

Risk Factors of Maternal Mortality in Calabar

Uduakobong P. Akpabio*, Pius U. Angioha, Chiamaka V. Egwuonwu, Esther B. Awusa, & Magareth N. Ndiyo

Department of Sociology, University of Calabar, Nigeria

Abstract

Maternal mortality remains unacceptably high despite both local and international programs carried at reducing the incidence. Nigeria suffers from 800 maternal death per 100,000 births. This study examines the extent to which cultural practices and quality of medical care determines maternal mortality in Calabar, Cross River State. Using the survey research design, data were collected from 400 women aged between 15 and 49 from Calabar using a self-developed structured questionnaire. The participants were selected using cluster and purposive sampling technique. Data collected from the field was analyzed using descriptive statistics and regression analyses at 0.05 confidence level. Result from the analysis revealed that uncivilized cultural practices lead to high maternal mortality. 75.64 percent of the participant reported cases of complications during birth in the hands of traditional birth attendants. cultural practices account for 49 percent of the variation in maternal mortality. Also, result revealed that poor care delivery or quality of medical care leads to high maternal mortality. 54.14 percent of the participants reported that the cost of medical care for a pregnant woman in the hospital is too expensive. 69.43 percent reported there have been deaths as a result of lack of care in hospitals. Based on these findings There is need for the government and its health ministry to increase the number of primary health centres in the nation as well as strengthen this health centres to collect high-quality data to respond to the needs and priority of women and girls amongst others.

© 2020 Author(s). All rights reserved.

Keywords: Risk factors; maternal mortality; cultural practices; quality of medical care.

1. Introduction

Globally the goals of safe motherhood remain elusive and remains a problem that most nations especially that of third world nations are still trying to solve. Even with actions and policy put in place by international organizations such as that taken at the international conference on population and development and that of the world conference in women in 1995. According to the world health organization (2019), 81% of women die from preventable complications related to childbirth and pregnancy. According to the report, in 2017 alone 295,000 women died from childbirth and pregnancy complications. Though there has been a decline when compared to the figures of 2000 which was 451,000. The current figures are still high when we put the major advancement and achievement made in medicine into cognizance. This vast majority of these deaths occur in low-income nations (Nour, 2008; MacDowan, Declercq, Cebal & Morton, 2016; Olonade, Olawande, Alabi, & Imhuonopi, 2019; Ojong, Iji, & Angioha, 2019; Ndem, Angioha & Dike, 2020).

Sub-Saharan Africa and Southern Asia account for 254,000 of the 2017 figures provided by the World Health Organization and this figure represents 86 percent of the total global figure (World Health Organization, 2019). Sub-Saharan Africa accounts for two-thirds of these figures and the subcontinents maternal mortality rate is 50 times higher than any region in the world (Otoide, 2019; Olonade et al, 2019). 10 of the 15 nations with the highest

* Corresponding author.

E-mail address: udwonder1@gmail.com (Uduakobong P. Akpabio)



mortality rate is from the subcontinents (WHO, 2019). The high rate of maternal mortality is reflected in the socio-economic and political situations of these nations.

Nigeria rank 2nd after India as the country with the highest maternal mortality in the world (WHO, 2019). Every day, the country loses 145 women to death from pregnancy and childbirth, accounting for 14 percent of global maternal mortality rate and the highest in sub-Saharan Africa (WHO, 2019; Olonade et al, 2019). Bill Gates, the chairperson of Bill and Melinda Gates foundation named Nigeria as one of the worst and precarious places to be pregnant and give birth in the world (The Guardian, 2020). The World Health Organization (2020) reported that between 2005 and 2015, an estimated 600,000 maternal death and not less than 900,000 had complications from childbirth in the country.

A lot of factors have been attributed to the high rate of maternal mortality in the country. The country has just 34,000 Primary Health Centers covering all Wards and Local Government Areas. Poor and illiterate women are the least likely to receive adequate healthcare. Also, fewer births in the nation are assisted by trained and skilled health personnel (WHO, 2019). Studies have also revealed some of the factors that determine maternal mortality. Najatizada, Bongeaault and Labonte (2017) revealed a total of 38 articles to examine the social determinant of maternal health in Afghanistan. From the review, it was discovered that maternal education, social infrastructure and sociocultural practices are significant determinants of maternal health. Cameron, Contreras -Suarez and Cornwell (2019) used data from the 2010 Indonesian census to understand the determinant of maternal mortality in Indonesia. Result from the multi-level logistic regression found that access to health service accounts for 23% of maternal mortality. The result also revealed that the lack of trained and skilled doctors accounts for 15.5 percent of maternal mortality. Adgoy (2018) reviewed various literature sourced from Baolear search engine to analyze the key social determinants of maternal health among African nations. The attitude of health providers, inequalities in income level, education, gender inequality, maternal and human resources.

