

**DETERMINANTS OF MATERNAL HEALTH, MATERNAL MORTALITY AND MOBILITY IN ADO-EKITI, EKITI STATE OF NIGERIA**

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**ABSTRACT**

Maternal health remains a major focus among Public health practitioners. This research aimed at investigating sociocultural determinants of maternal health in Ado-Ekiti in Ekiti State of Nigeria. It was a cross sectional epidemiological study, carried out among 418 female respondents of reproductive age group, which determined the association between maternal educational status, maternal religion, and health care availability/accessibility and the dependent variable (choice of ANC provider which stands as a proxy to maternal health). The modal age group was '51 years and above' (24.4%). The majority of the participants (45.5%) were married. A total number of 130(31.1%) had tertiary education. About 216(51.7%) identified themselves as Christians and 188(45.0%) as Muslims. Traditional faith constituted 14(3.3%). All the variables in this research gave a statistical significant value of  $p < 0.05$ . Efforts geared towards improving maternal educational status, and encouraging accessibility to health care facilities may make a significant impact at reducing maternal mortality rates in Ado-Ekiti in Nigeria.

**KEYWORDS:** Health, determinants, maternal, mortality, sociocultural.

**INTRODUCTION**

Maternal health touches the health care dimensions of preconception, antenatal care, postnatal care and even the family planning care in order to reduce maternal morbidity and mortality (WHO and UNICEF, 2010). A woman's health is generally deemed very important owing to its direct link to pregnancy related issues that can predispose a woman to life threatening condition if mismanaged. The untoward impact caused by the burden of maternal deaths has been recognized by the United Nations (UN), and Topic number 5 of Sustainable Development Goals is to achieve gender equality and empower all women and girls.

It is worth noting that a great concern has been shown by the three arms of Nigerian governments about improving maternal health in Nigeria. Regrettably, policy making has not been fully supported by the will power to implement already existing policies and the new ones. There still remains a gross dearth of studies to unveil and address economic and socio-cultural variables that may predict maternal health. Noteworthy is the fact that the poorest nations of the world bear the greatest burden of maternal deaths; the probability that a 15 year old female will experience mortality from pregnancy related

problems (or childbirth) is over 200 times more than in the developed nations (WHO, 2007). This burden was recognized by the United Nations (UN) and prompted the initially declared Millennium Development Goals (MGDS) in September 2000 (UN, 2000). MDG number 5 focuses on improving maternal health. The observed poor performance in MDG 5 may not be unconnected with the complex nature of maternal mortality (MM). A maternal morbidity or mortality recorded in any setting might have been determined by some factors other than known medical causes. These factors may be operating at individual, family or community level. A deeper understanding of the economic and socio-cultural determinants of maternal health may enhance the design of better and efficient interventions. The ending of MDGs in 2015 ushered in the Sustainable Development Goals (SDGs). Meanwhile, it is hoped that positive impact will further be made to address issues touching maternal health.

The Sustainable Development Goals appear very laudable but some member nations are nursing the fear that economic stress presently tolling on them would be a daunting challenge to meet the targets.

It is known that a woman dies from childbirth's

complications every minute. This is estimated to be about 529,000 each year (UNICEF, 2010). The majority of them are in developing countries (UNICEF, 2010). Although the United Nations Population Fund report has indicated that the number of maternal deaths globally has reduced by half since year 1990, Nigerian situation still shows a dire case which needs relief. The country's maternal mortality rate has moved from 470 maternal deaths to 630 maternal deaths for every 100,000 live births from 1990 to 2012 (Kucharski, 2013). Lack of accurate data and statistics of the prevailing condition has badly haunted progress in so many states of Nigeria. Detailed researches on maternal health in Nigeria are grossly lacking because of lack of funding of researches in the related areas by the government.

Maternal mortality rate is still high in Ado-Ekiti, therefore the need to embark on a study that will assist policy makers in identifying and addressing major determinants of maternal health. The study will lend support to markedly reducing maternal mobility and mortality. This research is aimed at investigating socio-cultural determinants of maternal health in Ado-Ekiti, Ekiti State of Nigeria.

## METHODS

This study assessed the sociocultural determinants of maternal health in Ado-Ekiti, Ekiti State of Nigeria.

### Research Design and Approach

This research was a quantitative, cross-sectional study. Cross-sectional studies (surveys) are useful for information gathering on people's attitudes, knowledge, and practices on some health-related issues. A cross-sectional study was most adequate for the research, and also considering the time frame allotted for the study.

