Innovations

Factors Militating Against Effective Maternal Health Services Utilization at Primary Health Care Level in Benue State, North Central Nigeria

Sunday Adakole Ogli[1], Magaret Ada Onuh[2]

[1]Associate Professor, Department of Physiology, College of Health Sciences, Benue State University, Makurdi, Nigeria

[2]Ph.D Scholar, Department of Nursing Science, Lincoln University College, Malaysia

[1]Orcid.org/0000-0002-9711-1270

Corresponding Author: **Sunday Adakole Ogli**

Abstract

Background*: The objective of maternal Health services (MHS) provision is the wellbeing of mother and child before, during and after pregnancy periods. Full utilization of MHS components is key to reducing maternal mortality rate (MMR) in Benue state. However, many mothers default in utilizing MHS at health facilities. This study was therefore designed to investigate barriers to full utilization of MHS at the primary health care centers in the three Senatorial zones of Benue state, Nigeria.* ***Methods: M****ultistage random sampling technique was adopted to select 360 women of childbearing age and 72 health workers from 2 Local government areas from each of the 3 Senatorial zones of Benue state. Pretested and validated Questionnaire titled 'EMHSPUBS' was used for data collection after obtaining consent from the Respondents. Their responses were graded on Likert 4 point scale, with Alpha mean score fixed at 2.50.* ***Results****: Mean age of respondent mothers was 32 ± 6.76 years. Majority of them were literate (94%) and self-employed, but classified as low-income earners. Identified barriers to MHS utilization in Benue state included mothers traditional beliefs, poor and discouraging health worker attitude and poor infrastructural provision in the 3 Senatorial zones of the state.* ***Conclusion:*** *Barriers to full MHS utilization exist in the 3 Senatorial zones of Benue state. This poses a grave challenge to maternal and infant health, potentially promoting high MMR in the state. This challenge must be addressed urgently by all stakeholders in Benue state for the wellbeing of the mother and her child.*

Key words: *Maternal health services, Maternal mortality rate, Senatorial zones, Sustainable development goal, Utilization barrier*

Introduction

Maternal health care, a very fundamental aspect of health of any group of people or nation, is the state of physical, mental and social wellbeing of the woman in relation to the reproductive system and processes of childbearing [1]. Health care services which are rendered to mothers before, during, and after childbirth focused on improving the overall well-being of the mother and creating the opportunity for mothers to make informed choices about their health as well as that of their babies in line with a set of evidence-based guidelines constitute maternal health services (MHS). Provision of MHS (the way variables such as money, staff, equipment, drugs and other logistics are combined to allow for delivery of effective maternal health interventions) [1,2] and its full utilization (the uptake of recommended number of antenatal care (ANC) visits, delivery of a child by skilled health personnel, and uptake of appropriate postnatal (PNC) services) [3,4] are targeted at reducing maternal mortality and pregnancy-related morbidities to the barest minimum in line with Sustainable Development Goal (SDG) 3.1 [5]. The entry point of MHS, and indeed the entire health system, is at the primary health care (PHC) level, where quality health care is brought closest to the people in a manner that is available, affordable and acceptable [6]. Access to PHC services has been linked to better health outcomes [7], including reduction in maternal and infant mortality rates.

The adoption of SDG 3.1 amongst others, by world leaders in the year 2000 was to reduce the maternal mortality rate (MMR) (and by extension, infant mortality and morbidity) to less than 70 maternal deaths per 100,000 live births in the year 2030 [5] through the provision of universal access to maternal healthcare [8]. However, the global outlook of MMR has remained a subject of great concern more than halfway to the target year 2030. I*n* lower- and middle-income countries (LMICs), the global MMR estimate was 430 per 100 000 live births compared to MMRs of 10-18 deaths per 100,000 live births and neonatal mortality rates of less than 4 deaths per 1000 live births in high-income countries like the UK and the US [9]. Nigeria and India alone accounted for 34% of global maternal deaths [10].

