

Investigation into the Determinants of Adequate and Appropriate Quality Antenatal Care Among Nursing Mothers at Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria

Afonja Olufunmilayo Doyinsola

Community Health Officers Training Programme. University College Hospital, Ibadan

Muideen Babatunde Olatunji

Executive Secretary, Oyo State Primary Healthcare Board

Zorto Dwamo Philip

University of Central Nicaragua

Aibinuomo Ayomide Oluwaseyi

Texilia American University

Oluwatoyin Magaret Idowu

Faculty of Basic Medical and Health Science, Public Health Department, Lead City University, Oyo State

Ayinde, Abayomi O

University of Ibadan (Public Health Epidemiology)

Annotation: Background: Despite major advancements in healthcare, approximately 830 women die daily due to pregnancy-related complications, with the majority of these deaths occurring in developing countries. Antenatal care (ANC) is critical in preventing such complications by providing comprehensive health services to pregnant women. Adequate and appropriate ANC is vital for reducing maternal mortality and ensuring maternal and fetal health.

Objective: This study aimed to assess the determinants of adequate and appropriate quality antenatal care among nursing mothers attending Olabisi Onabanjo University Teaching Hospital in Sagamu, Ogun State, Nigeria. The focus was on understanding factors influencing knowledge, perception, and utilization of ANC services.

Method: A cross-sectional descriptive study was conducted at Olabisi Onabanjo University Teaching Hospital, formerly Ogun State University Teaching Hospital. The study included women of reproductive age attending the antenatal clinic. A systematic random sampling technique was used to select participants, who were given questionnaires to assess their knowledge, perception, and determinants of ANC. Data were analyzed using descriptive and inferential statistics with SPSS version 23.

Findings: The majority of respondents (87.4%) demonstrated good knowledge of ANC, although there was a gap in awareness regarding the frequency of visits. A positive perception of ANC was found in 81.8% of respondents. Key determinants influencing ANC utilization included family income, socio-cultural expectations, the influence of significant others, and the availability of quality healthcare workers. Most respondents recognized the benefits of ANC and were motivated by their health status and the desire to improve their child's health.

Conclusion: The study concluded that while the majority of respondents had good knowledge and a positive perception of ANC, there were areas needing improvement, such as education about visit

frequency and addressing variations in care perceptions. The availability of quality healthcare services and socio-cultural influences were significant factors in ANC utilization.

Recommendation: Enhance antenatal care services by increasing educational efforts, improving healthcare delivery, and addressing socio-economic barriers to ensure better maternal health outcomes

Background of the Study

Despite significant advancements in healthcare, WHO estimates that 830 women die daily due to pregnancy-related complications (WHO, 2020). Many of these maternal deaths in developing countries could be prevented with quality care during pregnancy (WHO, 2020). Antenatal care (ANC) offers comprehensive health services to expectant mothers, addressing any complications that arise during pregnancy, and thus plays a crucial role in the Safe Motherhood Initiative (Ahmed & Manzoor, 2019). Estimates suggest that anemia, hemorrhage, hypertensive disorders, and gestational diabetes are major causes of maternal death during pregnancy. Antenatal checkups support maternal well-being and help prevent complications through timely advice and treatment (Kihara, Harries, Bissell, Kizito, Van Den Berg, & Mueke, 2018).

Antenatal care (ANC) is the health care and education provided to pregnant women and adolescent girls by skilled health care professionals to ensure the best health conditions for the mother and the baby during pregnancy (Afaya, Azongo, Dzomeku, Afaka, Salia, Adatara, Ahassan, Amponsah, Atakro, Adadem, Asiedu, Amuna, & Ayanore, 2020). Antenatal care utilisation is an important constituent of maternal health care, which reduces maternal and perinatal morbidity and mortality both directly through identification and management of pregnancy-related complications, and indirectly through the identification of pregnant women and girls most likely to develop complications during labour and delivery, thus ensuring early referral to an appropriate health facility for further care (Gunawardena, Bishwajit, & Yaya, 2019). Globally, while most women now attend at least one ANC visit (86%), only 62% attend four, with lower rates reported in sub-Saharan Africa and South Asia (Afaya 2020). An analytical review of the recent WHO Global Health Observatory data repository shows that ANC coverage, between 2000 and 2019, was indirectly correlated with MMR worldwide and the evidence indicates that countries with poor ANC coverage are more likely to have high MMR (WHO, 2020). For example, ANC utilisation in Australia is 94% with MMR of 6 per 100, 000, Finland has 99% ANC utilisation with MMR 3 per 100, 000 and France has 99% ANC utilisation with MMR 8 per 100000 live births. In comparison with sub-Saharan Africa, Nigeria has 49.1% ANC coverage with MMR of 917 per 100000, Cote d'Ivoire has 51.3% ANC coverage with MMR of 617 per 100,000, and Ghana has 89.3% ANC coverage with MMR 310 deaths per 100, 000 live births (Afaya, 2020).

