World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

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Assessment of maternal health services provision and utilization among rural women in Benue state, north central Nigeria

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World Journal of Advanced Research and Reviews, 2024, 24(02), 1756–1765

Publication history: Received on 05 October 2024; revised on 14 November 2024; accepted on 17 November 2024

Article DOI: https://doi.org/10.30574/wjarr.2024.24.2.3502

Abstract

Maternal health is one of the components of primary health care (PHC) services aimed at providing quality reproductive health care to the mother and their babies, through prevention, detection and management of any potential complication of pregnancy and childbirth. Owing to the high Maternal mortality rate (MMR) in Nigeria, this study was designed to examine the extent of provision and utilization of MHS among rural women in Benue state, Nigeria. 360 women of childbearing age and 72 health workers from 2 Local government areas in each of the 3 geographical zones of the state were selected through multistage random sampling technique. Pretested and validated Questionnaire titled MHSPUBS was used for data collection and responses obtained were scored on Likert 4-point scale. Chi-square was used to test hypotheses, with null hypothesis rejected at $p < 0.05$. Provision of antenatal care services ($\bar{x}$ =2.51±0.86) and postnatal care services ($\bar{x}$ =2.62±0.92) was high extent, while low extent delivery care service was low extent $\bar{x}$ =2.21±0.96. There was high extent ($\bar{x}$ =2.61±0.93) of perceived MHS utilization. Nevertheless, poor health worker attitude, lack of equipment, harmful cultural beliefs were some identified barriers to actual MHS utilization in the areas of study. There was significant difference in the provision and utilization of MHS across the geographical zones in the state, with Zone C having the lowest provision, and pattern of MHS Utilization was similar to MHS provision. There is therefore the urgent need for the Government and stakeholders to act urgently to bridge the gaps that existed in the provision and utilization of MHS in the state.

Keywords: Maternal Health; Maternal mortality ratio; Infant mortality; Senatorial zones

1. Introduction

Maternal health, an important component of global health, is the state of complete physical, mental and social well-being in all matters relating to the reproductive system and all the processes of childbearing [1]. Maternal health services (MHS) ensure the provision of essential health services relating to the wellbeing of the women entering into motherhood through to about 42 days after birth for the purpose of preserving the lives of the mothers and their newborn babies [2]. Maternal health is an international public health importance with much attention focused on reducing maternal mortality and morbidity, targeting a maternal mortality rate (MMR) of less than 70 per 100,000 live births by 2030 [3]. Nigeria and India alone accounts for 34% of global maternal deaths [4], with MMR of Nigeria standing

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at 814 per 100,000 live births. The lifetime risk of a Nigerian woman dying during pregnancy, childbirth, postpartum or post-abortion is 1 in 22 [5,6]. Maternal mortality rate in Nigeria rose by 14% from 917 deaths per 100,000 live births in 2017 to about 1047 deaths per 100,000 live births in 2020 [7]; an unacceptable trend that is potentially reversible through the provision and utilization of adequate MHS [8].

Maternal health is one of the components of primary health care (PHC) services aimed at providing quality care to the mother and baby in the prepartum/antenatal, intrapartum/delivery and postpartum/postnatal periods. The focus of MHS is the detection and prevention of any potential complication of pregnancy and childbirth. The elements of MHS are antenatal care (ANC), delivery care (DC) and postnatal care (PNC) services.

Antenatal care refers to the regular medical and nursing care recommended for women during pregnancy to ensure healthy outcomes for women and their newborn babies [9,10]. The components involve nutritional counselling and multivitamin supplements, regular visits to skilled personnel, blood and urine tests, provision of tetanus toxoid and antimalarial prophylaxis, health education on pregnancy and birth danger signs [11]. It is generally recommended that pregnant women initiate ANC within the first trimester of pregnancy and to receive at least eight antenatal visits in total [1,8]. This way, at risk pregnant women are screened and monitored throughout pregnancy. The women are also educated about several matters related to pregnancy so that they might experience a healthier pregnancy and outcome [12]. Thus, women who are unable to access the above services during the antenatal period are at risk of serious obstetric and medical complications for themselves and their babies.

Delivery care or intrapartum care, the second element of MHS, is the health care service provided to a woman while in labour. In line with recommended guidelines, this care emphasizes need for the woman to deliver her baby under the care of skilled health personnel in safe and clean environment, in keeping with safe and hygienic delivery practices and maintaining the highest standards of sterility of tools and instruments. Quality DC involves respectful care, clear and compelling communication between the women and health workers, the option of a companion during labour and childbirth, health facility birth attended by skilled personnel, appropriate pain relief strategies, mobility in labour where possible, and choice of birth position, the use of uterotonics and delayed cord clamping (after a minute), immediate kangaroo care and breastfeeding, delayed bathing of the newborn (24 hours), and the care of mother and newborn in a health facility for at least 24 hours after birth [13], thus laying the foundation for safe peuparium for the mothers and a healthy neonatal experience by the newborn.