Nigeria has one of the highest MMR globally. In 2018 alone, the national MMR was estimated to be 512 deaths per 100,000 live births. This estimate rose to over 814 maternal deaths per 100,000 live births with a neonatal mortality rate of 33 per 1000 live births in 2019 [10,11,12]. The World Health Organization (WHO) factsheet of March 2023 showed that between 2017 and 2020, the maternal mortality rate in Nigeria rose by approximately 14%, from 917 to 1047 deaths per 100,000 live births [13]. Maternal mortality a major public health concern in Nigeria, and therefore, the call for urgent comprehensive maternal health measures [14].

Utilization of all the 3 components of MHS, which include: i) full antenatal care, ii) skilled, and safe facility-based delivery care, iii) respectful maternity care and post-natal care (with postpartum and post-abortion family planning) coupled with a

functional referral system has the potential of mitigating this poor state of maternal health care in the nation [3,5,7,11]. However, many women experience a form of barrier or the other to utilization of full maternal health care. According to the World Health Organization (WHO), there are five major maternal health-related barriers, namely (i) poverty, (ii) lack of information, (iii) distance to health facilities, (iv) inadequate and poor birth related services, and (v) cultural beliefs and practices [15,16]. In Benue state however, the pattern of barrier to utilization of MHS has not been well documented. This study, therefore, set out to investigate the factors that act as barriers to effective utilization to MHS at the PHC level in Benue state. It is hoped that data obtained shall add to the pool of knowledge regarding utilization of MHS in Benue state and provide government with the necessary tool for better maternal health care delivery.

Methods

This was a cross-sectional study conducted in Benue State which is an agrarian state situated in North Central Nigeria. It lies between Latitudes 6.5° and 8.5° North and Longitudes 7.47° and 10° East and shares boundaries with states like Nasarawa to the north, Taraba to the east, Kogi and Enugu to the west and Ebonyi and Cross River to the south. It also shares an international boundary with the Republic of Cameroun in the south-east.

The study population comprised of 563,005 women of childbearing age (15-49 years) attending antenatal and postnatal clinics and 3,024 registered health care personnel providing MHS at the selected health care PHC centers in selected local government areas (LGAs) of Benue State. Using Yamane's statistical formular, a sample population of 432 respondents (comprising of 360 women 72 trained health care providers) were selected through multistage sampling design. Firstly, two LGAs were selected from each of the 3 senatorial zones (A, B and C) of the state, followed by the selection of two PHC centers each from the selected LGAs. Using random sampling, 10 women and 2 trained health care providers were subsequently selected from each PHC center in the state for the study.

After obtaining the necessary consent from the participants, a pre-tested and validated structured questionnaire developed by the authors titled "Extent of Maternal Health Services Provision and Utilization in Benue State" (EMHSPUBS) was used to collect data from the respondents. The responses of the respondents were graded on Likert four-point scale format of 4-Very High Extent (VHE), 3-High Extent (HE), 2-Low Extent (LE) and 1-Very Low Extent (VLE) respectively. Consented Clients were aided and guided in filling in the questionnaire. Filled questionnaires were duly retrieved.

Statistical Analysis

Collated respondents' responses were processed on 2010 Microsoft Excel spread sheet. Analysis of data was done using SPSS version 2021. Frequency distribution and simple percentages were used to describe the socio-demographic characteristics of the respondents. Responses to the research enquiries were expressed as Mean ± standard deviation (SD). An Alpha mean score of 2.50 was set as score point between high extent and low extent of responses. Chi-square test was used to test the hypotheses at 0.05 level of significance.

Results

Sociodemographic Characteristics of Respondents

The sociodemographic characteristics of the respondents are given in Table 1. The mean age of the respondents was 32 ± 6.76 years (age range of 31-40 years), indicating an active reproductive women population. Majority were Christian (78.4%). 241 or 55.7% of the respondents were unmarried, with majority of them (165 or 41.2%) having 2 children only. Of the 94% of the respondents with formal education, those with secondary level education constitute the majority (172 or 39.7%). 382 or 88.5% of respondents had acquired a form of vocation with hairstyling been the favorite vocation acquired (187 or 43.3%). This underscored the high self-employment status (181 or 41.8%) among the mothers. With majority of the mothers (173 or 40%) earning an average monthly income of N16,000-N20,000, the respondents can best be described as low-income earners. 70% (302) of the women resided in the rural communities.