While ANC coverage remains high in Nigeria, the coverage of at least four ANC visits remains lower at approximately 76% (Fagbamigbe & Idemudia, 2020). During pregnancy, the WHO recommends at least 4 ANC visits for antenatal care by a skilled health care professional for advice and monitoring of the health and well-being of both the mother and the developing foetus. A minimum of 4 visits constitutes receiving optimum ANC care. In this study, optimum ANC refers to a woman who made at least 4 visits for ANC during pregnancy (Afaya, Azongo, Dzomeku, 2020).

Different factors influence the knowledge regarding importance of antenatal checkups which include role of education, income, support of the family and equitable distribution of health services between rural and urban population (Hina & Iram, 2019). It has been documented that as the educational status of the females in urban settings is improving leading to increase in the awareness regarding importance of antenatal care and educated mothers make conscious decision of availing ANC services from government or private hospitals (Hina & Iram, 2019).

To advance maternal and reproductive health outcomes for women throughout their life cycle and contribute to reducing infectious rates, there is a need for improved knowledge of quality antenatal care in relation to an important outcome measure such as pregnant women's knowledge and optimum ANC during pregnancy. This study, therefore, sought to assess determine the determinants of

adequate/appropriate quality antenatal care among nursing mothers attending Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria.

MATERIALS AND METHODS

Research Design

A cross-sectional descriptive study was designed to assess the determinants of adequate and appropriate quality antenatal care among nursing mothers who attended Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria. The study was conducted at Olabisi Onabanjo Teaching Hospital, formerly known as Ogun State University Teaching Hospital (OSUTH), located in Sagamu, Ogun State, South West Nigeria. The teaching hospital was established on January 1, 1986, with the primary aim of teaching medical students from Olabisi Onabanjo University and providing healthcare services to the people of Ogun State and Nigeria as a whole. The pioneer Chief Medical Director (CMD) of the hospital was Prof. A.A.O. Laditan. The hospital was managed by a governing council appointed by the state government, with Professor Emmanuel O. Otolorin serving as the chairman of the governing council at the time. The hospital offered various services, including emergency care, ophthalmology, respiratory and cardiology care, medical and surgical care, rehabilitative care, maternal and child healthcare, and outpatient services. The study population for this research comprised women of reproductive age who attended the antenatal clinic at Olabisi Onabanjo University Teaching Hospital, regardless of their age, tribe, religion, or marital status. The expected number of mothers attending each week was 73. Since the study was conducted over a two-week period, the anticipated total population was 159 women. A systematic random sampling technique was adopted for this study. This technique ensured that every respondent had a chance to participate. Each respondent was assigned a number, and only those with odd numbers were selected to participate in the study. Each mother was approached at the antenatal clinic, assigned a number based on the order in which they arrived that day, and those with odd numbers were given the questionnaire to complete. After completing the questionnaire, it was collected for numbering and data analysis.

Data analysis

Descriptive and inferential statistics were used for data analysis. The data collected from the questionnaires were manually sorted and coded. They were then entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS) version 23 software. Frequency and percentage tables were generated to represent the demographic characteristics of the respondents. Statistical significance for associations was tested using the chi-square test, with a p-value of less than 0.05 considered statistically significant.

Ethical considerations

Permission to conduct this study was obtained from the Ethical Committee of Babcock University and from the Dean of the School of Nursing at Babcock University. Participants were informed about the study both verbally and in writing through an information statement that clearly explained the aim of the study and the benefits to the participants. They were assured of the confidentiality of all information obtained and were asked not to indicate their names or any identifying marks on the survey forms to ensure anonymity. It was expected that this study would encourage students to improve their hygiene, particularly in light of the increasing spread of communicable diseases.

