PROCEEDINGS OF THE INTERNATIONAL CONFERENCE FOR INSTITUTE OF ADMINISTRATION (ICIA 2025)

AHMADU BELLO UNIVERSITY ZARIA - NIGERIA

Website: *https://icia.org.ng* **ISBN:** *978-978-695-265-9* ***Volume I, 2025***

EFFECT OF HEALTHCARE INFRASTRUCTURE ON ENROLLEE SATISFACTION IN SELECTED HEALTHCARE FACILITIES OF KADUNA STATE

Suleiman Idris[1]
Department of Political Science
Nigerian Defence Academy, Kaduna
Sulayman1804@gmail.com

Aishat Oyiza Yusuf[2]
Department of Public Administration
Ahmadu Bello University, Zaria
Aishatoyiza@gmail.com

Hassan Aliu
Department of Public Administration
Ahmadu Bello University, Zaria
Aliu774@gmail.com

ABSTRACT

This study was undertaken to assess the effect of healthcare infrastructure on enrollee satisfaction in selected healthcare facilities of Kaduna State. Improving the health indices of citizens has been a major issue of concern in Kaduna state and the country at large. Kaduna State Contributory Health Scheme aims at achieving universal health coverage in the State. Objective of the study was to examine how healthcare infrastructure affects enrollee satisfaction in Kaduna State. The study adopted evaluation theory, which helped in explaining the effect of healthcare infrastructure on enrollee satisfaction in selected healthcare facilities of Kaduna State. The researcher adopted primary method in generating data for the study. The primary data were sourced through questionnaire. The study also adopted regression statistical tool for test of hypothesis. The findings of the study revealed that healthcare infrastructure have positive and significant effect on enrollee satisfaction in selected healthcare facilities of Kaduna state. In line with the findings of the study, it recommends that Kaduna State Contributory Health Management Authority (KADCHMA) through its monitoring and

evaluation strategy should ensure that accredited healthcare facilities prioritize cleanliness of healthcare facilities, incorporate patient-centered design principles and invests in aesthetic improvements, technological advancement and functional design so as to enhance enrollee satisfaction.

Keywords: Healthcare, Infrastructure, Enrollee, Satisfaction, Facility.

11. Introduction

The goal of social health insurance is to lower financial constraints and lower the cost of medical services. Social Health Insurance (SHI) is perceived as assisting in the pooling of health risks, preventing health-related impoverishments, improving the effectiveness and quality of health care services, resolving the issue of public health expenditures paid out of pocket, and offering coverage against expensive healthcare services. Many African countries, including Nigeria, decided to implement the Social Health Insurance to complement funding for the health sector, with a view to improve equity in health (NHIS Handbook, 2023). Social Health insurance is a system in which a prospective consumer of healthcare makes payments to a third party on the understanding that in the event of a future illness this third party will pay for some or all of the expenses incurred.

Accessing quality healthcare is part of the Fundamental Objectives and Directive Principles of State Policy. However, it has remained a big challenge because of the high rate of poverty and heavy reliance on out-of-pocket payments- the cash payment made directly to providers by individuals or households- access to high quality, reasonably priced healthcare continues to be a persistent challenge for most Nigerians both internationally and domestically. The high incidence of avoidable fatalities is exacerbated by this obstacle (Beattie et al., 2016).

Achieving Universal Health Coverage (UHC) a global goal to ensure that all communities and individuals worldwide have access to essential health services without suffering financial hardship, includes avoiding out-of-pocket payments that reduce the affordability of health services (Preker et al., 2013; Giedion et al., 2013). Governments worldwide are implementing various healthcare financing mechanisms to ensure that all individuals and communities can access quality healthcare services they need without suffering financial hardship. One of such mechanisms is Social Health Insurance (SHI), a system that pools funds from individuals and employers to provide equitable healthcare coverage. It is usually a compulsory system that deducts contributory payments directly

from employee payroll taxes, which plays a crucial role in achieving UHC by pooling financial resources and spreading the risk of illness across the entire population. In Nigeria, SHI has the potential to significantly contribute to the realization of UHC. However, most of the population are in the informal sector while a fewer number of people are in the formal sector which hinders the suitability and sustainability of such an approach (Chemouni, 2018).

