



Utilisation of Primary Health Care Services Among Women in Rivers East Senatorial District, Rivers State, Nigeria

***Okwu-boms, C.R., & ThankGod, A.**

Department of Health and Safety Education, Ignatius Ajuru University of Education, Port Harcourt, Nigeria

***Corresponding author email:** chituga.okwuboms@iaue.edu.ng

Abstract

Primary health care is a fundamental aspect of all healthcare systems worldwide. The use of basic healthcare services by women in the Rivers East Senatorial District of Rivers State was examined in this study. Three research questions and two hypotheses served as the study's compass. A descriptive correlational study approach was employed with 133,545 women in the Rivers East Senatorial District as the population. The multistage sampling approach was used to determine the sample size of 1596. A validated questionnaire with a reliability coefficient of 0.80 was used to gather the data. The mean value and Pearson Product-Moment Correlation (PPMC) at the 0.05 alpha level were used for analysis. The results showed that women in the Rivers East Senatorial District utilised PHC services at a low rate (2.46 ± 0.93). The results indicated that women's utilisation of PHC services in the Rivers East Senatorial District was impacted by accessibility (2.72 ± 0.78) and service availability (3.01 ± 0.72). The results demonstrated a substantial correlation between availability ($n = 1549, r = 0.53, p = 0.00$), accessibility ($n = 1549, r = 0.44, p = 0.00$), and the use of basic healthcare services by women in the Rivers East Senatorial District. According to the study, women in the Rivers East senatorial district used primary healthcare services at a low rate, and their use of PHC services was also influenced by characteristics such as service availability and accessibility. It was recommended that the Ministry of Health ought to re-evaluate the delivery of PHC services in order to identify the gap in its utilisation and provide practical strategies to improve the usage of PHC services by women.

Keywords: Utilisation, Primary Healthcare, Accessibility, Availability, Services

Introduction

Primary healthcare (PHC) is the initial interaction between an individual and their family with the healthcare facility at the onset or commencement of a disease or health condition. The importance of primary healthcare resides in its emphasis on accessibility, affordability, and inclusivity, making it the initial point of connection for anyone looking for medical care. It emphasises a holistic approach to health, considering not only the treatment of illnesses but also the promotion of overall well-being and the prevention of diseases. PHC not only aids individuals after they are diagnosed with a disease or disorder but also plays a significant role in prevention by considering the individual's overall health status (WHO, 2021) when there is optimal utilization of the services by the people. However, the report showed low utilisation of the services. For instance, in Nigeria, according to Ugochukwu et al. (2022), only 46.2% of patients used the primary healthcare institutions' medical services. The Multiple Indicator Cluster Survey/National Immunisation Coverage Survey (MICS/NICS) report from 2021 emphasises that around 30.5% of pregnant women in Sokoto attended prenatal care and were visited at least once by qualified medical professionals. Furthermore, Rivers State recorded the highest neonatal deaths of 70 for every 1,000 live births, with an infant mortality rate of 87, which could be a consequence of the low degree of usage of these services.

The usage of Primary Health Care (PHC) services among women is a critical aspect of overall healthcare accessibility and has an important function in promoting women's health and welfare. The availability of healthcare encompasses the physical presence and adequacy of healthcare facilities and services, forming the cornerstone of healthcare accessibility. Availability of these services remains crucial in shaping the decisions to seek or forego healthcare services among women. Kreuter et al. (2021) indicate that people are more inclined to utilise healthcare services when they believe those services are both available and accessible. This is particularly relevant for women, whose healthcare requirements are broad and include reproductive health, maternal care, family planning, as well as other preventive and treatment services. Ensuring the availability of well-rounded and integrated primary healthcare services is crucial for effectively meeting these diverse needs. Studies have consistently demonstrated that simply having healthcare facilities is not enough; the quality and adequacy of the services provided greatly influence how often they are used. Moreover, individuals are more likely to seek care when they believe the services are responsive to their needs and can effectively address their health issues. As such, both the accessibility and actual use of primary healthcare services are seen as key factors in understanding how women make decisions about seeking healthcare (Yunus et al., 2024).

