
Impacts of Maternal Care Services on Reproductive Health of Pregnant Women Attending Primary Health Care Centres in North-Eastern Nigeria

¹Bala Yunusa Tilde, ²Sagir Abdulkadir, and ³Sa'ad Abubakar Idris

^{1&2}Department of Physical and Health Education, School of Secondary Education (Sciences), Aminu Saleh College of Education, Azaae

³School of Postgraduate and Sub-degree Programmes, Aminu Saleh College of Education, Azaae

doi: <https://doi.org/10.37745/ijnmh.15/vol9n22436>

Published July 14 2023

Citation: Tilde B.Y., Abdulkadir S., and Idris S.A. (2023) Impacts of Maternal Care Services on Reproductive Health of Pregnant Women Attending Primary Health Care Centres in North-Eastern Nigeria, *International Journal of Nursing, Midwife and Health Related Cases*, Vol.9, No.2, pp.24-36

ABSTRACT: *Maternal care services involves provision of health care to women during pregnancy, childbirth and postpartum period at reproductive health care settings. The quality of maternal care services that women receive determine their reproductive health status in pregnancy, delivery and postpartum and impact on their overall wellbeing and that of the fetus. Maternal complications in pregnancy, childbirth and postpartum that usually result to death of women and their fetus due to poor maternal care services are still persistent in North-Eastern Nigeria, Nigeria. Therefore, the study examined the impacts of maternal care services on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria. An ex-post facto research design was adopted for the study. The population of the study consisted of 2,487 registered pregnant women attending primary health care centres in North-Eastern Nigeria. A sample of 482 was selected through multistage sampling procedures. A researcher-developed questionnaire was used as instrument for data collection, the instrument was validated by three experts was used as instrument for the study. The reliability of the instrument was established with the use of split-half method and analyzed using Cronbach alpha statistics; a coefficient of 0.87 was obtained which shows the instrument is reliable. Inferential Statistics of Chi-square was used to analyze the data at 0.05 level of significance. The findings of the study show that maternal care services of medical check-up, physical test, health talk and immunization have significant impacts on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria. Based on the findings of the study, it was recommended that regular seminars and training should be organized by reproductive health care professionals for pregnant women in order to enlighten them on the benefits of maternal care services in order to improve their reproductive health status. Also, government should provide high quality immunization equipment and medications available and accessible in maternal care services centres as one strategy of prevention maternal complication during postpartum period and to improve the reproductive health and wellbeing of the mother and newborn baby.*

KEYWORDS: maternal care services, reproductive health, pregnant women, primary health care centres, North-Eastern Nigeria

INTRODUCTION

Maternal care services seen as the health care services given to the women during pregnancy, childbirth and the postpartum period and maternal care services regarded as antenatal care (ANC), delivery care and postnatal care (PNC) services. Before pregnancy, the health and lifestyle choices of parents can affect fertility, maternal health and their newborns babies' probability of developing chronic health conditions later in life. People contemplating pregnancy should be screened for health problems, which need to be identified and managed. During pregnancy, high-quality antenatal care service is very essential to ensure not only a healthy pregnancy for mother and baby but also an effective transition to positive labour and childbirth. Maternal health has been becoming a global concern because the lives of millions of women in reproductive age can be saved through maternal health care services. Despite efforts that have been made to strengthen maternal health care services, maternal mortality is still high in most of the developing countries (Kifle, Azale, Gelwa, & Melsew, 2017).

Medical checkup or prenatal diagnosis among pregnant women (note that "Prenatal Diagnosis" and "Prenatal Screening" refer to two different types of tests) is testing for diseases or conditions in a fetus or embryo before it is born. Obstetricians and midwives have the ability to monitor mother's health and prenatal development during pregnancy through series of regular check-ups (Kisuule, Kaye & Najjuka, 2013) Physical examinations generally consist of, collection of (mother's) medical history, checking (mother's) blood pressure, (Mother's) height and weight, pelvic examination, doppler fetal heart rate monitoring, (mother's) blood and urine tests and discussion with caregiver.

