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Original Research Article

Geographic Space and the Issues of Utilization of Primary Health Facilities in Isiala-Mbano, Imo, Nigeria

Mrs. Chinyere Lawrencia Charles-Akalonu, Dr. Ikpong Sunday Umo*, Mr. John C. Amadi

Department of Geography and Environmental Studies, Alvan Ikoku Federal College of Education Owerri, Imo State

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***Corresponding author:** Dr. Ikpong Sunday Umo
Department of Geography and Environmental Studies, Alvan Ikoku Federal College of Education Owerri, Imo State

Abstract

Primary Health Care is the first point of contact for most Nigerians with respect to the health care system, but the level of clients' access and utilization are mostly plagued with distinct problems across geographic locations, thereby impeding sustainable development of rural communities. The aim of this study is to evaluate the intriguing relationships existing among location, distance, and the utilization of government-owned primary health care facilities (PHCF) by residents in Isiala-Mbano, Imo State. A stratified random sampling method was used to select a sample population of 475. Questionnaire and interviews were used to elicit information from the respondents, while geospatial tools were used for mapping the spatial distributions of three Health Posts and fourteen Health Centers. Analyses of data using descriptive statistics, geographic information system, nearest neighbour analysis, Pearson product moment correlation coefficient, and student's t-test revealed that: (i) PHCF's are randomly distributed within the study area as indicated by the Nearest Neighbour Index of R = 1.164. (ii) Estimated Euclidean distances from users' houses to nearest PHCFs showed that 66.5 percent of the users live within 1 km and 33.5 percent live between 1 km to 2.3 km from the nearest PHCFs. (iii) Average Nearest Neighbour Distance gave 1.3708 km with good topography. (iv) The ratio of population to health center gave 11,972:1, implying that Isiala-Mbano is adequately served by primary health care centers, but the levels of utilizations were generally very low due to lack of doctors and valid drugs for patients. A test of Hypothesis showed that there is no significant relationship between the distance of primary health care facilities and the level of utilization in the study area. Hence, this study recommended timely health care facility reform through the supply of essential drugs and employment of specialized manpower sustainably to attend to patients in the study area.

Keywords: Spatial location, distance, utilization, health care facilities, sustainable development.

1.0. INTRODUCTION

One of the most focal agendas of sustainable development that have attracted the attention of the Nigerian government and international communities is the health sector. Yet, many reforms, funding, and supplies of facilities are concentrated at the Federal and State levels in recent times. Hence, most rural poor may lack access to those specialized health care facilities at the Centers due to factors such as distance, poor road network, insecurity, and/ or cost. The utilization not only reflects need but service-related factors such as availability, affordability, income, and practice patterns (McLafferty, 2003; Dassah *et al.* 2018).

In Nigeria and Imo State in particular, primary health care services (PHCS) are established for services such as prevention and control of locally endemic and epidemic diseases, provision of essential drugs and supplies, maternal and child care services, family planning and immunization against infectious diseases, educating the people about prevailing health issues and prevention or control measures, promotion of food supply and adequate nutrition (National Primary Health Care Development Agency (NPHCDA, 2012)). Yet, people access and utilization of the services in most rural communities is not clearly known.

Discounting the splendid responsibilities of PHCS highlighted, there is an increase in speculations that the available health care facilities in many rural communities are underutilized, abandoned, or neglected patients. The utilization of health care facilities can be constrained or accelerated by certain geographic variables such as distance, location, and time. Therefore, utilization denotes an individual's ability to use health services when and where they are needed.

In a perspective, Alegana, Wright, Petrina, Noor, Snow, and Atkinson, (2012) established that utilization of health care is affected by several factors such as geographical accessibility, bad roads, lack of electricity, lack of pipe-borne water, poverty level, and life-supporting amenities. The factors tend to pose serious challenges to sustainable development of the health sector in the 21st century.

In sub-Sahara Africa, Willcox *et al.* (2015) adopted grey literature approach in analyzing on human resources for health in Mali, Sudan, Uganda, Botswana and South Africa. The results revealed that a minority of the doctors, nurses and midwives were working in primary health care and shortages of qualified staff were key issues in rural areas. They further opined that shortages of personnel was the greatest issue in primary health care settings than at higher levels, leading to an upsurge in clients' patronages of traditional healers.

Dassah *et al.* (2018) explored the factors affecting access to PHC in rural areas of mostly low and middle-income Countries via five data-based (CINAHL, EMBASE, Global Health, Medline and Web of Science). Analyses using deductive and inductive approaches revealed that people were unable to access PHC due to obstacles including the interplay of availability, acceptability, affordability, and geography factors. In particular, limited availability of health care facilities and services and perceived low quality of care meant that those in need of health care services frequently had to travel for care.

World Health Organization and UNICEF (2021) have emphasized that sustainable investments in PHC will not only improve equity and access but health care performance, accountability of health systems, and health outcomes. However, there are indicators that variables such as awareness/ education, quality of food system, socio-economic security, local geography, and environment manifested as critical factors in determining health services and well-being of rural residents in this era of COVID-19 challenges.