Asleweh-Aboh, Abekah-Nkurumah, Sarji, Adjabi and Aboh (2011) using regression to analyze the socio-economic determinants of maternal health utilization in Ghana. Result revealed that age of mother, education of mother, economic status, geographical location and religious affiliation are a major determinant of maternal health utilization in Ghana. Olonade, Olanade, Alabi and Imhonopi (2019) reviewed literature to examine the factors determining maternal mortality, result from the review revealed that certain socio-cultural and economic factors, poor healthcare system and weak social structures are determinant of maternal mortality. Sagear, Kongmyuy, Adebimpe, Omosehin, Ogunsola, and Sanin (2019) carried out a retrospective analysis of maternal deaths in hospitals in Ogun state over 2 years from 2015 to 2016. Result from data collected from NPDSR revealed factors such as inadequate human resources, inadequate equipment, lack of ambulance transportation and referral delay are causes of maternal mortality. Ujah, Aisien, Mutahir, Vanderjagt, Glew and Uguru (2005) analyzed factors contributing to maternal mortality in Northcentral Nigeria using records of all child from 1985 to 2001. Finding reveals that haemorrhage, unsafe abortion, anaesthetic death and eclampsia were major factors contributing to maternal mortality. Though studies have been carried at the national level on the determinants of maternal mortality, only a few have focused at state, regional and local government level. In Calabar, there is dearth in studies that examine those factors causing maternal mortality in Calabar. This study examines the extent to which cultural practices and quality of medical care determines maternal mortality in Calabar, Cross River State, Nigeria.

2. Materials and Method

2.1. Study Settings

Calabar, the study setting is a city in the Southern Senatorial District of Cross River State in the Niger Delta region of Nigeria. Described as the tourist capital of Nigeria, the city covers an area of 157 square miles and is adjacent of the Great Kwa River and the Calabar River with a population density of 910 per kilometre, the national population commission (2006) place the population of the city at 371,022. Administratively, Calabar is divided into two local government areas, Calabar South and Municipal Council.

The original inhabitants of the city are Efiks, Efut and the Quas, but because the city's position as the capital of cross river state and an industrialized city, it is now home to other ethnic groups. According to the national population

commission (2006), there are 74,580 households, an increase of 31 percent from the 1991 census. The increase in medical facilities with growing difficulties in assessing medical care as a result spatial contradictions and inequalities in the distribution of health service (Eni, 2012; Ofem & Omang, 2018; Enuokoha & Angioha, 2019), the few available lack the necessary equipment, facilities and personnel to adequately provide care.

2.2. Research Method

The survey research method was adopted for this study. The method allows a researcher to investigate a phenomenon without trying to manipulate the variables (Kalinger, 1986). The method is useful in studying human situation and the investigation comes under the fact (Diem, 2002). Adopting the survey research method, a self-developed semi-structured question was developed by the researchers to elicit the necessary information from participants.

2.3. Participants

The participants were selected from the population of women of childbearing age of 15 to 49 in Calabar, Cross River State. 400 participants were used for the study. The number of participants was arrived at using the Taro Yamane sample size determinant technique at 0.05 level of significance. The participants were selected using cluster and purposive sampling technique. Calabar was divided into two clusters according to the Local Government Areas, Calabar South and Calabar Municipal Council. From each cluster, five wards were purposively selected from each of the clusters. The wards selected are 3,5,7, 10 and 11 from Calabar South, ward 1,3,6,7 and 8 for Calabar Municipal Council. From each of the wards, 40 women who are old enough to give birth were purposively selected. The criteria for participants selection was that the samples must be females, aged 15-49, and must have given birth.

2.4. Reliability of Research Instrument

A pre-test was carried out to check the reliability of the research instrument using test-retest reliability estimate. 20 pregnant women who were not part of the original participants were given the instrument of data collected and later retrieved. After another two weeks, the same instrument was administered to 20 different pregnant women who also did not form part of the original participants. Retrieved data was then subjected to test-retest, the result of the analysis ranged from 0.56 to 0.90. This result implies that the instrument was reliable.

2.5. Method of Data Collection and Analysis

Data was collected with the aid of 5 female research assistants who were trained on the process and procedure for data collection. data was collected during a four weeks period. Both written and verbal consent of all the participants was obtained and the anonymity of information provided was guaranteed. Descriptive analysis was first used to interpret the collected data using sample percentages, tables and graph before the data was subjected to parametric statistics (Lineal regression) at 0.05 confidence level. Out of the 400 distributed instruments, 386 was retrieved and used for analysis.