### Instrumentation and Materials

A semi-structured, easy-to-read, hard copy survey questionnaire was distributed to participants in Ado-Ekiti. The tool covered the main issues relating to sociocultural aspect of women of reproductive age group. It also touched elements of availability and accessibility of health care facilities.

### Setting and Sample

The population under study was the women of reproductive age group who reside within Ado-Ekiti. The 2006 Nigerian census estimated Ekiti state to have a population of 2,384,212 of which Ado-Ekiti was 308,621 (Ekitistate.gov.ng, 2015). Female population in Ado-Ekiti was estimated at 196,012 (Nigeria Masterweb, 2007). Sample size calculation was done using Cochran formula  $n = Z^2pq/d^2$

Where  $n$  = sample size where population is  $> 10,000$

$Z$  = standard normal deviate placed at 1.96

$P$  = proportion of target population expected to have a particular characteristic or prevalence rate obtained from

a previous study. Since there has been no previous study, 50% was used = 0.5

$q = (1-p)$

$d$  = degree of accuracy = 0.05

Therefore,  $n = (1.96)^2 \times 0.5 \times (1-0.5) / (0.05)^2$   $n = 380$

Atresia = 10% of sample size =  $10/100 \times 380 = 38$

Add 10% Atresia =  $380 + 38 = 418$ .

$n = 418$  subjects (sample size).

### The Sampling Method and Sampling Frame

Women of reproductive age group in Ado-Ekiti constituted the sampling frame. There was no previous study of this nature among women of reproductive age group in Ado-Ekiti, Nigeria, to make reference to. As a cross-sectional study, a non-probability sample was employed to meet the estimated sample size.

### Data Collection

The researcher, through trained health workers for data collection, gave the questionnaire to eligible and willing participants at the various places designated for data collection. The whole process involved in data collection took about two weeks. The researcher stored the completed questionnaire under lock and key in his closet prior to entering the data into the database.

### The Eligibility Criteria

1. Inclusion criteria: women of reproductive age group who were present during data collection.
2. Exclusion criteria: mentally unstable (insane) females, the seriously ill patients, all men, the elderly, and children were excluded.

### Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 17.0. Socio-demographic data and other core data were demonstrated using easy-to-understand frequency tables.

The dependent variable in this study was the choice of antenatal care provider. There were no reliable data on maternal mortality and morbidity in Ado-Ekiti as at the time of this study. However, choice of antenatal care provider stood as a proxy to maternal mortality and morbidity. ANC is deemed a good independent predictor of maternal mortality rates. Several observational studies have suggested this relationship (Stokoe, 1991; McClure, 2007; Ameh, 2009).

### Ethical Issues in This Study

There were no known serious ethical issues in this study. However, the four pillars of medical ethics which are autonomy, non-maleficence, beneficence, and justice (Grady, 1977) were adhered to. The investigator upheld the highest ethical standards when collecting data. Meanwhile, the approval for this research was given by Ekiti State Ministry of Health. Although the study was free from any serious ethical issues, the researcher

painstakingly designed a participant's information sheet that explained the voluntary nature of the study in details, and the anonymity and confidentiality in the study. Nonetheless, the need to document effectiveness in data collection must be balanced with every effort to ensure the protection and safety of all participants in data

collection activities (DHHS/AHRQ/COE, 2009; Ogungbade, 2010). Data collection protocols or procedures in this study included an explicit description of the measures taken to protect the participants involved.

## RESULT

### Socio-Demographic Distribution of Participants

**Table 1: Illustrates the socio-demographic distribution of participants.**

Covariate	Frequency	Percentage	Covariate	Frequency	Percentage
<b>Age group</b>			<b>Religion</b>		
<=20	88	21.1	Christian	216	51.7
21-30	84	20.1	Muslim	188	45.0
31-40	60	14.4	Traditional faith	14	3.3
41-50	84	20.1	<b>Total</b>	<b>418</b>	
51 and above	102	24.4			<b>100.0</b>
<b>Total</b>	<b>418</b>	<b>100.0</b>	<b>Employment status</b>		
			Employed	178	42.6
<b>Marital status</b>			Not employed	102	24.4
Single	124	29.7	Student	82	19.6
Married	190	45.5	Apprentice	56	13.4
Separated	16	3.8	<b>Total</b>	<b>418</b>	<b>100.0</b>
Divorced	30	7.2			
Widowed	58	13.9			
<b>Total</b>	<b>418</b>	<b>100.0</b>			

Present Educational status		
Primary	50	12.0
Secondary	110	26.3
Tertiary	130	31.1
Others	16	3.8
No response	112	26.8
<b>Total</b>	<b>418</b>	<b>100.0</b>

The modal age group was '51 years and above' (24.4%). The majority of the participants (45.5%) were married. A total number of 50(12.0%) respondents only had primary education, 110(26.3%) secondary education, 130(31.1%)

tertiary, while 16(3.8%) had no formal education. About 216 (51.7%) self-identified as Christians and 188(45.0%) as Muslims, while Traditional faith constitutes 14(3.3%).