Physical test is the identification of entire body composition of pregnant women and the general appearance which includes inspection and palpitation of the pregnant uterus, with measurement of the symphysis-fundal height in centimeters. After that, pregnant women undergo essential screening investigations, which include syphilis serology, rhesus (D) blood group, hemoglobin (Hb) level, human immunodeficiency virus and protein and glucose levels in urine (Abosse, Woldie & Ololo, 2010). All pregnant women are given supplements of ferrous sulphate tablets to prevent anemia, calcium tablets to prevent complications from pre-eclampsia, folic acid, and tetanus toxoid to prevent neonatal tetanus. It is the recommendation of World Health Organization that pregnant women should have their first contact in the first 12 weeks' gestation, with subsequent contacts taking place at 20, 26, 30, 34, 36, 38- and 40-weeks' gestation (WHO, 2014). Health education is the effective transmission of accurate, useful, health-related information to community members; it enables individuals and groups to develop their knowledge of health issues, and increase their self-reliance and competence to solve their own health problems through their own initiatives (Akanbiemu, Manuwa, Fagbamigbe & Adebowale, 2013). They further stated that, a major determinant of good or ill health is the knowledge people have about health issues,

beliefs, attitudes and behaviour, and their desire to bring about positive behaviour change in their lives. A key role for you as a health worker is to provide effective health education to pregnant people in the community, so they can discuss their health problems with you and with each other, and make the right decisions to improve their health, and that of their family members, through their own efforts. Hence, health education is a vital tool for moving people to action. If health education is delivered in a well-planned and coordinated programme, with full community support and participation, there is no better way to encourage positive health behaviours and resolve or prevent many common health problems (Akanbiemu, et al., 2013).

Maternal immunization protects both the mother and fetus from the morbidity of certain infections. It can also provide the infant passive protection against vaccine-preventable infections acquired independently after birth (Nketiah, Senadza & Arthur, 2013). Ideally, immunizations are given prior to conception, but administration during pregnancy is indicated in some situations. Vaccine-preventable diseases are a major cause of global child morbidity and mortality, particularly in low-income and middle-income countries (LMICs) (Birmeta, Dibaba & Woldeyohannes, 2013).

Statement of the Problem

Most pregnancy complications are preventable, as the health-care service solutions to prevent or manage complications are well known (WHO, 2019). All women need access to antenatal and postnatal care in pregnancy and after delivery, skilled care during childbirth, and care and support in the weeks after childbirth. This will greatly help in curbing the menace which women die from complications during and after pregnancy and child-bearing. Most of these obstacles develop during the pregnancy, which can be prevented. Others may exist before pregnancy but worsen during pregnancy. It happens, especially, if they are not under observation.

Pregnancy is nature and for every mature women most especially the married women and adolescent girls by accident, puberty or social desire, pregnancy is expected from them. Presence of foetus which is foreign to the womb of mother could be a problem to the mothers internal environment and this could be one problem of the other such as obstructed labour, life threatening pregnancy complications, health of women during childbirth and during postpartum that will make the mother uncomfortable for her life and that may even lead to death . Low utilization of maternal care services means that many mothers who are pregnant or have pregnancy related conditions do not receive preventive and curative services from available maternal care services due to ignorance, high rate of death, low patronage, low patronage in terms of services provided attendants and inadequate literature. As a result when they come to delivery they already have untreated medical conditions which lead to poor outcomes like maternal death, disability or long term illnesses.

As the result of the aforementioned problems, the government and non-governmental organization develop a system that will care for the pregnancy and its outcome. In view of this, a system refers

to maternal health care service was put into place to take care of pregnant women which provide maternal care services of medical checkup, physical test, health education and immunization to pregnant women. It is also observed that some women developed the habit of home delivery and which has serious implication either during the pregnancy period, during the birth or after birth. Some even refuses to attend hospitals at all during pregnancy; all these may have complications on the mother or the pregnancy. It is inline of this that the researcher intends to investigate the impacts of maternal care services on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria.

Purpose of the Study

The purpose of this study is to investigate the impact of maternal care services on reproductive health of pregnant women attending primary healthcare centres in North-Eastern Nigeria.

Hypothesis

The following research hypotheses were formulated and to be tested in the study:

- i. Maternal health care service of medical check-up will not have significant impact on obstructed labour among pregnant women attending primary health care centres in North-Eastern Nigeria.
- ii. Maternal care service of physical test will not have significant impact on life threatening pregnancy complications among pregnant women attending primary health care centres in North-Eastern Nigeria.
- iii. Maternal care service of health education will not have significant impact on reproductive health of women during child birth among pregnant women attending primary health care centres in North-Eastern Nigeria.
- iv. Maternal care service of immunization will not have significant impact on health of women during post-partum period among women attending primary health care centres in North-Eastern Nigeria.