Recent developments in the COVID-19 pandemic and the corresponding effects on humans necessitate the placement of primary health care services at the center for optimum access and utilization by the vulnerable poor in rural communities. Amidst the expectations, there are issues associated with meeting the recommended standard of about 1,140 doctors and 3,620 nurses/midwives in primary and secondary health care System of Imo State (Imo State Government, 2009). The figures were below World Health Organisation (WHO) recommended global threshold of 22.8 skilled health professionals per 10,000 populations for less economically developed countries (WHO, 2014).

The Local Governments are responsible for the Primary Health Care Facilities under the support of the State Ministries of Health and within the overall national health policy under the supervision of the National Primary Health Care Development Agency. There are also private medical practitioners and organizations that provide health care facilities both in the urban and rural areas. International agencies such as United Nations International Children's Emergency Fund (UNICEF), United States Agency for International Development (USAID) and World Health Organisation (WHO) have been supporting the provision of Primary Health Care Services in various ways in the past.

The aim of the study is to assess the effect of location, distant, and utilization of primary health care facilities in Isiala-Mbano, Imo State. To accomplish the aim, the following specific objectives were formulated to guide this study: (i) to determine the relationship between primary health care facilities and the level of utilization; (ii) to evaluate the condition of the road network, services, users' preferences, facilities on the utilization of primary health care facilities; (iii) to examine the implication findings on the sustainable health sector reform and development. It is therefore hypothesized that there is no significant relationship between distance and utilization of primary health care facilities in the study area.

2.0 The Central Place versus Neighbourhood: Contexts and Applications

The location and distribution of geographic events in space over time scale often vary with distance away from the center. The affinity of number, size, types, locations, access, planning, and utilization of health care facilities can be explained using central place model as advocated by a German geographer, Walter Christaller in 1933 (Briney, 2012). Amidst of that, the Nearest Neighbour model also offers an intuitive analytical toolbox for elucidation of location-distance relations.

Contextually, the central place represents a health center (business) for the exchange of goods (e.g. drugs, injections) and services (e.g. diagnosis, education, dispensary, advising) by people attracted from the surrounding communities. It is assumed to be centrally located to maximize access and utilization from the nearby patients. Central places compete against each other to serve as markets for medical and pharmaceutical goods and services.

According to Briney (2012), Christaller postulated that a center is characterized by an unbound isotropic homogenous surface, with evenly distributed population and equidistant settlement/ transport cost, evenly distributed resources, distance decay mechanism, consumers having similar purchasing

power and demand for goods, minimize distance travelled. Each supplier has a monopoly over a hinterland, there is only one type of transport equally easy in all directions and transport cost is equal to the distance travelled. This theory applies most clearly in regions that are neither heavily industrialized nor interrupted by major physical features such as rivers or mountain ranges.

The application of Nearest Neighbour Analysis (NNA) is traced to Clark and Evans (1954). The nearest neighbour statistic represents the degree to which an observation departs from a predicted random distribution (Clark and Evans, 1954; Rossbacher, 1986). The idea was used to analyze and describe plant patterns and distribution of plant species over the surface and later gained wide applications geography as emphasized in Ayeni (2000).

Within the discipline of geography and geographical researches, the application of Nearest Neighbour Analysis (NNA) had gained wide popularity in land use, industrial location, and analysis of landform/ physical features as demonstrated in Omotosho (2010). Mayhew (2004) noted that NNA is the study of settlements in order to discern any irregularity in spacing by comparing the actual pattern of settlement with a theoretical random pattern. The linearized (straight line) distance from each settlement to its nearest neighbour is measured and this is divided by the total number of settlements to give the observed mean distance between nearest neighbours.

According to Abdulraheem *et al.* (2012) most rural health care facilities in various States in Nigeria are in disrepair, with equipment and infrastructure being either absent or obsolete and the referral system, almost non-existent. In Imo State, the challenges of poor working conditions, low salaries and the corresponding effect of (mass exodus) of health professionals have been reported (Imo State Strategic Health Development Plan, 2009). Many health workers posted to the rural areas prefer to work in the urban (core) health facilities due to better infrastructure leading to improved life quality among residents.

Thembi, Mokgatte-Nthabu, and Oguntibeju (2010) studied the utilization of primary health care services in Tshwane, Gauteng Province, South Africa. The result indicated that availability of transport, the physical distance of facility, and time taken to reach the facility has influences on health care utilization. The study however, found out that in terms of distance, the clinics were accessible as most of the participants lived within 5km of such facility in conformity with the norms and standards of South African PHCS.

Enwereuzor, Umo, and Charles-Akalonu (2021) studied intriguing relationships between the conditions of infrastructure and the level of socio-economic development of 44 rural communities in Imo State. The results of the qualitative and quantitative assessments of data generated through questionnaires and interviews revealed that the conditions of infrastructure (health centers, roads, and schools) were mostly poor across the three zones in Imo State. Also, significant relationships exist between the conditions of infrastructure and the level of development in rural communities in Imo State.