In Kaduna State, the State Social Health Insurance Scheme (KSCHS), was established by law NO 7 of 2018, as an integral part of the Kaduna State human capital development and social protection strategy aimed at providing sustainable, quality and affordable healthcare services with financial risk protection to the residents of the State. The health benefits packages, which are the health services and commodities that are offered to all enrollees, include outpatient and inpatient services for primary and secondary care and diagnostic services. The scheme's beneficiaries do not incur out-of-pocket costs for these services since the accredited health facilities are paid directly by Kaduna State Contributory Health Management Authority (KADCHMA) either through capitation or fee-for-service options. As at May 2024, the State has a total number of 625,291 residents enrolled and accessing various health services under the KSCHS in accredited health facilities across the state.

The Kaduna State government has made healthcare revitalization a top priority on its agenda in an effort to enhance the State's healthcare system. According to Abbas et al., (2012) ''it entails improving healthcare facilities, equipping three general hospitals, one in each senatorial district. Additionally, a plan to guarantee that every electoral ward has at least two primary healthcare centers (PHCs) is also included.

1.2 Statement of the Research Problem

Social health insurance is meant to improve health conditions of citizens. In Nigeria, SHI was launched through the National Health Insurance Scheme and became operational in 2007. The coverage of National Health Insurance Scheme is federal government workers which leaves many citizens uninsured. Meanwhile, several States in Nigeria have established and are implementing State Health Insurance Schemes to bridge the coverage gap and improve the health indices of their populace. In Kaduna State, the Health insurance scheme was launched in 2018, after the Health Account Survey by the State Ministry of Health (SMOH) in collaboration with Health Strategy Delivery Foundation (HSDF) in 2016 which revealed high cost of health care (Chukwuemeka et al., 2016). The Scheme aims at achieving universal health coverage in the State. The objectives of the Scheme is to provide

sustainable, quality and affordable healthcare services with financial risk protection to the residents of the State; maintenance of high standard of health care delivery services within the health sector; ensure adequate distribution of health facilities within the State; improve and harness private sector participation in the delivery of healthcare services, and where residents lack access to medical care, take all necessary measures to ensure effective planning and provision of such services, organize and develop medical services and other health services commensurate with needs of the residents towards achieving universal health coverage.

In order to achieve the objectives of the Scheme, Kaduna state government prioritized healthcare revitalization as one of its agenda. It involves the upgrading of healthcare facilities, a plan to ensure that all electoral wards have at least two primary healthcare centers (PHCs), and equipping three general hospitals, one in each senatorial district. The Kaduna State Government also commenced the renovation of 255 health centers in 2016, and by 2019, a total of 191 PHCs have been completed to boost healthcare service delivery (Abdussalam et al., 2024). In 2023, the State government announced plan to further rehabilitate 200 health centers across the 23 Local Government Areas as part of the government's determination to enhance access to affordable and efficient healthcare services at the rural and urban areas.

However, despite all the efforts by the State government, most of the health centres lack or have insufficient essential facilities such as beds, doctors, nurse/health personnel, laboratories among others (Medugu, et al., 2022). The health system in Kaduna State is rated poor as there is **low and inequitable access to quality health services in the State, despite improvement efforts by the State government** (Abdulraheem, 2019). It is against these background that this study sets out to assess the effect of healthcare infrastructure on enrollee satisfaction in selected healthcare facilities in Kaduna state.

It is therefore imperative to ask to what extent has the healthcare infrastructure of the accredited facilities affected enrollee satisfaction in selected healthcare facilities of Kaduna State? Thus the objective of this paper is to investigate the extent to which healthcare infrastructure of accredited facilities affects enrollee satisfaction in selected healthcare facilities of Kaduna State and the hypothesis is formulated thus; Healthcare infrastructure of accredited facilities has no significant effect on enrollee satisfaction in selected healthcare facilities of Kaduna State.

2.1 Literature Review

Conceptual literature on enrollee satisfaction, healthcare infrastructure and empirical studies were reviewed in this study

2.2.1 Concept of Enrollee Satisfaction

The concept of enrollee satisfaction is multifaceted; hence, there has not been a uniform definition for this construct. Farley et al., (2013) referred to enrollee satisfaction as emotions, feelings and their perception of delivered healthcare services. Al-Abri and Al-Balushi (2014) explained enrollee satisfaction as a degree of congruency between patient expectations of ideal care and their perceptions of real care received. From their view, enrollee satisfaction is a critical indicator of quality and efficient healthcare services.

Patient satisfaction is defined as the extent to which patients perceive their healthcare experiences meet their expectations regarding quality, accessibility, and interpersonal relationships (Alharbi et al., 2023). This definition emphasizes the subjective nature of satisfaction, highlighting that it is influenced not only by the actual quality of care received but also by patients' expectations and perceptions of their interactions with healthcare providers. Factors such as wait times, communication, and emotional support play critical roles in shaping these perceptions.