**Table 2: Maternal Educational Status.**

	Primary	Secondary	Tertiary	Others	Total
Health care worker	14	88	130	16	248
% within	28.0%	80.0%	100.0%	100.0%	1.1%
Faith home operators	22	20	0	0	42
% within	44.0%	18.25	0%	0%	13.7%
Traditional birth	14	2	0	0	16
Attendant with %	28.0%	1.8%	0%	0%	5.2%
<b>TOTAL</b>	<b>50</b>	<b>110</b>	<b>130</b>	<b>16</b>	<b>306</b>
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Who do you prefer to take care of your antenatal period?

The Pearson Chi-Square test gave a significant p-value <0.05 (p=0.001).

Table 2 Presents the results of the association between educational status and choice of antenatal care provider.

## Maternal Religion

**Table 3: The association between maternal religion and choice of antenatal care provider.**

<b>Christian</b>	<b>Muslim</b>	<b>Traditional</b>	<b>Faith</b>	<b>Total</b>
Health care worker	210	148	0	358
% within	97.25%	78.7%	0%	85.5%
Faith home operators	4	40	0	44
% within	1.9%	21.3%	0%	10.5%
Traditional birth	2	0	14	16
Attendant with %	0.9%	0%	100.0%	3.8%
<b>TOTAL</b>	<b>216</b>	<b>188</b>	<b>14</b>	<b>418</b>
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Table 3** presents the results of the association between religion and choice of antenatal care provider. The Pearson Chi-Square test gave a statistically significant p-value  $<0.05$  ( $p=0.001$ ).

### Health Care Facility Availability/Accessibility

There was an additional analysis to determine the association between health care availability/accessibility and choice of antenatal care provider. The factors examined under health care availability/accessibility include 'long distance from health facility' and 'health facilities are too expensive'. Also, 'lack of money' and 'lack of transport' were tested. The p-value was  $<0.05$  for all the factors tested. Meanwhile, the multivariate regression analysis which was carried out using the aforementioned independent variables revealed statistically significance p-value  $<0.05$ , CI = 1.169 – 1.718.

There were other aspects of the questionnaire that were analysed to give basic information about the responses of the participants in the study. They include, but not restricted to information on 'who do you prefer to take care of your antenatal period (choice of ANC provider)?'.

## DISCUSSION

The study investigated the sociocultural determinants of maternal health in Ado-Ekiti. Researchers have studied maternal health and its related maternal mortality/morbidity in association with several sociocultural determinants in different populations. However, the determinants of maternal health have not been studied among the reproductive age group in Ado-Ekiti in Nigeria.

In this study, maternal education was found to have a statistically significant association with maternal health as indicated by choice of antenatal care provider ( $p<0.05$ ). This is similar to associations reported from other studies, though conducted outside Ado-Ekiti in Nigeria. There are several descriptive studies in sub-Saharan Africa that suggested statistically significant association between education, antenatal care (ANC) and maternal health (Alvarez *et al.*, 2009; Ameh, 2009; McTavish *et al.*, 2010). Karlsen *et al.* (2011) conducted a cross-sectional study which examined the relationship

between maternal education and maternal mortality among women giving birth in health care institutions. They observed that lower levels of maternal education were associated with higher maternal mortality even amongst women who were able to access health facilities providing intra-partum care. On the other hand, Lee *et al.* (1997) conducted a secondary data analysis on maternal mortality and morbidity and reported a larger negative correlation (-0.82). Although literacy is a function of education, female education rates in developing countries are low, associated with low primary and secondary education completion rates, there is limited evidence on the most effective level of female education required to positively impact on maternal health outcomes.