In Kogi State of Nigeria, Awoyemi, Obayelu and Opaluwa (2011) examined the effects of distance on the utilization of health care services in rural areas. The quantitative analyses using distinct accessibility indices revealed unequal access to modern health care facilities in the study area. They concluded that household size, distance, and cost of accessing health care services were dominant constraints to adequate utilization by clients.

Agaja (2012) studied the distribution of primary health care centers in Ughelli and Warri areas of Delta State using cluster and nearest neighbour analyses. The results indicated that health centers in Ughelli South were mostly randomly distributed, with traces of fairly clustered pattern in the northern axis. On the contrary, the distributive pattern in Warri South showed a clustered pattern. He attributed the distributive pattern to poor topography (swampy terrain) of Warri South, inadequate funding by the local government authorities and misuse of allocated funds by administrative and political leaders in the study area.

3.0 MATERIALS AND METHODS

3.1 Location of the Study Area

Isiala-Mbano is one of the twenty-seven (27) Local Government Areas in Imo State. It is located between Longitudes 07º 00' and 07º 22' East of Greenwich Meridian and Latitudes 05º 37' and 05º 45' North of the Equator (Figure 1). Relatively, it is bounded by Isu and Nwangele Local Government Areas on the West, Ehime-Mbano Local Government Area on the East, Onuimo Local Government Area on the North, and Ikeduru and Ehime-Mbano Local Government Areas on the South.

Isiala-Mbano has a land area of about 165.63 km^2 and is made up of thirty-eight (38) autonomous communities with twenty-five (25) Primary Health Care facilities. It has a projected population of 299,308 by 2019 at 3.2 percent annual growth rate by National Population Commission and sixteen (16) political wards (2006 Census data indicated in Government Gazette).

