ISA Journal of Medical Sciences (ISAJMS)

Homepage: https://isapublisher.com/isajms/

Volume 3, Issue 6, Nov-Dec, 2026 ISSN: 3049-1746

Evaluation of the Effects of Health Insurance Scheme on the Financial Risks of the Enrollees in Ebonyi State

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Received: 25.09.2026 | **Accepted:** 11.11.2026 | **Published:** 13.11.2026

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DOI: *10.5281/zenodo.24185628*

Abstract **Original Research**

Universal Health Coverage (UHC) is a global initiative that ensures every individual financial relieve for health services without suffering, financial hardship and set back. However, despite this, millions still experience financial hardship due to out-of-pocket payments. Out-of-pocket payments in Nigeria have been high with more than 70% for decades. The National Health Insurance Authority Act 2022 requires the expansion of coverage by State Social Health Insurance Agencies. Although the Ebonyi State Health Insurance Agency (EBSHIA) has increased enrolments in Ebonyi State, there is little evidence to show how this has impacted on the enrollees. This research is aimed to evaluate the impact that the Health Insurance Scheme has on enrollees' finances. A mixed-methods analytical design was used with a retrospective pre-post survey and Key Informant Interviews. 528 adults enrolled onto the Basic Health Care Provision Fund were surveyed using multi-stage sampling from 24 accredited sites. 10 Key Informant Interviews were also conducted. Responses were analysed using McNemar's test and associations using Fisher-Freeman-Halton exact test ($\alpha = 0.05$). Following enrollment in ($p < 0.001$), all 12 core indicator scores increased considerably. The proportion of people feeling the service was affordable improved from 26.7% to 97.5%, those who felt the service provides adequate quality care increased from 37.7% to 97.0% and perceptions of effective care increased from 50.6% to 96.6%. Severe financial hardship due to income and at the household level decreased from 86.2% to 6.4% and 80.9% to 4.0% respectively. However, availability (83.3%) and acceptable waiting times (78.8%) were below the threshold of 90% set within the study. Drug stock outs, long delays to reimbursement and lack of staffing were identified during interviews. Whilst there were considerable improvements in reported access, financial protection and perceived quality of care following enrollment, investment is also required in drug availability, provider reimbursement and staffing to ensure these are maintained.

Keywords: Health insurance; healthcare access; financial risk protection; quality of healthcare services; Universal Health Coverage; Ebonyi State.

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INTRODUCTION

The right to the highest standard of health is universally recognised as a fundamental human right. An optimum level of health for the population enables socio-economic development, improves human capital, increases productivity within the

workforce and reduces intergenerational poverty. Therefore, governments around the world are focusing on health policy reforms to ensure everyone can access healthcare equitably, whilst protecting individuals from the financial risk associated with medical care. Universal Health Coverage (UHC) is defined by the World Health Organization (WHO) as ensuring all people and communities can access quality health services without facing financial hardship (2021). UHC focuses on three key areas; increasing population coverage, increasing essential service provision and protecting individuals directly from financial risk.

Financing healthcare is one of the key elements of an efficient health system. How health services are funded influences how accessible, usable and quality they are. Throughout history there have been various ways health services have been funded; out of pocket payments, taxation, social health insurance and private insurance. Social health insurance is one of the most effective ways of funding healthcare as it uses prepayment and risk pooling systems. This spreads the economic burden of poor health by pooling funds from large populations. This will reduce catastrophic health expenditure at an individual household level (Kutzin, 2013).

Great strides have been made by many countries to achieve UHC by implementing health insurance schemes. Countries, such as Germany, Japan, South Korea, Canada, Thailand and Rwanda have demonstrated that with well-developed health insurance schemes, access can be significantly improved and financial barriers reduced. However, globally it is reported that many billions of people lack access to essential health interventions and millions are pushed into poverty due to direct out of pocket payments (WHO, 2021). This issue has led to many health financing reforms occurring in low and middle income countries.

Many LMICs, specifically sub-Saharan African countries face the majority of their healthcare being funded through out-of-pocket payments. Out-of-pocket payments are described as direct payments made to obtain healthcare services with no reimbursement. This often leads to catastrophic health expenditure (CHE), whereby large proportions of money are spent on healthcare leaving people having to forego other essential items for example food or education. Evidence has shown that out-of-pocket payments are a leading cause of impoverishment within households and limits access to healthcare (WHO, 2019; Wagstaff et al., 2020).

This has led to financial risk protection becoming a key goal in health financing reforms. Financial risk protection refers to individuals being able to access healthcare services without risk of falling into poverty. With adequate health insurance schemes in place, out-of-pocket payments will be reduced, the rate of CHEs reduced and overall improve welfare of people. Financial risk protection is one of the key indicators used to measure how far we are towards achieving UHC.

Many sub-Saharan African countries have decided to implement social health insurances in order to overcome issues with health system financing and reach UHC quicker. For example, countries such as Ghana with their National Health Insurance Scheme, Rwanda with their Community-Based Health Insurance Program and Kenya with their National Health Insurance Fund. Research has shown that health insurance improves access to healthcare services, maternal and child health, preventive measures and financial risk protection. However, there are still issues to overcome.

Nigeria have had a complex relationship with health care financing. They struggle with low public expenditure on health, poor infrastructure, lack of healthcare workers and out-of-pocket payments. For many years out-of-pocket payments have constituted to over 70% of health expenditure in Nigeria which made it very difficult for people to access healthcare. This resulted in poor health outcomes, low utilization and poverty.

In order to overcome this the government decided to implement the National Health Insurance Scheme (NHIS) in 2005 to ensure equal funding of healthcare services and remove financial barriers. However, after almost 20 years only around 5% of people were covered by the scheme (Alawode and Adewole, 2021). Main reasons behind this include voluntary registration, lack of awareness amongst the

population, poor enforcement and inability to attract informal sector workers.