Research Design

The study was conducted using Ex-Post factor of descriptive survey type. The population of this study comprised registered pregnant women attending 12 selected Primary Health Care Centres in North-Eastern Nigeria with a population of 2,487 (North-Easte Zonal Office, Hospital Record, Bauchi, National Primary Health Development Agency, 2022). Multistage sampling procedures was used to draw the sample of 664 respondents from the population of the study following Research Advisor's, (2006) recommendations who recommends that that for a of 2000 – 2,499 a sample size of four hundred and ninety eight (498) at 99 percent confidence interval at 0.05 alpha level is adequate for the study.

Stage I: Stratified sampling technique was used to divide the zone (6 states) in to three strata 1. (Bauchi, Gombe) 2 (Borno, Yobe), (Adamawa and Taraba state) of North East Zone, Nigeria based on the geopolitical distribution that is North East North (NEN) North East central (NEC and North

East South (NES) respectively. (NEN= Bauchi and Gombe, NEC= Borno and Yobe while NES= Adamawa and Taraba) that all states, LGAs, wards that have equal chance of being selected.

Stage II: Simple random sampling technique was used to select three state from each stratum, and two LGA, from each state. Totalling three (3) states, six LGAs, (6) through fish bowl method, this was done by using piece of paper with assigned number, for each state, LGA folded and thoroughly mixed up in a small container so that all states and LGAs have equal chance of selection (randomization).

Stage III: Simple random sampling technique was also used to select two healthcare facilities from each selected LGAs of the (3) three selected States. Totalling twelve (12) health care facilities. This is done by using piece of paper with assigned number for each facility folded and thoroughly mixed up in a small container so that all health facilities have equal chance of being selected (randomization). This was achieved through the use of research assistants and the process was continued until the required samples were reached.

Stage IV: Proportionate sampling technique was used to determine the number of pregnant women to be selected in each health care facility based on the population of the pregnant women attending the hospitals and the Research Advisor's suggestions on the number to be sample.

Stage V: Convenience sampling procedure was used to select the participants based on their availability and willingness to take part during the administration of the instrument until the desired number of sample is obtained.

A Likert format rating scale questionnaire was used in this study. The instrument was valeted by professional in the field of Public and Health Education their corrections, comments and suggestions made were all incorporated into the final draft of the instrument. The instrument was subjected to pilot study and a reliability coefficient of 0.87 was obtained; that shows the instrument is reliable. Inferential Statistics of Chi-square (x^2) was used to analyse the postulated hypotheses at 0.05 level of significance using Statistical Package for Social Science (SPSS) version 23.0. The analysis of data was done based on the responses of the 482 pregnant women that participated in the study.

RESULTS

Hypothesis 1: Medical check-up will not have significant impact on obstructed labour among pregnant women attending primary health care centres in North-Eastern Nigeria.

Table 1: Chi-square Analysis on the Impacts of Medical Check-up on the Prevention of Obstructed Labour on among Pregnant Women attending primary health care centres in North-Eastern Nigeria

S/N	Question Items	SA	A	D	SD	df	χ^2 Cal	p-value
1.	Urinary tract infection that leads to obstructed labour were recognized and prevent during medical checkup	164 (34.0%)	273 (56.6%)	35 (7.3%)	10 (2.1%)			
2.	Fetal presentation and station assessed and monitored during medical checkup prevents obstructed labour among pregnant women	144 (29.9%)	298 (61.8%)	24 (5.0%)	16 (3.3%)	6	677.29	.001
3.	Vitamin D deficiency recognized and prevented during medical checkup prevents obstructed labour among pregnant	133 (27.6%)	283 (58.7%)	53 (11.0%)	13 (2.7%)			

Table 1 presents the analysis of Chi-square on the impacts of medical check-up on the prevention of obstructed labour among pregnant women attending primary health care centres in North-Eastern Nigeria. The table shows that the calculated Chi-square value was 677.29 with the calculated p-value of .001. This indicates a significant impact of medical check-up on prevention of obstructed labour and improving reproductive health of women; therefore, the null hypothesis was rejected.

Hypothesis 2: Physical test will not have significant impact on life threatening pregnancy complications among pregnant women attending primary health care centres in North-Eastern Nigeria.

Table 2: Chi-square Analysis on the Impacts Physical Test on the Prevention of life threatening pregnancy complications among pregnant women attending primary health care centres in North-Eastern Nigeria.

