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ORIGINAL ARTICLE

EXPLORATORY STUDY ON ACCESS, QUALITY AND UPTAKE OF MATERNAL HEALTH SERVICES IN A RURAL COMMUNITY OF OSUN STATE, SOUTHWEST NIGERIA

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Keywords

Access,

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Abstract

Background: Access, quality, and utilization of maternal health services (MHS) have remained policy and public health concerns in many developing countries, including Nigeria. This study examined the accessibility, quality, and uptake of MHS in a rural community in Osun State, Nigeria.

Methods: This cross-sectional study was conducted in May 2024 among 72 women of reproductive age (15-49 years) who were homogeneous in terms of their socio-economic attributes. Study participants were recruited using a convenience sampling method. Six focus group discussions were held, with data collected via an interview guide and analyzed thematically using Atlas Ti. Ethical approval was obtained, and the study outcomes included quality, access, and utilization of MHS in the setting.

Results: Among the respondents, 55.6% were aged 20-29 years, 66.7% practiced Christianity, and 83.3% came from monogamous families. The majority of respondents indicated that maternal health services (MHS) were neither financially nor physically accessible to them, as women frequently travel beyond their immediate communities to seek care. The quality and utilization of MHS were assessed as sub-optimal. Perceived barriers to access, quality, and utilization of MHS included the absence of blood transfusion services, lack of obstetric ultrasound facilities, unavailability of ambulance services, frequent stock-outs of essential medicines, and the unavailability of skilled birth attendants.

Conclusion: There is an urgent need for policymakers to design and implement interventions that can improve access, quality, and uptake of MHS services in rural Nigerian communities to meet global targets.

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INTRODUCTION

Quality maternal healthcare has been a policy and public health concern in many sub-Saharan African (SSA) countries, with profound negative effects on the health of mothers and their children. SSA is estimated to have the highest maternal mortality ratio (MMR) globally, with at least 546 deaths per 100,000 live births attributed to pregnancy-related issues about five years ago. This is exceptionally high when compared with the rate of 12 deaths per 100,000 live births in high-income countries during the same period.¹ Additionally, it was estimated that at least 295,000 deaths occurring among women in SSA were due to complications of pregnancy and childbirth.¹ However, a more recent World Health Organization (WHO) report indicates a downward trend in global maternal deaths. Nevertheless, the maternal mortality rate (MMR) in low- and medium-income countries (LMIC), including SSA nations, remains persistently far from the global target. An estimated 346 maternal deaths per 100 000 live births are currently being recorded in LMIC compared to 10 per 100,000 live births in high-income countries. A recent report also indicates that a woman dies every two minutes of pregnancy and childbirth-related issues, and 90.0 % of these deaths occur in LMIC, including Nigeria.³ Empirical evidence shows that maternal deaths are largely preventable with high-impact and well-articulated maternal health services (MHS) such as antenatal care (ANC) and health facility-based childbirths in LMIC, including SSA regions.^{3,4} Yet, MHS service availability and use have remained low in SSA. Analysis of demographic and health survey (DHS) reports of 58 countries in SSA revealed a wide disparity in health facility deliveries in favour of women with high wealth index compared to those in the lower socio-economic stratum.⁴ A recent WHO report equally indicates a stark disparity in healthcare access for mothers and, indeed, a setback in maternal health services (MHS) due to the staggering number of maternal deaths occurring in many parts of the world.³ In Nigeria, disparities in MHS are evident across