Postnatal care is the third component of MHS. According to the World health organization, it is the immediate health care offered within 24 hours after birth up to at least three additional postnatal visits within 42 days after birth for the mother and newborn, home visits in the first week after birth, exclusive breastfeeding, cord care, prophylactic antibiotics for the mother, and health education on maternal and newborn health danger signs [14]. PNC care is essential for the mother and the newborn baby, ensuring the return to normalcy of some physiological changes in the mother that occurred during pregnancy and delivery, as well as detecting other abnormalities that may have arisen. A proper PNC service is key to reducing maternal and neonatal mortality. This service affords the mother the opportunity to receive on the one hand, education on healthy practices that are crucial to maternal wellbeing and child health survival (such as advice on clean delivery practice, care of the umbilical cord, early and exclusive breastfeeding practices, thermal care, special care of low birth weight or preterm birth, immunization and use of family planning) [15]; while on the other hand, mothers could be treated for health conditions like postpartum haemorrhage, infection/genital tract sepsis and pre-eclampsia/eclampsia that may be observed within the postnatal period, while babies who have jaundice, thrush or even sepsis can also be treated [16].

Timely and appropriate healthcare provided to mothers before, during, and after childbirth, otherwise known as MHS provision, is focused on improving overall well-being and ensuring informed choices and evidence-based guidelines are followed, or the way variables such as money, staff, equipment and drugs are combined to allow the delivery of effective maternal health interventions [1,14]. Utilization of MHS, on the other hand, is the uptake of recommended number of ANC visits, delivery of a child by skilled health personnel, and such appropriate PNC services [17,18] to bring maternal mortality and pregnancy-related morbidities to the barest minimum. Governments all over the world, including that of Nigeria, have been making concerted efforts in providing qualitative MHS targeted at reducing the number of maternal mortality and morbidity through the provision of universal access to maternal healthcare evidenced by expansion of medical education and improvement of primary health care (PHC) systems in many rural areas.

2. Material and methods

This cross-sectional study was conducted in Benue State, located in the North Central part of Nigeria. The state lies between Latitudes 6.5° and 8.5° North and Longitudes 7.47° and 10° East (Benue State Government, 2016) and shares

boundaries with Nasarawa to the north, Taraba to the east, Kogi and Enugu states to the west and Ebonyi and Cross River to the south. It also shares an international boundary with the Republic of Cameroun on the south-east.

The study population comprised of 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 facilities in the sampled local government areas in Benue State. Using standard statistical formular of Yamane, a sample population of 432 (comprising of 360 women of childbearing age attending antenatal and postnatal clinics and 72 trained health personnel of MHSs) was obtained through multistage sampling design in which Benue state was stratified into three along the political senatorial zones A, B and C. From each of these zones, two Local Government Areas (LGAs): Katsina–Ala, Vandeikya for Zone A, Gboko, Makurdi for Zone B and Ogbadibo, Otukpo for Zone C were selected randomly. From each of these LGAs, two PHC centers were purposively selected from where 10 women of childbearing age and 2 registered skilled health were per PHC center. The instrument used for data collection was a validated and pre-tested questionnaire developed by the authors titled "Maternal Health Services Provision and Utilization in Benue State" (MHSPUBS). It comprised of a section on personal biodata of the respondents, while the other section contains statements on extent of provision and utilization of ANC services, DC services and PNC services in the PHC centers study. The responses of the respondents to these statements were weighed on Likert four-point scale of 3.25-4-Very High Extent (VHE), 2.50-3.24-High Extent (HE), 1.75-2-49-Low Extent (LE) and 1-1.74-Very Low Extent (VLE) respectively. Scores below 2.50 were rejected while scores above 2.50 were accepted.

2.1. Statistical Analysis

Responses by the respondents contained on the retrieved questionnaire were collated and coded using the Microsoft Excel spread sheet. Data analysis was done using SPSS version 2021. Frequency distribution and simple percentage was used to describe the socio-demographic attributes of the respondents. Mean ± standard deviation was employed to answer the research questions. Chi-square test was used to test the hypotheses at 0.05 level of significance.

3. Results

3.1. Sociodemographic Attributes of Respondents

The sociodemographic attributes of the respondents are given in table 1. Majority of respondents (236 or 54.72%) were within the age range of 31-40 years while those above 50 years were in the minority (54 or 12.5%). 191 or 44.3% of the respondents were married, with the remaining 241 (55.7%) having a marital status ranging from singlehood to divorced. Religion wise, the respondents were majorly of Christian faith (339 or 78.4%). Of the 94% that were literate, 172 or 39.7% attained secondary level education as against 28 (6.5%) that attained degree level education. 382 (89.5%) of the respondents had a form of vocational training (with the predominant number of them (187 or 43.3%) been hairstylist). This was reflected in the high self-employment status (181 or 41.8%) of the respondent mothers. The average monthly income of majority of these women (173 or 40%) stood at N16,000-N20,000. 214 (53%) of the respondents had a parity of 1-3 times, resulting in the majority of the women (165 or 41.2%) having maximum of 2 children. Thus, the sample population was characterized by a literate population of good reproductive age with well controlled parity, and who possessed a form of vocation. However, due to the low monthly income they generate, they are classified as women of low-income group.