RESULT

Table 4.1 Socio-demographic Characteristics (N = 159)

Variables	Frequency	Percentage (%)	
What is your age as at last birthday?	<20	3	1.9
	21-30	29	18.2
	31-40	28	17.6
	41-50	25	15.7
	>50	74	46.5

What is your gender?	Female	159	100.0
What is your marital status?	Single	27	17.0
	Married	126	79.2
	Separated	6	3.8
What is your religion?	Christianity	142	89.3%
	Islam	14	8.8%
	Traditional	3	1.9%
What is your tribe?	Yoruba	143	89.9%
	Igbo	6	3.8%
	Hausa	3	1.9%
	Bini	3	1.9%
	Ebira	2	1.3%
	Edo	2	1.3%
What is your level of education?	No formal education	0	0.0%
	Primary	0	0.0%
	Secondary	6	3.8%
	Tertiary	153	96.2%
How many pregnancies have you had?	None	18	11.3%
	1-2	43	27.0%
	3-5	90	56.6%
	More than 5	8	5.0%
What is your occupation?	Civil servant	109	68.6%
	Business	17	10.7%
	Private sector	7	4.4%
	House wife	3	1.9%
	Student	12	7.5%
	Others	11	6.9%

Table 4.1 above indicates that the majority of respondents, 74 (46.5%), are over the age of 51. All respondents, 159 (100.0%), are Christians, and 126 (79.2%) are married. Additionally, 142 (89.3%) identify as Christians, 143 (89.9%) are of Yoruba ethnicity, and 153 (96.2%) have completed tertiary education. Furthermore, 90 (56.6%) have had between 3 to 5 pregnancies, and 109 (68.6%) are employed as civil servants.

Table 4.2: Level of knowledge on quality antenatal care (N = 159)

Variables	Frequency	Percentage (%)	
Do you believe that quality means the routine care rendered to you during your visit to the hospital?	Yes, I know	135	84.9%
	No, I don't know	18	11.3%
	I can't recollect	3	1.9%
	I will inquire	3	1.9%
The word antenatal care means the routine care rendered by the healthcare practitioners during antenatal care visit?	Yes, I know	156	98.1%
	No, I don't know	0	0.0%
	I can't recollect	0	0.0%
	I will inquire	3	1.9%
Do you know that the first four months antenatal care is usually weekly?	Yes, I know	68	42.8%
	No, I don't know	68	42.8%
	I can't recollect	20	12.6%
	I will inquire	3	1.9%
Do you know that there are a lot of benefits in regular attendance of routine antenatal clinic	Yes, I know	159	100.0%
	No, I don't know	0	0.0%
	I can't recollect	0	0.0%

	I will inquire	0	0.0%
Do you know that it's advantageous to go for regular ultrasound checkup every time it is prescribed?	Yes, I know	150	94.3%
	No, I don't know	9	5.7%
	I can't recollect	0	0.0%
	I will inquire	0	0.0%
Do you know that excellent relationship between the midwife, client, family and significant others is important in quality antenatal care?	Yes, I know	150	94.3%
	No, I don't know	6	3.8%
	I can't recollect	3	1.9%
	I will inquire	0	0.0%
Do you know that quality Antenatal Care is derived when good interaction exists between the healthcare givers and the client?	Yes, I know	148	93.1%
	No, I don't know	8	5.0%
	I can't recollect	3	1.9%
	I will inquire	0	0.0%
Do you know that quality antenatal care is enjoyment of standard care by the consumer?	Yes, I know	147	92.5%
	No, I don't know	9	5.7%
	I can't recollect	3	1.9%
	I will inquire	0	0.0%
Do you know that quality antenatal care is the use of acquired knowledge and principles to dispense a care practitioner expected care from the healthcare practitioners to all clients?	Yes, I know	134	84.3%
	No, I don't know	19	11.9%
	I can't recollect	6	3.8%
	I will inquire	0	0.0%

Table 4.2 above shows that 84.9% of respondents believe that quality care refers to the routine care provided during hospital visits, while 11.3% are unsure. Additionally, 98.1% correctly associate antenatal care with routine care provided by healthcare practitioners. Regarding the frequency of antenatal visits, 42.8% are aware that care during the first four months is weekly, while another 42.8% are not aware. All respondents (100%) recognize the benefits of regular antenatal attendance, and 94.3% understand the advantages of regular ultrasound checkups when prescribed.

