Journal of Public Administration, Policy and Governance Research (JPAPGR), Vol. 2, No. 1, 2024.
Available online at https://jpapgr.com/index.php/research. ISSN:2787-0464. Covered in google scholar
Aisha A. Abdussalam, Siraj B. Abdulkareem, Musa Idris & Dalhatu M. Jumare, 2024, 2 (1): 44-54

Assessment of the Institutional Capacity of Kaduna State Primary Health Care Board (SPHCB) on Primary Health Care Service Delivery in Kaduna State

Aisha Ajoke Abdussalam, PhD
Department of Political Science, Nigerian Defence Academy, Kaduna
Email: aaabdussalam@nda.edu.ng
ORCID ID: https://orcid.org/0009-0001-9269-3291
Corresponding Author

Siraj Barau Abdulkareem, PhD
Department of Public Administration, Ahmadu Bello University, Zaria, Nigeria
Email: sbabdulkarim@abu.edu.ng
ORCID ID: https://orcid.org/0000-0003-1954-9282

Musa Idris, PhD
Department of Public Administration, Ahmadu Bello University, Zaria, Nigeria
Email: midris@abu.edu.ng
ORCID ID: https://orcid.org/0000-0002-5961-1055

Dalhatu Mohammed Jumare, PhD
Department of Public Administration, Ahmadu Bello University, Zaria, Nigeria
Email: dalhatujumare@gmail.com
ORCID ID: https://orcid.org/0000-0003-2369-0465

Abstract
Over the years, the government has made concerted efforts to enhance PHC service delivery across the country. The system is bedevilled by fragmentation of services, shortage of skilled manpower, poor state of PHC facilities, and inadequacy in essential drug supplies, coordination and management. The state primary health care board were established to ensure effective PHC service delivery. The board champions the renovation and provision of basic and essential medical and health tools/equipment in the health centers. It is on this premise that this paper seeks to assess the institutional capacity of Kaduna State primary healthcare board on primary healthcare service delivery in Kaduna State. The paper specifically examines the infrastructural capacity and the role of SPHCB capacities of the SPHCB on primary health care delivery in Kaduna state. Using both primary and secondary sources, inference was drawn from a sample purposively selected to arrive at a conclusion through regression analysis. It was revealed that the board has successfully embarked on upgrading and renovation of PHC facilities to improve PHC service delivery in Kaduna state. Infrastructure constitutes the backbone of the primary health care system. Hence, the paper recommends that the board needs to set in motion a comprehensive maintenance culture of PHCs to sustain the PHC facilities.
Keywords: *Infrastructure, Capacity, PHC, PHC Service delivery.*

1 Introduction

Primary health care (PHC) plays a crucial role in achieving universal health coverage, particularly in developing regions with limited access to quality healthcare (Barrett, 2020). The idea of establishing "one PHC per ward" was globally embraced at the Alma-Ata Declaration in 1978 to ensure a broader access to quality healthcare (World Health Organization, 1978). Despite endorsing this declaration over four decades ago, Nigeria, with a population exceeding 200 million people and ranked seventh globally in terms of population, has yet to fulfil the objectives outlined in the declaration. In reality, a large number of Nigerians do not have access to medical health services, and those in rural areas are the worst hit (Micheal & Alonge, 2021).

According to the Constitution, federal, state and local governments shall support in a coordinated manner a three-tier of health care: Primary Health Care (PHC) for local governments, Secondary health care for State governments and Tertiary health care for Federal government. The poor state of the PHC system in the country has left people at the grassroots level susceptible to diseases and illnesses which are preventable. As a result of this, a good number of Nigerians, especially those in the middle and upper classes, seek healthcare services from better-managed healthcare providers (at the secondary and tertiary healthcare levels) (Oyekale, 2017). The poor state of the PHC facilities, the fear of not being attended to by qualified medical experts, the lack of financial means and ignorance of the procedures for accessing PHC services, to poor utilisation of PHC services.