2.2.2 Concept of Healthcare Infrastructure

Healthcare infrastructure encompasses the physical, social, and organizational context within which healthcare services are delivered. This multidimensional setting plays a crucial role in shaping the quality of patient care, healthcare outcomes, and overall healthcare system performance. The healthcare environment refers to the collective surroundings and conditions in which healthcare services are provided. It includes physical facilities, organizational structures, cultural influences, and the interactions among healthcare professionals, patients, and supporting staff (Shaw, 2017). According to Kumar and Pandey (2022), healthcare infrastructure encompasses not only the physical facilities such as hospitals, clinics, and diagnostic centers but also the organizational frameworks that support healthcare delivery, including staffing, financing, and technological systems.

Bauer et al., (2023) define healthcare infrastructure as the integrated system of physical spaces, equipment, healthcare technology, human resources, and policies that together enable the provision of

health services. They emphasize that infrastructure is not just about buildings but includes the mechanisms through which health services are efficiently delivered.

Thomas and Fitzgerald (2021) argue that healthcare infrastructure forms the backbone of healthcare systems, involving facilities, medical technologies, and human resources. They highlight that well-designed infrastructure is essential for effective and equitable health service delivery, especially in low-resource settings. Anderson and Smith (2020) discuss healthcare infrastructure in terms of its influence on the quality of healthcare delivery. They assert that inadequate or poorly maintained infrastructure can negatively affect the efficiency of healthcare systems, patient safety, and overall health outcomes. Jones and Rivera (2022) emphasize that healthcare infrastructure includes both the tangible assets, like hospitals and clinics, and the intangible elements such as transportation networks and information systems. These components are critical in ensuring equitable access to healthcare services, especially in rural or underserved regions.

2.3 Empirical Literature

Onyemaechi, et al., (2025) assessed health insurance enrollees' satisfaction with the quality of care and its determinants in Anambra State, Nigeria using 447 enrollees selected from health facilities through a multistage sampling technique. The results indicated that the overall level of satisfaction with services rendered was 80.6%. Significant factors associated with the enrollees' satisfaction were facility ownership and geographical location. The study concludes that enrollees' satisfaction was positively influenced by facility-related factors and therefore managers and healthcare providers should focus on continuous quality improvement efforts in public and rural facilities to improve the quality of services and enrollees' retention within the health insurance scheme

Naylor et al., (2023) investigated how different design elements of healthcare facilities impact patient satisfaction, focusing on aspects like spatial layout and aesthetics. The research design. The study adopted the cross-sectional study and data was collected on patient surveys and facility design assessments. Findings from the study revealed that patient satisfaction was higher in facilities with well-designed, aesthetically pleasing environments and functional layouts. Factors such as natural lighting and comfortable waiting areas were particularly influential. In line with the findings from the study, it recommended that healthcare facilities should incorporate patient-centered design principles to enhance satisfaction and invests in aesthetic improvements and functional design can lead to better patient experiences.

Wilson et al., (2023) in their study explored how hospital cleanliness affects patient satisfaction across different hospital settings. The research design was a multicenter observational study and data was collected on patient surveys and cleanliness audits. Findings from the study revealed higher cleanliness ratings were associated with improved patient satisfaction. Cleanliness was a critical factor in overall patient satisfaction and perception of care quality. The study recommended that hospitals should prioritize cleanliness to enhance patient satisfaction, and regular cleanliness audits and staff training can help maintain high standards.

Martinez et al., (2022) in their study examined how noise levels in acute care settings impact patient satisfaction, identifying noise sources and their effects on patient experience, using an observational study with patient surveys. Data was collected on measurement of noise levels and patient feedback on their experiences and a correlation analysis between noise levels and patient satisfaction scores. Findings from the study revealed that high noise levels were negatively correlated with patient satisfaction. Patients also reported discomfort and stress due to elevated noise levels, impacting their overall satisfaction. The study recommended that there should be implementation of noise reduction strategies such as soundproofing and scheduling changes and design modifications to reduce ambient noise could improve patient satisfaction.

