Huo, J., Hu, M., & Li, S. (2023). The impact of urban–rural medical insurance integration on medical impoverishment: evidence from China. *International Journal for Equity in Health, 22*(1), 245.

Koch, R., Nkurunziza, T., Rudolfson, N., Nkurunziza, J., Bakorimana, L., Irasubiza, H., & Kateera, F. (2022). Does community-based health insurance protect women from financial catastrophe after cesarean section? A prospective study from a rural hospital in Rwanda, *BMC health Services Research, 22*(1), 717.

Leeson, P. T., & Thompson, H. A. (2023). Public choice and public health, *Public Choice, 195*(1), 5-41.

Okey, O., Ross, M., Kenneth, O., Ujulu, A., Afolabi, D., Abiodun, O., Victor, A., Mohammed, N. S. & Bassey, E (2022). Role of digital health insurance management systems in scaling health insurance coverage in low and middle income countries: A case study from Nigeria, *Frontiers in Digit. Health 4*:1008458. https://doi.org/10.3389/fdgth.2022.1008458.

Onwujekwe, O., Mbachu, C. O., Ajaero, C., Uzochukwu, B., Agwu, P., Onuh, J., & Mirzoev, T. (2021). Analysis of equity and social inclusiveness of national urban development policies and strategies through the lenses of health and nutrition, *International Journal for Equity in Health, 20*, 1-10.

Osei, A. D., Krasniq, B., Hooley, B., Tediosi, F., & Fink, G. (2022). Equity in health insurance schemes enrollment in low and middle-income countries: A systematic review and meta-analysis.*International journal for equity in health, 21*(1), 21.

Richards, O. K., Iott, B. E., Toscos, T. R., Pater, J. A., Wagner, S. R., & Veinot, T. C. (2022). "It'sa mess sometimes": patient perspectives on provider responses to healthcare costs, and how informatics interventions can help support cost-sensitive care decisions, *Journal of the American Medical Informatics Association, 29*(6), 1029-1039.

Schaper, N. C., Van Netten, J. J., Apelqvist, J., Bus, S. A., Fitridge, R., Game, F., & IWGDF Editorial Board. (2024). Practical guidelines on the prevention and management of diabetes-related foot disease (IWGDF 2023 update), *Diabetes/Metabolism Research and Reviews, 40*(3), e3657.

Sharapova, N. (2024). *Neoliberal pathologies and African development: The Case of the Ugandan Healthcare Sector* (Doctoral dissertation).

Soraya, S., Syamanta, T., Harahap, H. S. R. B., Coovadia, C., & Greg, M. (2023). Impact of the National Health Insurance Program (JKN) on access to public health services: a comprehensive analysis, *Jurnal Ilmu Pendidikan Dan Humaniora, 12*(3), 133-151.

Tshilombo, T. S. (2021). *Challenges and solutions of shortage of essential drugs, Supplies and Equipment at the Emergency Department of CHUK: A mixed method Study* (Doctoral dissertation, University of Rwanda).

World Health Organization. (2023). *Tracking universal health coverage: 2023 global monitoring report*, World Health Organization.