3. Result

The instrument used for this study was developed based on the objective of the study. the instrument was divided into two sections according to the two-independent variable of the study. the first one was to examine the extent to cultural practice determines maternal mortality. The analysis was carried out using descriptive statistics; tables, frequency distribution and graphical illustration. The results were then subjected to parametric statistics.

Table 1. Response on Cultural Practices and Maternal Mortality

| S/N | Items | Agreed | Strongly Agreed | Disagreed | Strongly Disagreed |
|-----|--|-------------|-----------------|-------------|--------------------|
| 1 | I prefer giving birth in maternity homes than in hospitals | 98 (25.39) | 85 (22.02) | 146 (37.82) | 63 (16.32) |
| 2. | Traditional birth attendants are best when giving birth | 112 (29.02) | 88 (22.80) | 62 (16.06) | 124 (32.12) |
| 3 | They know how to birth children better than doctors and nurses in the hospital | 127 (32.90) | 72 (18.65) | 128 (33.16) | 71 (18.39) |
| 4 | When it comes to antenatal traditional birth attendants are better than doctors | 73 (18.91) | 98 (25.39) | 112 (29.02) | 67 (17.36) |
| 5. | There is the belief that using traditional means of giving birth makes the child healthier | 143 (37.05) | 107 (27.72) | 92 (23.83) | 44 (11.40) |
| 6. | Women do not have complication from visiting Traditional birth attendant | 33 (8.55) | 71 (18.39) | 124 (32.12) | 168 (43.52) |
| 7 | I have never heard anyone died after giving birth traditionally | 12 (3.11) | 21 (5.44) | 212 (54.92) | 141 (36.53) |

Source: Fieldwork, 2020

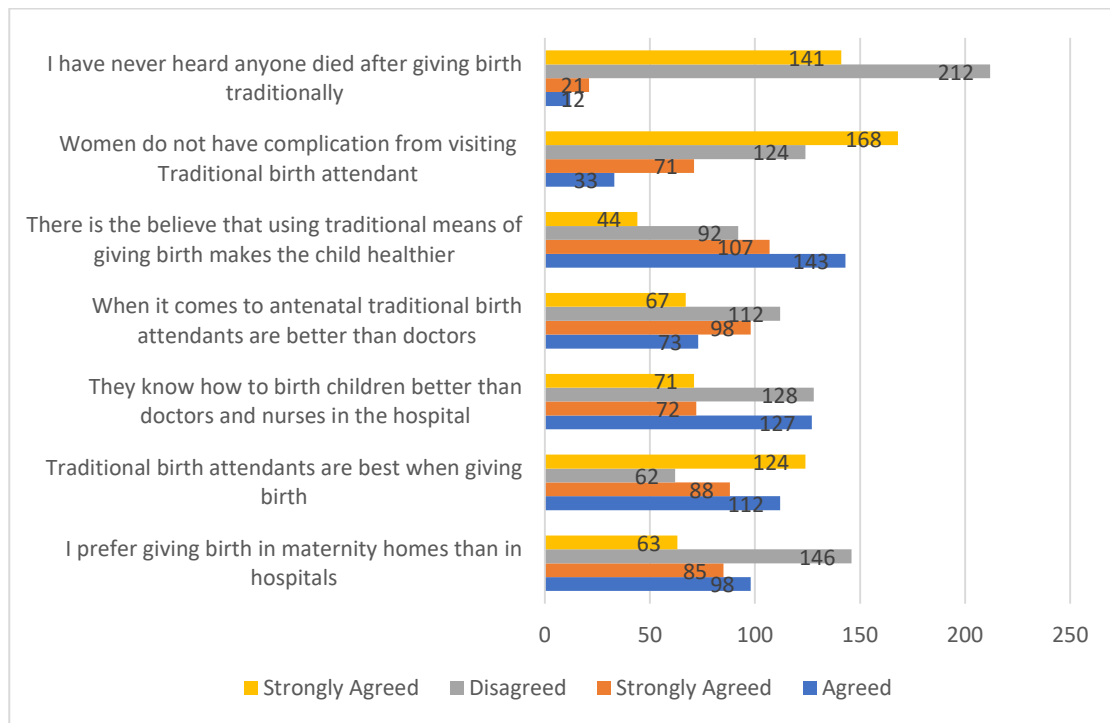


Fig. 1. Graphical illustration of responses on cultural practices and maternal mortality

Results of analysis as presented in table 1, With graphical illustration in figure 1, shows participants response pattern as follows; on I prefer giving birth in maternity homes than in hospitals; 98 (25.39) reported agreed, 85 (22.02) reported strongly agreed, 146 (37.82) reported disagreed and 63 (16.32) respondent strongly disagreed. On Traditional birth attendants are best when giving birth, 112 (29.02) reported agreed, 88 (22.80) strongly disagreed, 62