Over the years, the government has made concerted efforts to enhance PHC service delivery across the country. The system is bedevilled by fragmentation of services, shortage of skilled manpower, poor state of PHC facilities, and inadequacy in essential drug supplies, coordination and management. The National Primary Healthcare Development Agency (NPHCDA) was established in 1992 and heralded the third attempt to make basic healthcare accessible to the grassroots. This body was responsible for mobilising support nationally and internationally for PHC programme implementation (Alenoghena et al., 2014). During this period, which spanned through 2001, the Ward Health System (WHS), which utilises the electoral ward (with a representative councillor) as the basic operational unit for primary health care delivery, was instituted. This was in response to the then military government's devolution of Primary Healthcare to the Local Governments. The Ward Minimum Health Care Package (WMHCP), which outlines a set of cost-effective health interventions with significant impact on morbidity and mortality, was also developed. The package took into cognisance the nation’s burden of disease, current trends in disease prevalence and priority diseases of national importance. The Ward Minimum Health Care Package was developed within the Ward Health System context and aligned with Nigeria's Millennium Development Goal (MDG) targets. To drive this new policy, the federal government established over 500 hundred model health centres nationwide (NPHCDA, 2012). Also, the PHCOUR was implemented to tackle fragmentation and integrate all PHCs under one authority in a bid to enhance PHC service delivery. This led to the establishment of state primary healthcare boards/agencies to manage and enhance primary healthcare service delivery.

State primary healthcare boards/agencies ensure that there is a single management body with adequate capacity to control services and resources, especially human and financial resources. The act establishing the Kaduna State Primary Healthcare Board was passed into law in 2015. The Board is charged with the responsibility of ensuring effectiveness and efficiency in the delivery of primary health care services within the state.

In spite of these concerted efforts to enhance PHC service delivery, gaps still exist. Only 28% of deliveries are supervised by trained health professionals (Kaduna State Ministry of Health, 2019), with Kaduna North estimated at 59%, Kajuru at 33%, Zaria at 49%, Kudan at 21%, Kagarko at 29%, and Kachia at 47%. Furthermore, only three PHCs operate 24-hour services in the state, which is essential for emergency obstetric care based on agency criteria (Alabi, 2019). This is in spite of the recruitment of over 1,000 health workers through the board's human resource management capacity. The investigation also reveals that more than 237 Primary Health Centres (PHCs) are short-staffed with no qualified nurse to attend to the patients. Ninety per cent of those working in PHC centres in Kaduna South are volunteers (Alabi, 2019) despite the pooling of over 5,000 PHC health workers by the KSPHCB. In addition, less than 20% of women still give birth in healthcare facilities, and the maternal mortality ratio in the state is 12 per 10,000 live births, with an under-five mortality rate of 124, 7 per 1,000 live births. Only 17% of deliveries occur in public health facilities in the state despite the board’s institutional infrastructural capacities.

Similarly, basic PHC materials like scissors, forceps, mucous extractors, syringes, and needles are lacking and often inadequate, particularly in rural areas. Laboratories are non-functional laboratories for medical investigations. Electricity remains poor, with no steady water supply and adequate security despite solar for health initiatives. Only one in five children is fully immunised against childhood killer diseases (Kaduna Bureau of Statistics, 2021).

It is on this premise that this paper seeks to assess the institutional capacity of Kaduna State primary healthcare board on primary healthcare service delivery in Kaduna State. The paper specifically examines the infrastructural capacity and the role of SPHCB capacities on primary health care delivery in Kaduna state.

2. Conceptual Review, Empirical Review and Theoretical Framework

2.1 Primary Health Care

In the words of Alma Ata (1978), the concept of PHC is cited in Lucas (2006) is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It is the preventive and curative healthcare services provided at the grassroots level to ensure accessibility to affordable healthcare.