Accessibility is a major determining factor in the effectiveness of primary healthcare (PHC), involving elements such as geographic closeness, safe and reliable transportation, and sufficient funding. In the context of women's use of primary healthcare services, accessibility is especially important. According to Dassah et al. (2018), it plays an important role by shaping women's choices to pursue and utilise PHC services. Geographical proximity is also recognised as a vital aspect of accessibility, with numerous studies highlighting how distance significantly affects patterns of healthcare utilisation (Parvin et al., 2021). Eseadi et al. (2023) also noted that people are more inclined to use healthcare services when they view access as convenient and favourable. This is especially important for women, whose healthcare needs typically include reproductive health, maternal services, family planning, and preventive care. Physical distance plays a significant role in accessibility, as those living nearer to healthcare facilities are generally more likely to make use of them. Tanou et al. (2021) emphasised that geographical proximity is crucial in identifying potential barriers or enablers that can influence individuals' health-seeking behaviours, and it plays a major purpose in determining the extent of utilisation of healthcare services. Kreuter et al. (2021) highlighted that the relationship between transportation options and the use of healthcare services is essential for ensuring timely availability of treatment and plays a vital role in shaping effective, targeted health interventions. They also noted that the financial costs tied to healthcare, such as out-of-pocket payments, can significantly influence women's decisions to access or avoid primary healthcare services. Furthermore, they stressed that financial barriers pose a major challenge to healthcare access, especially for vulnerable populations. Despite the availability of PHC facilities, utilisation rates amongst women in Rivers East Senatorial District, Rivers State, remain significantly low. An investigation conducted by the National Bureau of Statistics (NBS) in 2023 revealed that only 35% of women in this region regularly utilise PHC services, compared to the national average of 55%. Hence, this study focused on understanding the utilisation of PHC services amongst women in Rivers East Senatorial District, Rivers State, Nigeria. The following study questions led this research:

1. What is the extent of utilisation of PHC services among women in Rivers East Senatorial District, Rivers State?
2. To what extent does the availability of services constitute a determinant of PHC services utilisation among women in Rivers East Senatorial District, Rivers State?
3. To what extent does accessibility to services constitute a determinant of PHC services utilisation among women in Rivers East Senatorial District, Rivers State?

Hypotheses

The following theories guided this investigation:

1. There is no significant relationship between the availability of services and the utilisation of primary healthcare services among women in Rivers East Senatorial District, Rivers State.
2. There is no significant relationship between accessibility to services and primary healthcare services utilisation among women in Rivers East Senatorial District, Rivers State.

Methodology

One of Rivers State's three senatorial districts, Rivers East Senatorial District, is where the study was carried out. Emohua, Etche, Ikwerre, Obio-Akpor, Ogu-Bolo, Okirika, Omuma, and Port Harcourt are its eight local government areas. Utilizing a descriptive cross-correlational study approach, with a population of 133,545 and a sample size of 1596 women, which was obtained using the Taro Yamane formula ($N / 1 + N(e)^2$) for sample size calculation. For the

investigation, a multi-stage sampling approach was employed to choose the 1,596 models for the research. First, the senatorial district was divided into four clusters using a cluster sampling technique based on their cultural similarities (Cluster 1 – Obio/akpor and Port Harcourt; Cluster 2 – Etche and Omuma; Cluster 3 – Ikwerre and Emohua; Cluster 4 – Okrika and Ogu/bolo). In the second phase, a straightforward random sampling method was employed to choose one LGA from each cluster, which included Port Harcourt, Emohua, Okrika, and Etche. Two communities from each Local Government were chosen at the third stage using a straightforward random sampling procedure. In the fourth phase, a straightforward random sampling method was employed to choose respondents from the selected communities. Data were gathered via an instrument titled Utilisation of Primary Healthcare Services (UPHS), having a 0.80 reliability coefficient. All statistical analyses were conducted using the Statistical Product for Service Solution (SPSS) version 27.0. Statistical techniques, including mean and standard deviation, were used to address the study's concerns, while Pearson Product-Moment Correlation (PPMC) was used to assess hypotheses.