geopolitical zones and socio-economic strata. The preliminary 2023 DHS report for Nigeria revealed that 70.5% of pregnant women in urban areas had at least four ANC visits compared to 41.3% in rural areas. Similarly, about 70.5% of births in urban communities were supervised by skilled birth attendants (SBAs) compared to 30.6% in rural areas.⁵ According to the 2018 Nigeria DHS report, approximately 56.0% of women in rural areas received ANC from skilled health providers, compared to about 84% of women in urban areas. It is therefore not surprising that the MMR in Nigeria is still a bothersome 576 per 100,000 live births and this is rated as the fourth highest on earth.⁶ According to the Institute of Medicine (IOM), quality maternal and newborn care indicates care that is safe, effective, patient-centred, timely, efficient, and equitable.⁷ Emerging from this concept, the quality of healthcare is sacrosanct in healthcare delivery. Researchers have shown that poor service quality constitutes a significant barrier to healthcare utilization.^{8, 9} Furthermore, perceptions about quality of care play a pivotal role in a woman's initial decision to deliver in a healthcare facility and for her to utilize the facility for future childbirths.¹⁰ This narrative is crucial because the provision of quality facility-based maternal healthcare, particularly within forty-eight hours after delivery, is critical in saving the life of a mother and her child without residual disabilities.¹¹ Similarly, socio-cultural norms impact the decision-making process for seeking antenatal, pregnancy, and postnatal care as well as utilizing contraceptive services among women.¹² A survey conducted in Kenya reported that about 50.5% of women did not obtain a postnatal follow-up visit within the first two days of delivery, due to local norms requiring a woman to spend the first forty days after delivery in isolation to ward off potential 'evil eyes'.¹³ It is well documented by previous studies that maternal mortality in most of the rural areas in Nigeria is caused by other precipitating factors that are non-medical. These factors include poverty, low level of education or

absence of it, food taboos, low purchasing powers, and certain harmful cultural beliefs and practices, amongst others. It is not currently clear how these multiple factors influence MHS in our study setting. Two of the targets of the Sustainable Development Goal (SDGs) 3 are to reduce global MMR to as low as 70 deaths per 100,000 livebirths and the under-five mortality rate to as low as 25 per 1,000 livebirths by 2030.¹⁴ Currently, Nigeria is far from these global targets as the neonatal mortality rate (NNMR) is estimated at 41 per 1,000 live births, and the trend has remained the same since 1990. Hence, there is a need for an evidence-based decision-making process to galvanize resources towards improving MHS indicators in Nigeria. Although there is a plethora of past studies on MHS in Nigeria, few have concentrated research efforts on providing evidence regarding overarching contextual factors influencing MHS quality, access, and uptake in rural Nigerian communities. This study aimed to assess socio-cultural factors influencing quality, access, and utilization of MHS in a typical rural Nigerian community. Data generated from this study can help policymakers in designing targeted MHS interventions that are socio-culturally appropriate and cost-effective in rural Nigerian communities.

Methods

This study was conducted in May 2024 at Ife-Odan, a rural community in Ejigbo LGA, Osun State, Nigeria. The community has about 3,289 people, with females constituting about 49.1% of the population.¹⁵ The community has two primary health centres and a privately owned healthcare facility where information regarding MHS can be obtained.

Study design: This study employed a cross-sectional design, and data were collected using a qualitative method.

Study Population: The study included seventy-two (72) women of reproductive age group (aged 15-49 years) who were permanent residents of the community, so their views can be better representative of the MHS contextual issues in the population.

Inclusion criteria: Women in the reproductive age group with at least one child under five or who were pregnant at the time of the survey were included in the study.

Exclusion criteria: Women in the reproductive age group but with profound physical health conditions (such as mental health issues) that could prevent them from giving valid responses were excluded from the study.

Data collection instrument: an Interview guide was developed by the research team after reviewing past studies on the subject and was used for data collection during the Focus Group Discussions (FGDs).^{16,18} Simple and unambiguous English words/sentences were used in developing the FGD guide, and translation to the Yoruba language was done by a linguistic expert for easy understanding of study participants who preferred conversing in their native language. Six (6) FGD sessions, each lasting 40-60 minutes and comprising 8-12 discussants, were conducted among eligible respondents. Homogeneity in each FGD group was maintained by ensuring that participants were comparable in socio-economic and socio-cultural parameters. Each session was moderated by the principal investigator with the assistance of a trained note-taker and grounded theory was used to explore each discussion point during data collection process fully. Information from the note takers was triangulated with that from tape recordings, and discussions were allowed to flow freely but were carefully moderated by the facilitators to avoid topic diversions and dominance of a few study participants.