2.1.1 Components of PHC

There are ten components of the Primary health care. They are as follows:

i) Health education concerning prevailing health problems. This is an integral part of Primary Health Care. It is an umbrella term used to reorientate health workers' minds towards appreciating the complex nature of health education (Akinsola, 2006). Health promotion comprises efforts to enhance positive health and prevent ill health through health education, prevention, and protection (Downie et al., 1994).
ii) **Promotion of Food supply and Proper Nutrition**. In most developing African countries, undernutrition is one of the major factors contributing to infant mortality and morbidity.
iii) Adequate supply of safe water and basic sanitation
iv) Maternal and Child Health, including family planning.
v) Immunization against the major infectious diseases
vi. Prevention and control of locally endemic diseases;
vii. Appropriate treatment of common diseases and inquiries;
viii. Provision of essential drugs;
ix. Oral health
x. Mental Health. (NPHCDA 2012)

2.2 SPHCB Institutional Capacities

One of the strategic institutions in Nigeria's health sector is the National Primary Health Care Development Agency (NPHCDA). The institution is saddled with the enormous responsibility of providing support to the National Health Policy by providing technical support to the planning, management and implementation of primary healthcare and mobilisation of resources, nationally and internationally, for the development of primary healthcare.

The Institutional capacities of the board covers its capability to execute, evaluate, and achieve its objectives, given its mandate, abilities, human and financial resources at its disposal. These institutional capacities are embedded in the functions of the board which are derived from its mandate. Financial management capacity, human resource management, infrastructural maintenance, managerial, and community mobilisation capacities are all immersed in the five departments of the SPHCB (KSPHCB,2021).

2.2.1 Infrastructural Capacity

The place of delivery is one of the major determinants of morbidity and mortality. The paucity of skilled birth attendants at the point of childbirth coupled with the unevenly distributed geographical factors, affects place of delivery for the majority of women. As a result of this, and to also ensure quality service delivery, the World Health Organization (WHO) has recommended that health care infrastructure should be 'formal and enduring', requiring a mandated strategic focus that is maintained over time on a sustainable basis. The expectation of formal and enduring infrastructure is that their sustenance and maintenance should be endorsed as the statutory and systematic responsibility of the government rather than being ad hoc or disjointed (Omuta and Aitokhuehi, 2018). The SPHCB provide and maintains all infrastructure and equipment. The SPHCB capacity covers renovation, rehabilitation and upgrading of PHC facilities across the state. They ensure the physical amenities, namely sources of water supply, sources of electricity, and number of functional hospital beds and laboratories. Since the passing of the SPHCB into law in 2015 after its establishment in 2010, 255 PHCs are in varying stages of infrastructural development (SPHCB, 2018).

2.2.2 Health Infrastructure

Healthcare infrastructure is a crucial phenomenon in the operations of healthcare systems. Infrastructure is essentially the bedrock that supports the intrinsic framework of activities and objectives actualisation. It greatly determines the capacity and capability of the system to deliver on its core functions and achieve its stipulated mandates in terms of ensuring quality of care and accessibility of healthcare services in the society. In the bid to ensure quality service delivery, the World Health Organization (WHO) has recommended that the healthcare infrastructure be structured in a formal and enduring way to ensure sustainability (Omuta & Aitokhuehi, 2018).

2.2.3 The Role of SPHCB Infrastructure in Primary Healthcare Service Delivery

Health infrastructure is understood to infer the standard of care and accessibility to health care provision within a country. It is analysed by its physical features, technological innovations, and human resources available in a given period. Physical features include the buildings and other fixed edifices such as running water, easy access roads, and electricity, amongst others, within the healthcare environments. Technological innovations, on the other hand, encompass medical equipment meant specifically for hospital use, including surgeries. The Kaduna State Government, in consonance with the need to ensure standard health infrastructure, commenced the renovation of one PHC per ward in 2016. So far, out of the 255 health centres marked for renovation, 191 PHCs have been completed, while others are ongoing.

Eboreime et al. (2015) opined that there are gaps in the accessibility of healthcare facilities across Nigeria's geopolitical zones. These disparities have contributed to the major supply-side factor affecting the utilisation of healthcare services. Instances have revealed that Nigeria's health care system has repeatedly operated below standards in terms of the availability of human resources and necessary infrastructures and medical commodities/equipment. Similarly, investigations revealed that the availability of basic infrastructures needed to support an enabling working environment and quality services (for example, electricity or generator, emergency transportation system, and good sanitary and waste management practices) is generally poor in many of the PHC facilities (Uzochukwu, 2017).