Most respondents (94.3%) also acknowledge the importance of maintaining a good relationship between the midwife, client, family, and others for quality antenatal care. Similarly, 93.1% believe that quality care stems from good interaction with healthcare providers, and 92.5% view receiving standard care as an essential part of quality antenatal care. Lastly, 84.3% understand that quality antenatal care involves applying acquired knowledge to provide the expected care.

Table 4.3: Respondent's knowledge on quality antenatal care

Value	Score	Frequency	Percent(%)	Mean score
Good knowledge	5-9	139	87.4	Mean±SD = 4.12±0.3
Poor knowledge	0-4	20	12.6	
Total		159	100.0	

The data indicates that the majority of respondents, 87.4%, demonstrated good knowledge with a score range of 5-9, yielding a mean score of 4.12 ± 0.3 . In contrast, 12.6% of respondents exhibited poor knowledge, scoring between 0-4. The total sample size was 159, representing 100% of the respondents.

Table 4.4: Perceived outcome of quality antenatal care (N = 159)

Variables		Frequency	Percentage (%)
Do you perceive that quality antenatal care will certainly promote the health of the mother and that of the fetus?	Yes, I know	159	100.0
	No, I don't know	0	0.0
	I can't recollect	0	0.0
	I will inquire	0	0.0
Do you perceive that poor quality antenatal care will increase the prevalence of mortality and morbidity of the mother and infant?	Yes, I know	156	98.1
	No, I don't know	3	1.9
	I can't recollect	0	0.0
	I will inquire	0	0.0
Do you perceive that better ANC outcome will be derived if the client and the healthcare practitioner relate harmoniously?	Yes, I know	151	95.0
	No, I don't know	8	5.0
	I can't recollect	0	0.0
	I will inquire	0	0.0
Do you perceive that less complication will be recorded with good working environment and availability of skilled healthcare workers could promote quality antenatal care?	Yes, I know	159	100.0
	No, I don't know	0	0.0
	I can't recollect	0	0.0
	I will inquire	0	0.0
Do you perceive that avoidance of conflict among healthcare workers will promote provision of quality Antenatal Care?	Yes, I know	137	86.2
	No, I don't know	22	13.8
	I can't recollect	0	0.0
	I will inquire	0	0.0
Do you perceive that regular motivation of healthcare workers by the government promotes quality antenatal care?	Yes, I know	159	100.0
	No, I don't know	0	0.0
	I can't recollect	0	0.0
	I will inquire	0	0.0
Do you perceive that input of significant others promotes positive outcome of this pregnancy?	Yes, I know	124	78.0
	No, I don't know	26	16.4
	I can't recollect	3	1.9
	I will inquire	6	3.8
Do you perceive that positive provision of enough environmental security in and around the hospital promotes quality antenatal care?	Yes, I know	136	85.5
	No, I don't know	23	14.5
	I can't recollect	0	0.0
	I will inquire	0	0.0

Table 4.4 illustrates that all respondents had a positive perception of the outcomes of quality antenatal care. They recognized that quality antenatal care promotes maternal and fetal health, reduces complications, and enhances the motivation of health workers, thereby improving the overall quality of antenatal care.

Table 4.5 : Respondent's perception on quality antenatal care

Value	Score	Frequency	Percent (%)	Mean score
Good perception	5-8	130	81.8	Mean±SD = 3.96±1.6
Poor perception	0-4	29	18.2	
Total		159	100.0	

The data reveals that 81.8% of respondents had a good perception of antenatal care, with scores ranging from 5 to 8 and a mean score of 3.96 ± 1.6 . In contrast, 18.2% had a poor perception, with scores between 0 and 4. The total number of respondents was 159.

Table 4.6: Determinants of adequate/appropriate quality Antenatal Care (N = 159)