Shibani and Nur (2023) sought to compare the patients' perceptions of the infrastructure of private hospital and government hospital and to identify the strengths and weaknesses of the infrastructure of private hospital and government hospitals. To identify and understand the differences in patients' perception of healthcare infrastructure between these two sectors is a critical aspect for identifying strengths, weaknesses, and areas of improvement in both private and government sector. Findings from the study revealed that, different patients are being influenced by different factors as patients have a positive perception towards private healthcare institutions. Overall satisfaction with healthcare services is influenced by factors such as ease of navigation, availability of parking facilities, positive patient-staff interactions, characterized by respectful and empathetic communication, and access to relevant information. In line with the findings of the study, it recommended that public healthcare facilities should adopt private healthcare facilities approach to record positive perception.

Adewole et al., (2022) in their study titled ‘Factors influencing satisfaction with service delivery among National Health Insurance Scheme enrollees in Ibadan, Southwest Nigeria’ aimed to assess the determinants of quality of care of enrollees in the National Health Insurance Scheme (NHIS) in Nigeria using adapted semi-structured WHO-USAID interviewer-administered questionnaire. The study found

out that, that the quality of care in the NHIS accredited facilities was generally low, and may have contributed to the low level of population coverage of the scheme. In line with the findings of the study, it recommended that Stakeholders in the NHIS should implement policies that will enhance the health literacy of potential beneficiaries of the scheme. It is believed that this will improve satisfaction with care among enrollees, facilitate uptake of and continuity with available care. The weakness of the study lies in the fact that all the 11 healthcare facilities considered were secondary healthcare facilities even though tertiary healthcare facilities existed in the study area.

Syaeful, and Rhian (2022) in a study titled 'The Influence of Service Quality and Customer Relationship Management with Satisfaction Intervening Variables on the Loyalty of Health Facilities' sought to see the effect of service quality, customer relationship management, satisfaction, and patient loyalty. The study adopted the survey method and data was collected through the instrument of questionnaires. Findings from the study revealed that that service quality has a positive effect on patient satisfaction. Customer Relationship Management has a positive effect on patient satisfaction. Customer Relationship Management has a positive effect on Patient Loyalty. Service quality has a positive effect on patient loyalty and finally, satisfaction has a positive effect on patient loyalty. This study has implications for increasing patient loyalty by providing information to help manage the quality of health services and customer relationship management by encouraging satisfaction so that it will always increase patient loyalty significantly.

Vincent and John (2022) in their study aim to evaluate NHIS enrollees' satisfaction with health care services accessed in HMO-accredited health facilities, and non-enrollees' readiness to participate in the scheme and make payment for health insurance in Kaduna metropolis. A cross-sectional survey research design was adopted for the study, in which 384 NHIS enrollees and non-enrollees were selected using stratified random sampling technique. The results of the study revealed that enrollees of NHIS and non-enrollees of NHIS were satisfied with the healthcare services provided by the HMO accredited health facilities in Kaduna metropolis. The study concludes that NHIS enrollees are satisfied with the health care services accessed in the HMO-accredited health facilities, and non-NHIS enrollees are willing to participate in the scheme and make payments for health insurance in Kaduna Metropolis. In line with the findings of the study, it recommends among others that HMOs should set up monitoring agencies to monitor the activities and services of HMO accredited health facilities .in order to improve the services of the health facilities and ultimately, enhance the satisfaction level of the NHIS enrollees

2.4 Theoretical Framework

Evaluation Theory as propounded by Edward A. Suchman (1967) was considered as the underpinning theory for this study. The evaluation theory as propounded by Suchman is in a cyclical form with the end of one process constituting the beginning of another. Suchman proposed five categories of criteria according to which the success or failure of a program can be evaluated. They include; effort, performance, adequacy of performance, efficiency, and process. This research paper titled 'Effect of healthcare infrastructure on enrollee satisfaction in Kaduna State could best be explained by this theory given its clear distinctive criteria for evaluating the success or failure of a programme like this.

The evaluation theory as propounded by Suchman is in a cyclical form with the end of one process constituting the beginning of another. The evaluation process is shown in the figure 1 below:

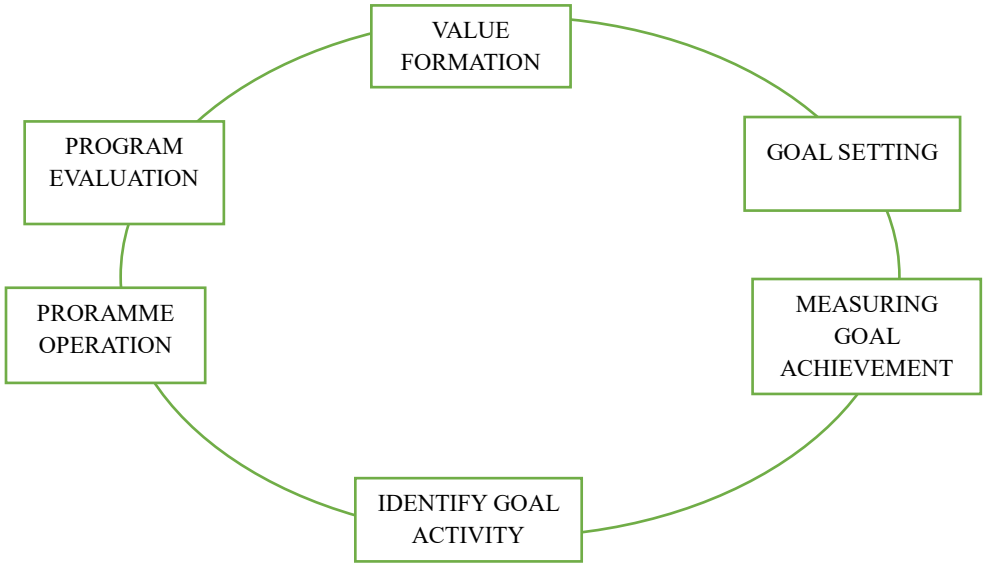


Fig 1: Suchman's Evaluation Process

In this nexus, the efforts can be seen as all the inputs, energies, policy statement and thrust regarding health insurance through the State government, resources committed and dedicated for the execution of its function and the results the State wish to achieve at the end of the policy. The efforts include fundamental philosophy behind the initiation of Kaduna state health contributory health scheme which is an integral part of the Kaduna State human capital development and social protection strategy aimed at providing sustainable, quality and affordable healthcare services with financial risk protection to the residents of the State. Effort encompasses the structure of the policy itself, the institutional

machinery put in place for its implementation, the key strategies mapped out for the implementation of the policy like healthcare infrastructure as well as the resources committed to achieve the objective.

The second criterion is performance criterion which has to do with what is being done or performed in response to the efforts being made in achieving improved healthcare infrastructure in Kaduna State. This criterion is concerned with series of interrelated and interconnected activities performed or executed by stakeholders involved in healthcare infrastructure to the citizens of the state for the actualization of KSCHS objectives.

This is the third criterion which is concerned with determining the quality and quantity of what has been performed from the preceding criterion. Here, there is need to determine whether the resources (in terms of human and material) committed for the scheme is sufficient to enhance the achievement of goals of the scheme. Statistics shows that various stakeholders are involved promoting the goal of universal health coverage in Kaduna State. The aim of this element is to assess and determine whether what has been done and performed by State Government through its agency of managing the scheme (KADCHMA) is capable of helping in achieving universal health coverage aimed at providing sustainable, quality and affordable healthcare services with financial risk protection to the residents of the State.

Efficiency is the fourth element of the Suchman's evaluation theory. This criterion has to do with the state or quality of being efficient in accomplishing certain specified activity with minimum use of resources. In this perspective we make a critical examination of input-output relationship comparing all the inputs vis-à-vis the impacts, what has been done and what has been achieved. What has been committed in relation to predetermined goals of KSCHS in order to determine its significance in the state? This criterion will also provide an important yardstick for assessing the success of KSCHS to the enrollees.

Process is one of the most defining elements of evaluation theory espoused by Edward Suchman, in evaluating the success of KSCHS. This criterion helps us to carefully examine the objectives, processes and methodologies adopted by the executors of the scheme and the manner they were executed in order to determine whether these objectives are viable and relevant in achieving universal health coverage aimed at providing sustainable, quality and affordable healthcare services n to the residents of the State. The initiators of KSCHS sets down modus operandi, a blueprint or a roadmap upon which the scheme should be executed and its anticipated outcomes evaluated after a period of

time. The ultimate goal here is to identify areas of weakness if any with a view to improving them so that the scheme could achieve greater results in the future.

3.0 Methodology

This study employed the survey research design. Primary data was sourced using questionnaire which were administered proportionately to enrollees from the selected healthcare facilities using the multi stage sampling technique, while secondary source data were sourced using documented research, journal publications, academic papers and internet sources.