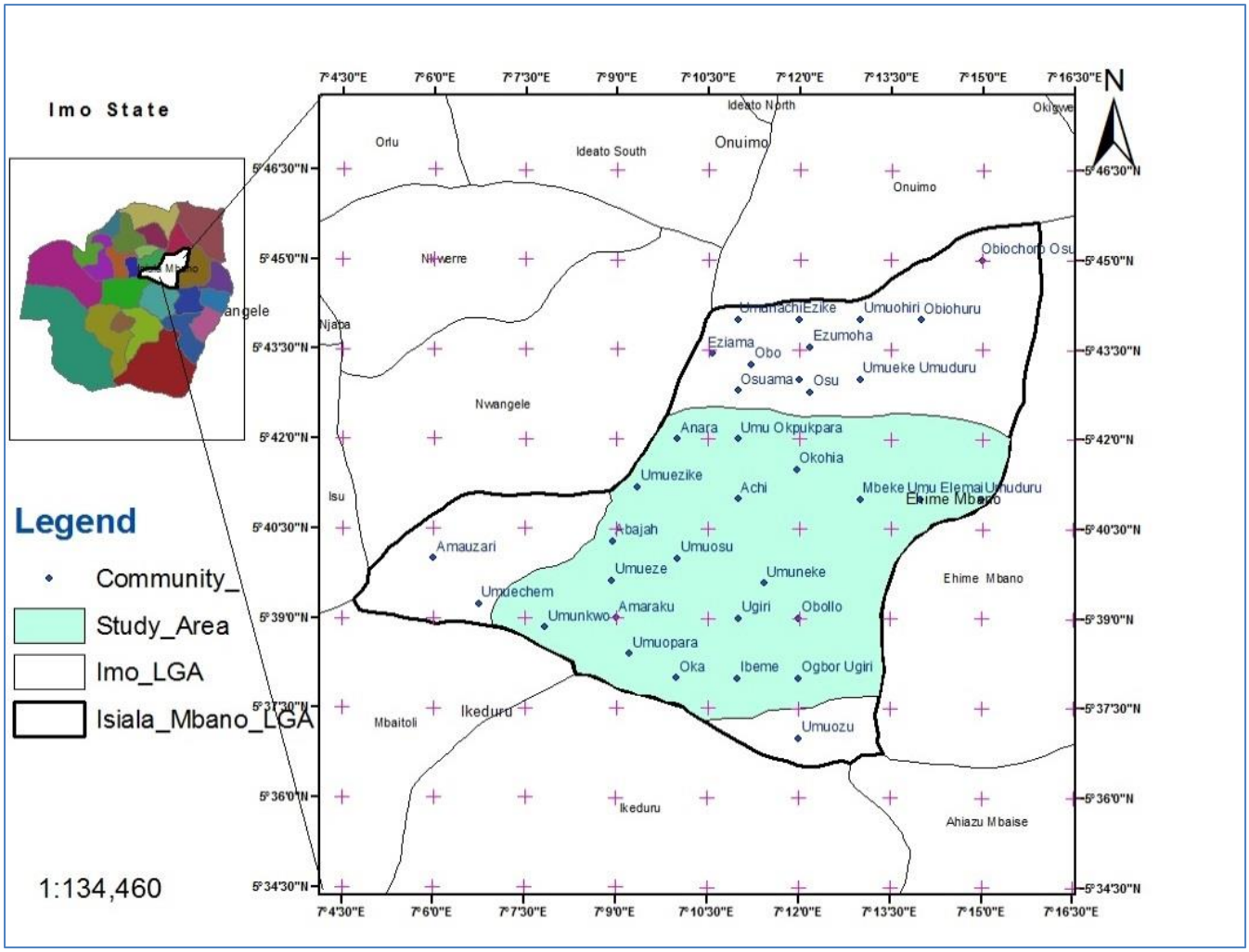

Fig-1: Locations and Sampled Communities with Health Care Centers in Isiala-Mbano
Source: Authors' Field Work (2021).

3.2 Climate, Geology, and Pedo-geomorphology

The climate of the Isiala-Mbano lies within the humid tropical (Am) climatic classification. It has a mean annual temperature that ranges between 27º C and 30º C. The rainfall varies based on season due to alternating wet and dry seasons. The vegetation of the area can be described as disturbed secondary or immature forest that represents a spontaneous regeneration of the original tropical rain forest cover (Atlas of Imo State of Nigeria, 1984).

The geology and local geomorphology vary across geographic spaces. The study area is in the transitional zone between the Alluvium that extended to Imo Shale dominating places such as Okohia, Anara, Achi and Umuezike in the North and the Coastal Plain Sand Deposits of Tertiary Times dominating Oka, Ebeme, Amauzo, Ugiri, and Umuokpara in the South. The transitional nature of geologic formations gives the soil a red Ferralitic sandy-loam class. The top soil of 60 cm to 80 cm is characterized by brownish colour with a friable, weak structure and a rapid percolation rate. The topography of the study area ranged between 80 and 166 meters above average mean sea level. The geomorphology shows an undulating coastal plain dissected by gullies, ravines, river valleys. It is drained by Mbaa River and Otamiri River.

3.3 Land Use and Vegetation

In terms of land use, the people of Isiala-Mbano engaged in subsistence farming. Crops cultivated are cassava (*Manihotspp*), maize (*Zea Mays*), yam (*Dischoreaspp*), cocoyam *(Colocasie esculenta)*, plantain (*Musa x paradisiacal*), banana (*Musa spp*), oil palm (*Elias guineens*), breadfruit (*Trechulia Africana*), oil bean (*Pentraclethramacrophylla*), pear (*Dacroydesedulis*) among others. Palm Oil extraction is also practiced at the commercial level. Other secondary and tertiary economic activities found in the study area are banks, block moulding, weekly markets, retail trading, pharmacies, hairdressing salons, food vendors, furniture, public/ civil service, sand/ gravel mining.

3.4 Sample and Sampling Techniques

The population of the study comprises all adult males and females in the study area. Stratified random

sampling was carried out in two stages. The first stage was the random selection of nineteen (19) communities out of thirty-eight (38) communities that make up the area (Ministry of Local Government and Chieftaincy Affairs, 2018). Random selection of communities was done by writing the community names on pieces of paper and blind picking them without replacement.

A total of nineteen communities were served by seventeen (17) primary health care facilities. The second stage was the selection of twenty-five (25) adults from each of the nineteen communities, making a total of four hundred and seventy-five (475) respondents. Only a total of four hundred and sixty-six (466) questionnaires were returned and used as valid for this study. Random selection of respondents was used in selecting the family head and a member from each household in the nineteen communities.

3.5. DATA COLLECTION

Data for this study were collected through two distinct (primary and secondary) sources. The primary data were obtained through structured questionnaires and interviews of health care facilities users, and direct personal observations of utilization for a 6-month period. Also, geospatial tools (Global Positioning System, remote sensing, and geographic information system) were used for the recording of coordinates and capturing images regarding the locations and conditions of health care facilities. Secondary data were generated from published and unpublished documents.

Locational attributes of primary health care were obtained by acquiring geometric data (Co-ordinate points) of the PHCFs using a Garmin 12 handheld Global Positioning System (GPS) Receiver at their respective communities in Isiala-Mbano in Geodetic format and Nearest Neighbour Distances were generated with Arc GIS 9.3 software to estimate straight-line distances from their houses to the nearest primary health care facility.

The geographical coordinates of the seventeen PHCCs obtained were converted to Universal Transverse Mercator (UTM) using the Geo-scale software. An area map of the communities in Isiala-Mbano was delineated from Nigerian Local Government Area Shapefile (Nigerian LGA Data Base Copy Collected from RECTAS) in geodetic format, reified in Arc GIS 9.3 software, and converted to UTM zone 32 N (Figures 1 & 2).