Clearly, the primary healthcare (PHC) facility serves as the initial point of contact for patients, frequently sought out by healthcare consumers in both urban and rural areas within any well-operating healthcare system worldwide. This pattern emerges from individuals' inclination to seek health services within their community. As such, Oyeyemi et al. (2023) opines that effective and prompt communication, along with strong dedication from government health authorities at national, state, and local levels, is crucial for ensuring healthcare facilities are adequately

managed. Competent healthcare professionals play a pivotal role in delivering these services, ultimately benefiting the community's health service utilisation. This approach aims to prevent, promote, protect, preserve, and rehabilitate, offering dynamic global healthcare practices that prioritise awareness, availability, accessibility, and affordability.

2.3 Empirical Review

The KSPHCB is charged with the responsibility of ensuring the infrastructural development of the PHCs across the state. The agency champions the renovation and provision of basic and essential medical and health tools/equipment in the health centres.

Suleiman et al. 2021 in a study on the capacity of PHC centres to provide tuberculosis services in Kaduna State, revealed that since 2016, the Kaduna State government has embarked on an aggressive PHC revival mission with a target of renovating at least one PHC centre per electoral ward, under the supervision of the state primary health care board (SPHCB). As of 2019, the renovation of 191 out of 255 PHCs was complete. Despite this achievement, however, the capacity of those facilities to provide basic TB services leaves much to be desired. The study, using the paired sample t-test to analyse responses from questionnaires, revealed that the PH Centers studied in Zaria, Sabon Gari, Makarfi and Kudan lacked essential capacities in terms of infrastructural and human resources. Laboratories were non-functional, and the need for health training was made obvious. This study will, however, go further to access other capacities of the SPHCB in terms of managerial. It will also select one local government from each senatorial district, bearing in mind the rural-urban cluster. Both interview and questionnaires will be utilised.

Ilevbaoje et al., 2021 in their study on PHC in Nigeria, revealed that Ungwan maichibi which is believed to be the biggest and oldest PHC in Kaduna South Local government, has the necessary infrastructure, but utilisation is low. This is attributed to the fact that health personnel are quite a few in the facility, despite serving over 8000 residents. The study suggested the need for more health workers in the facility as well as further renovation and provision of essential drugs and other medical consumables.

Abimbola, in 2020, assessed the Primary Health care system in Nigeria by analysing data obtained from both oral interviews and questionnaires using chi-square as the non-parametric tool of inferential analysis. It was discovered that the South-West zone demonstrated high patronage as reflected in the availability of health workers and modernisation of some Primary Health Care centres, while the South-South zone had low patronage of the Primary Health Care system for several reasons such as lack of security for the health workers, non-availability of equipment, poor health service delivery, and poor infrastructure.

Oluwadare et.al. (2023) assessed the awareness and utilisation of PHC services in a rural community in Nigeria. It was revealed that many primary healthcare (PHC) centres in Nigeria face challenges in delivering essential healthcare services, primarily due to issues with staffing, uneven equipment distribution, inadequate infrastructure, and problems with drug supply. Data compilation using a semi-structured questionnaire and analysis through descriptive and inferential statistics tools of Chi-square and binary logistic regression revealed that the predictors of PHC centre utilisation include familiarity with the centre's location, awareness of its 24/7 operation and recognition of community involvement in PHC staffing. The lack of medical personnel availability and the ease of accessing secondary and tertiary health institutions pose significant challenges to the utilisation of PHC facilities. This study will also use questionnaires and interviews, but regression analysis will be conducted to draw inferences. The study will also focus on the State primary health care agency and their capacities in ensuring effective primary health care service delivery.