In order to overcome these issues and accelerate progress towards UHC, the National Health Insurance Authority (NHIA) Act was passed in 2022 to replace the National Health Insurance Scheme Act. This new Act will ensure a more holistic approach to health insurance in Nigeria. Key changes include compulsory coverage for all Nigerians and legal residents. The law also includes provisions for the creation of the Vulnerable Group Fund to subsidies health insurance for those in poverty.

The law also includes provisions for combining all health insurance schemes across the federal, state and private sectors. It recognizes health insurance as a key factor in achieving UHC and reducing health inequalities. The NHIA Act also requires all states to develop or improve their State Social Health Insurance Agencies (SSHIAs).

As a result of the above legislation the Nigerian government have taken steps to improve health insurance within the country. In September 2025, President Bola Ahmed Tinubu mandated all Ministries, Departments and Agencies (MDAs) to implement compulsory registration and include health insurance verification within their processes. This should increase coverage within the population, reduce out-of-pocket payments, increase accountability and improve progress towards UHC.

In accordance with above legislation, Ebonyi State have created their own agency to manage health insurance within the state. The Ebonyi State Health Insurance Agency (EBSHIA) manages all health insurance services within Ebonyi State. Since its creation the Agency has organized numerous health insurance schemes to cover various groups within the population. These include civil servants, pregnant women, children under the age of 5, the elderly, those living with HIV/AIDS, vulnerable individuals and those working in the formal and informal sectors.

EBSHIA was created to overcome the issue of achieving UHC in Ebonyi State. Their mission is to work alongside healthcare providers to improve access, quality and affordability of healthcare for residents of Ebonyi State. Healthcare providers deliver services at all levels of the health system whilst healthcare insurance premiums are pooled together to fund healthcare for insured individuals. Despite great progress in increasing registrations, it is unclear whether the health insurance scheme in Ebonyi State is meeting its goals. Registration statistics are key in determining coverage but do not indicate anything about effectiveness of the scheme. It is important to look at each element individually to determine whether the health insurance scheme is improving access to healthcare services, providing financial risk protection and improving quality.

Access to healthcare refers to services being available, affordable, accessible, accommodating and acceptable. With a good health insurance scheme in place individuals should be able to overcome financial barriers and utilize healthcare services more. However studies have shown that simply having health insurance will not improve access to healthcare services if there are few healthcare facilities, staff and poor referral system in place within developing countries. Therefore it is important to analyse access to healthcare services for insured individuals.

Financial risk protection is another key factor. As health insurance reduces out-of-pocket payments and provides financial risk protection from CHE it would seem logical that insured individuals would pay little for healthcare. However studies have shown that insured individuals in numerous African countries still pay a lot for healthcare services. This includes co-payments, non-covered services, transport costs and informal payments. It is therefore important to analyse how much protection health insurance schemes provide individuals.

Financial Risk Protection Theory

This theory is based on fundamental health economic principles (Kutzin, 2013; WHO, 2021). It explains how compulsory pooled health financing mechanisms protect individuals/ families from financial hardship as a result of illness. It uses four key economic principles;

1. Prepayment – Money is paid in advance, reducing uncertainty of paying for healthcare.
2. Risk Pooling – Money is pooled together from large groups of people.
3. Cross Subsidization – Money is transferred from high income individuals to low income individuals. It is also transferred from healthy individuals to those with high healthcare needs.
4. Mitigation of Financial Hardship – Ensure individuals do not become impoverished when paying for essential healthcare.

Financial Risk Protection

Financial risk protection is the main aim of health insurance however evidence is not as consistent. A retrospective observational study found there was still widespread catastrophic health expenditure across 133 countries (Wagstaff, Flores et al., 2018). This shows why prepayment and pooling has become an important part of health financing reforms. Financial protection alongside healthcare coverage was considered a key area to measure health system performance within 24 developing countries (Wagstaff et al., 2016). It has also been argued that financial protection is an essential aim of Universal Health Coverage but traditional measures of catastrophic and impoverishing expenditure can fail to show the true extent of hardship as they do not consider people who completely avoid healthcare due to cost (Saksena et al., 2014).

Evidence shows mixed findings. A systematic review found that public health insurance had less consistent findings on financial protection (Erlangga et al., 2019). However there is clear evidence of financial protection from some national schemes. The Mutuelles scheme in Rwanda provided protection from catastrophic health expenditure (Lu et al., 2012), insured households had reduced catastrophic health expenditure (Nguyen et al., 2018) and the Universal Coverage Scheme in Thailand reduced medical impoverishment within the lowest income groups (Limwattananon et al., 2015). This suggests that financial protection depends on scheme design including depth of benefits, level of cost sharing and availability of services and medications.

Evidence from Nigeria shows that out-of-pocket payments were prevalent. Using nationally representative household data it was found a large proportion of households within Nigeria were facing catastrophic health expenditure and impoverishment due to out-of-pocket payments (Aregbeshola and Khan, 2018). Insured households had significantly less point-of-service costs reducing their risk of facing catastrophic medical debt (Onoka et al., 2013). Health insurance reduced out-of-pocket healthcare costs by up to 40% (Mohammed et al., 2022). State health insurance enrollees in South-East Nigeria were less likely to face healthcare related financial issues (Umeh et al., 2023). A review and comparative analysis of Nigeria and Ghana's national health insurance schemes investigated equity in healthcare financing (Odeyemi and Nixon, 2013). It was found that the scheme only covers a limited amount of people outside of the formal sector.