Extent of MHS Provision and Utilization in the Three Senatorial Zones of Benue State

The extent of provision of MHS across the three senatorial zones of Benue state are shown in Table 2. Provision of MHS was significantly different ($p < 0.05$) across the three Senatorial zones in the state. It was highest in Zone B, followed by Zone A and then Zone C (43.3%, 41.4% and 15.3% respectively). At the level of the components of MHS, ANC and PNS services provision were of high extent (27.8% and 8.35% respectively) in Zone A, but relatively of low extent in Zones B and C. DC service provision was higher than ANC and PNC in Zone B at 32.4% and 11.3 respectively. In Benue state, the overall extent of provision of DC, ANC and PNC services were significantly different ($p < 0.05$) at 42.7%, 39.0% and 13.8% respectively.

Closely related to the extent of MHS provision, is the extent of utilization of MHS in the 3 senatorial zones of Benue state as shown in Table 4. Zone B had the highest extent of utilization, followed by Zone A and C (41.9%, 39.6% and 18.5% respectively). Regarding the components of MHS, the table further showed that ANC > PNC > DC in Zone A, while DC > ANC > PNC in Zones B and C. The

utilization of MHS in Benue state was likewise significantly different ($p < 0.05$); DC > ANC > PNC (49.5%, 41.0% and 9.5% respectively).

These findings suggested that across the 3 senatorial zones of Benue state, there exist a close correlation (in percentile) between MHS provision and utilization. Zone C was worst performing in the provision and utilization of MHS in the state.

Factors affecting Extent of MHS Utilization at PHC Level in Benue State

The extent of utilization in PHC centers in Benue State are presented in Table 4, expressed as mean scores ± SD. The result showed an overall aggregate score of 2.91 ± 0.63. which is greater than the alpha criteria score of 2.50. This implies a potential for high extent of MHS utilization at the PHC centers in Benue state. The presence of trained skill health workers and routine laboratory screening (2.97 ± 0.88) as well as the availability of immunization services (2.73 ± 0.99) at the health facilities were factors respondents adduced as reasons for utilizing MHS in Benue state, Nigeria.

On the other hand, the result showed that regular ANC visits were low extent (1.81 ± 0.68 < 2,50), poor and unfriendly attitude of health care workers was high extent (3.21 ± 0.98), long distance of health care facility from respondents' home was high extent (2.97 ± 0.91) and availability functional equipment needed for delivery and postnatal cares was low extent (2.09 ± 1.06). Thus, respondents' misconception of ANC services, poor health worker attitude to mothers, in accessibility of health facilities and lack of functional equipment were identified as barriers to MHS utilization at PHC level in Benue state.

Discussion

The present study investigated barriers to utilization of MHS at PHC level in Benue state, North central Nigeria. Full uptake of ANC, DC and PNC services holds the key to reducing the high maternal and infant mortality prevalent in Nigeria and other lower- and middle-income countries (LMICs). Nigeria. Unlike the position of an earlier study [16], barriers to utilization of MHS in Benue state were identified and categorized into 3 broad thematic areas: i) individual barrier (mothers), ii) health worker barrier and iii) MHS logistic barrier.

i) Health User Barrier

The respondents in the present study, with a mean age of 32 ± 6.76 years (age range of 31-40 years), were largely educated (94%) and hence more likely to be knowledgeable about MHS. Similar age and literacy findings have been documented in earlier studies [17,18]. This accounted for the high extent of perceived utilization of MHS, which is not surprising for a population that were semi-urban dwellers and possessing one form of vocation or the other that yield a monthly income of ₦16 - N20 (hence the classification of our respondents as low-income

earners). This perception of high extent utilization of MHS does not translate to actual uptake of MHS by the respondents [16] due to some factors raised by them that may qualify as barriers to MHS utilization.