Data Analysis: With the help of a transcriptionist, the audio recordings were transcribed verbatim and written out in English. The transcribed data were organized into similar themes, and a thematic analysis was conducted using the ATLAS.ti statistical package. Both deductive and inductive analyses were conducted to categorize emerging issues into themes.

ETHICAL CONSIDERATION

Approval to conduct the study was obtained from the Ethical Review Board of Bowen University Teaching Hospital, Ogbomosh

(NHREC/12/04/2012; BUTH/REC-644). Permission was also obtained from the community head of Ife-Odan before data collection began. Written consent was secured from participants before their involvement in the study. Participation was voluntary, and individuals could withdraw at any point if they felt uncomfortable with the interview process. Approval was granted by study participants for tape recordings. Codes were used instead of participants' names to maintain the anonymity of the data collection process. Confidentiality of the information obtained was ensured by making sure only persons in the research team had access either to the recorded tapes or the notes that were taken. Adolescent participants were grouped together as a homogenous group and a separate FGD session was conducted among them to understand MHS-related issues which are peculiar to them contextually. However, assents were obtained from such adolescents, while written consents were obtained either from their spouses or parents, before allowing them to participate in the study.

Results

A total of eight FGD sessions were conducted and seventy-two respondents participated in the study. Table 1 shows that more than half (55.6%) of the respondents were 20-29 years old, half (50.0%) of them were farmers, 66.7% of them practiced Christianity, the majority (83.3%) were from a monogamous family setting, while more than three-quarters (77.8%) had 1-4 children. The respondents agreed that maternal deaths are recorded in their community and agreed that it is a painful experience both to the family and the community. The respondents believed that maternal death can be caused by various challenges during pregnancy and delivery. One of the study participants stated that; *"Women do die during pregnancy and delivery. Such deaths can be caused by a shortage of blood during pregnancy and delivery," 24-year-old petty trader.*

Another respondent pointed out that maternal deaths can be due to prolonged labour without

immediate and appropriate medical intervention. *"I think if a woman goes through labour for more than 2 days without appropriate medical care, she can lose her life and her baby."*

One of the study participants believed that pregnant adolescents are at increased risk of dying during pregnancy and delivery. She stated; *"I believe that teenagers who are pregnant have an increased risk of unsafe abortion, as the pregnancies are mostly unintended. By the time they are ready for pregnancy, their womb would have been too weak to carry the baby. Hence, they are prone to excessive bleeding at the time of delivery, which can claim their lives."* **30-year-old mother of 2 children**

Study participants were asked about their feelings about the adequacy and quality of maternal health services in their community. There were divergent opinions regarding this subject. One of the study participants believed that maternal health services in the community were grossly inadequate, considering the number of women needing healthcare in the community. She said; *"To me, I feel maternal healthcare in this community is grossly inadequate. Sometimes the Nurse in charge of this healthcare facility spends his personal money to assist some of our women in critical conditions in purchasing needed drugs outside. Drugs are not available in the healthcare center; they only prescribe and ask us to go outside to buy."* **A 21-year-old mother of one child.**

"Drugs are not available in this health center. They sometimes only give us paracetamol and ask us to go out to buy other drugs," said a **23-year-old petty trader.**

Another participant said; *"Maternal healthcare is poor in our community; for instance, there is no single standard laboratory in our community where tests can easily be carried out to know what is wrong with us. We have to travel to another community to receive important services such as blood transfusion when a pregnant woman needs such services."* **29-year-old farmer**

Yet, another participant rated maternal health care in her community as being sub-optimal. *"I have no trust in the available healthcare facilities in this community. I noticed that equipment to safeguard my life during labour is not available in the healthcare centers within my community. Because of this, I decided to have my delivery in a healthcare facility outside of this community."* **32-year-old petty trader**