However there is evidence that financial protection is still not fully achieved. Co-pays, transport costs, lack of coverage and purchasing medications outside of the benefit package meant some individuals with health insurance faced significant healthcare costs (Onwujekwe et al., 2022). It was noted that total financial protection was not always achieved as not all services were covered within the benefit package (Aregbeshola et al., 2021). This shows that there is a link between financial protection and healthcare access. Patients with health insurance may not be able to access covered medications meaning they pay out-of-pocket.

Overall there is agreement that health insurance reduces healthcare costs however there is disagreement on how much of an improvement it provides. Most studies undertaken in Nigeria looked at cost measures for formal sector or national scheme enrollees. Little evidence was found looking at state scheme enrollees funded by the Basic Health Care Provision Fund as they are usually from lower income backgrounds and work mainly in the informal sector. No studies were found looking at financial protection for enrollees in Ebonyi State. This study will therefore provide evidence on this

population by looking at perceived costs and severe healthcare related financial hardship at income and household level. However as noted by Saksena et al. (2014) perception measures compliment rather than replace calculated catastrophic health expenditures.

MATERIALS AND METHOD

Study Location

This study was carried out within the three senatorial zone within Ebonyi State, Ebonyi North, Ebonyi Central and Ebonyi South in the State. A sample of twenty four accredited healthcare facilities were selected using a multi-stage sampling techniques. The facilities were selected from tertiary, secondary and primary facilities to cover the wide range of health insurance members within the State.

Ebonyi North Senatorial Zone: Within this zone there are Facilities located in Abakaliki LGA, which contains a tertiary facility (National Obstetric Fistula Centre NOFIC 1), primary facilities include MCH Azuiyiokwu (7), Izzi Unuhu MDG PHC (8). Facilities located in Ebonyi LGA include AE-FUTHA (2), Little Seed Hospital (3), Salus Specialist Hospital (5), Hope Eye Clinic (6), Aboffia Health Centre (9). Facilities in Ohaukwu LGA include Pool of Bethesda specialist Hospital (4) and Ngbo Maternity Centre (11). Facilities within Izzi LGA include Onuebonyi health Centre (10).

Ebonyi Central Senatorial Zone: Within this zone there are members located within Primary facilities. Facilities located in Ezza North LGA include MCH Okposi (12) and Amuda health centre (13). Facilities located in Ikwo LGA include Inyimegu Ameka MDG PHC (14) and Elegu Ohankwu MDG PHC (15). Facilities located in Ezza South LGA include MCH Onuoke (16) and Okofia Amaudo MDG PHC (17). Facilities located in Ishielu LGA include Iduma MDG PHC (18).

Ebonyi South Senatorial Zone: Facilities located within this zone include primary facilities. Facilities located in Afikpo North LGA include Amachara Health Centre (19) and Unwana PHC (20). Facilities located in Afikpo South LGA include Amoso Etti model PHC (21). Facilities located in Ohaozara LGA include Ufuezereaku PHC (22). Facilities located in Onicha LGA include Oshiri model PHC (23). Facilities located in Ivo LGA include Isiaka model PHC (24).

Ebonyi State has a Health Insurance Agency known as EBSHIA. There are a number of schemes available including Formal Sector Programme, Informal Sector Programme, BHCPF Programme, Vulnerable Group Programme, Equity Fund Programme and specific schemes to support better healthcare coverage to achieve UHC. Therefore Ebonyi State is an ideal area to understand any changes in coverage, financial risk protection and quality of service provided to those on a health insurance scheme.

Quantitative Analysis

Quantitative data was analysed using IBM SPSS Statistics (Version 29.0).

Descriptive statistics were calculated to give an overview of how the respondents felt about their healthcare experience. This included frequencies and percentages.

The analysis focussed on the three main outcome areas:

1. Access to Healthcare
2. Financial Risk Protection
3. Healthcare Service Quality

Comparisons were made between the pre-enrolment and post-enrolment responses.

As the binary outcome variables were measured within the same respondents a McNemar's test should be used.

This tests whether there is a difference between the proportion of favourable outcomes before and after enrolment. Changes were presented as percentage point changes.

Associations between socio-demographics and outcome indicators were analysed using the Fisher-Freeman-Halton exact test. This was done as there were less than 5 expected counts per cell.

Statistical significance was set as 5%. Any p-values less than 0.05 were deemed statistically significant. Where appropriate 95% Confidence Intervals were used.

Qualitative Analysis

Qualitative responses were transcribed verbatim and analysed using thematic analysis (Braun & Clarke, 2022). Thematic coding was carried out (both inductive and deductive) and responses were analysed to identify common themes relating to affordability of healthcare, healthcare utilisation, availability of services, quality of care, financial protection and challenges faced with healthcare provision.

Qualitative results were combined with the quantitative results to give a better overall picture of the beneficiaries' experiences.

Ethical Issues

Ethical approval was obtained from the Research Ethics Committee of David Umahi Federal University of Health Sciences, Uburu. Permission was obtained from the relevant authorities including Ebonyi State Health Insurance Agency (EBSHIA) and healthcare facilities.

Written informed consent was obtained from the respondents.

Respondents participated voluntarily. Their responses were kept confidential. They were made aware that they could withdraw from the study with no consequences to their healthcare or insurance benefits.

Data was anonymised using unique codes and stored securely.

The study followed ethical guidelines from the Declaration of Helsinki.