The test of the association between maternal religion and maternal health as represented by choice of antenatal care provider gave a statistically significant result ( $p=0.001$ ). Religion and cultural practices are very important factors that tend to have very strong influence on individual's decision making in most African setting. The influence being exerted on any group of people is so enormous that the dividing line between the two is difficult to distinguish. In Nigeria alone, there are about 400 ethnic groups with their different languages and cultural practices. In settings where there are similar religious beliefs, other factors tend to influence people's health seeking behaviour. The present research finding is in consonant with the study done by Lubbock and Stephenson (2008). They observed that religion has strong influence on culture, and often determines the degree of a woman's accessibility and utilization of health care facilities. Again, Walton and Schbley (2013) made a similar observation in rural Bangladesh. They concluded that religious beliefs (and also cultural practices) need be considered when determining future maternal health program development because of their influence on maternal health.

Further analysis was conducted on Health care facility availability/accessibility. The factors examined under health care availability/accessibility include lack of money, lack of transport, long distance from health facility and 'health facilities are too expensive'. The p-value was  $<0.05$  for all the factors tested. Also, the multivariate regression analysis which was carried out using the aforementioned independent variables revealed

statistically significance p-value <0.05, CI = 1.169 – 1.718. The CI indicated statistical stability in the analysis carried out.

### Strengths and Limitations

#### Strengths

This study focused on a poverty ridden area in sub-Saharan Africa with a high burden of maternal mortality. The results can uniquely contribute to the promotion of policies which are particularly relevant to the setting studied.

#### Limitations

There is gross dearth of data in the setting studied. Where there is reliable data for MMR, a more detailed analysis will be done to assess the determinants of maternal health. In this study, the researcher is limited to the use of 'choice of antenatal care provider' as a proxy to maternal mortality and morbidity (Stokoe, 1991; McClure, 2007; Ameh, 2009).

This study was a quantitative survey study which has a limitation of identifying associations only and not causality. Further investigations using a qualitative approach within the particular setting and context will be required to give a deeper insight into the factors studied.

### CONCLUSION

In this study, maternal educational status, religion, and health care availability/accessibility were found to have statistically significant associations with maternal health in the studied population. Efforts geared towards improving maternal educational status, and encouraging accessibility to health care facilities may make a significant impact at reducing MMRs in Ado-Ekiti in Nigeria.

### Implications for Social Change

These include the recognition of the positive values of maternal education and cultural factors that have influence on maternal health among the studied group. Policy makers, providers of services to women of reproductive age group, and social advocacy groups that target improving maternal health will find the information from this study useful.

### Recommendations for Action/Contribution to Knowledge

Insights from maternal education and cultural factors that have influence on females within the reproductive age group studied provide a broader understanding of maternal health in Ado-Ekiti. These insights may help public health practitioners, clinicians, and policy-makers improve maternal health, and thereby curbing the menace of maternal mortality and morbidity.

This study is a foundational study that is a pacesetter for further studies in a location where data on the area of research is grossly lacking.

### Recommendations for Further Research

This research has only touched the surface of the influence of the studied determinants of maternal health among the studied population in Ado-Ekiti in Nigeria. Further studies using a more pragmatic approach will give more details as per the degree of influence the studied factors have on maternal health.

### REFERENCES

1. Abbas, A. A., and Walker, G.J.A. 'Determinants of the utilization of maternal and child health services in Jordan', *International Journal of Epidemiology*, 1986; 15(3): 404-407.
2. Ameh, C. A. *An Analysis of the Recognised Determinants of Maternal Mortality, in sub-Saharan African and South-Asian Countries*, [Online]. Available at: University of Liverpool/Laureate Online Education VLE (Accessed: 22 March 2012), 2009.
3. Birn, A., Pillay, Y. and Holtz, T. H. *Textbook of International Health: Global Health in a Dynamic World*, 3rd ed. New York: Oxford University Press, 2009.
4. Campbell, O. M. R. and Graham, W. J. *Measuring maternal mortality and morbidity: levels and trends. Maternal and Child Epidemiology Unit Publication No2*. London: London School of Hygiene and Tropical Medicine, 1990.
5. Campbell, O. M. R. and Graham, W. J. 'Strategies for reducing maternal mortality: Getting on with what works', *Lancet*, 2006; 368(9543): 1284-1299.
6. Ekiti state government Population figures of Ekiti state, [Online]. Available at: [www.ekitistate.gov.ng](http://www.ekitistate.gov.ng) (Accessed: 27 July 2015), 2015.
7. Grady, C. *Human immunodeficiency disease: Ethical considerations for clinicians*. In V. T. DeVita, Jr, S. Hellman, and S. A. Rosenberg, 4th ed, AIDS: etiology, diagnosis, treatment and prevention. New York: Lippincott-Raven, 1977; 633-642.
8. Hartnett, T., and Heneveld, W. *Statistical indicators of female participation in education in sub-saharan Africa*. Washington D. C.: Africa Technical Department, World Bank, AFTHR Technical, 1993; 7.
9. Harrison, K. A. 'Child-bearing, health and social priorities: A survey of 22 774 consecutive hospital births in Zaria, northern Nigeria', *British Journal of Obstetrics and Gynaecology*, 1985; 92(5): 1-119.
10. Harrison, K. A. 'Maternal mortality--a sharper focus on a major issue of our time', *Tropical Journal of Obstetrics and Gynaecology*, 1988; 1(1).
11. Kucharski, M. 'Maternal mortality in Nigeria: reducing rates through Education', *prospect journal.org*, [Online]. Available at: <http://prospectjournal.org/2013/07/29/maternal-mortality-in-nigeria-reducing-rates-through-education> (Accessed: 20 August 2015), 2013.
12. Lee, K. S., Park, S. C., Khoshnood, B., Hsieh, H. L., and Mittendorf, R. 'Human development index as a