Despite these positive demographic attributes observed above, the low economic status of the mothers was a major barrier to utilization of MHS at the PHC level in Benue state. In seeking health care services (ANC, DC and PNC), mothers may be required to pay for transport, investigations, drugs and consumables where necessary. The economic status of one or both spouses has been shown to be major determinant, amongst other factors, in the use of MHS [19,20]. Thus, lack of strong economic power was a major barrier in the utilization of MHS by the respondents, especially in the face depressed Nigerian economy. This may account for why some of the respondents do not regularly attend antenatal clinic despite the availability of the service, with others preferring the services of TBAs, whose services were considered more affordable [16,21].

Some of the respondents chose not to utilize healthcare services in health facilities because of their belief and stronger trust in cultural practices than in the ANC services rendered by skilled healthcare workers [15,16,21-24]. Thus, they saw no need to visit the facility for ANC services. Some of the women expressed discomfort with male health worker performing delivery services during labour; a practice considered a taboo in some cultures. For these women, services of TBAs were the preferred choice since they were usually female. Indeed, several studies have identified cultural norms and associated practices such as use of traditional medicine, belief in myths and home deliveries as factors that pose significant barrier to use of MHS in Nigeria [25,26].

ii) Health Provider Barrier

Poor attitude of health workers at the health facility featured significantly as a barrier to the utilization of components of MHS by the mothers in Benue state. The respondents in this study expressed dissatisfaction with the uncaring and negligent attitude of health care providers to their reproductive health needs as well as their babies. The resultant effect is discouragement of the mothers from fully utilizing MHS (especially DC services) at the health facilities, increased patronage of home services TBAs and outright refusal to undertake antenatal and postnatal services. Previous studies have shown that the disrespectful behavior of health professionals towards pregnant women was a major barrier to institutional delivery [15,16,27]. An Indian mother once reported that

"My first delivery was conducted in a government hospital. They admit you, allot you a bed, and then they treat you badly. The nurses scream so loudly as if they are Gods themselves. Rather than helping the women in labor, they abuse them. I was shouted at and even slapped in the labor room. I was so scared that I planned my second delivery at home. I received more care at home than at the hospital. I would

advise others not to go there ever" [28].

Other barriers to utilization of MHS identified by the respondents were the poor quality of care provided by the health care givers and their frequent absence from duty post. The mothers complained about the fact that care administered by healthcare givers does not yield the desired outcome due to lack of regular training. This made the mothers seek health services elsewhere, which often is associated with additional cost. In some other instances, absenteeism and lateness to work discouraged the mothers from utilizing health care at the health facilities because they often had to spend long hours at the health facility waiting for the healthcare giver who were either absent from work or came to work late [15,29]. There is also the challenge of poor renumeration of trained health workers [15,30] across countries. the effect if this in Nigeria and Benue state is seen in health workers not receiving regular training to sharpen their skills, abandon their responsibilities at the healthcare facilities for engagement in other ventures like farming, business or private practice in order to augment their income [31,32]. This has also been responsible for the numerous industrial actions that have bedeviled the health sector and apathy of health professionals towards delivery of quality MHS [26,33]. In recent times, absenteeism by health workers has been caused by rising insecurity in some parts of the state. Insecurity has been recognized as a significant barrier to healthcare delivery in Nigeria. Studies have established that violence against health workers is a major factor contributing to poor health delivery [34]. The overall effect of these factors is low extent of utilization of MHS components.

iii) Infrastructural and Logistical Barrier

Another identified barrier to utilization of MHS by mothers in Benue state was infrastructural deficit such as lack of basic equipment for delivery services, drugs and consumables. The mothers were particularly dissatisfied with the quality of delivery and post-natal care services offered at the health facilities. According to studies, lack of and use of obsolete equipment for maternal healthcare delivery, lack of drugs and consumables are counterproductive to the goal of reducing MMR [29,30,31]. Some respondents indicated that long distance of government provided PHC facilities was the reason for their not been able to utilize MHS. For such mothers, accessing the health facility demanded that they pay exorbitant transport fares, traverse poor terrain and the rough road infrastructure commonly obtained in most rural areas of low-income countries. Studies have supported the role of long distance in limiting the uptake of the various components of maternal health [35,36]. Poor road conditions [37] and lack or delay of ambulance service [15] were other major barriers to utilizing ANC, DC, and PNC services. Consequently, many women resorted to home deliveries in the hands of unskilled birth attendants.