3.1 Population and Sample Size

The target population for the study stood at 42,116 enrollees from both formal and informal sector in the selected healthcare facilities of the study. This comprise of 18,257 enrollees from Ashmed Healthcare Facility, 8756 enrollees from Comprehensive healthcare facility Saminaka, 2941 enrollees from Kaduna State University Medical Facility, 9959 enrollees from First Care Medical Facility, 1950 enrollees from Kaduna State College Sick Bay, and 253 enrollees from General Hospital Kwoi, (KADCHMA, 2024). The total number of accredited health facilities in the state as at the 2024 was 431. This comprised of 254 healthcare facilities providing primary health care services, 25 secondary health facilities, 145 private health facilities and 7 faith base health facilities. From the list of accredited facilities, Ashmed Specialist Hospital, Comprehensive Healthcare Saminaka, Kaduna State University Medical Facility, First Care Multi Specialist Hospital, Zaria, Kaduna State College of Education Sick Bay Jema'a and General Hospital Kwoi were purposively selected for the study. This choice of selection of the aforementioned facilities was born out of the fact that these healthcare facilities relatively have the highest numbers of enrollees in the State. The choice of selecting the healthcare facilities is also justified on the basis of private and public healthcare facility providing primary and secondary healthcare services as covered by the scheme. In addition, the choice of the healthcare facilities is justified on the basis of senatorial districts of the state as the selected healthcare facilities cut across the three senatorial district of Kaduna State. All these informed the decision of the researcher to have chosen the aforementioned scope for this study. Justification for the selection of

enrollees in both formal and informal sector is justified on the ground that, enrollees are the focal point of the scheme and assessing their satisfaction with services accessed is of importance. The sample size of the study was 380. This was determined using Krejcie and Morgan Statistical table 1970. The sample size was proportionately distributed among the selected healthcare facilities of the study. This is represented in table 1 below.

Table 1. Distribution of the study

Healthcare Facility	**Enrollees/Beneficiaries**	**Sample Size**
Ashmed Facility	18257	164
Comprehensive Healthcare Facility	8756	79
Kaduna State University Medical Facility	2941	27
First Care Multi Specialist Hospital	9959	90
Kaduna State College Sick Bay	1950	18
General Hospital Kwoi	253	2
Total	**42,116**	**380**

Source: Researcher's Survey, 2025

Variables and their Measurement

The variables of the study consist of the dependent and independent variable. The selection of variables and measurement was based on the existing theoretical literature and empirical evidence from prior studies such as the works of: Adewole et al., (2022); Onyemaechi et al., (2025); Vincent and John (2022)

Table 2 Variable Measurement

S/N	**Variable**	**Description**	**Type**	**Indicators**
1	HCI	Healthcare Infrastructure	Independent	• Number of hospitals • Availability of beds • Availability of electricity, sanitation • Availability of essential equipment •
2	ES	Enrollee Satisfaction	Dependent	• Prompt service by healthcare providers • Improved waiting time • Timely and adequate treatment of enrolees

				• Drug dispensation and discharge.

Source: Researcher's Survey, 2025

4.0 Results and Discussion

Data obtained from the questionnaire were analysed in line with the research objective and hypothesis formulated for the study. Statistical Packages for Social Science (SPSS) was used to analyse and interpret the responses. The decision rule for the test was to accept the null hypothesis when the probability value exceeds the alpha value. If otherwise, we reject it

H_{01}: Healthcare infrastructure has no significant effect on enrollee satisfaction in Kaduna State.

Table 3: Model Summary

Model	R	R square	Adjusted R square	Std. Error of the Estimate
1	.588[a]	.346	.335	.30104

a. Predictor: (Constant), Healthcare Infrastructure
b. Dependent Variable: Enrollee Satisfaction

Source: *Researchers' Survey, 2025 via SPSS 25*

Table 3 above shows the summary of regression analysis result of Enrollee Satisfaction in Kaduna State, Nigeria. The empirical results show that, R which is concerned with how well the independent variable correlates with the dependent variable is represented by .588 (58%). That is to say that the independent variable correlate with the dependent variable by 58%. The R^2 which is often referred to as the coefficient of determination of the variables was 0.346. The R-Squared which is also a measure of the overall fitness of the model indicates that the model is capable of explaining about 34.6% of the variability of Enrollee Satisfaction. This means that the model explains about 34.6% of the systematic variation in the dependent variable. That is, about 65.4% of the variations in Enrollee Satisfaction in Kaduna State, Nigeria are accounted for by other factors not captured by the model. This result is complimented by the adjusted R^2 (adjusted R-squared) of about 33.5%, which is in essence the proportion of total variance that is explained by the model.