Table 1 Sociodemographic 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
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

3.2. Extent of Maternal Health Services Provision and Utilization by Mothers

Table 2 shows the aggregate mean scores of ANC, DC and PNC services provision and perceived MHS utilization in Benue State, Nigeria. There was high extent of provision of ANC and PNC services while DC services had a low extent of provision in the PHC in Benue state. This implies that antenatal and postnatal health care services offered to clients/mothers at the health centers were satisfactory in line with the required minimum standard while DC services offered at the centers were below the required minimum standard of delivery care.

The perceived extent of utilization of MHS provided at the PHCs by mothers was of high extent, indicating a significant level of awareness on the part of the mothers of the importance of and the need for the uptake of MHS provided at the health facilities for their wellbeing as well as their baby's. However, this perception of MHS utilization did not translate to the actual utilization of MHS components as shown in Table 3 below.

Table 2 Aggregate Extent of Provision of MHS Components and Perceived MHS Utilization at PHC Centers in Rural Areas of in Benue State

S/N	Provision and Utilization of MHS Components	Aggregate Mean ± SD	Remark
1.	Antenatal care services provision	2.51 ± 0.86	High extent
2.	Delivery care services provision	2.21 ± 0.92	Low extent
3.	Postnatal care services provision	2.62 ± 0.96	High extent
4.	Perceived Maternal health service utilization	2.63 ± 0.93	High extent

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

Table 3 showed the mean scores of extent to which mothers utilized components of MHS at the PHC centers of rural communities in Benue state. It was observed that the mothers did not utilize or only partly utilized components of MHS provided due to several reasons, which ranged from unpleasant health worker attitude, cultural beliefs, to logistical challenges concerned with MHS provision at the health facility and community levels. Availability of immunization services was one of the main attracting factors for utilization of MHS by mothers.

Table 3 Mean Scores of Extent of MHS Utilization by Mothers at PHC Centers in Rural Areas of Benue State

S/N	Extent of MHS Utilization	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

3.3. Variation in Extent of MHS Provision and Utilization Across the Three Senatorial Zones of Benue State

Table 4 showed the variation in the extent of provision of MHS in the 3 Senatorial zones of Benue state. The provision of ANC services was higher (27.80 %) in Zone A, compared to 6.3 % in Zone B and 4.9 % in Zone C. On the other hand, provision of DC services was higher in Zone B at 32.5 % compared to Zones A and C. Cumulatively, the extent of provision of ANC, DC and PNC services in Benue state were 39.0 %, 47.2 % and 13.5 % respectively.

The extent of utilization of all components of MHS at the PHC centers across the 3 Senatorial zones of Benue state is given in Table 5. The result showed that there was high utilization of ANC services in Zone A (32.9 %), DC services (31.7 %) in zone B and PNC service (6.0 %) also in zones B. Cumulatively, the utilization of ANC, DC and PNC services was 41.0 %, 49.5 % and 9.5 %.

The results have shown that the extent to which MHS was utilized by the mothers was directly related to the extent of provision of MHS in the rural areas of Benue state. The result equally has shown that MHS provision and utilization were very low in Zone C senatorial district of Benue state.

Table 4 Chi-square test showing Variation 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 5 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 provision = 49.5%, PNC provision = 9.5%

4. Discussion

This study assessed the extent of provision and utilization of MHS among rural women at PHC settings in Benue state. The PHC level is the entry point of health services provision, especially at the rural communities [19]. The respondents affirmed that there was high extent of ANC and PNC services provision at the PHCs in Benue State, Nigeria. The place of qualitative provision of ANC and PNC services to pregnant mothers cannot be overemphasized. These services are targeted at the survival of the mother and newborn and encourages health-seeking behaviours. It was observed that most of the components of ANC and PNC services were provided at the PHC centers in Benue state in line with WHO recommendation [1,9,11,14]. However, some aspects of ANC services such as (i) clinical investigative procedures related to pregnancy such as routine laboratory investigations and ultrasonography, (ii) high quality maternal care and (iii) supply of drugs and consumables were scored low extent. Post natal clinic services that scored low included (i) postnatal vaccination and (ii) availability of trained health providers. Similar findings have been reported in earlier studies in Nigeria, Africa and other part of the globe have rendered support to that of the present studies which showed existence of significant gaps in the provision of ANC and PNC services arising from lack of adequate facility/equipment, lack of skilled health providers or misinformation/misconceptions about ANC services [20,21,22].