In the present study, MHS utilization correlated well 4ith its provision (Tables 2 and 3). Delivery care service provision across the 3 senatorial zones was highest, followed by ANC services and finally PNC services. Likewise, the utilization of DC was highest, followed by ANC & PNC services in the senatorial zones. This showed that poor provision of MHS was a barrier to its utilization by mothers. The differences in the provision and utilization of MHS across the 3 senatorial zones may be due to differences in the ethno-religious, sociocultural, economic, geographical and political background of the different communities. These attributes have been shown to significantly contribute to inequality in provision and distribution of health resources in general and consequently barrier to utilization of MHS, both in Nigeria and other parts of the globe [14,15,35,37-39].

Conclusion

The present study conducted in Benue state has shown that there was a low extent of utilization of ANC, DC and PNC services at PHC facilities in Benue state despite the high awareness of MHS utilization. Identified factors posing significant barriers to and responsible for MHS underutilization by women in the state were (i) health user barrier (barriers related to mothers which are as poor economic status, risky trado-cultural beliefs and practice, patronage of untrained TBAs), (ii) Heath provider barrier (include unfriendly attitude towards the maternal health seekers or the women, lack of regular training, poor renumeration, insecurity at workplace) and (iii) infrastructural and logistical barrier (including poorly equipped and insecure health facility, lack of drugs and consumables at health facility, lack of effective referral system and ambulance service as well as poor state of roads in most of the rural and semi-urban areas of the state). These barriers have contributed largely to the sustained high MMR in Benue state and Nigeria.

Ethical Statement: Institutional ethical clearance was obtained on certificate number CREC/THS/003 for the present study from the College of Health Sciences, Benue state, Nigeria. Requirement for informed consent was approved alongside with the questionnaire

Funding: The authors hereby declare that there was no external funding of any form for this study. All expenses for the study were borne by the authors.

Conflicts of Interest Disclosure. The authors do hereby declare that there is no conflict of interest in this study.

Author Contributions

Conceptualization, Field Survey, Data collection: all Authors; Research methodology, Research Supervision, Writing-Editing and Review: SAO; Data Analysis: MAO, EAO, Resource mobilization, Writing-original draft: MAO.

References

1. *WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience. Geneva: World Health Organization, 2016;1, Introduction. Available from: www.ncbi.nlm.nih.gov*
2. *WHO Recommendations on Postnatal Care of the Mother and Newborn. Geneva: World Health Organization; 2013 Oct. Executive summary. Available from: www.ncbi.nlm.nih.gov*
3. *McNellan CR, Dansereau E, Wallace MCG. et al. Antenatal care as a means to increase participation in the continuum of maternal and child healthcare: an analysis of the poorest regions of four Mesoamérican countries. BMC Preg Childbirth. 2019;19(66).*
4. *Onwuka CI, Ezugwu EC, Obi SN, Onwuka C, Dim CC, Chigbu C, Asimadu E, Ezeome IV, Okeke TC, Iyoke CA. Postnatal care services use by mothers: A comparative study of defaulters versus attendees of postnatal clinics in Enugu. PLoS One. 2023 Mar 30;18(3):e0280315.*
5. *Transforming Our World: The 2030 Agenda for Sustainable Development A/RES/70/1. Agenda for Sustainable Development web: PDF (sustainabledevelopment.un.org).*
6. *Oluwole EO, Adeniran A, Chieme CF, Ojo OY, Akinyinka MR, Ilesanmi MM, Olujobi BA, Bakare OQ. Maternal and child health service readiness among primary health care facilities in Ekiti, Nigeria. Afr J Prim Health Care Fam Med. 2022 Aug 19;14(1):e1-e7.*
7. *World Health Organisation . Alma-Ata 1978: Primary health care. Geneva: World Health Organisaton; 1978. [Google Scholar]*
8. *Adamu A, Yakubu L. Availability of Material Resources for Focused Antenatal Care in Health Facilities in Bauchi State, Nigeria. IOSR J Nur Health Sci. 2018;7(3): 80-85.*
9. *World Health Organization. Maternal mortality fact sheet, Geneva: World Health Organisation. 2024 april.*
10. *World Health Organization. Trends in Maternal Mortality: 1990 to 2015: Estimates Developed by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Accessed December 19, 2019. reliefweb.int*
11. *World Health Organization. Maternal health and safe motherhood programme. Prenatal mortality, Family and Reproductive Health. Geneva: World Health Organisation. 2022.*
12. *Oladipo IA, Akinwaare MO. Trends and patterns of maternal deaths from 2015 to 2019, associated factors and pregnancy outcomes in rural Lagos, Nigeria: a cross-sectional study. Pan Afr Med J. 2023 Apr 20;44:185.*
13. *WHO. Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and the UNDESA/Population Division Date: Feb 23, 2023 Date accessed: November 26, 2023*