4.6 METHOD OF DATA ANALYSIS

The descriptive statistics (percentages, simple bar graph, and scatter plot) were used to determine the proportion of utilization, condition of the access road, and distributive patterns of primary health care facilities. The Pearson Product-Moment Correlation Coefficient (r) and student's t-test were employed as the surrogate for the determination of the significant relationship between distance of primary health care facilities and respondents' utilization at 0.05 confident level.

Also, the Estimated Euclidean distance from the locations of respondents' homes to the nearest primary health facilities were generated using ArcGIS version 9.3 software and queried the analytical toolbox to determine the linearized distance of each primary health center/ health post to its nearest neighbour in Isiala-Mbano.

4. RESULTS AND DISCUSSIONS

4.1 Relationship of Distance and Utilization of Primary Health Care Facilities

In other to establish the relation between distance and client utilization of primary health care facilities in Isiala-Mbano, Pearson Product-Moment Correlation Coefficient was used. The result gave is very low positive correlation coefficient of 0.042 and statistically insignificant at 0.05 confident level.

The result was further validated using a student t-test. The computed t-test value gave 0.905 while the tabulated value gave 1.960. Since the calculated t-test value is lower than the tabulated value, null hypothesis one was accepted. It is thus, affirmed that there is no significant relationship between the distance of primary health care facilities and the level of utilization in the study area. The result is contrary to Thembi *et al*. (2010) report in South Africa that availability of transport, the physical distance of facility, and time taken to reach the health facilities had significant influences on health care utilization. The pattern of the relationship between distance and utilization is depicted in a linearized scatter plot presented in figure 2.

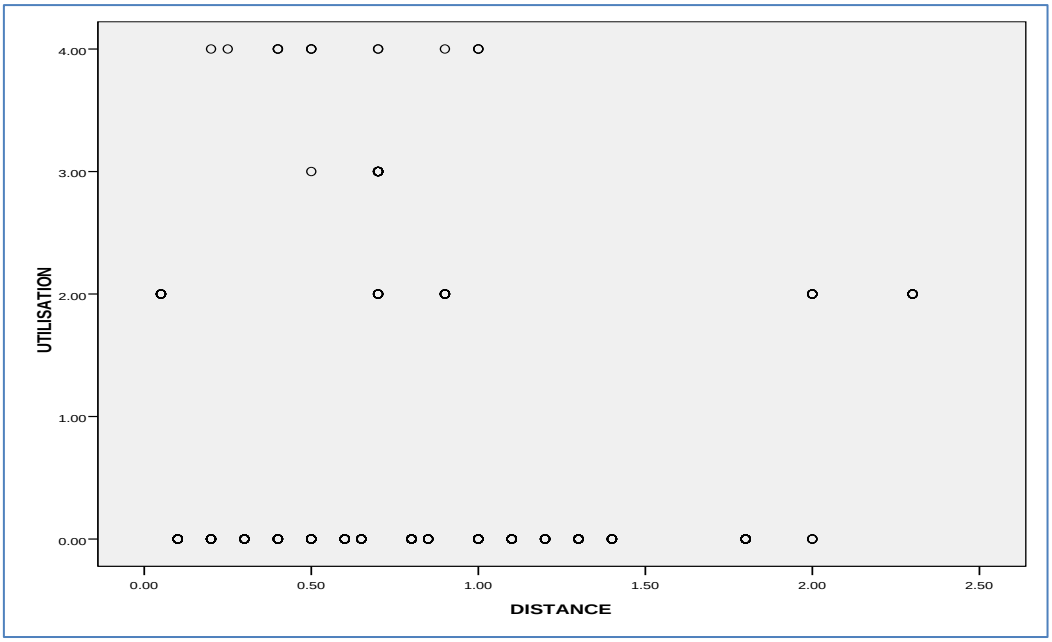

Fig-2: Scatter Plot of Correlation between Utilisation and Distances (in Km).
Source: Authors' Analysis.

4.2 Types of Primary Health care Facilities

Using the PHCF (2012) standards, three (3) health posts, and fourteen (14) health centers were identified. The analysis using graphs and percentages revealed that health centers representing 82.4 percent were more dominant in Isiala-Mbano than health posts represented by 17.6 percent, as depicted in Figure 1. Using the number of wards and population as criteria, this study established that Isiala-Mbano has twenty-five (25) Primary Health Care Facilities (PHCFs) serving the entire LGA. Hence, the population to health center ratio gave 11,972:1. Health Posts are usually indicated for lower threshold population, the pattern in distribution is graphically depicted in Figure 3.