Results

Table 1: Mean and Standard deviation showing the extent of utilisation of PHC services among women in Rivers East Senatorial District.

s/n	Items	Mean	SD	Decision
1	Use of the family planning services provided in the PHC	2.94	0.39	High extent
2	Utilise the postnatal services provided in the PHC.	2.12	0.56	Low extent
3	Use the PHC facility for the delivery of my babies.	2.06	0.85	Low extent
4	Utilise the Antenatal care services provided in the PHC	3.17	0.99	High extent
5	Learnt how to breastfeed my babies adequately from the PHC	2.71	0.87	High extent
6	Use the PHC facility for the immunisation of myself and my babies	3.49	1.73	High extent
7	Immunisation unit is functional in both the PHC and the community.	3.43	0.81	High extent
8	Have access to safe and clean drinking water.	1.74	0.98	Low extent
9	Women are encouraged on the type of food they need to eat during pregnancy during their visit to PHC.	3.19	0.87	High extent
10	Essential drugs needed for the treatment of common ailments are available and administered in the PHC.	2.17	0.84	Low extent
11	PHC provides food supplements for pregnant women.	1.63	0.89	Low extent
12	Health talks on personal hygiene are given in the PHC	3.06	0.94	High extent
13	Health care personnel educate women on how to prevent prevailing health problems.	2.52	0.98	High extent
14	In the PHC, illness and injury treatment is completed quickly.	2.07	0.96	Low extent
15	Satisfied with the treatment given.	2.04	0.99	Low extent
16	Chronic diseases are managed in the PHC	1.07	1.04	Low extent
17	Cases unable to be handled in the PHC are referred out.	2.35	1.08	Low extent
Grand Mean		2.46	0.93	Low extent

Criterion Mean: 2.50

The result showed the extent of utilisation of PHC services among women in Rivers East Senatorial District, Rivers State, in Table 1. The result revealed a grand mean of 2.46 ± 0.93 , which is less than the criterion mean of 2.50, indicating a low extent of utilisation. Specifically, the use of PHC facilities for the delivery of their babies had a low level of utilisation, with a mean of 2.06 ± 0.85 , and satisfaction with the treatment given was also low, with a mean of 2.04 ± 0.99 . However, the utilisation of family planning services was high, with a mean of 2.94 ± 0.39 , and antenatal care services utilisation was also high, with a mean of 3.17 ± 0.99 . Overall, the extent of utilisation of PHC services among women in Rivers East Senatorial District, Rivers State was low.

Table 2: Mean and Standard deviation showing the extent to which the availability of services constitutes a determinant of PHC services utilisation among women in Rivers East Senatorial District.

s/n	Items	Mean	SD	Decision
1	Health education services are available	3.82	0.62	High extent
2	Maternal, child health, and family planning services provided	3.91	0.64	High extent
3	Immunisation services are provided	3.88	0.88	High extent
4	Dental care services offered	2.23	0.97	Low extent
5	Mental care services available	1.84	0.52	Low extent
6	Essential drugs provided	2.54	0.59	High extent
7	Safe water and nutrition services are provided	2.19	0.78	Low extent
8	Treatment services for common diseases and injuries are available.	3.63	0.75	High extent
	Grand Mean	3.01	0.72	High extent

Criterion Mean: 2.50

The result in Table 2 showed the extent to which the availability of services constitutes a determinant for women in Rivers State's Rivers East Senatorial District to use PHC services. A large extent was indicated by the grand mean of 3.01 ± 0.72 , which is higher than the qualifying mean of 2.50. Specifically, health education services had a great extent of 3.82 ± 0.62 ; immunisation services had a great extent of 3.88 ± 0.88 . Thus, the extent to which the availability of services determines PHC services utilisation among women in Rivers East Senatorial District was great.