2.4 Theoretical Framework

The study adapted systems theory propounded by Easton (1965), an approach to the analysis of the political system. A system is seen as a set of interrelated and interdependent parts arranged in a manner that produces a unified whole (Sapru, 2013). Easton sees the political system as having many different parts but working harmoniously to achieve specific objectives. The policy-making process has been regarded as a black box which converts the demands of society into policies. A political system does not exist in a vacuum; rather it is a part of a larger system such as the economic system, social system and the society. Therefore, the political system receives inputs, transform them, and export output to the environment. This can be expanded and developed into programme implementation and see how the SPHCB as an organisation has carried out this mandate through its institutional capacities. The elements of the theory include Inputs which are seen as what is required for the system to operate. They are received in to the system in the form of both demands and support. Demands can be divided into demands for achievement of objectives, demand for participation in the achievement of objectives, and demand for communication and information. Supports are also classified in to two types: Material supports such as using the health facility accordingly, Obedience to stipulated guidelines and compliance with health education tips. Participation support such as community participation through WDC and CHIPs etc. At the core of the political system are the institution and personnel for carrying out the primary healthcare functions. These include the National Primary Health Care Development Agency (NPHCDA), State Primary Health Care Board (SPHCB), Primary Health Care Department (PHCD) and NGOs. Naturally, people tend to support government when their needs are met and withdraw supports when the reverse is the case. The relationship between inputs and outputs is very vital. Without input, the system cannot work, and without outputs, it cannot identify the work done by a system.

In the system version they translate inputs into output. Output is seen as an improvement in health outcomes, reduction in maternal and child mortality, increase in facility-based deliveries and skilled birth attendance. Feedback indicates that the political system may have a modifying effect on the environment, and the demands generated therein may also have an effect on the character of the political system. Policy program projects output may generate new demands and the new support or withdrawal of the old support for the system. Feedback plays an important role in generating a suitable climate for future policy. The role of SPHCB in PHC service delivery is tested through feedback.

3. Research Methodology

The study adopted a mixed method approach in which primary data was sourced using questionnaires while secondary sources were sourced using documented research, journal publications, academic papers, newspapers, and internet sources.

Study Area

Kaduna state covers a land area of 46,053 square kilometres with an average density of about 75 persons per square kilometre. The state shares boundaries with Niger state to the west, Zamfara, Katsina, and Kano to the north, Bauchi and Plateau States to the east, and FCT Abuja and Nasarawa states to the south. Kaduna State provides the meeting point of the earliest histories of Nigeria. According to the 2021 population projection, Kaduna State has a total population of 9.4 million, accounting for 4.3% of Nigeria's total population. Females constitute 4,401,430 of the population, while males are 4,499,521.

Kaduna State was selected due to disparities in basic health care service delivery. Malaria prevalence is high, with only 24% of households owning mosquito nets. Despite the declaration that maternal health services are free across the state, maternal and child health indicators remain low. Only 17% of deliveries occur in health facilities, while about 39% of women receive antenatal care services. In addition, only 23% of women and newborns in the state receive

postnatal checks during the first two days after birth (NDHS, 2018). The maternal mortality ratio in the state is 1400/10000 live births. Similarly, only 28% have their deliveries supervised by a trained health professional. Infant and under-five mortality rates are 62 and 88 per 1000 live births. In terms of nutrition, only 38% of children have received doses of Vitamin A supplements in the last 12 months (Kaduna State Ministry of Health, 2018).

Population and Sample Size

The total population of the study comprise of the staff of KSPHCB, staff and beneficiaries of primary health care services at the PHCs in (Kaduna North, Kajuru, Kachia, Kagarko Kudan and Zaria local government areas). Krejcie and Morgan's formula was used to arrive at the sample size of 369. A purposive sampling technique was used to administer the questionnaires and conduct interviews. The table below shows the rate of distribution:

Table 1: Distribution and Return of Questionnaire

S/N	Local Government Areas	Total Questionnaire Administered per LGA.	Percentage of Questionnaires administered	Total Questionnaires Returned per LGA	Percentage of Returned Questionnaire
1.	Kaduna North	100	27.1%	87	26.2%
2.	Kajuru	52	14.1%	46	14 %
3.	Zaria	71	19.2%	69	20.8%
4.	Kudan	39	10.6%	36	10.7%
5.	Kagarko	60	16.3%	55	16.6%
6.	Kachia	47	12.7%	39	11.7%
	Total	369	100%	332	90%

Source: Survey Research, 2023

A total of 369 questionnaires were distributed and 332 returned duly filled, representing 90% of the entire questionnaires distributed.