S/N	Question Items	SA	A	D	SD	df	χ^2 Cal	p-value
1.	Blood pressure monitoring prevents pregnancy complications	216 (44.8%)	227 (47.1%)	26 (5.4%)	13 (2.7%)			
2.	Frequent measuring of maternal weight help to avoid obesity that leads to pregnancy complications	155 (32.2%)	277 (57.5%)	38 (7.9%)	12 (2.5%)	6	496.38	.001
3.	Glucose screening and monitoring level of glucose helps to prevent pregnancy complications	147 (30.5%)	269 (55.8%)	54 (11.2%)	12 (2.5%)			

Table 2 presents the analysis of Chi-square on the impacts physical test on prevention of life-threatening complications on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria. The table indicates that the calculated Chi-square value was 496.38 with the calculated p-value of .001. This shows a significant impact of physical test on prevention of life threatening pregnancy complications and improve reproductive health of pregnant women; therefore, the null hypothesis was rejected.

Hypothesis 3: Health talk will not have significant impacts on reproductive health of women during child birth among pregnant attending primary health care centres in North-Eastern Nigeria.

Table 3: Analysis of Chi-square on the Impacts of Health talk on reproductive health of women during child birth among Pregnant Women Attending Primary healthcare centres in North-Eastern Nigeria.

S/N	Question Items	SA	A	D	SD	df	χ^2 Cal	p- value
1.	Health talk given on proper diet and nutrients to be taken by pregnant women impact the reproductive health of women during childbirth.	197 (40.9%)	245 (50.8%)	27 (5.6%)	13 (2.7%)			
2.	Health talk given on the benefit of exercise during pregnancy impact the reproductive health of women during childbirth.	187 (38.8%)	253 (52.5%)	31 (6.4%)	11 (2.3%)	6	564.68	.001
3.	Reproductive health awareness given to pregnant women on hygiene practices impact the reproductive health of women during childbirth.	173 (35.9%)	256 (53.1%)	37 (7.7%)	16 (3.3%)			

Table 3 presents the analysis of Chi-square on the impacts of health talk on reproductive health of women attending Hospitals, in North-eastern states, Nigeria. The table shows that the calculated Chi-square value was 564.68 with the calculated p-value of .001. This shows a significant impacts of health talk on the reproductive health of women during childbirth among pregnant women attending primary healthcare centres in North-Eastern Nigeria; therefore, the null hypothesis was rejected.

Hypothesis 4: Immunization will not have significant impacts on health of women during post-partum period among attending primary health care centres in North-Eastern Nigeria.

Table 4: Analysis of Chi-square on the Impacts of Immunization on health of women during post-partum period among pregnant women attending primary health care centres in North-Eastern Nigeria.

S/N	Question Items	SA	A	D	SD	df	χ^2 Cal	p-value
1.	Tetanus vaccine given during immunization prevents risk associated with pregnancy	210 (43.6%)	213 (44.2%)	32 (6.6%)	27 (5.6%)			
2.	Yellow fever vaccine given during immunization helps prevent risk associated with pregnancy	129 (26.8%)	209 (43.4%)	98 (20.3%)	46 (9.5%)	6	231.56	.001
3.	Hepatitis A & B vaccine given in immunization prevents pregnancy associated risk.	135 (28.0%)	200 (41.5%)	102 (21.2%)	45 (9.3%)			

Table 4 presents the analysis of Chi-square on the impacts of immunisation on reproductive health women during postpartum period among pregnant women attending primary health care centres in North-Eastern Nigeria. The table shows that the calculated Chi-square value was 231.56 with the calculated p-value of .001. This shows a significant impact of immunisation in on reproductive health of women during post-partum period among pregnant women attending primary health care centres in North-Eastern Nigeria; therefore, the null hypothesis was rejected.

DISCUSSION

The finding of the study on the tested hypothesis one revealed that medical check-up on prevention of obstructed labour has significance impacts on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria. This supports the findings of Souka, Basayiannis, Noikokyri, and Antsaklis (2009) who discovered that digital examination is less reliable than ultrasonography, particularly in situations of obstructed labor when medical intervention is more likely to be required. The prediction and diagnosis of a challenging and obstructed labor may benefit from a medical examination and ultrasound evaluation. The results are in agreement with those of Musaba, Ndeezi, Barageine, Weeks, Nankabirwa, and Wamono (2020), who discovered that using herbal remedies during labor was one of the risk factors for obstructed labor. On the other hand, regular medical checkups, a predetermined birth strategy, and an informed partner were discovered to be protective against obstructed labor. The results are

consistent with those of MacKeith and Wal Wur (2013), who found that prenatal care can identify some women who are at risk of labor obstruction and that a plan should be created for them to give birth in a hospital. Abdominal and vaginal examinations during labor can be used to properly identify those who are not progressing.