Table 3: Mean and Standard Deviation Showing the extent to which accessibility to services constitutes a determinant of PHC services utilisation among women in Rivers East Senatorial District.

s/n	Items	Mean	SD	Decision
1	Prefer the PHC facility because it is close to my house.	3.70	0.67	High extent
2	Cost of services in the PHC facility affordable.	3.18	0.66	High extent
3	Healthcare providers are always on the ground to attend to every patient.	2.21	0.84	Low extent
4	PHC facilities provide easy access to a doctor on every visit.	1.92	0.89	Low extent
5	Health care facilities are not far from residential areas.	2.60	0.84	High extent
	Grand Mean	2.72	0.78	High extent

Criterion Mean: 2.50

Table 3's findings demonstrated how much accessibility to services influences women's use of PHC services in Rivers State's Rivers East Senatorial District. The outcome showed a grand mean of 2.72 ± 0.78 , which is higher than the 2.50 criterion mean, indicating a great extent. Specifically, the cost of services is affordable to a great extent, 3.18 ± 0.66 ; the proximity of the PHC facility to their houses was to a great extent, 3.70 ± 0.67 . Thus, the extent to which accessibility to services determines PHC services utilisation among women in Rivers East Senatorial District was great.

Table 4: Pearson Correlation analysis showing the relationship between the availability of services and the utilisation of primary healthcare services among women in Rivers East Senatorial District.

Variables		Availability of services	utilization	Decision
Availability	Pearson correlation	1	0.53	H_0 rejected
	Sig.		0.00*	
	N	1549	1549	
Utilization	Pearson correlation	0.53	1	
	Sig.	0.00*		
	N	1549	1549	

***Significant; $p < 0.05$**

The Pearson Correlation analysis of the association between primary healthcare service use and service availability. Table 4 displays the percentage of Rivers East Senatorial District women. The results demonstrated a statistically significant correlation ($p < 0.05$) between service availability and PHC service use ($n = 1549$, $r = 0.53$, $p = 0.00$). The null hypothesis, which stated that there is no significant relationship between the accessibility of services and the utilisation of PHC services by women in the Rivers East Senatorial District of Rivers State, was thus rejected.

Table 5: Pearson Correlation analysis showing the relationship between accessibility to services and primary healthcare services utilisation among women in Rivers East Senatorial District.

Variables		Accessibility to services	utilization	Decision
Accessibility	Pearson correlation	1	0.44	H_0 rejected
	Sig.		0.00*	
	N	1549	1549	
Utilization	Pearson correlation	0.44	1	
	Sig.	0.00*		
	n	1549	1549	

***Significant; $p < 0.05$**

The Pearson Correlation analysis of the association between primary healthcare service use and service accessibility amongst women in the Rivers East Senatorial District is shown in Table 5. The findings showed that accessibility to services and the use of PHC services were statistically significantly correlated, with $p < 0.05$ ($n = 1549$, $r = 0.44$, $p = 0.00$). As a result, the null hypothesis, which claimed that there is no meaningful connection between women's utilisation of basic healthcare services in the Rivers East Senatorial District of Rivers State and their access to services, was rejected.