(16.06) reported disagreed and 124 (32.12) reported strongly disagreed. On They know how to birth children better than doctors and nurses in the hospital, 127 (32.90) reported agreed, 72 (18.65) reported strongly agreed, 112 (29.02) reported disagreed and 67 (17.36) reported strongly disagreed. On There is the belief that using traditional means of giving birth makes the child healthier, 143 (37.05) reported agreed, 107 (27.72) reported strongly agreed, 92 (23.83) reported disagreed and 44 (11.40) reported strongly disagreed. On Women do not have complication from visiting Traditional birth attendant, 33 (8.55) reported agreed, 71 (18.39) reported strongly agreed, 124 (32.12) reported disagreed and 44 (11.40) reported strongly disagreed. on I have never heard anyone died after giving birth traditionally, 12 (3.11) reported agreed, 21 (5.44) reported strongly agreed, 212 (54.92) reported disagreed and 44 (11.40) reported strongly disagreed.

Lineal regression was used to check the correlation between cultural practices and maternal mortality. The dependent variable here is cultural practices while the independent variable is maternal mortality.

Table 2. Model Summary of Cultural Practice and Maternal Mortality

| Model | R | R Square | Adjusted Square | RStd. Error of the Estimate |
|-------|--------------------|----------|-----------------|-----------------------------|
| 1 | 0.707 ^a | 0.499 | 0.494 | 0.15769 |

ANOVA

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|--------------------|
| 1 | Regression | 9.467 | 4 | 2.367 | 95.174 | 0.000 ^b |
| | Residual | 9.499 | 382 | 0.025 | | |
| | Total | 18.966 | 386 | | | |

Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients Beta | t | Sig. |
|-------|---------------------------------|-----------------------------|------------|-----------------------------------|--------|-------|
| | | B | Std. Error | | | |
| 1 | (Constant) | 0.502 | 0.077 | | 6.501 | 0.000 |
| | patronage of TBA | 0.574 | 0.030 | 0.704 | 19.328 | 0.000 |
| | resistance of caesarean session | -0.056 | 0.046 | -0.044 | -1.204 | 0.229 |
| | religious belief | -0.004 | 0.035 | -0.005 | -0.125 | 0.901 |
| | female circumcision | -0.008 | 0.030 | -0.009 | -0.259 | 0.796 |

a. Dependent Variable: maternal mortality

b. Predictors: (Constant), female circumcision, resistance of cesarean session, patronage of TBA, religious belief

The result of the analysis is shown in table 2. The correlation coefficient of 7.07 was obtained which means that there is a moderate positive relationship between the cultural practices and maternal mortality. The coefficient of determination of 7.07 was obtained which means that cultural practices account for 49 percent of the variation in maternal mortality. The moderately high positive relationship means that uncivilized cultural practices can lead to high maternal mortality. The r-square value of 49.9 percent suggests that cultural practice indicators (female circumcision, resistance of cesarean session, patronage of TBA, religious belief) accounted for more than half of the variance in maternal mortality in the study area. The statistical difference or influence revealed that the calculated F value of 95.175 was more than the critical F value of 3.86. this means that there is significant influence or quality care on maternal mortality.

The beta coefficient of .054 indicates that cultural practices have a significant effect on maternal mortality ($\beta = 0.704$, $t = 6.501$, $p < 0.05$). From the analysis, since the calculated coefficient of 6.501 was more than critical Coefficient of 4.93. This means that cultural practices have a significant Correlation with maternal mortality

The second objective was to examine the extent to which quality of medical care determines maternal mortality. The analysis was carried out using descriptive statistics; tables, frequency distribution and graphical illustration. The results were then subjected to parametric statistics.

Table 3. Response on quality of medical care and Maternal Mortality

| S/N | Item | Agreed | Strongly agreed | Disagreed | Strongly disagreed |
|-----|--|-------------|-----------------|-------------|--------------------|
| 1. | The cost of giving birth at the hospital is too high | 114 (29.53) | 95 (24.61) | 87 (22.54) | 90 (23.32) |
| 2.. | When you visit the hospital doctors and nurses are not always at their duty post | 128 (33.16) | 117 (30.31) | 93 (24.09) | 58 (15.03) |
| 3 | Attending nurses are always rude | 124 (32.12) | 184 (47.67) | 47 (12.18) | 31 (8.03) |
| 4 | Prescribed drugs are always expensive | 143 (37.05) | 163 (42.23) | 35 (9.07) | 45 (11.66) |
| 5. | Women are always having complications during childbirth as a result of lack of care | 101 (26.17) | 109 (28.24) | 121 (31.35) | 55 (14.25) |
| 6 | During antenatal visits, pregnant women are always complaining about the lack of proper care | 141(36.53) | 147 (38.08) | 71 (18.39) | 27 (6.99) |
| 7 | The number of women who die in the hospitals is quite alarming because of lack of care | 126 (32.64) | 142 (36.79) | 39 (10.10) | 79 (20.47) |