Variables	Frequency	Percentage (%)	
Predisposing determinants			
Will your family monthly income be enough to meet the required financial expectation of antenatal clinic?	Yes, I know	124	78.0
	No, I don't know	23	14.5
	I can't recollect	6	3.8
	I will inquire	6	3.8
Do you think it is socio-culturally expected from you to visit either the local, state and federal government hospital for your antenatal care?	Yes, I know	118	74.2
	No, I don't know	29	18.2
	I can't recollect	3	1.9
	I will inquire	9	5.7
Do you think the influence of significant others would encourage you to utilize quality antenatal care provide by modern health care services?	Yes, I know	141	88.7
	No, I don't know	9	5.7
	I can't recollect	6	3.8
	I will inquire	3	1.9
Enabling determinants			
Do you think that the availability of quality health care workers and adequate healthcare services in primary health care workers encourage you to utilize quality antenatal care?	Yes, I know	146	91.8
	No, I don't know	8	5.0
	I can't recollect	5	3.1
	I will inquire	0	0.0
Do you think that the eradication of long waiting time will encourage you to utilize quality health care?	Yes, I know	127	79.9
	No, I don't know	26	16.4
	I can't recollect	6	3.8
	I will inquire	0	0.0
Need determinants			
Do you realize that your health status and perceived outcome of quality ANC encourage you to utilize quality antenatal care?	Yes, I know	130	81.8
	No, I don't know	8	5.0
	I can't recollect	9	5.7
	I will inquire	12	7.5
Do you realize that your will to improve your child's health will encourage you to utilize quality antenatal care?	Yes, I know	151	95.0
	No, I don't know	6	3.8
	I can't recollect	2	1.3
	I will inquire	0	0.0

The data shows that 78.0% of respondents believe their family monthly income will be sufficient to meet the financial expectations of antenatal care, while 14.5% are unsure. Regarding socio-cultural expectations, 74.2% think it is expected to visit local, state, or federal hospitals for antenatal care, with 18.2% not knowing.

The influence of significant others is seen as a factor by 88.7% of respondents who believe it would encourage them to utilize quality antenatal care from modern healthcare services, while 5.7% do not think it would.

In terms of enabling factors, 91.8% of respondents believe that the availability of quality healthcare workers and adequate services at primary health care centers would encourage them to use quality antenatal care. Additionally, 79.9% think that reducing long waiting times would also be encouraging.

For need determinants, 81.8% of respondents feel that their health status and the perceived outcomes of quality antenatal care motivate them to seek quality care. Furthermore, 95.0% recognize that their

desire to improve their child's health strongly encourages them to utilize quality antenatal care, with only 3.8% unsure of this influence.

Discussion of Findings

This study assessed the determinants of adequate and appropriate quality antenatal care among nursing mothers attending Olabisi Onabanjo University Teaching Hospital in Nigeria. The findings highlight several key aspects related to knowledge, perception, and determinants influencing antenatal care utilization.

Knowledge and Perception of Antenatal Care:

The results show that a substantial majority of respondents demonstrated good knowledge about antenatal care, with 87.4% scoring within the range indicative of good knowledge. This finding aligns with the high percentage of respondents who accurately associated antenatal care with routine healthcare provided by practitioners (98.1%) and understood its benefits (100%). This suggests that there is a strong awareness of the importance of antenatal care among the respondents. However, there was a notable gap in the knowledge regarding the frequency of antenatal visits, with 42.8% not aware that care during the first four months is typically weekly. This indicates a need for further education to ensure that all pregnant women are fully informed about the recommended frequency of visits.

Perception of Quality Antenatal Care:

The perception of antenatal care was generally positive, with 81.8% of respondents having a good perception of its value. This positive perception is supported by their understanding of the importance of maintaining a good relationship with healthcare providers and the role of quality care in improving maternal and fetal health. However, the mean perception score of 3.96 ± 1.6 suggests that there is some variation in how respondents view the quality of care.

Determinants of Antenatal Care Utilization:

Predisposing factors such as family income, socio-cultural expectations, and the influence of significant others play a significant role in antenatal care utilization. The majority of respondents (78.0%) felt their family income was adequate to cover antenatal care costs, and 74.2% acknowledged socio-cultural expectations to visit government hospitals. The strong influence of significant others (88.7%) also emerged as a crucial factor in encouraging the use of quality antenatal care.

Enabling factors such as the availability of quality healthcare workers and services were recognized by 91.8% of respondents as important in facilitating the utilization of quality care. Additionally, 79.9% believed that reducing long waiting times would encourage better use of healthcare services. These findings emphasize the importance of adequate healthcare infrastructure and efficient service delivery.

Need determinants showed that 81.8% of respondents felt that their health status and the perceived outcomes of antenatal care motivated them to seek quality care. The overwhelming majority (95.0%) also recognized that their desire to improve their child's health strongly influenced their use of antenatal services.

Conclusion

The study concludes that the majority of respondents at Olabisi Onabanjo University Teaching Hospital have a good understanding and perception of the importance of quality antenatal care. They recognize the benefits of regular antenatal visits and the role of supportive healthcare environments in promoting maternal and fetal health. However, there is a need for enhanced education regarding the recommended frequency of antenatal visits and addressing variability in perceptions of care quality.