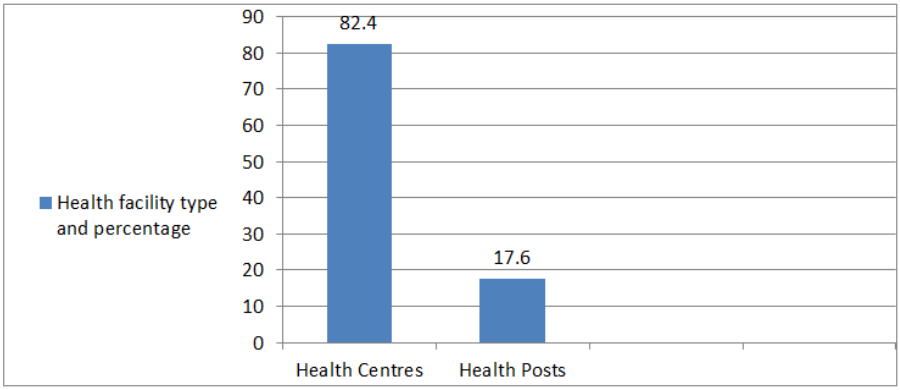

Fig-3: Health facility type and their relative dominance

4.3 Spatial Distribution and Nearest Neighbour Assessment of Distance

The converted coordinate points were reproduced to describe the spatial distribution of the PHCFs using the Nearest Neighbour Index (R) is defined by a linearized model. The total nearest neighbour distance yielded 23.3036 km, average nearest neighbour distance gave 1.3708 km, the number of points (n) generated was 17, the density of points was 0.181, observed mean gave 1.370, and expected mean gave 1.176. Subsequently, the result obtained was R = 1.164 which depicted a random distribution of the PHCCs in the study area (Figure 4).

The distance decay has been observed in the way patronage diminishes with distance across the product's gravitational field. PHCFs users' experience of distance summarized in Figure 4 indicated that 66.5 percent of respondents live within 1km from the nearest PHCF while 33.5 percent live within the range of 1 to 2.3 km from the nearby primary health care facility. The distance is distinct from South African stipulated norms and standards whose participants live within 5 km to the primary health center (clinic) as reported in Thembi *et al.* (2010).

The result of shorter distance suggested that PHCFs could be accessed by trekking or any other means of transport used in the locality. Hence, the health care facilities, therefore, generally comply with National Primary Health Care Development Agency minimum standards of distribution according to Ward Health System as regards distance.

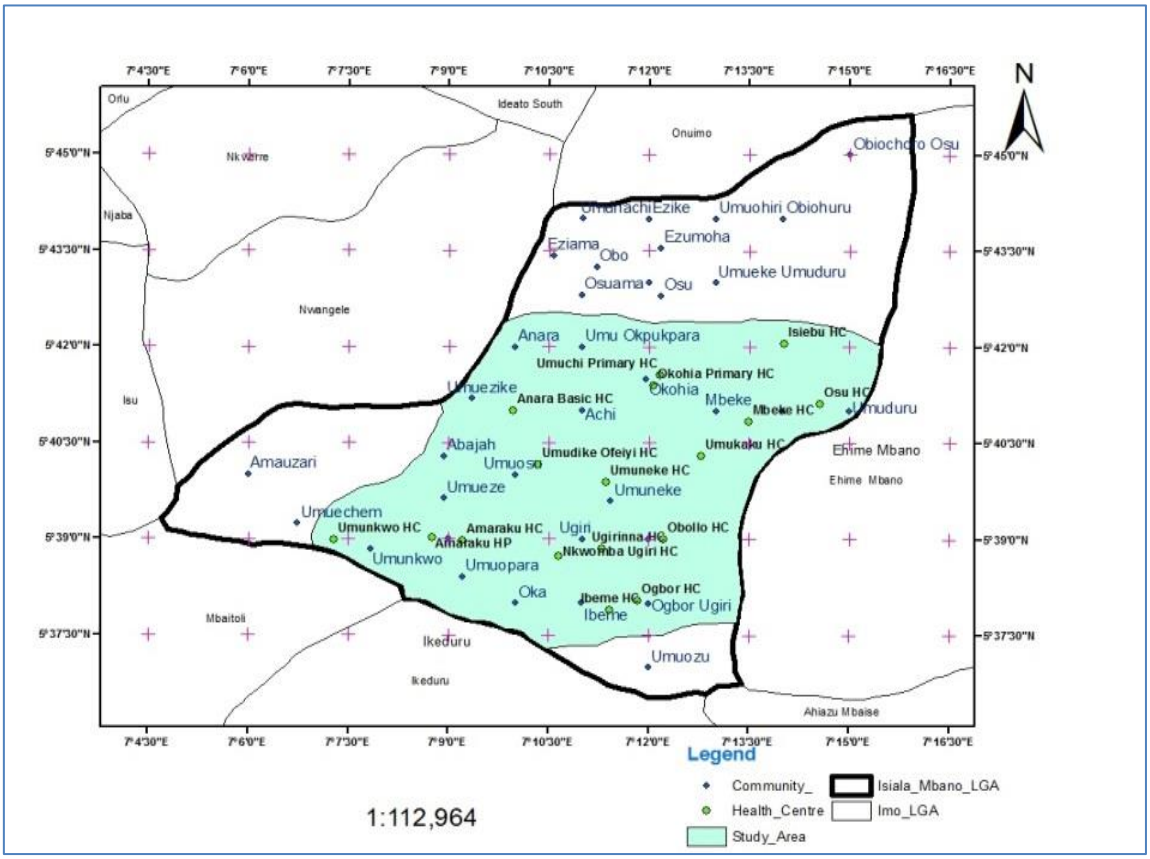

Fig-4: Spatial Distribution of Primary Health Care Centres in Relations with Communities. Source: Authors' Analysis.