Another respondent stated that the healthcare facilities in the community are severely understaffed. She expressed, *"We do not have enough healthcare staff to serve us in this community. Even though the available staff are trying their best and are always ready to assist, they are often overworked and need to rest. As such, our healthcare centers are closed at night, on Sundays, as well as on public holidays."* **27-year-old farmer**

Another respondent buttressed this view by saying; *"We need well-trained health personnel in our centers. I am saying this because I had a bitter experience during childbirth of one of my babies in this health centre. I lost my baby due to the wrong drugs administered to my baby after birth by an incompetent health personnel. Even though I was pained by the incident, I decided to forgive the staff. We don't need poorly trained staff to be attending to us again."* **30-year-old petty trader.**

Regarding the attitude of healthcare personnel to clients, most women agreed that the available staff are excellent in their relationship with women in the community. One of the respondents commented; *"I just started using this healthcare center, and I observed that the healthcare personnel are good to me."* **25-year-old teacher**

When asked what the effects of not receiving good quality maternal care by pregnant women may be, many of the respondents identified some of the adverse maternal outcomes that may occur. One of the respondents opined that; *"A woman who did not receive adequate care in her pregnancy runs the risk of losing her life and her baby."* **28-year-old housewife**

As such, some of the women stated the advantages of good-quality maternal health services. A respondent stated; *"A pregnant woman who regularly attends ANC, for instance, can easily know if her pregnancy is growing as expected and can be assured of the well-being of her unborn child by qualified health personnel."*

25-year-old tailor

When asked about reasons why women may not wish to deliver in healthcare facilities, some women opined that a lack of attendance at ANC could be a factor. In the words of a respondent, *"When a woman does not attend antenatal care, she will not want to deliver in the hospital, as she may not know the benefits of hospital delivery."* **37-year-old hairdresser**

Another respondent said *"Sometimes, labour and childbirth occur at home unprepared, and most especially if you are not sure if the healthcare staff will be available to assist. I once delivered my baby at home without a nurse to assist. As the labour started, I first went to the healthcare centre, but because it was on a Sunday, no nurse was there to assist me, so I had to return home. After so much struggle, I delivered my baby, but I thank God I did not lose my life and my baby in the process."* **32-year-old housewife**

Some of the respondents mentioned the prohibitive cost of care as the main reason for the lack of hospital deliveries by some women in the community. A respondent stated; *"Some women wish to deliver in healthcare facilities, but the money being charged for delivery and purchase of baby materials is high. Sometimes, they charge differently for male and female babies."* **23-year-old local soap manufacturer**

When asked where else women prefer to deliver apart from healthcare facilities and homes, some respondents stated that births occur in mission homes. A respondent pointed this out, saying; *"We have a mission home in this community where women also deliver. The mission home has a midwife."* **24-year-old petty trader**

We asked the respondents what can be done to motivate women to deliver in healthcare facilities rather than in homes and other places.

Table 1: Socio-Demographic Characteristics of Respondents

Variables	Frequency N=72	Percent (%)
Age (Years)		
<20	6	8.3
20-29	40	55.6
30-39	14	19.4
40-49	12	16.7
Occupation		
Farming	36	50.0
Petty trading	29	40.3
Teaching	4	5.6
Others	3	4.1
Religion		
Christianity	48	66.7
Islam	22	30.6
Traditional	2	2.7
Family Type		
Polygamous		
Number of children		
Currently pregnant	5	6.9
1-4	56	77.8
>4	11	15.3

A respondent thought that the availability of skilled health personnel is crucial. She stated that; *“Governments need to employ more qualified healthcare workers in health centers. When this happens, women will be happy to go for their childbirths in the centers.”* **30-year-old tailor**

Another study participant believed that an improved attitude of health personnel toward women is essential. *“In my opinion, if healthcare personnel behave nicely to us, women will be comfortable and happy to come for deliveries in the healthcare facilities.”* **43-year-old hairdresser**