Table 4 Coefficients (a)

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. Error	Beta		
(CONSTANT)	1.454	.133		10.933	.000
HCI	.090	.042	.168	2.141	.033

a. Dependent Variable: ES

Source: *Researchers' Survey, 2025*

Table 4 above present the results of regression test applied to dependent variable ES (Enrollee Satisfaction) and independent variable i.e. HCI (Healthcare Infrastructure). Upon the fulfilment of the assumptions of regression analysis, simple linear regression analysis is considered in testing the research hypothesis.

4.1 Test of Hypothesis

In order to decide whether to reject or accept the null hypothesis at 0.05 (5%) level of significance, the rejection point is used which states that: (1) If the p value is equal to or less than 5%, the null hypotheses is rejected and the alternate hypotheses is accepted; (2) If the p value is greater than 5%, the null hypotheses is accepted and the alternate hypotheses is rejected.

H_{05}: Healthcare infrastructure of accredited healthcare facilities has no significant effect on enrollee satisfaction in Kaduna state. The t-value of healthcare infrastructure of accredited healthcare facilities is 2.141 with p value of 0.033 which is less than 0.05. Therefore; the null hypothesis five is rejected which states that healthcare environment of accredited healthcare facilities has no significant effect on enrollee satisfaction in Kaduna state.

The result of the study shows that the effect of healthcare infrastructure on enrollee satisfaction is positive with coefficient value of 0.090, meaning that a unit increase in the healthcare infrastructure of accredited healthcare facilities while other variable remains constant lead to an increase in enrollee satisfaction by 9.0%. The outcome is in line with the study of Naylor et al., (2023); Wilson et al., (2023). Also the finding is contrary with that of Martinez et al., (2022). This positive significant relationship indicated that as healthcare environment of accredited healthcare facilities in terms of (i.e. physical facilities, organizational structures, cultural influences, and the interactions among healthcare professionals, patients, and supporting staff) increase, the enrollee satisfaction in Kaduna state will increases and vice-versa. This means the higher the natural lighting, comfortable waiting areas, well-designed, aesthetically pleasing environments and functional layouts, the higher the overall acceptance of state health contributory scheme and enrollee satisfaction in Kaduna state.

5.0 Conclusion and Recommendation

Enrollees are the focal point of Kaduna State contributory health scheme and evaluating their level of satisfaction with the services accessed is of importance and cannot be overemphasized. This study has provided a comprehensive understanding that healthcare infrastructure has a positive and significant effect on the enrollee satisfaction in selected healthcare facilities of the study. In line with the findings of the study, it recommends that KADCHMA through its monitoring and evaluation strategy should ensure that accredited healthcare facilities prioritize cleanliness of healthcare facilities, incorporate patient-centered design principles and invests in aesthetic improvements, technological advancement and functional design so as to enhance enrollee satisfaction.

The potential limitation is that this research studied Kaduna state contributory health scheme and enrollee satisfaction in Kaduna state, focusing on healthcare infrastructure However, other variables not considered in the study should be explored by other researchers. Also, geographical location may reveal diverse challenges. Accordingly, comparisons can be observed by taking into account geographical location that has different rule of law, economic and political uncertainty. So, it is suggested that future studies should conduct experimental/longitudinal strategies to discover the possible reciprocal relationships.

References

Abbas, I.I., Auta, S. Z., & Muhammad, R. (2012). Health care facilities mapping and database creation using GIS in Chikun Local Government, Kaduna State, Nigeria. *Global Journal of Human, Social Science, Geography and Environmental Geosciences.* (12), Issue 10, No1

Abdulraheem, R.S (2019). Primary health care services in Nigeria: Critical issues and strategies for enhancing the use by the rural communities. *Journal of Public Health and Epidemiology [Internet]*. 2012; 4(1): 5-13

Abdussalam, A.A., Abdulkarim, S.B., Idris, M., & Jumare, D.M. (2024) Assessment of the Institutional Capacity of Kaduna State Primary Health Care Board on Primary health care service delivery in Kaduna State. *Journal of Public Administration, Policy and Governance Research* Vol. 2 No. 1, 2024

Al-Abri, R., & Al-Balushi, A. (2014). Patient satisfaction survey as a tool towards quality improvement. *Oman medical journal*, 29(1), 3.

Alharbi, F., Smith, A., & Jones, R. (2023). Evaluating patient satisfaction in healthcare: A systematic review. International Journal of Health Services, 53(1), 23-34.

Anderson, L., & Smith, B. (2020). Healthcare Infrastructure and Quality of Care: The Interdependence of Systems and Services." *Journal of Health Economics, 34*(6), 1523-1532.