Discussion

The outcome showed a low extent of women using PHC services (grand mean of 2.46 ± 0.93). This finding may not be surprising because, due to the economic challenges in many families, women prefer seeking care in places like maternity homes and TBA where the cost of service is cheaper and more affordable for them. For instance, the use of PHC facilities for the birth of babies had a low level of utilisation (2.06 ± 0.85). This result is comparable to that of Ugochukwu et al. (2022), who found that there was little use of basic medical care in a remote Enugu State village. The last time they were ill, just 155 people (46.2%) used the community's main healthcare facilities. Additionally, in accordance with the findings of Iyinbor et al. (2022) in Egor LGA, Edo State, Nigeria, which revealed that 171 (46.1%) of the respondents had used PHC services. Of the respondents, 45 (26.3%) and 39 (22.8%) most frequently used immunisation and child health care services, respectively. This result was also consistent with Abdulaziz et al.'s (2022) study on factors related to PHC service utilisation among adult KSA residents, which found that primary health care service utilisation in the research environment was low. Additionally, Opeyemi et al. (2023) found that Lagun Community, Lagelu Local Government Area, Oyo State, Nigeria, used basic healthcare facilities; of which 31.8% of the women had not utilised the primary health care facility. The similarity between the outcome from these investigations and the present research could be because of the similarities in study design, since a descriptive design was used in both investigations. The results, however, contradict those of Agofure and Sarki's (2017) study on PHC service utilisation in the Jaba Local Government Area of Kaduna State, Nigeria, which found that 330 (97.10%) of the respondents used primary health care services. Also, the results from the study of Richard and Kio (2021) give a total mean score of 0.781 and a percentage of 78.1%. In Odeda LGA, Ogun State, it turned out that the parameters impacting the usage of PHC services among women of reproductive age were above average. The difference between the outcomes of this past research and the current study may be due to variance in the study's location where the research was carried out, as the environment influences the lifestyle and choices of the people residing there. Furthermore, the research is not the same as the research of Peter-Kio and Okem (2023) among women in Cross-Rivers State that revealed the high degree to which women use PHC services. This difference could be as a result of the variance in the study research design, as the current study used a descriptive study design while that of Peter-Kio adopted a comparative study design. This study result was also in variation from Samuel and Ogar (2024) among adults in Benue State's rural villages who had a high degree of healthcare knowledge and utilisation. This difference in result could be due to the fact that the present study was among women alone, while that of Samuel was among adults.

The findings of the study revealed a grand mean of 3.01 ± 0.72 , which is more than the 2.50 threshold mean, indicating that women in the Rivers East Senatorial District are using PHC services more frequently, hence are heavily influenced by service availability. This finding was expected, probably because people can only patronise or utilise services which are available. The availability of a health care service precedes its utilisation. This result is consistent with Okonofua et al. (2018)'s study on factors influencing women's primary healthcare utilisation in rural Nigeria, which revealed that the respondents utilised (14.1%) the PHC facility because the service providers are available. In addition, the result from Jaba LGA, Kaduna State, Agofure and Sarki (2017) found that immunisation accounted for 115 (34.30%) of the respondents' primary health care visits and family planning 9 (2.70%) because the services were available. The correlation between the results from the past study and this present study could be associated with the similarity in sample size, as they were in close range. A study by Richard and Kio (2021), in contrast, 188 (51.2%) women of reproductive age in Ogun State indicated that primary health care physicians were rarely accessible at the primary health care clinics. Ugochukwu et al. (2022) reported in their study in Enugu State that lack of medical professionals (23.0%) and unavailability of drugs (14.0%) were some justifications for not using PHC services. The study's findings also demonstrated a strong correlation between availability and PHC utilisation amongst women in the Rivers East Senatorial District ($n = 1549$, $r = 0.53$, $p = 0.00$). This result was not similar to the result of Opeyemi et al. (2023) on usage of basic healthcare facilities in Oyo State, who showed that utilisation of healthcare facilities did not significantly correlate with availability ($X^2=1.000$, $df=1$, and $p=0.521$). The variance between the findings of both the current study and these earlier investigations could be because of the heterogeneity in the study respondents, as the present study was carried out among women only, while the previous ones incorporated adults, both men and women.