The tested hypothesis two reveals that prevention of life threatening pregnancy complications through physical test has significant impacts on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria. This is in line with the findings of Ogadimma, Stephen, and Chisaa (2020), who discovered that the availability of reproductive health care service facilities in a setting, socio-cultural and economic implications of illness, and theoretical perceptions of illness all influence how people perceive illness and whether or not they visit hospitals. The availability of reproductive health care is insufficient; how people define and respond to disease has an equal impact on how often they use maternal reproductive health services, which do physical screenings for potentially fatal pregnancy problems. Furthermore, Michael, Kutcher, Kerrie, and Adams (2017) discovered by physical examination that women over the age of 30 and those who acquire gestational diabetes or anemia during pregnancy are at risk for developing pregnancy-related complications. The right time for physical exams should be taken into account, and a program should be developed to track women's physical reproductive health status progress and stability on their physical wellness during pregnancy and postpartum period. The result of the findings in hypothesis three reveals that health talk has significant impacts on reproductive health of women during child birth among pregnant women attending primary health care centres in North-Eastern Nigeria. This is similar to the findings of Karlsen, Say and Souza (2011) who founds that higher maternal mortality were associated with higher maternal education amongst women able to access facilities providing maternal care and attention should be given to the wider social determinants of reproductive health when devising strategies to reduce maternal mortality and to achieve the increasingly elusive for maternal death during childbirth. Furthermore, Abigail (2017) discovered that good maternal education lowered the likelihood of numerous maternal reproductive health issues during pregnancy/birth by as much as 29%. Underlying these effects is the finding that increasing women's education reduces the likelihood of short birth intervals and unwanted pregnancies (which may result in unsafe abortions) and increases antenatal reproductive healthcare use, possibly due to changes in women's cognitive skills, economic resources, and autonomy.

The result of hypothesis four reveals that immunization has significant impacts reproductive health of women during postpartum period among women attending primary health care centres in North-Eastern Nigeria. The findings of this study agree with those of Abu-raya et al (2020), who discovered that pregnant women, their newborns, and young infants are vulnerable to serious and potentially fatal infections, and that immunization in pregnancy is a critical strategy for reducing pregnancy risks and improving reproductive health of pregnant women and their offspring. Safe and effective vaccines (tetanus, pertussis, and influenza) for use during pregnancy, these vaccines

have the potential to avert major infectious disease morbidity and death in both mothers and their kids. Benova, Tunçalp, Moran, and Campbell (2018) discovered that incorporating maternal immunization into normal obstetric care, with vaccine availability within the obstetrical context, appears to be the best approach of decreasing pregnancy risk and pregnancy outcome. Also, Cinicola et al discovered that (2021) maternal vaccination protects pregnant women and newborns from severe infections and is the best defense option against various pathogens. Strategies to overcome vaccine hesitancy include education on the importance of immunization in pregnancy through specific public awareness campaigns.

CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

- Medical check-up has impacts on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria.
- Physical test has impacts on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria.
- Health talk has impacts on reproductive health of pregnant women attending primary health care centres in North-Eastern Nigeria.
- Immunization has impacts on reproductive health of pregnant women attending primary healthcare centres in North-Eastern Nigeria.

Recommendations

Based on the conclusion drawn, the following recommendations were made:

- i. There should be vast creation of awareness through mass media on impacts of medical checkup this will enable women to abide by healthy behaviors to prevent complications during child birth.
- ii. Pregnant women should be encouraged to adopt the use of contraceptives in order to prevent life threatening related pregnancy complications among pregnant women.
- iii. Stakeholders should restructure and improve in deliberation of health talk related to wellbeing of pregnant women during maternal care visit for better knowledge about pregnancy and pregnancy outcome in order decrease complication during childbirth, improve perinatal outcome and overall physical wellbeing of women.
- iv. Government should provide high quality immunization equipment and medications available and accessible in maternal care services centre as one strategy of prevention maternal complication during postpartum period and to improve the reproductive health and wellbeing of the mother and newborn baby.