RESULTS

The findings look at twelve key indicators of UHC using a before and after design. Each respondent answered two questions about their situation before and after enrolling onto the health insurance scheme. As there were 528 respondents who answered both questions relating to each variable, they are considered to be paired. This means that McNemar's test was used as opposed to a typical chi square test. This is a non-parametric test to analyse paired nominal variables where there are two categories. It looks to see if there is a significant difference between the number of people who moved from one category to another (e.g. inadequate to adequate) and those who moved in the opposite direction. Those who remained in the same category are ignored. All McNemar tests were two tailed and conducted at the 5% level of significance ($p < 0.05$). All twelve indicators were found to have p values < 0.001 showing that the improvements seen are extremely unlikely to have happened by chance. However, as the McNemar test does not consider clustering of respondents within the 24 facilities, they are not adjusted for this. Beneficiary satisfaction indicators are only measured after enrollment so are just described with 95% confidence intervals. Association analyses around equity were conducted using the Fisher-Freeman-Halton Exact Test. This is a more robust analysis than the typical Pearson chi square test. This takes into consideration cells with low expected frequencies within the cross tabulation.

The responses from the respondents were originally on a five point scale. However they have been converted into two categories (positive and negative) with strict cut points decided upon by the researcher. For example, availability was only measured as adequate if the respondent said services were always or most times available. Any other answer (including sometimes) would be considered as inadequate. The performance after enrollment was then compared to a benchmark of of ≥90%. This benchmark was set by the researcher and is not an official target from the World Health Organization. There are no guidelines for cut points for patient reported indictors in the WHO facility assessment tools (Service Availability and Readiness Assessment, World Health Organization, 2018). Strict cut points have been used

to ensure that only clear positive responses are being credited. This reduces the possibility of exaggerating the effect of the scheme.

All 528 respondents answered all of the questions in sections 4.3 to 4.5 with paired responses before and after enrollment. However, there were two respondents who did not fully answer the waiting times question (table 4.14). Findings are described starting with the sociodemographics and health insurance characteristics of the respondents (section 4.2). Then how enrollment impacted on access, utilisation and quality indicators (objective one) (section 4.3). Followed by financial risk protection (objective two) (section 4.4). Then health outcomes and quality of healthcare Service (objective three) (section 4.5). After enrollment, beneficiary satisfaction and health system responsiveness (section 4.6). Association analyses around equity (section 4.7). A summary of the three objectives (section 4.8). Qualitative findings from Key Informant Interviews (section 4.9). Finally triangulating the quantitative and qualitative findings (section 4.10).

Affordability of Healthcare Services

Affordability is the extent to which the cost of care doesn't prevent someone from seeking or receiving treatment. Only 141 respondents (26.7%) stated healthcare services were affordable before enrollment. However, nearly 3/4 of respondents (n=387, 73.3%) indicated that services weren't affordable. After enrollment there was a huge difference as 515 respondents (97.5%) stated services were affordable, giving an improvement of 70.8% ($p<0.001$ McNemar's $p < 0.001$). This was the biggest improvement of any of the 6 indicators in Objective One. This was well above the benchmark of of ≥90% for this study. This suggests that enrolling onto the scheme has greatly improved financial accessibility to healthcare services.

Table 1: Effect of Health Insurance Enrolment on Financial Protection Indicators (N = 528)

Indicator: Category	Before, n (%)	After, n (%)	Change (pp)	p-value	Study Benchmark	Met?
Perceived Cost:						
Affordable	154 (29.2)	515 (97.5)	68.4	<0.001	N/A	N/A
Expensive	374 (70.8)	13 (2.5)	-68.4			
Income-Related Financial Hardship:						
No Severe Hardship	73 (13.8)	494 (93.6)	79.8	<0.001	≥90%	Yes
Severe Hardship	455 (86.2)	34 (6.4)	-79.8			
Household-Level Financial Hardship:						

No Severe Hardship	101 (19.1)	507 (96.0)	76.9	<0.001	≥90%	Yes
Severe Hardship	427 (80.9)	21 (4.0)	-76.9			

Note. N = 528. McNemar's test for paired binary outcomes; $p < 0.001$ for all three indicators (unadjusted for facility-level clustering). Perceived Cost is reported descriptively (N/A). The income-related and household-level indicators measure self-reported severe healthcare-related financial hardship; they are not formally calculated catastrophic health expenditure rates, and are judged against the study-defined ≥90% benchmark.

Perceived Cost of Medical Bills

Of the total respondents, prior to enrolment, only 154 (29.2%) respondents viewed their medical expenses as being affordable (i.e., cheap and very cheap), with 374 (70.8%) viewing medical expenses as being expensive. Post-enrolment, the proportion of those viewing medical expenses as being affordable increased to 515 (97.5%) of the total number of respondents, indicating an improvement in affordability perceptions of 68.4 percentage points (McNemar's $p < 0.001$). Analysis of transitions (refer Table 4.14 in Section 4.8) reveals that 97.9% of those who were viewing medical expenses as being expensive prior to enrolment viewed them as being affordable post enrolment.

Income-Related Healthcare Financial Hardship

Prior to enrolment, the vast majority of the respondents, 455 (86.2%), indicated severe financial hardship related to healthcare payments due to their effect on income, while only 73 (13.8%) did not report such hardship. The above result can be regarded as very significant; it means that before enrolment in insurance, the vast majority of the respondents felt that healthcare payments have a severe impact on their income. Post-enrolment, the number of people who indicated severe financial hardship fell to 34 (6.4%), while those who indicated that healthcare had no severe impact on their income increased to 494 (93.6%), which reflects a 79.8 percentage point improvement - the highest in all indicators analyzed in this study (McNemar's $p < 0.001$). It surpasses the benchmark set in this study for performance as ≥90%, showing that enrolment in health insurance led to the decrease in perceived financial burden from healthcare. The lack of objective measurement of expenditure implies that the figures reflect financial hardship rather than catastrophic health expenditure.