4. Data Analysis and Discussion of Findings

Data obtained from the questionnaire were analysed in line with the research objectives and research hypothesis formulated for this study. Statistical Packages for Social Science (SPSS) was used to analyse and interpret the responses. Test of hypotheses test was conducted using the responses provided in simple percentages as contained in the questionnaire item. The decision rule for the hypothesis test: Accept the null hypothesis when the probability value exceeds the alpha value. If otherwise, we reject it.

Hypothesis: H0: There is no significant relationship between SPHCB infrastructural capacity and PHC service delivery in selected local government areas.

H1: There is a significant relationship between SPHCB infrastructural capacity and PHC service delivery in selected local government areas.

Discussion of Findings

Table 2

S/N	SPHCB Infrastructure Capacity and PHC service delivery in selected local government areas in Kaduna State.	SA	A	U	D	SD	Total
1.	The PHC Facilities are in good condition	89 (27%)	124 (37.3%)	38 (11.3%)	81 (24.4%)	-	332 (100%)
2.	The facilities are periodically renovated to enhance facility-based deliveries.	81 (24.4%)	119 (36%)	14 (14%)	85 (25.6%)	-	332 (100%)
3.	The PHC Facilities have a functional laboratory in operation.	70 (21.1%)	90 (27.1%)	57 (17.2%)	88 (26.5%)	27 (8.1%)	332 (100%)
4.	There is a constant supply of electricity and clean water	135 (10.5%)	80 (24.2%)	22 (6.6%)	118 (35.5%)	77 (23.2%)	332 (100%)
5.	Antenatal and postnatal care units are in operation.	100 (30.1%)	232 (69.9%)	-	-	-	332 (100%)

Source: Researchers' computation using SPSS Version 21

Analysis of Data

The provided table offers a descriptive analysis of the respondents on the infrastructure capacity of the Kaduna State Primary Health Care Board (KSPHCB) concerning primary healthcare service delivery. Several key points can be derived from this data. Firstly, it is apparent that the condition of primary healthcare facilities is a major concern, with the majority of respondents (89%) rating them as agree (A) or strongly agree (SA). This highlights a significant issue with the physical state of these facilities. Interview reports from Kajuru LG, specifically PHC Hayan Idon, revealed that there is a need for serious renovation in this PHC. Some parts of the roof are leaking, the medical equipment is not good enough, and the water supply is also poor. Further observation revealed that the recent renovation of PHCs carried out by the government had improved the condition of the PHCs, especially in the urban centres. PHC danjinjiri in Zaria LG is not in the best of conditions; there is a need for improvement in the physical structure.

Secondly, the periodic renovation of facilities to enhance facility-based deliveries also raises concerns, as a substantial number of respondents (70%) indicated agree (A) or strongly agree (SA). Interview reports support the assertion that the facilities are renovated periodically. The Zakari isa PHC (Kaduna North) is in good condition and was recently renovated, and office furniture was provided to the various offices. Same applies to Dutsen Gaya PHC(Kajuru), PHC Kakeyi (Zaria), PHC Dutsen Abba (Zaria LG) PHC Kudiri (Kagarko LG), PHC Nasarawa (Kudan LG), PHC Angwan Bawa (Kachia LG). In addition, the presence of functional laboratories, constant access to electricity and clean water, and the operation of antenatal and postnatal care units received mixed responses, with varying degrees of agreement and disagreement.

Table 2.1 Regression Output 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.412[a]	0.397	0.368	0.44338	1.877

a. Predictors: (Constant), IFC

b. Dependent Variable: PHC SD

Table 2.1 shows the summary of the multiple regression analysis. The empirical findings show that R, the multiple correlation coefficient, is positive and stands at 0.412, which indicates a strong correlation. This implies that IFC is a strong predictor of PHC service delivery, as depicted by this study. The multiple coefficient of determination, R2, of the variables stood at 0.397, indicating that about 39.7% of the total variation in infrastructural capacity is explained by variations in the independent variables captured in the study.