There was low extent of DC services provision in PHCs of Benue state, implying that mothers do not receive satisfactory delivery care as required [13,23,24,25]. This observation is potentially associated with high risk of maternal and infant mortality and morbidity arising from intrapartum bleeding, prolonged/obstructed labour. An earlier study which supported the present finding, documented low quality of delivery care service across public health facilities, with the consequence of low delivery volume [26]. Similarly, Udenigwe et al. [27] observed that barely half of the health facilities in Edo state of Nigeria provided low DC services in their maternity units. Whereas the present study showed that poor state of the health facilities, lack of skilled birth services to lack of skilled birth health providers were the main reasons for the observed low DC services provision, the study conducted in Ethiopia attributed low DC service provision in Ethiopia and most developing nations to "out of stock" syndrome [20,28,29].

Inequitable distribution of health resources has been a major cause of poor MHS provision. Observations from this study showed that there are differences in the extent of provision and utilization of MHS across the 3 geopolitical zones of Benue state (Tables 4 and 5). This is so because the mothers could only utilize health services that have been provided. Theres is need therefore for equitable distribution of health resources in the communities in order to mitigate the high MMR associated with poor MHS provision and utilization [14]. Lending support to this present finding were studies done by other authors who identified disparities in utilization of ANC service components in parts of Nigeria and elsewhere due to geographical differences [30,31,32].

Reasons for this differential provision of MHS may reflect the influence of politics in the provision or distribution of health resources in Benue state and Nigeria in general. It is a well-known fact that the attraction of resources related to maternal health and other projects to the community from the central political government is dependent on the 'political closeness or relevance' of such a community. The consequence of such political mal decision is the possibility of denying communities provision of MHS when they need it most because of siting of health facility in an inaccessible location, not equipping such facilities with the requisite equipment and drug, lack of provision of basic infrastructures like ambulance service, good roads, etc.

The result of the present study showed a high extent of perceived MHS utilization in rural health facilities in Benue state. This may not be out of place given the literacy level of the respondents. Full utilization of MHS has been associated with

improved maternal and neonatal outcomes [33,34]. Literacy level and awareness has been shown to influence extent of MHS utilization [35,36]. Good ANC services was likely an enhancing factor in the perceived high extent of MHS in the present study. The level of utilization of ANC services was high. This study showed that the most utilized MHS are antenatal components of health education and immunization; an observation supported by earlier study [34] where the authors opined that there was a high frequency of attendance regarding antenatal service, immunization and other curative services like treatment of minor ailments. Similarly, it was observed in the Southeastern part of Nigeria that many women utilized MHS owing to the benefits derived from its use [35].

Details of the respondents' responses in Table 3 showed that some respondents do not utilize MHS services while others utilize the three components of MHS in part despite the attendant risk of such practice. Poor utilization of MHS exist in many less developed countries like Nigeria, Ethiopia etc [36,37,38]. Factors advanced as reason by the respondents for non-utilization of all components of MHS included unfriendly attitude and poor communication skills of the health care providers, absence of trained health care professional while those present were not adequately trained, lack of necessary equipment and drugs for MHS, (especially for delivery care service), strong cultural believes and practices that were opposed to practice of MHS, lack of ambulance services and effective referral system, and poor infrastructural provision (such as good roads) in the community. This none or poor utilization of MHS by women in this study may be due to low income status of the respondents and their strongly held belief that MHS was unnecessary since traditional practices regarding management of pregnancy and birth were better [20.37]. Age, educational status, economic status, cultural beliefs and logistics have been identified as factors that affected the utilization of MHS in previous studies [20,22,38,39].

5. Conclusion

Provision of ANC and PNC services have been shown to be of high extent while provision of DC service was of low extent at the PHC centers in rural communities of Benue state. Significant differences exist in the provision of MHS among the three geographical zones of the state with attendant negative impact on the utilization of MHS. Additionally, the actual extent of MHS utilization was negatively affected by factors such as health workers' poor attitude and lack of training, perceived lack of equipment and medications for high quality maternal health investigations, high cost of MHS, harmful cultural beliefs of the mother, as well as poor infrastructural facilities in the community.

Compliance with ethical standards

Acknowledgments

The authors hereby acknowledge the management of the Benue state PHC board, the management of the PHC center, for granting access to their institutions used for this study. The cooperation of the respondents is equally acknowledged.

Disclosure of conflict of interest

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

Statement of ethical approval

Institutional ethical certificate number CREC/THS/003 was sought and obtained from the College of Health Sciences, Benue state, Nigeria.

Statement of informed consent

Informed consent was obtained from the respondents before the administration of questionnaire.

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