Source: Fieldwork, 2020

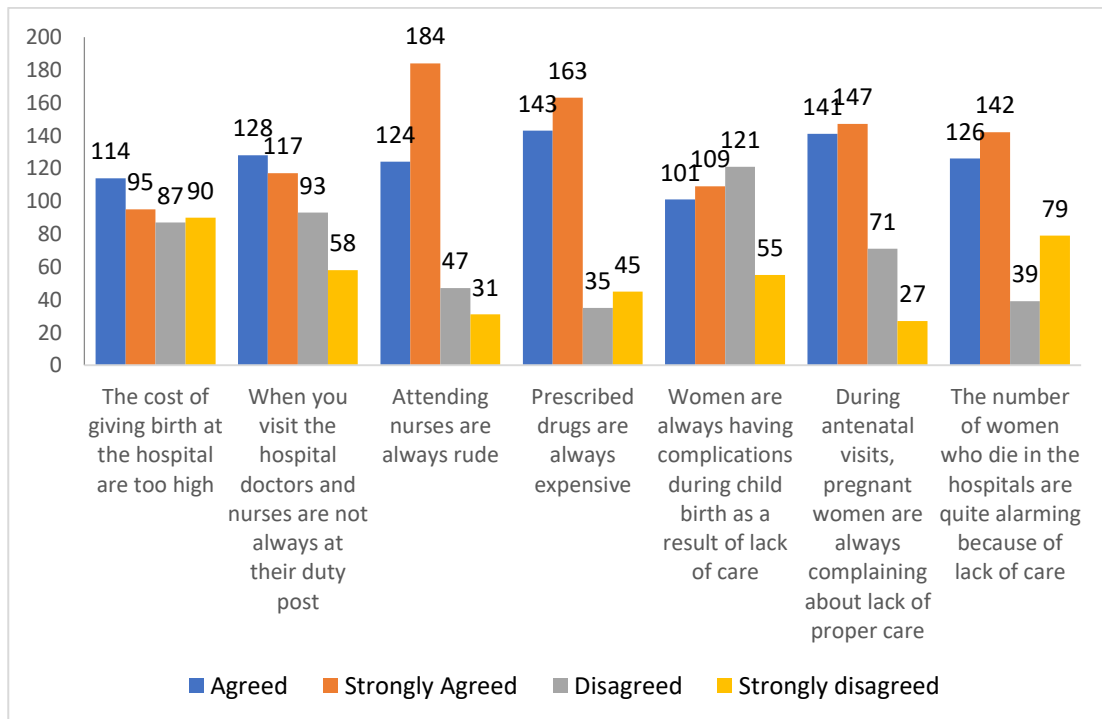


Fig. 2. Graphical illustration of responses on quality of medical care and Maternal Mortality

Results of analysis as presented in table 3, With graphical illustration in figure 2, shows participants response pattern as follows; on The cost of giving birth at the hospital are too high; 114 (29.53) reported agreed, 95 (24.61) reported strongly agreed, 87 (22.54) reported disagreed and 90 (23.32) respondent strongly disagreed. When you visit the hospital doctors and nurses are not always at their duty post; 128 (33.16) reported agreed, 117 (30.31) strongly disagreed, 93 (24.09) reported disagreed and 58 (15.03) reported strongly disagreed. On Attending nurses are always rude; 124 (32.12) reported agreed, 184 (47.67) reported strongly agreed, 47 (12.18) reported disagreed and 31 (8.03) reported strongly disagreed. On Prescribed drugs are always expensive; 143 (37.05) reported agreed, 163 (42.23) reported strongly agreed, 35 (9.07) reported disagreed and 45 (11.66) reported strongly disagreed. On Women are always having complications during childbirth as a result of lack of care; 101 (26.17) reported agreed, 109 (28.24) reported strongly agreed, 121 (31.35) reported disagreed and 55 (14.25) reported strongly disagreed. on During antenatal visits, pregnant women are always complaining about lack of proper care; 141(36.53) reported agreed, 147 (38.08) reported strongly agreed, 71 (18.39) reported disagreed and 27 (6.99) reported strongly disagreed. On The number of women who die in the hospitals are quite alarming because of lack of care; 126 (32.64) reported agreed, 142 (36.79) reported strongly agreed, 39 (10.10) reported disagreed and 79 (20.47) reported strongly disagreed.