Table 2.2 Regression Output 2

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	73.365	3	24.455	57.826	0.000[b]
	Residual	52.733	226	0.233		
	Total	126.098	229			

a. Dependent Variable: SD
b. Predictors: (Constant), IFC

Table 2.2 presents the ANOVA for the effect of infrastructural capacity on PHC service delivery. The F-statistics stood at 57.826 with a p-value less than 0.05, indicating that the relationship depicted in the model is significant at a 95% confidence level. This implies that the model as depicted by this study is fit and reliable conclusions and be made from it.

Table 2.3 Regression Output 3

Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.301	0.026		11.577	0.003
	IFC	0.114	0.027	0.114	4.222	0.000

a. Dependent Variable: PHC SD

The coefficient of "Infrastructural capacity stood at 0.114, which is positive. This implies that an improvement in infrastructural capacity would lead to an increase in PHC service delivery by 11.4%. However, the significance of this can be judged from the t statistics and its significance. The t statistics of "IFC" stood at 4.222 with a p-value of 0.000.

Decision Rule

The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis, which states that- There is no significant relationship between SPHCB Infrastructural capacity and PHC service delivery.

Conclusion

Assessing infrastructure and resources is a fundamental aspect of ensuring the effective delivery of primary healthcare services by the Kaduna State Primary Health Care Board (KSPHCB). Because the null hypothesis (H_0) is rejected in favour of the alternate hypothesis (H_1), it could be concluded, therefore, that there is a significant relationship between SPHCB Infrastructural capacity and PHC service delivery. Thus, the availability of healthcare facilities, equipment, and supplies is pivotal to achieving optimal primary healthcare service delivery.

Major findings

From the literature reviewed above, as well as the data presented and analysed, the following are the major findings:

1. The board has embarked on upgrading and renovating of PHCs in the state
2. The condition of PHCs, especially in the rural areas, leaves much to be desired as compared to PHCs in the urban areas.
3. Electricity and water supply in the PHCs received mixed feelings

5 Conclusion and Recommendations

The upgrading, renovation and reconstruction of PHCs by the SPHCB across the state were revealed in the study and supported by both quantitative and qualitative data. This is in consonance with the minimum service package requirement of the board. Skilled birth deliveries have risen across the state, with Kagarko having the highest number of antenatal visits but poor skilled birth attendance. From observation of the PHCs, the unavailability of ambulances for emergency purposes, inadequacy in the supply of constant water and electricity and functional laboratories were also revealed in the study. The findings of Omuta and Aitokheuhi (2018) suggest that Infrastructure constitutes the backbone of the primary healthcare system, and the PHC centres must have the requisite facilities for quality service delivery. The study recommends the following:

1. The board needs to set in motion a comprehensive maintenance culture of PHCs to sustain the PHC facilities
2. The rural areas should be given maximum priority in terms of PHCs facilities maintenance and upgrading.
3. Electricity and water supply in the PHCs should be constant and stable to enhance PHC service delivery.

References

Abdul, M. (2018). Baseline Review of the Kaduna State Family Planning Policy and Financing and 2017 Family Planning Budget Performance. *Partnership for Advocacy in Child and Family Health. Retrieved from* http://drpcngr.org/wp-content/uploads/2020/02/PAS-Baseline-REPORT-Kaduna-FP.pdf &ved=2ahUKEwjQm5juqaSEAxVWTEEAHd_,AsoQFnoECBEAQ&usg=AOvVaw3x5iKOVDMIb2HYIKffrvh

Abimbola, A.R. (2020). Administration of primary health care programme in local government in Nigeria: a case study of Ibadan South West Local Government. *International Journal of Science & Healthcare Research*. 5(3), 327-337.