The study's conclusions showed the grand mean (2.72 ± 0.78) is superior to the standard mean of 2.50, which indicated that the extent to which accessibility to services determines PHC services utilisation amongst women in Rivers East Senatorial District was high. The outcome was foreseen because the financial resources and geographical location of a person strongly determine their utilisation of a facility or services, as finance is an enabling factor to any health care utilisation. This result is akin to the result from Iyinbor et al.'s (2022) study on perceptions and variables affecting South-South Nigerians' usage of PHC services; one of the main factors that respondents believed contributed to the low use of PHC services in the LGA was the distance to the PHC facility 13 (7.6%). This result is consistent with reports from Agofure and Sarki (2017) in Jaba LGA, Kaduna State, who discovered that one factor contributing to PHC utilisation in that area was distance ($AOR=1.053$, $95\% CI=0.526-2.110$) from the institution. The study's findings supported those of Okonofua et al. (2018) about the use of primary healthcare by women in rural Nigeria, which revealed that closeness of the facility to their residence (27.2%) was part of their reason for utilising the PHC services. The result was also in uniformity with the findings of Igwe et al. (2014) among women in Anambra State, which revealed that proximity to the health facility (37.9%) was a major factor considered in deciding whether to use the PHC services. The outcome corroborated the findings of Ramadina et al. (2021) of Karawang District, who reported that of 513 respondents, 82.6% reported miles, 94.3% reported trip time, 73.1% reported transportation expenditures, and 97% reported methods of transportation. This finding demonstrated that geographical obstacles, including distance, lengthy journey times, and high transportation expenses, continue to make PHC less accessible in a number of Karawang District subdistricts. Given that both studies were conducted among women, the closeness between the results of the current study and the earlier ones could be the result of the subjects' uniformity. Additionally, the results of this study showed a strong correlation between primary healthcare utilisation amongst women in the Rivers East Senatorial District and accessibility ($n = 1549$, $r = 0.44$, $p = 0.00$). These were also in accordance with the findings of Ugwu and Okpala (2024) in Anambra State, which revealed that there was a significant relationship ($df = 4$; $\chi^2 = 79.6015$, $p = 0.00$) between respondent's place of residence and their utilisation of health care for mental health issues. On the other hand, a study by Opeyemi et al. (2023) found no statistically significant relationship between accessibility and the utilisation of basic medical services in Oyo State, Nigeria's Lagun Community, Lagelu Local Government Area ($X^2=1.000$, $df=1$, and $p=0.265$). In their 2013 study, Egbewale and Odu examined how a semi-urban population in South-Western Nigeria perceived and used primary health care services and revealed that most (75.7%) participants believed that PHC facilities were readily accessible, but (26.7%) complained of the far distance from PHC facilities, hence their reason for non-utilisation. The difference in the results might be due to the period between when the previous studies were carried out and this current study, as several things have changed over time that could have influenced their health care utilisation choices.

Conclusion

The extent of PHC services utilisation was low amongst women in Rivers East Senatorial District. However, factors like availability of services and accessibility to the services also played a function in determining the utilisation of PHC services among women.

Recommendations

1. The Government through the Ministry of health should re-evaluate the delivery of PHC services to identify the gap in its utilisation and provide practical strategies to improve the usage of PHC services by women.
2. The Primary Health Care board should collaborate with the LGA chairpersons to provide adequate funds for procurement of all necessary resources needed for optimal delivery of PHC services to ensure the availability of services.
3. Community stakeholders should be fully involved in the delivery of PHC services by confirming that supplies provided by the government are accessible to the women at the grassroots level. This they can do by sending reports to the appropriate quarters where such services are scarce.