4.4 The Perception of Road Conditions to the Primary Health Facilities

The conditions of the road often played a critical role in clients' utilization of the facility. Where distance is short enough to encourage the use of a facility, transferability might still be hampered by a bad road network. The result presented in Table 1 showed that the highest proportion of 72 percent, representing 337 respondents, have good access road to the health centers in their domains. This is followed by 19 percent representing 88 respondents that reportedly have very good access road to their primary health centers in their communities.

Furthermore, only 3 percent (representing 15 respondents) have bad access roads to their health centers, while 6 percent (26 respondents) reportedly have very bad access road to their health center. The above results are clear indications that physical accessibility to HCFs defined by road network in Isiala-Mbano is generally good. The results contradicted Enwereuzor *et al.* (2021) report of the poor state of rural infrastructure (such as road) in Imo State. Hence, the differences could be attributed to the area of coverage.

Table-1: The Assessment of Access Road to Health Centres.

Assessment of Access Road to HCF	Frequency	Percentage (%)
Very good	88	19
Good	337	72
Bad	15	3
Very bad	26	6
Total	**466**	**100**

Source: Authors' Analysis

4.4 The Utilizations of Primary Health Care Facilities

The utilization of facilities or otherwise is involved in healthcare delivery in any health service region. Health authorities do not just provide facilities; they also grapple with issues of patronage, while creation of more awareness to encourage utilization of facilities among rural clients had been envisaged (UNICEF (2021). The analysis of peoples' utilization of primary health care facilities presented in Table 2 showed that 13 percent (representing 58 of respondents) had attended HCFs two times in the past six months, 27 percent representing 127 respondents attended once, 4 percent attended three times, 3 percent utilized the facility four times. The highest proportion of 53 percent (representing 288 respondents) had not utilised HCFs in the past six months. This result showed a very low level of utilization, thereby collaborating Alegana *et al.* (2012) and Umo and Ike (2021) attribution of poor utilization to the amalgams of multiple geographic and human factors. Hence, the high level of morbidity and poverty in most rural areas of Nigeria and Isiala-Mbano amidst insecurity is quite a worrying situation.

Table-2: Frequency of Primary Health Care Facilities Utilisations in Isiala-Mbano

Utilisation of Facility in the Last 6 months.	Frequency	Percentage (%)
4 times	15	3
3 times	18	4
2 times	58	13
Once	127	27
None	248	53
Total	**466**	**100**

Source: Authors' Analysis.

4.5 Clients Behaviours and Responses during Health Emergencies

The Initial behaviours and responses of the clients tend to vary across places with respect to utilization of health care facilities in distinct communities. The variations in behaviours towards utilization of health care services affects patients healing process and whether a case will ever get to HCFs. There is a mix of responses to sicknesses as shown in Table 3. The result revealed that 54 percent, representing 263 of the respondents engaged in self-medication when they are sick, followed by 39 percent, representing 183 respondents first visit the clinic when they are sick, 4 percent representing 18 respondents preferred traditional herbs first when they are sick and 1 percent visited faith clinic first, when they are sick. The large followership of self-medication is worrisome and calls to question the present arrangement of HCFs that breed apathy. This shows that people visit HCFs as a last resort.

Table-3: Spectrum of Preference Initial Actions taken by People When Sick.

Action Taken When Sick	Frequency	Percentage (%)
Take traditional herbs	18	4
Visit the clinic	183	39
Attend faith clinic	2	1
Self-medication	263	56
Total	**466**	**100.00**

Source: Authors' Analysis.

4.6 Patterns of Utilization of Health Care Services in Isiala-Mbano

The level of people utilization of primary health care facilities in Isiala-Mbano from 2011 to 2015 is summarized in Table 4. Results indicated that the Osu health center attracted the highest patronage by 912 patients, followed by Okohia with 609 patients, and Umuneke with 556 patients, while Umunkwo registered a total of 541 patients respectively. Hence, the identified four health centers were classified as highly utilized.

In another perspective, 3 health centers comprising Ogbor, Obollo, and Mbeke health centers had registered 536, 503, and 466 patients respectively within the six-month period and is classified moderate level of patronage. The remaining 10 health care facilities such as Nkomba (with 288 patients), Anara (with 395 patients), Iheme (with 331 patients), and Umunchi (with 397 patients) recorded level of patronages due to the limited number of patients in their health care centers. The health posts comprising Isiebu, Ugirinna, and Amaraku with a total number 210, 213, and 235 accordingly, tend to registered low patients in their various communities.