REFERENCES

- Abosse Z, Woldie M, & Ololo S. (2010). Factors Influencing Antenatal Care Service Utilization in Hadiya Zone. *Ethiopian Journal of Health Sciences*. **20:75 -82**.
- Akanbiemu, FA, Manuwa-olumide A, Fagbamigbe AF, & Adebawale AS (2013). Effect of Perception and Free Maternal Health Services on Antenatal Care Facilities Utilization in Selected Rural and Semi-Urban Communities of Ondo State, Nigeria. *British Journal of Medicine and Medical Research*; **3(3):681–697**.
- Asika, N. (2010). Research Methodology in the Behavioural Science, (9th Edition) Lagos, Nigeria, Longman. 58 – 61.
- Berhan, Y., & Berhan, A . (2014). Antenatal Care as a Means of Increasing Birth in the Health Facility and Reducing Maternal Mortality: a systematic review. *Ethiopia Journal Health Science*; 24:93–104.
- Birmeta, K., Dibaba, Y, & Woldeyohannes D. (2013). Determinants of Maternal Health Care Utilization in Holeta Town, Central Ethiopia. *Bio-Medical Central, Health Services Research*.**13:256**
- Burns, N. & Grove, S. (2004). *The Practice of Nursing Research: Conduct, Critique and Utilization*. Philadelphia, PA: Saunders.
- Daramola, S. O. (2010). Research and Statistical Methods in Education, Ilorin, Bamitex Publishing LTD. 9-16.
- Dominic, E. A., Akunna, E. A., Emeka J. I., Davies, A., Moses, A. & Raphael, C. M. (2017). Factors Influencing Maternal Mortality among Rural Communities in Southwestern Nigeria. *International Journal Womens' Health*. 9: 179–188.
- Hu, S. (2014). Study Population. In: Michalo, A. C. (Eds). Encyclopedia of Quality of Life and Well-Being Research. *Springer*, Dordrecht.
- Ibrahim, K., Emmanuel, O., Emma, W., Nosa, O., Hannatu, A., Habib, S., Masduk, A. & Dele, A. (2016). Monitoring maternal and newborn health outcomes in Bauchi State, Nigeria: An evaluation of a standards-based quality improvement intervention. *International Journal for Quality in Health Care*. 28(10):174-182.
- Kifle, D., Azale, T., Gelwa, A. & Melsew, Y. A., (2017). Maternal Health Care Services Seeking Behaviour and Associated Factors among Women in Rural Haramaya District, Eastern Ethiopia: A Triangulated Community-based Cross-sectional Study. *Reproductive Health Journal*. 14(6): 16 – 23.
- Kisuule I, Kaye DK. & Najjuka F, (2013). Timing and Reasons for Coming Late for the First Antenatal Care Visit by Pregnant Women at Mulago Hospital, Kampala Uganda. *Bio-Medical Central, Journal of Pregnancy and Childbirth*;**13:1**.
- Koblinsky M, Tain F, Gaym A, Karim A, Carnell M, Solomon T. (2010). Responding to the Maternal Health Care Challenge: The Ethiopian Health Extension Program. *Ethiopian Journal of Health and Development*.; 24(1):105–109.

- Lucas, S.R. (2014). Beyond the Existence Proof: Ontological Conditions, Epistemological Implications, and In-depth Interview Research. *Quality and Quantitative Research*. **48**” **387–408**.
- Nketiah-Amponsah E, Senadza B & Arthur E. (2013). Determinants of utilization of antenatal care services in developing countries: recent evidence from Ghana. *African Journal of Economy and Management Studies*.; **4:58-73**.
- Othniel, J. L., (2013). *The Essentials of Research Methodology and Statistics in Education*. Bauchi; Jibjik Publishers LTD.
- Stella, B. & Adesegun, F. (2012). Determinants of use of maternal health services in Nigeria: looking beyond individual and household factors. *Bio-Medical Central; Journal of Pregnancy Childbirth*. 9(43):1–13.
- World Health Organization (2014). Antenatal Care in Developing Countries: Promises, Achievements and Missed Opportunities: An Analysis of Trends, Levels, and Differentials: 1990–2001. WHO, Geneva, New York, WHO Publications.
- World Health Organization (WHO) and UNICEF (2019). Countdown to 2015 decade report (2000-2010):taking stock of maternal, new born and child survival: Geneva, Switzerland and United Nations. New York: USA: World Bank Publications
- World Health Organization (WHO, 2016). New Guidelines on Antenatal Care for a Positive Pregnancy Experience. *Sexual Reproductive Health Journal*. **3:32-38**.
- World Health Organization. Making Pregnancy Safer (2015). A Health Sector Strategy for Reducing Maternal and Perinatal Morbidity and Mortality, Geneva. World Health Organization Publications.