Household-Level Healthcare Financial Hardship

An even slighter pattern was found in the case of households. Of all those surveyed prior to enrollment, 427 (80.9%) suffered from severe healthcare financial hardship at the household level, while only 101 (19.1%) did not suffer from any severe hardships. Upon enrollment, however, severe household-level healthcare financial hardship fell down to 21 individuals (4.0%), while the number of those who did not suffer from any severe hardship grew to 507 (96.0%), which is an improvement of 76.9 percentage points (McNemar's $p < 0.001$), exceeding the ≥90% benchmark of the study as well. The reason for the use of the term "household" rather than "individual" is that it encompasses all those people whose needs would be neglected in favor of covering healthcare expenses.

Table 2: Association Between Financial Effect (Before Enrolment) and Perceived Cost of Medical Bills after Enrolment (N = 528)

Financial Effect Before Enrolment	Expensive After, n (%)	Affordable After, n (%)
Income:		
Severe hardship (n = 455)	13 (2.9)	442 (97.1)
No severe hardship (n = 73)	0 (0.0)	73 (100.0)
Household:		
Severe hardship (n = 427)	12 (2.8)	415 (97.2)
No severe hardship (n = 101)	1 (1.0)	100 (99.0)

Note. N = 528. Row percentages.

Monthly Income and Perceived Cost after Enrolment

Table 3 looks at whether perceived cost following registration varied according to the mean monthly income of the individuals involved. There is no significant relationship here (Fisher-Freeman-Halton Exact Test, p = 0.554). High affordability was recorded for all groups of people, ranging from 94.7% in the group earning between NGN 61,000 and NGN 100,000 a month to 100.0% in the group earning above NGN 100,000 a month.

Table 3: Association between Monthly Income and Perceived Cost after Enrolment (N = 528)

Average Monthly Income (NGN)	Expensive, n (%)	Affordable, n (%)	Total, n (%)	p-value
Less than 30,000	10 (2.3)	416 (97.7)	426 (100.0)	
30,000 to 60,000	2 (2.5)	79 (97.5)	81 (100.0)	
61,000 to 100,000	1 (5.3)	18 (94.7)	19 (100.0)	
Greater than 100,000	0 (0.0)	2 (100.0)	2 (100.0)	
Total	**13 (2.5)**	**515 (97.5)**	**528 (100.0)**	**0.554***

Note. * Fisher-Freeman-Halton Exact Test. Not statistically significant at p < 0.05.

The four association tests have been compiled in Table 4.13 below. Of the four, only one, which is facility type, was found to be significantly associated with the respective post-enrolment result; neither education level nor income was significantly associated with access and perceived cost respectively, such that, overall, there would seem to be a more equitable interpretation of how well the

scheme has performed; apart from the significant association for facility type, which has much to do with the sheer weight of respondents who indicated using Primary Health Facilities, all things seem to be equal for beneficiaries at different education levels or income groups.

DISCUSSION

This study examined the impact of health insurance on access to healthcare, risk protection and quality of healthcare services for enrollees under the Health Insurance Scheme in Ebonyi State. The results showed significant improvements in the three aspects for BHCPF beneficiaries after enrollment. The cost of healthcare was reduced, hence there was an improvement in perceived health care cost, healthcare utilization, perceived risk protection, perceived efficacy of healthcare and improvement in self reported physical health. Therefore, all the null hypotheses were rejected.

Overall, the study shows that the scheme have been most successful in reducing costs of healthcare due to removal of cost barrier. However, healthcare availability and waiting times were not impacted as much due to issues with capacity, availability of drugs and staffing. This was supported by key informants who described issues with drug availability, delayed payments and staffing shortages. This study shows that a combination of funding for health insurance is needed alongside quality healthcare provision.

Whilst this was a retrospective study and lacked a comparative group, it does provide useful information to show that health insurance can improve the perceived healthcare experience for beneficiaries. In conclusion, health insurance needs to be increased in Ebonyi State, alongside sustained risk protection, access to healthcare and quality healthcare provision to move forward towards Universal Health Coverage.

REFERENCES

Abubakar, I., Dalglish, S. L., Angell, B., Sanuade, O., Abimbola, S., Adamu, A. L., et al. (2022). The Lancet Nigeria Commission: Investing in health and the future of the nation. *The Lancet*, *399*(10330), 1155–1200. https://doi.org/10.1016/S0140-6736(21)02488-0

Acharya, A., Vellakkal, S., Taylor, F., Masset, E., Satija, A., Burke, M., and Ebrahim, S. (2013). The impact of health insurance schemes for the informal sector in low- and middle-income countries: A systematic review. *World Bank Research Observer*, *28*(2), 236–266. https://doi.org/10.1093/wbro/lkt005

Akokuwebe, M. E., and 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), Article 1766. https://doi.org/10.3390/ijerph19031766

Alawode, G. O., and 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), Article 124. https://doi.org/10.1186/s12889-020-10133-5

Alhassan, R. K., Nketiah-Amponsah, E., Spieker, N., Arhinful, D. K., and Rinke de Wit, T. F. (2016). Perspectives of frontline health workers on Ghana's National Health Insurance Scheme before and after community engagement interventions. *BMC Health Services Research*, *16*(1), Article 192. https://doi.org/10.1186/s12913-016-1438-y

Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adaptation. *Journal of Multidisciplinary Healthcare*, *9*, 211–217. https://doi.org/10.2147/JMDH.S104807

Amu, H., Dickson, K. S., Kumi-Kyereme, A., and Darteh, E. K. M. (2018). Understanding variations in health insurance coverage in Ghana, Kenya, Nigeria, and Tanzania: Evidence from demographic and health surveys. *PLOS ONE, 13*(8), Article e0201833. https://doi.org/10.1371/journal.pone.0201833

Andersen, R. M. (1968). *Behavioral model of families' use of health services* (Research Series No. 25). Center for Health Administration Studies, University of Chicago.

Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior, 36*(1), 1–10. https://doi.org/10.2307/2137284

Aregbeshola, B. S., and Khan, S. M. (2018). Out-of-pocket payments, catastrophic health expenditure and poverty among households in Nigeria. *International Journal of Health Policy and Management, 7*(9), 798–806. https://doi.org/10.15171/ijhpm.2018.19

Aregbeshola, B. S., Khan, S. M., and Abbas, S. M. (2021). Evaluation of the National Health Insurance Scheme in Nigeria: A mixed-methods study. *Health Policy Open, 2*, Article 100038. https://doi.org/10.1016/j.hpopen.2021.100038

Arrow, K. J. (1963). Uncertainty and the welfare economics of medical care. *American Economic Review, 53*(5), 941–973.

Aryeetey, G. C., Westeneng, J., Spaan, E., Jehu-Appiah, C., Agyepong, I. A., and Baltussen, R. (2016). Can health insurance protect against out-of-pocket and catastrophic expenditures and also support poverty reduction? Evidence from Ghana's National Health Insurance Scheme. *International Journal for Equity in Health, 15*, Article 116. https://doi.org/10.1186/s12939-016-0401-1

Braun, V., and Clarke, V. (2022). *Thematic analysis: A practical guide*. SAGE Publications.

Carrin, G., Evans, D. B., and Xu, K. (2017). Designing health financing policy towards universal health coverage. In K. Heggenhougen and S. Quah (Eds.), *International encyclopedia of public health* (2nd ed., pp. 254–268). Academic Press. https://doi.org/10.1016/B978-0-12-803678-5.00215-6

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., and Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum, 41*(5), 545–547. https://doi.org/10.1188/14.ONF.545-547

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley and Sons.

Coughlin, S. S. (1990). Recall bias in epidemiologic studies. *Journal of Clinical Epidemiology, 43*(1), 87–91. https://doi.org/10.1016/0895-4356(90)90060-3

Creswell, J. W., and Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Dalinjong, P. A., and Laar, A. S. (2012). The National Health Insurance Scheme: Perceptions and experiences of health care providers and clients in two districts of Ghana. *Health Economics Review, 2*, Article 13. https://doi.org/10.1186/2191-1991-2-13

Daniels, B., Das, J., Gatti, R. V., and Chang, A. Y. (2025). *Caseloads and competence in Sub-Saharan Africa: A fundamental reassessment of the human resources crisis in primary health care* (Policy Research Working Paper No. 11043). World Bank.

Dixon, J., Tenkorang, E. Y., and Luginaah, I. (2014). Ghana's National Health Insurance Scheme: Evaluating the perceptions of users and healthcare providers in the Brong Ahafo region. *Global Public Health, 9*(5), 517–531. https://doi.org/10.1080/17441692.2014.908271

Donabedian, A. (1988). The quality of care: How can it be assessed? *Journal of the American Medical Association*, *260*(12), 1743–1748. https://doi.org/10.1001/jama.1988.03410120089033

Eke, C., and Ezeoke, M. (2022). Patient satisfaction and quality of care under the health insurance scheme in south-east Nigeria. *African Journal of Health Economics*, *11*(1), 15–28.

Ekman, B. (2004). Community-based health insurance in low-income countries: A systematic review of the evidence. *Health Policy and Planning*, *19*(5), 249–270.

Erlangga, D., Suhrcke, M., Ali, S., and Bloor, K. (2019). 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), Article e0219731. https://doi.org/10.1371/journal.pone.0219731

Escobar, M. L., Griffin, C. C., and Shaw, R. P. (Eds.). (2010). *The impact of health insurance in Latin America: Evidence from Chile, Colombia, and Mexico*. Brookings Institution Press.

Federal Ministry of Health [FMOH]. (2024). *National health sector strategic plan (2024–2028)*. Federal Government of Nigeria.

Fenny, A. P., Yates, R., and Thompson, R. (2018). Social health insurance schemes in Africa leave out the poor. *International Health*, *10*(1), 1–3. https://doi.org/10.1093/inthealth/ihx046

Fetters, M. D., Curry, L. A., and Creswell, J. W. (2013). Achieving integration in mixed methods designs: Principles and practices. *Health Services Research*, *48*(6, Pt. 2), 2134–2156. https://doi.org/10.1111/1475-6773.12117

Fink, G., Robyn, P. J., Sié, A., and Sauerborn, R. (2013). Does health insurance improve health? Evidence from a randomized community-based insurance rollout in rural Burkina Faso. *Journal of Health Economics*, *32*(6), 1043–1056.

Finkelstein, A., Taubman, S., Wright, B., Bernstein, M., Gruber, J., Newhouse, J. P., Allen, H., Baicker, K., and the Oregon Health Study Group. (2012). The Oregon Health Insurance Experiment: Evidence from the first year. *Quarterly Journal of Economics*, *127*(3), 1057–1106. https://doi.org/10.1093/qje/qjs020

Health Policy Watch. (2024, February 14). *Global progress on health financing and risk pooling for universal health coverage*. https://healthpolicy-watch.news/

Institute of Medicine [IOM]. (2001). *Crossing the quality chasm: A new health system for the 21st century*. National Academies Press. https://doi.org/10.17226/10027

Jowett, M., Nguyen, S. H., and Moreno-Serra, R. (2016). *Financial protection and universal health coverage: Evidence from Vietnam*. World Health Organization.