Table-4: The Levels of Utilization of Primary Health Care

S/N	Health Care Facility	Average number of Patients from 2011 – 2015	Utilisation/10,000 Population
	HIGHLY UTILIZED		
1	Osu HC	912	35
2	Okohia HC	619	23
3	Umunkwo HC	556	21
4	Umuneke HC	541	21
	MODERATELY UTILIZED		
1	Mbeke HC	466	18
2	Obollo HC	503	19
3	Ogbor HC	536	20
	LOWLY UTILIZED		
1	Amaraku HC	401	15
2	Anara HC	395	15
3	Ibeme HC	331	15
4	Nkomba HC	288	11
5	Umudikeofeiyi HC	406	15
6	Umukaku HC	289	11
7	Umunchi HC	397	15
8	Amaraku HP	235	9
9	Isiebu HP	210	8
10	Ugirinna HP	213	8

Source: Author's Analysis.

4.7 Conditions of Services and Issues of Utilizations

The peculiar problems to clients' optimum utilization of primary health care facilities during past consultations in Isiala-Mbano were identified and descriptively analyzed for easy perusal and comparison in Table 5. The results showed that the two dominant problems associated with utilization of primary health care facilities were lack of essential drugs for patients supported by 23 percent (106 respondents) and protracted non-availability of doctor in the health centres as supported by 23 percent (105 respondents).

Furthermore, a total of 17 percent represented by 78 respondents indicated finance as their problem to sustainable utilization, 12 percent (54 respondents) identified poor state of the facility and 7 percent (33 respondents) reported absent of delivery equipment, while 4 percent (20 respondents) identified poor workers attitudes to clients as a hindrance to optimum utilization of primary health care facilities in the study area.

The problems of utilization tend to vary based on the community's health facility, type of health challenges involve, and individual perception of each facility over a period of time. User-friendliness is always a factor in the patronage of facilities. The public sector is unfortunate, yet, to imbibe salutation consumer service character seen in the competitive environment of private business. The attitude and work ethic can be poor enough to repel potential users. Ultimately, the absence of doctors and viable drugs remained the focal factors that triggered initial users' apathy coupled with the high level of poverty among the rural residents in the study area.

Table-5: Problems Encountered in Utilising Health Care Facilities.

Problems encountered when utilising the health care facilities.	Frequency	Percentage (%)
Transportation difficulties	33	7
Poor workers attitude	20	4
Delay in services	22	5
Protracted absent of doctor	105	23
Absent of delivery equipment	44	9
Lack of essential drugs	106	23
Poor state of facility	54	12
Financial problem	78	17
Total	**466**	**100**

Source: Authors' Analysis.

4.8 Implication of Findings on Sustainable Health Sector Reform and Development

The results of the Nearest Neighbour Index of R = 1.164 implied random distribution of PHCFs while the estimated Euclidean distances of 66.5 percent of users living 1km and 33.5 percent living between 1km to 2.3km from nearest PHCFs and with good topography fall within the acceptable standard of the World Health Organization. Similarly, the population ratio to the health centre of 11,972:1 clearly implied that Isiala-Mbano is adequately served by the primary health care centres. Hence, distance of primary health care facilities is not a major to resident's utilization in the study area.

The discourses and findings tend to present a scenario of well-plan and adequately distributed primary health care facilities in rural communities of Isiala-Mbano. Yet, optimum utilizations by rural residents for sustainable health, enhanced quality of life, and users' satisfaction during this post-modern era, rock by the COVID-19 pandemic are hampered by amalgams of human-induced factors such as the nature of personnel, facilities, and finance.

There is a need for concerted efforts by the Government (Federal, State, and Local), individuals, and donor agencies to increase funding, supply modern facilities/ equipment, and employ more specialized personnel in the already strategically located primary health care facilities in Isiala-Mbano and beyond. Such actions will boost users' confidence, timely responses during health emergencies, boost capacities and redirect the interest of rural residents from unnecessary consultations and belief on the traditional healers to government facilities which is more scientific and reliable in terms of diagnosis and treatment of sicknesses, thereby averting avoidable death caused by ignorance. The observed reform options will facilitate both sustainable utilization and development of primary health care facilities in Isiala-Mbano and Imo State in general.

5. CONCLUSION AND RECOMMENDATIONS

The study established that distance and physical accessibility to the PHCCs is not a hindrance to utilization in the study area. This study recommends that other factors such as lack of vital drugs for patients, inadequate human resources, equipment/ infrastructure, and poor socio-economic conditions in the rural communities of Isiala-Mbano should be enhanced through partnership between donor agencies, stakeholders, and the local government authority to avert or mitigate the issue underutilization of PHCFs and boost sustainable development of the sector. This is very urgent, given the divergence and complex health challenges posed by the novel COVID-19 pandemic. There is a need for the creation of more awareness on the need to avoid self-medication by rural dwellers in case of health challenges in the study area.

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