14. *Ajegbile ML. Closing the gap in maternal health access and quality through targeted investments in low-resource settings. J Global Health Reports. 2023;7:e2023070.*
15. *Singh S, Rajak R. Barriers in utilization and provisioning of obstetric care services (OCS) in India: a mixed-methods systematic review. BMC Pregnancy Childbirth. 2024; 24(1)6:*
16. *Ope BW. Reducing maternal mortality in Nigeria: addressing maternal health services' perception and experience. J Global Health Reps. 2020;4:e2020028.*
17. *Bello CB, Esan DT, Akerele SA, Fadare RI, Maternal health literacy, utilisation of maternal healthcare services and pregnancy outcomes among newly delivered mothers: A cross-sectional study in Nigeria, Public Health Practice. 2022;3: 100266, ISSN 2666-5352,*
18. *Tarkumbur PL, Rucha K, Kithuka P. Analysis of the Satisfaction of Women with the Quality of Maternal Health Services at the Federal Medical Centre, Makurdi, Benue State, Nigeria. J Med Nur Public Health. 2022;5(1):27–46.*
19. *Ononokpono DN, Odimegwu CO. Determinants of Maternal Health Care Utilization in Nigeria: a multilevel approach. Pan Afr Med J. 2014;17(1):2*
20. *Azuh D, Azuh A, Iweala E, Adeloye D, Akanbi M, Mordi R. Factors influencing maternal mortality among rural communities in southwestern Nigeria. Int J Women's Health. 2017;9:179-188.*
21. *Jimoh AO, Adaji SE, Adelaiye H, Olorukooba AA, Bawa U, Ibrahim HI, Garba C, Mfuh AL, Idris S, Shittu SO. A cross-sectional study of traditional practices affecting maternal and newborn health in rural Nigeria. Pan Afr Med J. 2018 Sep 28;31:64.*
22. *Ikeaba NC, Balogun MR, Olubodun T, Okafor I. Harmful traditional practices among market women in ojuwoye market mushin, South West, Nigeria. Ann Afr Med. 2022 Jul-Sep;21(3):208-216*
23. *Opara UC, Iheanacho PN, Li H. et al. Facilitating and limiting factors of cultural norms influencing use of maternal health services in primary health care facilities in Kogi State, Nigeria; a focused ethnographic research on Igala women. BMC Pregnancy Childbirth 2024;24:555*
24. *Igbokwe CC, Ihongo JT, Abugu LI, Iweama CN, Ugbelu JE, Iweama C, Ugbelu Sr JE. Influence of Cultural Beliefs on the Utilization of Integrated Maternal, Newborn, and Child Health Services in Benue State, Nigeria. Cureus. 2024;16(1):e52808.*
25. *Ntoimo LF, Okonofua FE, Ekwo C, Solanke TO, Igboin B, Imongan W, Yaya S. Why women utilize traditional rather than skilled birth attendants for maternity care in rural Nigeria: Implications for policies and programs. Midwifery. 2022Jan;1(104):103158. Article Google Scholar*
26. *Ajayi AI, Ahinkorah BO, Seidu AA. "I don't like to be seen by a male provider": health workers' strike, economic, and sociocultural reasons for home birth in*

settings with free maternal healthcare in Nigeria. Int Health. 2023Jul;15(4):435–44. Article PubMed Google Scholar.