References

- Abdulaziz, F. A. A., Naif, H. Q., Ahmed, J. A. Q., Ahlam, S. A. A., Ruby, A. M. B., Nami, A. A. A., Fahad, R. K. A., Abdulghani, J. S. A., Turki, M. A., Adel, A. A. A., Muneer, M. A., & Randa, M. A. (2022). Factors affecting primary health care services utilization: A cross-sectional study. *Migration Letters*, 19(8), 544-552.
- Agofure, O., & Sarki, E. (2017). Analysis Utilization of Primary Health Care Services in Jaba Local Government Area of Kaduna State Nigeria. *Journal of Health Science*, 27(4), 339-350.
- Dassah, E., Aldersey, H., McColl, M. A., & Davison, C. (2018). Factors affecting access to primary health care services for persons with disabilities in rural areas: A “best-fit” framework synthesis. *Global Health Research and Policy*, 3(1), 1-13.
- Egbewale, B. E., & Odu, O. O. (2013). Perception & utilization of primary health care services in a semi-urban community in South-Western Nigeria. *Journal of Community Medicine and Primary Health Care*, 24 (1&2), 11-20.
- Eseadi, C., Amedu, A. N., Ilechukwu, L. C., Ngwu, M. O., & Ossai, O. V. (2023). Accessibility and utilization of healthcare services among diabetic patients: Is diabetes a poor man's ailment? *World Journal of Diabetes*, 14(10), 1493–1501.
- Igwe, I., Ujua, T. A., Atama, C., Ugwu, C., & Obekezie, D. S. (2014). Health workers attitude/behaviour influence on women access to primary health care services in Orumba North Iga, Anambara State, Nigeria. *Archives of Business Research*, 2(4), 21-27.
- Iyinbor, V. T., Olu, O. O. M., Nwaogwugwu, J. C., & Adam, V. Y. (2023). Perceptions and factors affecting utilization of primary health care services in a predominantly urban community in South-South Nigeria. *Journal of Medicine and Biomedical Research*, 22 (2), 38 – 46.
- Kreuter, M. W., Thompson, T., McQueen, A., & Garg, R. (2021). Addressing social needs in health care settings: Evidence, challenges, and opportunities for public health. *Annual Review of Public Health*, 42, 329–344. <https://doi.org/10.1146/annurev-publhealth-090419-102204>.
- Multiple Indicator Cluster Survey/National Immunization Coverage Survey. (2021). In: *Statistical report on women and men in Nigeria 2022*. National Bureau of Statistics Publication.
- Okonofua, F., Ntoimo, L., Ogungbangbe, J., Anjorin, S., Imongan, W., & Yaya, S. (2018). Predictors of women's utilization of primary health care for skilled pregnancy care in rural Nigeria. *BMC Pregnancy and Childbirth*, 18(1), 106. <https://doi.org/10.1186/s12884-018-1730-4>.
- Opeyemi, T., Awesu, T. K., Amubieya, O. E., Dipeolu, I. O., Oluwasanu, M. M. & 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.
- Parvin, F., Ali, S. A., Hashmi, S. N. I., & Khatoon, A. (2021). Accessibility and site suitability for healthcare services using GIS-based hybrid decision-making approach: A study in Murshidabad, India. *Spatial Information Research*, 29(1), 1–18.
- Peter-Kio, O. B., & Okem, F. O. (2023). Spatial analysis of primary healthcare services utilization among women in Cross River State, Nigeria. *FNAS Journal of Mathematics and Science Education*, 4(2), 71-78.
- Ramadina, N., Muyla, N. A., & Budi, S. (2021). Geographic Accessibility towards Primary Health Care in Karawang District. *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, 16(3), 191-197.

- Richard, A. O. & Kio, J. O. (2021). Factors influencing utilization of primary health care services among women of child bearing age in Odeda Local Government Area, Ogun State. *International Journal of Medicine, Nursing and Health Sciences, (IJMNHS.COM)*, 2(6), 41 –58.
- Samuel, G. K., & Ogar, O. (2024). Factors associated with healthcare services utilization among adults in rural communities of Benue State. *FNAS Journal of Health, Sports Science and Recreation*, 1(1), 15-24.
- Statistical Report on Women and Men in Nigeria. National Bureau of Statistics. (2023). https://www.nigerianstat.gov.ng/pdfuploads/2021_Statistical_Report_On_Women_and_Men.pdf
- Tanou, M., Kishida, T., & Kamiya, Y. (2021). The effects of geographical accessibility to health facilities on antenatal care and delivery services utilization in Benin: A cross-sectional study. *Reproductive Health*, 18(1), 205-215.
- Ugochukwu, U. N., Onyekachi, M. U., Adanma, C. E., Izuchukwu, F. O., Chinemerem, D. O., & Chuka, A. (2022). Determinants of primary healthcare services utilisation in an under-resourced rural community in Enugu State, Nigeria: A cross-sectional study. *Pan African Medical Journal*, 42(209), 1-11.
- Ugwu, U. T. & Okpala, C. O. (2024). Cultural beliefs and healthcare utilization in Anambra State, Nigeria. *African Journal of Social & Behavioural Sciences (AJSBS)*, 14(6), 3442-3457.
- World Health Organization. (2020). *Primary health care: A strategic approach*. <https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/water-safety-and-quality>
- Yunus, N. M., Abdullah, M. Z., Nurul, F. B. R., & Shaiba, A. (2024). The impact of healthcare service quality on patient satisfaction at university health center. *Information Management and Business Review*, 16(3(I)S), 440–451.