Lineal regression was used to check the correlation between cultural practices and maternal mortality. The dependent variable here is the quality of medical care while the independent variable is maternal mortality.

Table 4. Model summary of quality of medical care and maternal mortality

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|--------------------|----------|-------------------|----------------------------|
| 1 | 0.914 ^a | 0.836 | 0.834 | 0.09030 |

ANOVA

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|---------|--------------------|
| 1 | Regression | 15.859 | 5 | 3.172 | 388.957 | 0.000 ^b |
| | Residual | 3.107 | 381 | 0.008 | | |
| | Total | 18.966 | 386 | | | |

Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients Beta | t | Sig. | |
|-------|------------------------------|------------|-----------------------------------|--------|---------|-------|
| | B | Std. Error | | | | |
| 1 | (Constant) | 0.494 | 0.050 | 9.903 | 0.000 | |
| | safe care | 0.062 | 0.025 | 0.054 | 0.015 | |
| | effective care | -0.465 | 0.035 | -0.333 | -13.391 | 0.000 |
| | timely care | 0.912 | 0.023 | 0.934 | 39.370 | 0.000 |
| | efficient | 0.798 | 0.041 | 0.650 | 19.628 | 0.000 |
| | equitable and people-centred | -0.800 | 0.051 | -0.514 | -15.540 | 0.000 |

a. Dependent Variable: maternal mortality

b. Predictors: (Constant), equitable and people-centred, effective care, safe care, timely care, efficient

The result of the analysis is shown in table 4. The correlation coefficient of 914 was obtained which means that there is a moderate positive relationship between the quality of medical care and maternal mortality. The coefficient of determination of 9.14 was obtained which means that quality of medical care accounts for 83.6 percent of the variation in maternal mortality. The moderately high positive relationship means that poor care delivery or quality of medical care leads to high maternal mortality. The r-square value of 8.36 percent suggests that quality of medical care indicators (equitable and people-centred, effective care, safe care, timely care, efficient care) accounted for more than half of the variance in maternal mortality in the study area. The statistical difference or influence revealed that the calculated F value of 388.957 was more than the critical F value of 3.86. this means that there is significant influence or quality care on maternal mortality.

The beta coefficient of 0.054 indicates that the quality of medical care has a significant effect on maternal mortality ($\beta = 0.230$, $t = 9.903$, $p < 0.05$). From the analysis, since the calculated coefficient of 9.903 was more than the critical Coefficient of 4.93. This meant that the quality of care had a significant relationship with maternal mortality.

4. Discussion of Findings

The first objective was to analyze the extent to which cultural practice determine maternal mortality in the study area. Descriptive statistics were first used to analyse the data collected from the field before Lineal regression was then used to analyse the correlation between the variables. From the descriptive statistics carried out, it was discovered that only 47.41 percent of the participants prefer to give birth at traditional maternity homes. 51.82 percent of the participant believes traditional birth attendants are more skilled than medical doctors and midwives or nurses. 64.77 percent of the participants reported that giving birth through traditional means makes children healthier. 75.64 percent of the participant reported cases of complications during birth in the hands of traditional birth attendants. 91.45 percent reported hearing cases of death from using traditional birth attendant.

From the analysis carried out using lineal regression, result revealed a moderate positive relationship between cultural practices and maternal mortality. This is because the correlation coefficient of 7.07 was obtained from the analyses implies a positive moderate correlation. The r-square value of 49.9 percent suggests that cultural practice indicators (female circumcision, resistance of cesarean session, patronage of TBA, religious belief) accounted for more than half of the variance in maternal mortality in the study area. The statistical difference or influence revealed that the calculated F value of 95.175 was more than the critical F value of 3.86. this means that there is a significant influence of cultural practice on maternal mortality. Also, the beta coefficient of .054 indicates that cultural practices have a significant effect on maternal mortality ($\beta = 0.704$, $t = 6.501$, $p < 0.05$). From the analysis, since the calculated coefficient of 6.501 was more than the critical Coefficient of 4.93. that cultural practice accounts for 49 percent of the variation in maternal mortality. The moderately high positive relationship means that uncivilized cultural practices lead to high maternal mortality.