27. *Idris SH, Sambo MN, Ibrahim MS. Barriers to utilisation of maternal health services in a semi-urban community in northern Nigeria: The clients' perspective. Niger Med J. 2013 Jan;54(1):27-32.*
28. *Kea AZ, Tulloch O, Datiko DG. et al. Exploring barriers to the use of formal maternal health services and priority areas for action in Sidama zone, southern Ethiopia. BMC Pregnancy Childbirth. 2018;18: 96.*
29. *This Day Newspaper Report. WHO Laments Poor Renumeration of Health Workers in Nigeria Thisdaylive, 2023. Avail at: thisdaylive.com*
30. *Udenigwe O, Okonofua FE, Ntoimo LFC. et al. Perspectives of policymakers and health providers on barriers and facilitators to skilled pregnancy care: findings from a qualitative study in rural Nigeria. BMC Pregnancy Childbirth. 2021;21(20).*
31. *Lateef MA, Kuupiel D, Mchunu GG, Pillay JD. Utilization of Antenatal Care and Skilled Birth Delivery Services in Sub-Saharan Africa: A Systematic Scoping Review. Int J Environ Res Public Health. 2024; 21(4): 440.*
32. *Olaniran A, Banke-Thomas A, Bar-Zeev S, Madaj B. Not knowing enough, not having enough, not feeling wanted: Challenges of community health workers providing maternal and newborn services in Africa and Asia. PLoS One. 2022 Sep 9;17(9):e0274110.*
33. *Omoniyi SO, Mamma JT, Amako S. Security Challenges in Nigeria: Implications for health, health Services delivery and Sustainable Development. 2014.*
34. *Violence against health care in conflict. Safeguarding Health in Conflict Coalition 615 N. Wolfe Street, E7143, Baltimore, MD 21205 SHCC administrator 2023.*
35. *Tanou M, Kishida T, Kamiya Y. The effects of geographical accessibility to health facilities on antenatal care and delivery services utilization in Benin: a cross-sectional study. Reprod Health. 2021 Oct 14;18(1):205.*
36. *Alam N, Chowdhury ME, Kouanda S, Seppey M, Alam A, Savadogo RJ, Sia D, Fournier P. The role of transportation to access maternal care services for women in rural Bangladesh and Burkina Faso: A mixed methods study, Int J Gyn Obsts, 2016;135(1): S45-S50, ISSN 0020-7292.*
37. *Adewuyi EO, Auta A, Adewuyi MI, Philip AA, Olutuase V et al. Antenatal care utilisation and receipt of its components in Nigeria: Assessing disparities between rural and urban areas—A nationwide population-based study. PLOS ONE. 2024;19(7):e0307316.*
38. *Okoli C, Hajizadeh M, Rahman MM. et al. Geographical and socioeconomic inequalities in the utilization of maternal healthcare services in Nigeria: 2003–2017. BMC Health Serv Res. 2020;20(849).*

39. *Defa A, Okwaraji YB, Tigabu Z. et al. Geographic differences in maternal and child health care utilization in four Ethiopian regions; a cross-sectional study. Int J Equity Health. 2019;18(173).*

Table 1: Sociodemo graphic Characteristics of Respondents

Variables	**Frequency**	**Percentage (%)**
Age		
18-30	80	18.5
31-40	236	54.7
41-50	62	14.3
> 50	54	12.5
Total	**432**	**100.0**
Religion		
Christianity	339	78.4
Islam	36	8.3
Traditional religion	41	9.5
No religious affiliation	16	3.8
Total	**432**	**100.0**
Marital Status		
Married	191	44.3
Single	72	16.5
Divorced	35	8.0
Widowed	85	19.7
Cohabiting	14	3.3
Separated	35	8.2
Total	**432**	**100.0**
Educational attainment		
No formal education	26	6.0
Primary	127	29.5
Secondary	172	39.7
NCE/OND	79	18.3
Degree	28	6.5
Total	**432**	**100.0**
Technical/Vocational training received		