Ahuru, R. R., Anyiwe, A.M & Nzoputam, C. I. (2020). Utilization of antenatal, delivery and postnatal care services in primary healthcare centers in selected rural communities in Delta State, Southern Nigeria. *Health Science Investigations Journal*, 1(2), 105-113. Retrieved from http://doi.org/10.46829/hsjourna;.20202.12.1.2.105-113

Alenoghena, I., Aigbiremolen, A., Abejegah, C., & Eboreime, E. (2014). Primary health care in Nigeria: Strategies and constraints in implementation. *International Journal of Community Research,* 3(3), 74–79. Retrieved from http://www.arpjournals.com

Alonge, S. K. (2020) Primary health care in Nigeria: An appraisal of the effect of foreign Donations. *African Journal of Health, Safety and Environment*. 1(2), 86-100.

Barrett C. L. (2020): Primary healthcare practitioners and patient blood management in Africa in the time of coronavirus disease 2019: Safeguarding the blood supply. *Africa Journal Primary Health Care Fam Med*. 12(1), 1-3

Dahiru, T. & Oche, O. M. (2015). Determinants of antenatal care, institutional delivery and postnatal care services utilization in Nigeria. *The Pan African medical journal*. 21,321. https://doi.org/10.11604/pamj.2015.21.321.6527.

Michael, T. O. and Alonge, S. K. (2021): Qualitative Analysis of One Primary Health Care per Ward in Ekiti State, Nigeria. *Afr. J. Biomed. Res*. 2(24), 291-297.

NPHCDA (2013*). Minimum standard for primary health care in Nigeria*, 2nd edition, Abuja, Nigeria.

Oluwadare, T., Adegbilero-Iwari, O., Fasoro, A., & Faeji, C. (2023). Utilisation of Primary Healthcare Centers by Residents of Ido-Ekiti, Nigeria. *Ethiopian Journal of Health Science*. 33 (2):227-236. http://dx.doi.org/ 10.4314/ejhs.v33i2.7

Omuta, G.E.D., & Aitokhuehi, O. (2018) Infrastructure and PHC Services in Nigeria: the case of Delta State. *Center for Population and Environmental Development Policy brief series* 2018, No 2.

Oyekale, A.S. (2017) Primary Healthcare Facilities Services Readiness in Nigeria. *BMC Health Service Research.* 17, 172. https://doi.org/10.1186/s12913-017-2112-8.

Oyeyemi, T., Awesu, T. K., Amubieya, O. E., Dipeolu, I. O., Oluwasanu, M. M. and Adedosu, J. (2023). Utilization of primary health care facilities in Lagun Community of Lagelu Local Government Area of Oyo State Nigeria. *European Journal of Environment and Public Health*, 7(1), em0125. https://doi.org/10.29333/ejeph/1244

Okoli, U., Eze,A.E., Oludipe,M., Spieker, N., Ekezie, W. & Ohiri,K. (2016). Improving Quality of Care in Primary Health Care Facilities in Rural Nigeria: Successes and Challenges. *Health Services Research and Managerial Epidemiology*, 3. http://doi.org/10.1177/2333392816662581

Okeshola F.B,& Sadiq I.T. (2013). Determinants of Home Delivery among Hausa in Kaduna South Local Government Area of Kaduna State, Nigeria. *American International Journal of Contemporary Research,* 3(5), 78-85. Center for Promoting Ideas. http://www.aijcrnet.com/journals/Vol_3_No_5_May_2013_10.pdf.

Suleiman, A. G., Umar, S. S., Babandi, Z. S., Olorukooba, A. A., & Umar, U. M. (2021). Assessing the capacity of primary health care centres to provide tuberculosis services in Kaduna State, North-Western Nigeria. *International Journal Of Community Medicine And Public Health*, 8(9), 4155–4160. https://doi.org/10.18203/2394-6040.ijcmph20213512

United Nations. (2013): World population prospects, the 2012 revisions: Key findings and advance tables. New York: United Nations

Uzochukwu, BSC (2017) Primary health care systems (PRIMASYS): Case study from Nigeria. Geneva: *World Health Organization*; 2017. Licence: CC BY-NC-SA 3.0 IGO

CONFLICT OF NO INTEREST

The authors through the corresponding author (Aisha Ajoke Abdussalam, PhD) declared that there is no conflict of interest regarding the publication of this paper.