This result is supported by the findings of Jimoh, Adaji, Adelaiye, Olorukooba, Bawa, Ibrahim, Garba, Mfuh, Idris and Shittu (2018) cross-sectional study on traditional practices affecting maternal and newborn health in Nigeria, found that traditional practices have a negative effect on maternal and newborn health in Nigeria. Mesele (2018) examine the extent to which traditional health practice affects maternal health-seeking behaviour. The quantitative data collected from the field were analyzed using thematic analysis. Result revealed that traditional practices such as taboo, confinement, restriction of mobility affects maternal health mortality. Lowe, Chen and Huang (2016) study on traditional and social factors affecting maternal health in Rural Gambia found that the high maternal mortality and morbidity rate is related to traditional practices that are related to gender inequality.

The second objective was to analyze the extent to which quality of medical care determines maternal mortality in the study area. Descriptive statistics were first used to analyse the data collected from the field before Lineal regression was then used to analyse the correlation between the variables. From the descriptive statistics carried out, it was discovered that only 54.14 percent of the participants reported that the cost of medical care for a pregnant woman in the hospital is too expensive. 63.47 percent of the participants reported the lack of hospital doctors and nurse to attend to patients. 54.41 percent reported that women are always having complication as a result of lack of care from nurses. 74.92 percent reported a lack of care when attending antenatal. 69.43 percent reported there has been death as a result of lack of care in hospitals.

From the analysis carried out using lineal regression, the correlation coefficient of 9.14 was obtained which means that there is a moderate positive relationship between the quality of medical care and maternal mortality. The r-square value of 8.36 percent suggests that quality of medical care indicators (equitable and people-centred, effective care, safe care, timely care, efficient care) accounted for more than half of the variance in maternal mortality in the study area. The statistical difference or influence revealed that the calculated F value of 388.957 was more than the critical F value of 3.86. this means that there is significant influence or quality care on maternal mortality. Also, the coefficient of determination of 9.14 was obtained which means that the quality of medical care accounts for 83.6 percent of the variation in maternal mortality. The moderately high positive relationship means that poor care delivery or quality of medical care leads to high maternal mortality.

This result is supported by the findings of Zelalem Ayele, Belayihun, Teji, and Admassu Ayana (2014) study on factor affecting the utilization of maternal healthcare found that poor medical attention if a factor in maternal healthcare.

5. Conclusion and Policy recommendation

This study has extensively analyzed risk factors of maternal mortality in Calabar from the analysis of both descriptive and parametric analysis. Result revealed that cultural practices lead to high maternal mortality and this accounts for 49 percent of maternal mortality in the study area. The result also revealed that poor care delivery or quality of medical care leads to high maternal mortality and this accounts for 83.6 percent of the variation in maternal mortality. Based on these finding, There is need for the government and its health ministry to increase the number of primary health centres in the nation as well as strengthen this health centres to collect high-quality data to respond to the needs and priority of women and girls. Health agencies should arrange programs and workshops that educate and sensitize women on the need for antenatal care. There is also a need for the provision of skilled health personnel in primary health centres and community health post. There is also a need for the government to arrange periodic training for the traditional birth attendant to improve their knowledge of maternal health care.

References

- Aseweh Abor, P., Abekah-Nkrumah, G., Sakyi, K., Adjasi, C. K. D., & Abor, J. (2011). *The socio-economic determinants of maternal health care utilization in Ghana. International Journal of Social Economics*, 38(7), 628–648. doi:10.1108/03068291111139258
- Cameron, L., Contreras Suarez, D., & Cornwell, K. (2019). Understanding the determinants of maternal mortality: An observational study using the Indonesian Population Census. *PloS one*, 14(6), e0217386. <https://doi.org/10.1371/journal.pone.0217386>
- Enukoha, C. U. & Angioha, P. U. (2019). “Management Support for the Use of Information technology in Commercial Banks in Cross River State, Nigeria: Examining Its Relationship with the Productivity of Workers”, *Journal of Banking and Finance Management*, 2(3), pp.1-7
- Jimoh, A. O., Adaji, S. E., Adelaiye, H., Olorukooba, A. A., Bawa, U., Ibrahim, H. I., Garba, C., Mfuh, A. L., Idris, S., & Shittu, S. O. (2018). A cross-sectional study of traditional practices affecting maternal and newborn health in rural Nigeria. *The Pan African medical journal*, 31, 64. <https://doi.org/10.11604/pamj.2018.31.64.15880>
- Lowe, M., Chen, D.R. & Huang, S. L. (2016). Social and Cultural Factors Affecting Maternal Health in Rural Gambia: An Exploratory Qualitative Study. *PLoS One*. 2016;11(9):e0163653. Published 2016 Sep 23. doi:10.1371/journal.pone.0163653
- MacDorman, M. F., Declercq, E., Cabral, H., & Morton, C. (2016). Recent Increases in the U.S. Maternal Mortality Rate: Disentangling Trends From Measurement Issues. *Obstetrics and gynecology*, 128(3), 447–455. <https://doi.org/10.1097/AOG.0000000000001556>
- Mesele, H. A. (2018). Traditional Maternal Health Beliefs and Practices in Southern Tigray: The Case of Raya Alamata District. *Anat Physiol* 8: 298. doi:10.4172/2161-0940.1000298
- Najafizada, S., Bourgeault, I. L., & Labonté, R. (2017). Social Determinants of Maternal Health in Afghanistan: A Review. *Central Asian journal of global health*, 6(1), 240. <https://doi.org/10.5195/cajgh.2017.240>
- Ndem, M. A., Angioha, P. U. & Dike, E. (2020). Improving the Socio-Economic Wellbeing of Rural People: Analysis of the Impact of the Community and Social Development Project (CSDP) in Odukpani Local Government Area of Cross River State, Nigeria. *Asian Journal of Applied Sciences*.8 (2), 88-94.
- Nour N. M. (2008). An introduction to maternal mortality. *Reviews in obstetrics & gynecology*, 1(2), 77–81.