Hair Styling	187	43.3
Fashion Designing	55	12.7
Makeup Artistry	40	9.3
Event Planning	64	14.9
Arts and Crafts	23	5.3
Others	13	3.0
None	50	11.5
Total	**432**	**100.0**
Occupation		
Self-employed	181	41.8
Civil servant	93	21.5
Full housewife	42	9.8
Others	116	26.9
Total	**432**	**100.0**

Estimated monthly income (naira)		
< 10,000	77	17.8
11,000-15,000	81	18.8
16,000 - 20,000	173	40.0
>20,000 and above	101	23.4
Total	**432**	**100.0**
Location		
Urban	130	30.0
Rural	302	70.0
Total	**432**	**100.0**
Parity		
1-3 times	214	53.5
3-6 times	165	41.2
> 6 times	21	5.3
Total	**432**	**100.0**
No. of children		
1 -2	191	44.2
3 -4	135	31.3
> 4 times	106	24.5
Total	**432**	**100.0**

Table 2: Chi-square Test Showing the Difference in the Extent of MHS Provision at the PHC Centers in the Three Senatorial Zones in Benue State

Zones	Extent of MHS Provision			χ^2-value	*Df*	p-value
	Zone A	**Zone B**	**Zone C**			
ANC services provision	120 (27.8%)	27 (6.3%)	21 (4.9%)	87.346	4	0.30
DC services provision	15 (3.5%)	140 (32.4%)	49 (11.3%)			
PNC services provision	36 (8.3%)	14 (3.2%)	10 (2.3%)			
Total	**171 (39.6%)**	**181 (41.9%)**	**80 (18.5%)**			

Significance = P < 0.05; Critical Chi value = 9.488, Calculated value = 0.30. Null hypothesis is rejected

Cumulatively, ANC provision = 39.0%, DC provision = 47.2%, PNC provision = 13.8%

Table 3: Chi-square Test Showing Difference in the Extent of MHS Utilization at PHC Centers in the Three Senatorial Zones in Benue State

Zones	Extent of MHS Utilization			χ^2-value	*Df*	p-value
	Zone A	Zone B	Zone C			
Antenatal Care utilization	142 (32.9%)	13 (3.0%)	22 (5.1%)	125.245	4	0.43
Delivery Care utilization	41 (9.5%)	137 (31.7%)	36 (8.3%)			
Postnatal Care utilization	8 (1.9%)	26 (6.0%)	7 (1.6%)			
Total	**191 (44.3%)**	**176 (40.7%)**	**65 (15.0%)**			

Significance = P < 0.05; Critical Chi value = 9.488, Calculated value = 0.43. Null hypothesis is rejected

Cumulatively, ANC utilization = 41.0%, DC utilization = 49.5%, PNC utilization = 9.5%

Table 4: Respondents Reasons for Non-Utilization of Maternal Health Services Utilization at PHC Centers in Benue State

S/N	Extent of their utilization of MHS	Scores Mean	SD	Remark
1.	I **go for** antenatal care when am pregnant.	1.81	±0.76	Low extent
2.	I **visit health clinic** for antenatal care due to available trained staff and laboratory screening facilities.	2.97	±0.88	High extent
3.	I **do not visit** postnatal care service because the health workers have poor attitude to patients	3.21	±0.98	High extent
4.	I **visit health facilities** in my area due to the availability of immunization services.	2.73	±0.99	High extent
5.	I **do not visit facility** for MHS because facility is located far away	2.87	±0.91	High extent
6.	**Medical technology/equipment** related to delivery care is available and functional	2.09	±1.06	Low extent
7.	I **use services of Traditional Birth Attendants** because they are available, and their services are affordable	2.84	±0.72	High extent
	Aggregate Mean ± SD	**2.74**	**±0.93**	**High extent**
	Criterion Mean	**2.50**		

Alpha means score = 2.50; High extent = > 2.50, Low extent = < 2.50