DISCUSSION: The study explored respondents’ access to, quality and uptake of MHS in a typical rural Nigerian community. The study revealed poor access to MHS services, as many of the respondents opined that they did not receive timely and affordable services. When asked about the perceived adequacy of MHS available to women in the community, opinions varied, but most study participants agreed that the services were grossly inadequate. Some of the discussants believed that routine laboratory services were lacking, and diagnoses were hardly confirmed due to a lack of standard

laboratories. Also evident was the fact that many women had to travel to nearby bigger communities to access routine MHS, such as obstetric ultrasound, and even to have their births attended by skilled health personnel. Our findings align with a study showing that women in Nigeria from wealthier households and urban areas are more likely to access MHS than those in rural settings.¹⁹ Another study conducted in Delta State, Nigeria, also revealed inequity in MHS access in favour of urban areas²⁰.

Additionally, the 2018 Nigeria DHS report clearly indicates rural-urban/geographical variations in access to MHS in the country.⁵ The WHO has also highlighted apparent inequities in MHS access and gaps between the rich and the poor women in Nigeria.²¹ The participants identified poor access to MHS as a leading cause of maternal and perinatal deaths and, morbidities in the study population. Furthermore, the study participants highlighted some medical causes of maternal deaths (including haemorrhage, anemia, and obstructed labour), perceived to be prevalent in their communities due to a lack of MHS services. Past studies suggest that Nigerian women are knowledgeable about medical causes of maternal deaths in the country; haemorrhage and anaemia were also identified as medical causes of maternal deaths by women of

reproductive age in Nigeria.^{22,23} The study revealed that pregnant adolescents had disproportionately poorer access to MHS services and were more likely to die of pregnancy-related complications compared to older women. This perception is reinforced by a meta-analysis of data retrieved from 144 countries, which revealed a J-shaped curve wherein MMR was evidently higher among adolescents and those older than 33 years compared to women in other age groups.²⁴ Another population-based retrospective cohort study revealed that severe maternal morbidities were more likely to occur in adolescents compared to older women.^{17, 18} Most participants had poor perceptions of the quality of MHS in the study population. This is because key components of MHS were reported to be absent by the participants, as women often travel to other communities to access basic services such as routine laboratory tests during pregnancy and obstetric ultrasound services, as recommended by the WHO, for positive pregnancy experiences.²⁵ More importantly, study participants reported inadequate access to skilled birth attendants because few nurses/midwives were available to attend to women in need of key MHS in the community. This finding is in agreement with a systematic scoping review, which revealed that most women in SSA have a poor perception of the MHS they receive.²⁶ Another study conducted in Kaduna State, Nigeria, confirms this finding, as most participants in the Kaduna study had a poor perception of the quality of MHS available to them.²⁷ Evident from this study are factors that are perceived to be influencing the quality of MHS in rural Nigerian communities. One of the key factors identified as negatively affecting the quality of MHS in the study setting was out-of-stock syndrome of essential life-saving commodities, including medications. This finding is corroborated by past studies, which have highlighted the out-of-stock of essential medicines/commodities as a major challenge in most public health institutions in Nigeria.^{28, 29} Apart from the challenges, participants identified factors that limit the demand and utilization of MHS in the community. One of the most predominant hindrances to MHS use mentioned was the high cost of care and limited of funds to access good-quality services. These findings align with reports from multiple

studies, which have consistently highlighted financial constraints as a significant barrier to healthcare utilization in developing countries.^{30,31,32} Another factor highlighted by study participants was an inadequate transport scheme for women in need of emergency care in the community. Studies have described a lack of access to emergency transport services as a major constraint to MHS utilization in rural areas of Nigeria. For instance, a recent study described a lack of access to effective transportation services as a major barrier to healthcare access among mothers in Oyo State, southwest Nigeria³³.

Another study, which analysed 2018 DHS data, reported that only 31.0% of Nigerian women had access to a motorized mode of transportation to healthcare facilities.³⁴ It was also revealed by a study that only 61.9% of the women who died of pregnancy-related issues in Lagos (a metropolitan Nigerian city) arrived at the referral healthcare facilities within 30 minutes, and the average distance to the nearest health centres from them was 7.6 kilometres³⁵.