Recommendations

- Enhanced Education:** Develop targeted educational programs to increase awareness about the recommended frequency of antenatal visits and other key aspects of quality care. This could include informational materials and workshops for pregnant women.

2. **Improve Service Delivery:** Address the issues related to long waiting times and ensure the availability of quality healthcare workers at primary health care centers. This can help make antenatal care more accessible and efficient.
3. **Support Systems:** Strengthen support systems involving significant others and community networks to encourage the utilization of antenatal care services. This can be achieved through community outreach and engagement initiatives.
4. **Ongoing Monitoring:** Conduct regular assessments of antenatal care services and patient perceptions to identify areas for improvement and ensure that the quality of care meets the needs of the population.
5. **Policy Advocacy:** Advocate for policies that address socio-economic barriers to antenatal care, ensuring that financial constraints do not hinder access to essential health services.

REFERENCES

1. N. Yabo, M. A. Gebremicheal, and E. E. Chaka, "Assessment of quality of antenatal care (ANC) service provision among pregnant women in Ambo town public health institution, Ambo, Ethiopia, 2013," *American Journal of Nursing Science*, vol. 4, no. 3, pp. 57–62, 2015.
2. Abou-Zahr I, Lidia C, Wardlaw TM., (2019). Antenatal Care in Developing Countries Promises, achievements and missed opportunities *An Analysis of trends, levels and differentials, 2000–2019*. Geneva: WHO.
3. Ademuyiwa IY, Opeke RO, Farotimi AA, Ejidokun A, Olowe AO, Ojo EA., (2021). Awareness and satisfaction with antenatal care services among pregnant women in Lagos state, Nigeria. *Calabar J Health Sc*; 5(1):21-7.
4. Ahmed, H., & Manzoor, I. (2019). Knowledge about the importance of antenatal care among females of child bearing age living in a suburban community of Lahore. *Pakistan journal of medical sciences*, 35(5), 1344–1348. Available at <https://doi.org/10.12669/pjms.35.5.1256>. Accessed on 2/8/21.
5. Akhtar, S., Hussain, M., Majeed, I., and Afzal, M., (2018). Knowledge Attitude and Practice Regarding Antenatal Care among Pregnant Women in Rural Area of Lahore. *Int. J. Soc. Sc. Manage.* Vol. 5, Issue-3: 155-162. Available at DOI: 10.3126/ijssm.v5i3.20604. Accessed on 2/8/21.
6. Awusi V, Anyanwu E, and Okeleke V., (2019). Determinants of antenatal care services utilization in Emevor Village, Nigeria. *Benin J Postgrad Med*; 11(1).
7. Berehe, T., Modibia, L., (2020). Assessment of Quality of Antenatal Care Services and Its Determinant Factors in Public Health Facilities of Hossana Town, Hadiya Zone, Southern Ethiopia: A Longitudinal Study, *Advances in Public Health*, Article ID 5436324, 11 pages. Available at <https://doi.org/10.1155/2020/5436324>. Accessed on 2/8/21.
8. Bergsjö P and Villar J., (2019). Scientific basis for the content of routine antenatal care. *Acta Obstetrica et Gynecologica Scandinavica*; 76: 1–14
9. Carroli G, Villar J, Piaggio G, Khan-Neelofur D, Gülmezoglu M, Mugford M, (2019). WHO systematic review of randomised controlled trials of routine antenatal care. *Lancet*; 357: 1565–70.
10. Ekabua J, Ekabua K, Njoku C., (2019). Proposed framework for making focussed antenatal care services accessible: A review of the Nigerian setting. *ISRN Obstetrics and Gynecology*.
11. Fagbamigbe AF, Idemudia ES., (2020). Barriers to antenatal care use in Nigeria: evidences from non-users and implications for maternal health programming. *BMC pregnancy and childbirth*; 15(1):95.