Kazungu, J. S., and Barasa, E. W. (2017). Examining the implementation of the National Hospital Insurance Fund civil servants scheme in Kenya: A qualitative study. *International Journal for Equity in Health*, *16*(1), Article 196. https://doi.org/10.1186/s12939-017-0694-3

Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., et al. (2018). High-quality health systems in the Sustainable Development Goals era: Time for a revolution. *The Lancet Global Health*, *6*(11), e1196–e1252. https://doi.org/10.1016/S2214-109X(18)30386-3

Kutzin, J. (2013). *Health financing policy: A guide for decision-makers*. World Health Organization.

Lagomarsino, G., Garabrant, A., Adyas, A., Muga, R., and Otoo, N. (2012). Moving towards universal health coverage: Health insurance reforms in nine developing countries in

Africa and Asia. *The Lancet*, *380*(9845), 933–943. https://doi.org/10.1016/S0140-6736(12)61147-7

Limwattananon, S., Tangcharoensathien, V., and Prakongsai, P. (2015). Equity in financing and use of health care under Thailand's Universal Coverage Scheme: An empirical analysis. *Health Economics*, *24*(S2), 32–45. https://doi.org/10.1002/hec.3228

Lu, C., Chin, B., Lewandowski, J. L., Basinga, P., Hirschhorn, L. R., Hill, K., Murray, M., and Binagwaho, A. (2012). Towards universal health coverage: An evaluation of Rwanda Mutuelles in its first eight years. *PLOS ONE*, *7*(6), Article e39282.

Manning, W. G., Newhouse, J. P., Duan, N., Keeler, E. B., Leibowitz, A., and Marquis, M. S. (1987). Health insurance and the demand for medical care: Evidence from a randomized experiment. *American Economic Review*, *77*(3), 251–277.

Mills, A. (2014). Health care systems in low- and middle-income countries. *New England Journal of Medicine*, *370*(6), 552–557. https://doi.org/10.1056/NEJMra1110897

Mohammed, S., Onoka, C. A., and Uzochukwu, B. S. (2021). Beneficiary satisfaction and healthcare quality under the formal sector social health insurance program in Nigeria. *BMC Health Services Research*, *21*(1), Article 412. https://doi.org/10.1186/s12913-021-06398-4

Mohammed, S., Sambo, M. N., and Ahmed, S. (2022). Assessing the impact of health insurance on out-of-pocket expenditure and household financial risk protection in northern Nigeria. *Global Health Action*, *15*(1), Article 2038411. https://doi.org/10.1080/16549716.2022.2038411

National Health Insurance Authority [NHIA]. (2022). *National Health Insurance Authority Act, 2022*. Federal Republic of Nigeria Official Gazette.

Nguyen, C. V., Wang, M., and Vo, D. H. (2018). The impact of health insurance on catastrophic health expenditure and poverty in Vietnam. *International Journal of Health Economics and Management*, *18*(2), 173–198. https://doi.org/10.1007/s10754-017-9226-7

Nwanaji-Enwerem, O., Bain, P., Marks, Z., Nwanaji-Enwerem, P., Staton, C. A., Olufadeji, A., and Nwanaji-Enwerem, J. C. (2022). Patient satisfaction with the Nigerian National Health Insurance Scheme two decades since establishment: A systematic review and recommendations for improvement. *African Journal of Primary Health Care and Family Medicine*, *14*(1), Article a3003. https://doi.org/10.4102/phcfm.v14i1.3003

Nyman, J. A. (2004). Is "moral hazard" inefficient? The policy implications of a new theory. *Health Affairs*, *23*(5), 194–199. https://doi.org/10.1377/hlthaff.23.5.194

Obikeze, O. S., Onyechi, T., and Okoro, V. (2020). Health insurance coverage and healthcare utilisation among formal sector employees in Nigeria. *Journal of Health Policy and Systems*, *12*(3), 112–128.

Ocan, M., Obuku, E. A., Bwanga, F., Akena, D., Richard, S., Ogwal-Okeng, J., and Obua, C. (2015). Household antimicrobial self-medication: A systematic review and meta-analysis of the burden, risk factors and outcomes in developing countries. *BMC Public Health*, *15*, Article 742. https://doi.org/10.1186/s12889-015-2109-3

O'Cathain, A., Murphy, E., and Nicholl, J. (2010). Three techniques for integrating data in mixed methods studies. *BMJ*, *341*, Article c4587. https://doi.org/10.1136/bmj.c4587

Odeyemi, I. A., and Nixon, J. (2013). Assessing equity in health care through the national health insurance schemes of Nigeria and Ghana: A review-based comparative analysis. *International Journal for Equity in Health*, *12*, Article 9. https://doi.org/10.1186/1475-9276-12-9

Okeke, C., Ezenwaka, U., Ekenna, A., Onyedinma, C., and Onwujekwe, O. (2023). Analysing the progress in service delivery towards achieving universal health coverage in Nigeria: A scoping review. *BMC Health Services Research, 23*, Article 1094. https://doi.org/10.1186/s12913-023-10090-w

Onoka, C. A., Hanson, K., and Aikins, M. (2013). Catastrophic costs of treating cardiovascular diseases and the role of health insurance in Nigeria. *Tropical Medicine and International Health, 18*(7), 897–908. https://doi.org/10.1111/tmi.12117

Onoka, C. A., Uzochukwu, B. S., and Onwujekwe, O. E. (2022). Responsiveness and quality of care in health insurance schemes: Evidence from Nigeria's formal sector programme. *Health Policy and Planning, 37*(4), 481–492. https://doi.org/10.1093/heapol/czab154

Onwujekwe, O., Ezumah, N., and Mbachu, C. (2022). Examining equity and financial risk protection in state-supported health insurance programs in Nigeria. *Health Systems and Policy Research, 9*(2), Article 145.