IMPLICATIONS FOR POLICY ACTION AND FUTURE RESEARCH

Our study provides valuable insights for informed decision-making to enhance access, quality, and utilization of MHS in rural Nigerian communities. It highlights the need for interventions to address rural-urban disparities and possible socio-economic variations in MHS delivery in Nigeria. The study highlights the need for healthcare funding for vulnerable rural women, emphasizing the prioritization of adolescent mothers in MHS programs and the upgrade of primary healthcare facilities.

STUDY LIMITATIONS

Participants' perspectives may not be generalizable to all women in Osun State due to the small sample size.

CONCLUSION

Accessibility, quality, and uptake of maternal health services were revealed to be sub-optimal in the study setting. There is a need for governmental and non-governmental health agencies to design more proactive interventions

that can improve maternal health access and quality in rural Nigeria.

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AUTHORS' CONTRIBUTIONS

AOA conceived the research idea, OKI coordinated the data collection process and analysis, ROA and IMA drafted the original manuscript, and IA reviewed the manuscript for important intellectual contents. All authors read and approved final draft for publication.

REFERENCES

- 1 The World Bank. Trends in Maternal Mortality 2000 to 2017: Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division (Vol. 2). Available at: <http://documents.worldbank.org/curated/en/793971568908763231/Trends-in-maternal-mortality-2000-to-2017-Estimates-by-WHO-UNICEF-UNFPA-World-Bank-Group-and-the-United-Nations-Population-Division> (accessed 18 Feb2025).
- 2 World Health Organization. Maternal Mortality. Available at: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality> (accessed 9 Jul2025).
- 3 World Health Organization. A Woman Dies Every Two Minutes Due to Pregnancy or Childbirth: UN agencies. Available at: <https://www.who.int/news/item/23-02-2023-a-woman-dies-every-two-minutes-due-to-pregnancy-or-childbirth--un-agencies> (accessed 30 Aug2025).
- 4 Doctor H V., Nkhana-Salimu S, Abdulsalam-Anibilowo M. Health Facility Delivery in sub-Saharan Africa: Successes, Challenges, and Implications for the 2030 Development Agenda. *BMC Public Health* 2018; **18**. doi:10.1186/s12889-018-5695-z.
- 5 Nigeria Demographic and Health Survey 2023-24: Key Indicators Report. 2023 – 24. Fed. Minist. Heal. Soc. Welf. Abuja, Niger. Natl. Popul. Comm. Abuja, Niger. DHS Progr. ICF Rockville, Maryland, USA. 2023.
- 6 United Nations Children's Fund. Situation of Women and Children in Nigeria | UNICEF Nigeria. Available at: <https://www.unicef.org/nigeria/situation-women-and-children-nigeria> (accessed 5 Apr2025).
- 7 Langer A, Salam RA, Lassi ZS, Link C, Austin A, Langer A *et al*. Approaches to Improve the Quality of Maternal and Newborn Health Care : an Overview of the Evidence. *Reprod Health* 2014; **21**: 1–10. <https://doi.org/10.1186/1742-4755-11-S2-S1>
- 8 Gage AD, Leslie HH, Bitton A, Jerome JG, Joseph JP, Thermidor R *et al*. Does Quality Influence Utilization of Primary Health Care? Evidence from Haiti. *Global Health* 2018; **14**: 59. <https://doi.org/10.1186/s12992-018-0379-0>
- 9 Andersen R, Newman JF. Societal and Individual Determinants of Medical Care Utilization in the United States. *Milbank Q* 2005; **83**. doi:10.1111/j.1468-0009.2005.00428.x.
- 10 Bhattacharyya S, Srivastava A, Saxena M, Gogoi M, Dwivedi P, Giessler K. Do Women's Perspectives of Quality of Care During Childbirth Match with those of Providers? A Qualitative Study in Uttar Pradesh, India. *Glob Health Action* 2018; **11**: 1–12. DOI: [10.1080/16549716.2018.1527971](https://doi.org/10.1080/16549716.2018.1527971)
- 11 Amu H, Nyarko SH. Satisfaction with Maternal Healthcare Services in the Ketu South Municipality, Ghana: A Qualitative Case Study. *Biomed Res Int* 2019; **2019**: 1–7. DOI: [10.1155/2019/2516469](https://doi.org/10.1155/2019/2516469)
- 12 Mochache V, Wanje G, Nyagah L, Lakhani A, El-Busaidy H, Temmerman M *et al*. Religious, Socio-cultural Norms and Gender Stereotypes Influence Uptake and Utilization of Maternal Health Services among the Digo Community in Kwale, Kenya: A Qualitative Study. *Reprod Health* 2020; **17**: 1–10. <https://doi.org/10.1186/s12978-020-00919-6>
- 13 Kenya National Bureau of Statistics. Kenya. 2014 doi:10.4324/9780203798935-17.
- 14 Sustainable Development Goals. — SDG Indicators. Available at: <https://unstats.un.org/sdgs/report/2019/> (accessed 27 Jan2025).
- 15 CityFacts. Ife Odan - Population - CityFacts. Available at: <https://www.city-facts.com/ife-odan> (accessed 17 April 2025).
- 16 Nove A, Matthews Z, Neal S, Camacho AV. Maternal Mortality in Adolescents Compared with Women of other Ages: Evidence from 144 Countries. *Lancet Glob Heal* 2014; **2**: [http://dx.doi.org/10.1016/S2214-109X\(13\)70179-7](http://dx.doi.org/10.1016/S2214-109X(13)70179-7)
- 17 Lisonkova S, Potts J, Muraca GM, Razaz N, Sabr Y, Chan WS *et al*. Maternal Age and Severe Maternal Morbidity: A Population-based Retrospective Cohort Study. *PLoS Med* 2017; **14**. doi:10.1371/journal.pmed.1002307.