- Ofem, N. O. & Omang, T. A. (2018). Empirical Analysis of Poverty and Well-Being of Rural Dwellers in Yakurr Local Government Area of Cross River State, Nigeria. *European Journal of Social Sciences Studies*. 3 (2), 126-137.
- Ojong, M. U., Iji, M. E. & Angioha, P.U. (2019). Curing Socio-Economic ILLS in Obudu Local Government Area: An Assessment of Non-Governmental Agencies Activities. *Journal of Social Service and Welfare*;1(2): 38-45.
- Olonade, O., Olawande, T. I., Alabi, O. J., & Imhonopi, D. (2019). Maternal Mortality and Maternal Health Care in Nigeria: Implications for Socio-Economic Development. *Open access Macedonian journal of medical sciences*, 7(5), 849–855. <https://doi.org/10.3889/oamjms.2019.041>
- Otoide V O. (2019). Measurement of maternal mortality. *Trop J Obstet Gynaecol.* ;36:325-9
- Piane, G. M. (2019). Maternal Mortality in Nigeria: A Literature Review. *World Medical & Health Policy*, 11(1), 83–94. doi:10.1002/wmh3.291
- Sageer R, Kongnyuy E, Adebimpe WO, Omosehin O, Ogunsola EA, Sanni B. Causes and contributory factors of maternal mortality: evidence from maternal and perinatal death surveillance and response in Ogun state, Southwest Nigeria. *BMC Pregnancy Childbirth*. 2019;19(1):63. Published 2019 Feb 11. doi:10.1186/s12884-019-2202-1
- Sageer, R., Kongnyuy, E., Adebimpe, W. O., Omosehin, O., Ogunsola, E. A., & Sanni, B. (2019). Causes and contributory factors of maternal mortality: evidence from maternal and perinatal death surveillance and response in Ogun state, Southwest Nigeria. *BMC Pregnancy and Childbirth*, 19(1). doi:10.1186/s12884-019-2202-1
- The Guardian (2020). Nigeria: Maternal Death Rate in Nigeria Maybe Worse Than We Imagined. <https://allafrica.com/stories/201904040035.html>
- Ujah, I. A. O., Aisien, O. A., Mutahir, J. T., Vanderjagt, D. J., Glew, R. H., & Uguru, V. E. (2005). Factors Contributing to Maternal Mortality in North-Central Nigeria: A Seventeen-Year Review. *African Journal of Reproductive Health*, 9(3), 27. doi:10.2307/3583409
- Ukwayi J. K. (Ph.D), Angioha P .U. & Nwagboso S. N. (2018). Poverty and Insecurity: A Dangerous Threat to Business Activities and Development in Calabar South LGA, Cross River State, Nigeria. *SSRG International Journal of Humanities and Social Science* 5(2), 33-38.
- World Health Organization and United Nations Children’s Fund. WHO/UNICEF joint database on SDG 3.1.2 Skilled Attendance at Birth. Available at: <https://unstats.un.org/sdgs/indicators/database/>
- World Health Organization. *Trends in Maternal Mortality: 1990 to 2015: Estimates Developed by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. Geneva <https://reliefweb.int/report/world/trends-maternal-mortality-1990-2015-estimates-who-unicef-unfpa-world-bank-group-and>. Accessed December 19, 2019.
- Zelalem Ayele, D., Belayihun, B., Teji, K., & Admassu Ayana, D. (2014). Factors Affecting Utilization of Maternal Health Care Services in Kombolcha District, Eastern Hararghe Zone, Oromia Regional State, Eastern Ethiopia. *International scholarly research notices*, 2014, 917058. <https://doi.org/10.1155/2014/917058>