Bauer, A., & Patel, V. (2023). The Role of Healthcare Infrastructure in Achieving Universal Health Coverage." *Health Systems and Policy Journal, 35*(4), 210-219.

Chemouni, B. (2018). The political path to universal health coverage: *Power, ideas and community-based health insurance in Rwanda. World development*; 106:87–98.

Chukwuemeka, E.A., Yewande, K., Nuha, B., Nneka, O., Paul, D., & Kelechi, O. (2016) Evidence from the Kaduna State Health Accounts on the pattern of sub- national health spending in Nigeria

Farley, H., Enguidanos, E. R., Coletti, C. M., Honigman, L., Mazzeo, A., Pinson, T. B., ... & Wiler, J. L. (2014). *Patient satisfaction surveys and quality of care: an information paper*. Annals of emergency medicine, 64(4), 351-357.

Giedion, U., Alfonso, E.A., & Díaz, Y. (2013) The impact of universal coverage schemes in the developing world: A review of the existing evidence Washington, D C: *The World Bank* pp 2-5

Jones, M., & Rivera, J. (2022). "The Interconnectedness of Healthcare Infrastructure and Service Accessibility." *Global Health Action, 15(1),* 67-75.

Kumar, P., & Pandey, S. (2022). "Healthcare Infrastructure: An Analysis of Its Role in Public Health Delivery." *International Journal of Healthcare Management, 15(2),* 123-132.

Martinez, A.S., Davis, E.K., & Ramirez, J.P. (2022). The Effect of Noise Levels on Patient Satisfaction in Acute Care Settings. *Journal of Acute Care Medicine, 32*(3), 45-54.

Medugu F.S., Shinggu, T.J.J., & Daji, S.M. (2022). The Distribution of Healthcare Facilities in Mubi North Local Government Area: The Physical Planning Perspective. *African Scholar Journal of Built Environment. & Geological Research*. Vol. 25 NO. 4 ISSN: 2196-1789

Naylor, M.K., Wallace, L.D., & Johnson, T.R. (2023). The Role of Healthcare Facility Design in Patient Satisfaction: A Cross-Sectional Study. *Health Environments Research & Design Journal, 16*(2), 78-89.

National Health Insurance Scheme: NHIS Handbook. Abuja, Nigeria. Available from: http://www.nhis.gov.ng. [Last accessed on 2023 Dec 29].

Onyemaechi, S., Ezenwaka, U., Okeke, C., Ibeziakor T., Okuakaji, C., & Osifala, O. (2025) Assessing Determinants of Enrollees' Satisfaction with Quality of Health Services within the State Social Health Insurance Scheme: An Application of Modified SERVQUAL Model. *Nigerian Journal of Clinical Practice.* Vol 28 Issue 42

Preker. A.S., Lindner, M.E., Chernichovsky, D. & Schellekens, O. (2013) *Scaling up affordable Health Insurance staying the course Washington DC*: The World Bank

Shaw, J. (2017). The Healthcare Environment and Its Influence on Patient Care. In: Stone P., Grobe S., Springer M. (eds) A Guide to the Standard EMDR Therapy Protocols for Clinicians, Supervisors, and Consultants.

Shibani, B., & Nur, A. (2023) Patients' Perception on Healthcare Infrastructure: A Comparative Study on Government and Private Hospitals. *Journal of Harbin Engineering University.* Vol 44 No. 7

Suchman, E.A. (1967) *Evaluative Research. New York*: Russell Sage Foundation

Syaeful, M.M, & Rhian, I. (2022) The Influence of Service Quality and Customer Relationship Management with Satisfaction Intervening Variables on the Loyalty of Health Facilities. Journal of *Quantitative Economics and Management Studies* Vol. 3 No. 6

Thomas, R., & Fitzgerald, J. (2021). "The Role of Healthcare Infrastructure in Sustainable Health Systems. *Journal of Global Health.* 11(3), 112-121.

Vincent, K., & John N. (2022) NHIS Enrollees' Satisfaction with Health Care Services Provided by HMO-Accredited Health Facilities, and Non Enrollees' Willingness to Participate in the NHIS and Pay for Health Insurance in Kaduna Metropolis. *Education & Science Journal of Policy Review and Curriculum Development.* Vol. 11, No. 3

Wilson, R.P., Lee, J.L., & Edwards, C.M. (2023). Hospital Cleanliness and Its Impact on Patient Satisfaction: Evidence from a Multicenter Study. *American Journal of Infection Control, 51*(2), 129-136.