- 18 Alex-Ojei CA, Odimegwu CO, Ntoimo LFC. A qualitative Investigation into Pregnancy Experiences and Maternal Healthcare Utilisation among Adolescent Mothers in Nigeria. *Reprod Health* 2023; **20**: 77. <https://doi.org/10.1186/s12978-023-01613-z>
- 19 Adedokun ST, Uthman OA, Bisiriyu LA. Determinants of Partial and Adequate Maternal Health Services Utilization in Nigeria: Analysis of Cross-sectional Survey. *BMC Pregnancy Childbirth* 2023; **23**: 457. <https://doi.org/10.1186/s12884-023-05712-4>
- 20 Enuke CA, Onwujekwe O. Equity of Access to free Maternal and Child Health Services among Reproductive-age Women in Delta State, Nigeria. *Ghana Med J* 2024; **58**: 215–223. DOI: [10.4314/gmj.v58i3.6](https://doi.org/10.4314/gmj.v58i3.6)
- 21 Oladapo OT, Adetoro OO, Ekele BA, Chama C, Etuk SJ, Aboyeji AP *et al.* When Getting There is not Enough: A Nationwide Cross-sectional Study of 998 Maternal Deaths and 1451 Near-misses in Public Tertiary Hospitals in a Low-income Country. *BJOG An Int. J. Obstet. Gynaecol.* 2016; **123**: 928–938. <https://doi.org/10.1111/1471-0528.13504>.
- 22 Olamijulo JA, Olorunfemi G, Okunola H. Trends and Causes of Maternal Death at the Lagos University Teaching Hospital, Lagos, Nigeria (2007–2019). *BMC Pregnancy Childbirth* 2022; **22**: 360. <https://doi.org/10.1186/s12884-022-04649-4>
- 23 Amoo TB, Ajayi OS. Maternal Mortality and Factors Affecting it, among Pregnant Women in Abeokuta South, Nigeria. *Clin J Obstet Gynecol* 2019; **2**: 071–078. DOI: [10.29328/journal.cjog.1001025](https://doi.org/10.29328/journal.cjog.1001025)
- 24 Nove A, Matthews Z, Neal S, Camacho AV. Maternal Mortality in Adolescents Compared with Women of Other Ages: Evidence from 144 countries. *Lancet Glob Heal* 2014; **2**: [https://doi.org/10.1016/S2214-109X\(13\)70179-7](https://doi.org/10.1016/S2214-109X(13)70179-7)
- 25 World Health Organization. WHO Recommendation on Antenatal Care for a Positive Pregnancy Experience: Summary. Available at: <https://www.who.int/publications/i/item/9789241549912>. [Accessed August 25 2025]
- 26 Ansu-Mensah M, Danquah FI, Bawontuo V, Ansu-Mensah P, Kuupiel D. Maternal Perceptions of the Quality of Care in the Free Maternal Care Policy in sub-Saharan Africa: A Systematic Scoping Review. *BMC Health Serv. Res.* 2020; **20**: 911. <https://doi.org/10.1186/s12913-020-05755-9>