Onwujekwe, O., Ezumah, N., Mbachu, C., Obi, F., Ichoku, H., Uzochukwu, B., and Wang, H. (2019). Exploring effectiveness of different health financing mechanisms in Nigeria; what needs to change and how can it happen? *BMC Health Services Research*, *19*(1), Article 661. https://doi.org/10.1186/s12913-019-4512-4

Onwujekwe, O., Hanson, K., and Uzochukwu, B. (2012). Examining inequities in incidence of catastrophic health expenditures on different healthcare services and health facilities in Nigeria. *PLOS ONE*, *7*(7), Article e40811. https://doi.org/10.1371/journal.pone.0040811

Onwujekwe, O., Uzochukwu, B., and Etiaba, E. (2019). Evaluating the effects of health insurance on healthcare utilization and out-of-pocket spending in Nigeria. *International Journal of Health Planning and Management*, *34*(1), e450–e463. https://doi.org/10.1002/hpm.2671

Pauly, M. V. (1968). The economics of moral hazard: Comment. *American Economic Review, 58*(3), 531–537.

Penchansky, R., and Thomas, J. W. (1981). The concept of access: Definition and relationship to consumer satisfaction. *Medical Care*, *19*(2), 127–140. https://doi.org/10.1097/00005650-198102000-00001

Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, *2*(4), 328–335. https://doi.org/10.1177/109019817400200403

Saksena, P., Hsu, J., and Evans, D. B. (2014). Financial risk protection and universal health coverage: Evidence and measurement challenges. *PLOS Medicine*, *11*(9), Article e1001701.

Savedoff, W. D., and Gottret, P. (2008). *Governing mandatory health insurance: Learning from experience*. World Bank Publications. https://doi.org/10.1596/978-0-8213-7576-1

Singh, S., Kaul, M., Bala, M. M., Krishnan, C., and Rawandale, C. J. (2024). A quasi-experimental study on health insurance coverage and health services in Nigeria. *African Journal of Primary Health Care and Family Medicine, 16*(1), Article a4056. https://doi.org/10.4102/phcfm.v16i1.4056

Smith, K. V., and Sulzbach, S. (2008). Community-based health insurance and access to maternal health services: Evidence from three West African countries. *Social Science and Medicine, 66*(12), 2460–2473.

Spaan, E., Mathijssen, J., Tromp, N., McBain, F., ten Have, A., and Baltussen, R. (2012). The impact of health insurance in Africa and Asia: A systematic review. *Bulletin of the World Health Organization*, *90*(9), 685–692.

Umeh, C. A., Onwujekwe, O. E., and Uzochukwu, B. S. (2023). Financial risk protection and service quality in state health insurance schemes in South-East Nigeria. *BMC Health Services Research*, *23*(1), Article 89. https://doi.org/10.1186/s12913-023-09012-3

Uzochukwu, B. S., Onwujekwe, O. E., and Mbachu, C. (2023). State health insurance schemes in Nigeria: Expanding access and improving universal health coverage metrics. *The Lancet Global Health*, *11*(S1), S24–S32. https://doi.org/10.1016/S2214-109X(23)00112-4

Uzochukwu, B. S. C., Ughasoro, M. D., Etiaba, E., Okwuosa, C., Envuladu, E., and Onwujekwe, O. E. (2015). Health care financing in Nigeria: Implications for achieving universal health coverage. *Nigerian Journal of Clinical Practice*, *18*(4), 437–444. https://doi.org/10.4103/1119-3077.154196

Wagstaff, A., Cotlear, D., Eozenou, P. H.-V., and Buisman, L. R. (2016). Measuring progress towards universal health coverage: With an application to 24 developing countries. *Oxford Review of Economic Policy, 32*(1), 147–189.

Wagstaff, A., Flores, G., Hsu, J., Smitz, M.-F., Chepynoga, K., Buisman, L. R., van Wilgenburg, K., and Eozenou, P. (2018). Progress on catastrophic health spending in 133 countries: A retrospective observational study. *The Lancet Global Health*, *6*(2), e169–e179. https://doi.org/10.1016/S2214-109X(17)30429-1

Wagstaff, A., Lindelow, M., Jun, G., and Ling, X. (2020). Extending health insurance to the informal sector: Experiences from developing nations. *Journal of Health Economics*, *70*, Article 102281. https://doi.org/10.1016/j.jhealeco.2020.102281

Wagstaff, A., Moreno-Serra, R., and Flores, G. (2018). Residual out-of-pocket spending, catastrophic health spending, and impoverishment in universal health coverage. *World Bank Economic Review*, *32*(Suppl. 1), S105–S117. https://doi.org/10.1093/wber/lhw018

World Health Organization [WHO]. (2018). *Service availability and readiness assessment (SARA): An annual monitoring system for health facility service delivery*. World Health Organization.

World Health Organization [WHO]. (2019). *Global monitoring report on financial protection in health 2019*. World Health Organization.

World Health Organization [WHO]. (2021). *Tracking universal health coverage: 2021 global monitoring report*. World Health Organization.

World Health Organization [WHO]. (2024). *Universal health coverage (UHC): Key facts and figures*. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))

World Health Organization [WHO], and World Bank. (2023). *Tracking universal health coverage: 2023 global monitoring report*. World Health Organization and International Bank for Reconstruction and Development / The World Bank. https://doi.org/10.1596/39908

Xu, K., Evans, D. B., Kawabata, K., Zeramdini, R., Klavus, J., and Murray, C. J. L. (2003). Household catastrophic health expenditure: A multicountry analysis. *The Lancet*, *362*(9378), 111–117. https://doi.org/10.1016/S0140-6736(03)13861-5