12. G. Fesseha, M. Alemayehu, B. Etana, K. Hailelassie, and A. Zemene, "Perceived quality of antenatal care service by pregnant women in public and private health facilities in Northern Ethiopia," *American Journal of Health Research*, vol. 2, no. 4, pp. 146–151, 2014.
13. Gunawardena N, Bishwajit G, Yaya S., (2019). Facility-Based maternal death in Western Africa: a systematic review. *Frontiers in public health*; 6:48. PMID:29535999.
14. Kihara AB, Harries AD, Bissell K, Kizito W, Van Den Berg R, Mueke S, (2018). Antenatal care and pregnancy outcomes in a safe motherhood health voucher system in rural Kenya 2010–2018. *Public Health Action*; 5(1):23–29.
15. Konlan, K., Saah, J., Amoah, R., Doat, A., Mohammed, D., & Abdulai, J., (2020). Factors influencing the utilization of Focused antenatal care services during pregnancy, a study among postnatal women in a tertiary healthcare facility, Ghana. *Nursing Open*; Volume 7, Issue 6 p. 1822–1832.
16. Kuhnt J, and Vollmer S., (2019). Antenatal care services and its implications for vital and health outcomes of children: evidence from 193 surveys in 69 low-income and middle-income countries. *BMJ Open*; 7:17122.
17. Lincetto, O., Mothebesoane-Anoh, S., Gomez, P., and Munjanja, S., (2020). Antenatal care. *Opportunities for Africa's Newborns*. Available at https://www.who.int/pmnch/media/publications/aonsectionIII_2.pdf. Accessed on 10/11/21
18. M. Tetui, E. K. Ekirapa, J. Bua et al., "Quality of Antenatal care services in eastern Uganda: implications for interventions," *Pan African Medical Journal*, vol. 13, no. 27, pp. 1–15, 2012.
19. Majoko F, Munjanja SP, Nystrom L, Mason E, Lindmwak G., (2017). Randomised controlled trial of two antenatal care models in rural Zimbabwe. *BJOG*; 114: 802–811.
20. N. Mekonnen, T. M. Berheto, S. Ololo, and F. Tafese, "Under nutrition and its association with infant and young child feeding summary index among 6 to 23 Months in demba Gofa Woreda, southern Ethiopia," *Journal of Nutritional Health & Food Science*, vol. 5, no. 3:502, pp. 1–15, 2017.
22. Okunlola M, Owonikoko K, Fawole A., (2018). Gestational age at antenatal booking and delivery outcome. *Afr J Med Med Sci*; 37(2):165–9.
23. Onyeajam, D. J., Xirasagar, S., Khan, M. M., Hardin, J. W., & Odutolu, O., (2018). Antenatal care satisfaction in a developing country: a cross-sectional study from Nigeria. *Public Health* 18:368.
24. P. Bastola, D. K. Yadav, and H. Gautam, "Quality of antenatal care services in selected health facilities of Kaski district, Nepal," *International Journal of Community Medicine and Public Health*, vol. 5, no. 6, pp. 2182–2189, 2018.
25. Paudel, Y., Jha, T., and Mehata, (2017). Timing of First Antenatal Care (ANC) and Inequalities in Early Initiation of ANC in Nepal. *Front. Public Health*.
26. S. G., "Quality of antenatal care services at subcentres: an infrastructure, process and outcome evaluation in a district in Tamil Nadu," *International Journal of Community Medicine and Public Health*, vol. 4, no. 11, pp. 4071–4077, 2017.
27. S. Mehnaz, S. Abedi, Z. Fazli, M. Ansari, Mohammed, and A. Ansari, "Quality of care: predictor for utilization of ANC services in slums of Aligarh," *International Journal of Medical Science and Public Health*, vol. 5, no. 9, pp. 1869–1873, 2016.
28. Villar J, Ba'aqeel H, Piaggio G, Lumbiganon P, Miguel Belizán J, and Farnot U, (2018). WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care. *Lancet*. 2001;357: 1551–1564.

29. Warri, D., George, A., (2020). Perceptions of pregnant women of reasons for late initiation of antenatal care: a qualitative interview study. *BMC Pregnancy Childbirth* **20**, 70.
30. WHO, (2020). Trends in Maternal Mortality 2000 to 2019. Cited on 12th November 2021. Available on https://data.unicef.org/wp-content/uploads/2015/12/MMR_executive_summary_final_mid-res_243.pdf. Accessed on 2/8/21.
31. World Health Organization (WHO), (2019). WHO recommendations on antenatal care for positive pregnant experience. (Online). Available at: http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/. Accessed on 2/8/21
32. Y. E. Housni, A. Khadmaoui, A. Kharbach, and E. Boussalwa, “Qual European journal of scientific researchity of antenatal care services in Morocco: case of the women delivering,” *At Souissi Maternity*, vol. 147, no. 4, pp. 426–432, 2017.