- 27 Butawa NN, Tukur B, Idris H, Adiri F, Taylor KD. Knowledge and Perceptions of Maternal Health in Kaduna State, Northern Nigeria. *Afr J Reprod Health* 2010; **14**: 71–76.
- 28 Banke-Thomas OE, Banke-Thomas AO, Ameh CA. Factors Influencing Utilisation of Maternal Health Services by Adolescent Mothers in Low-and middle-income Countries: A Systematic Review. *BMC Pregnancy Childbirth* 2017; **17**: 65. <https://doi.org/10.1186/s12884-017-1246-3>
- 29 Global Alliance for Vaccine Initiative. In rural Zimbabwe, Electric Tricycles are Saving Lives | Gavi, the Vaccine Alliance. <https://www.gavi.org/vaccineswork/rural-zimbabwe-electric-tricycles-are-saving-lives> (accessed 1 June 2025).
- 30 Paul P, Chouhan P. Socio-demographic Factors Influencing Utilization of Maternal Health Care Services in India. *Clin Epidemiol Glob Heal* 2020; **8**: 666–670. <https://doi.org/10.1016/j.cegh.2019.12.023>
- 31 Stewart CL, Hall JA. Factors that Affect the Utilisation of Maternal Healthcare in the Mchinji District of Malawi. *PLoS One* 2022; **17**: 1–19. <https://doi.org/10.1371/journal.pone.0279613>
- 32 Ajah LO, Onu FA, Ogbuinya OC, Ajah MI, Ozumba BC, Agbata AT *et al.* Choice of Birth Place among Antenatal Clinic Attendees in Rural Mission Hospitals in Ebonyi State, South-East Nigeria. *PLoS One* 2019; **14**. doi:10.1371/journal.pone.0211306.
- 33 Olapoju OM. Access to Healthcare and Impediment(s) of Transport: Examining Lived Experience of Pregnant Women in Selected Local Governments of Oyo state, Nigeria. *Discov Heal Syst* 2025; **4**: 17. <https://doi.org/10.1007/s44250-025-00194-x>
- 34 Avoka CK, Banke-Thomas A, Beňová L, Radovich E, Campbell OMR. Use of Motorised Transport and Pathways to Childbirth Care in Health Facilities: Evidence from the 2018 Nigeria Demographic and Health Survey. *PLOS Glob Public Heal* 2022; **2**: <https://doi.org/10.1371/journal.pgph.0000868>
- 35 Banke-Thomas A, Avoka CKO, Gwacham-Anisiobi U, Omololu O, Balogun M, Wright K *et al.* Travel of Pregnant Women in Emergency Situations to Hospital and Maternal Mortality in Lagos, Nigeria: A Retrospective Cohort Study. *BMJ Glob Heal* 2022; **7**: 1–16. DOI: [10.1136/bmjgh-2022-008604](https://doi.org/10.1136/bmjgh-2022-008604)