- predictor of infant and maternal mortality rates', *Journal of Pediatrics*, 1997; 131(3): 430-433.
13. Irwin, L. Siddiqi, A. and Hertzman, C. *Early child development: A powerful equalizer. Final Report for the World Health Organisation's Commission on Social Determinants of Health*. Geneva: World Health Organisation, 2007.
  14. Koblinsky, M. A., Campbell, O., and Heichelheim, J. 'Organizing delivery care: What works for safe motherhood?' *Bulletin of the World Health Organization*, 1999; 77(5): 399-406.
  15. McClure, E. M., Goldenberg, R. L., and Bann, C. M. 'Maternal mortality, stillbirth and measures of obstetric care in developing and developed countries' *International Journal of Gynaecology and Obstetrics*, 2007; 96(2): 139-146.
  16. McTavish, S., Moore, S., Harper, S., and Lynch, J. 'National female literacy, individual socio-economic status, and maternal health care use in sub-Saharan Africa', *Social Science & Medicine*, 2010; 71(11): 1958-1963. doi:10.1016/j.socscimed.2010.09.007.
  17. Nigeria Masterweb Nigeria 2006 census figures, [Online]. Available at: [www.nigeriamasterweb.com](http://www.nigeriamasterweb.com) (Accessed: 27 July 2015), 2015.
  18. Olupohunda, B. 'Special Report: From Labour room to the Morgues: How Nigerian Women are dying during Childbirth (Part 2)', [Online]. Available at: <https://www.naija.com/1078180-specialreport-from-> (Accessed: 12 March 2017), 2017.
  19. Plavinski, S.I., Plavinskaya, S.I., and Klimov, A.N. 'Social factors and increase in mortality in Russia in the 1990s, Prospective cohort study', *British Medical Journal*, 2003; 326(7401): 1240-1242.
  20. Public Health Association of Australia Policy-at-a-glance – 'Maternal Mortality, Social Determinants of Health, Millennium Development Goals in Asia Policy', [Online]. Available at: [http://www.phaa.net.au/documents/130201\\_Maternal %20Mortality, %20Social%20Determinants](http://www.phaa.net.au/documents/130201_Maternal%20Mortality,%20Social%20Determinants) (Accessed: 28 March 2015), 2012.
  21. Stokoe, U. 'Determinants of maternal mortality in the developing world', *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 1991; 31(1): 8-16.
  22. UNICEF 'Maternal Health', [Online]. Available at: <http://www.unicef.org/mdg/maternal.html> (Accessed: 26 March 2015), 2010.
  23. UNICEF Levels and Trends in Child Mortality Report 2015. The Inter-agency Group for Child Mortality Estimation (UN IGME). UNICEF, WHO, The World Bank, United Nations Population Division. New York: UNICEF, 2015.
  24. United Nations 'Investing in the health of Africa's mothers', [Online]. Available at: [www.un.org/africarenewal/magazine/special-edition-women](http://www.un.org/africarenewal/magazine/special-edition-women) (Accessed: 26 March 2015), 2000.
  25. United Nations *The millennium declaration: Resolution of the general assembly*. New York: United Nations, SS/2.A/Res/SS/2, 2000.
  26. UNFPA Response to the note verbale, A/61/338, 2011; 2 (para. 21).
  27. World Health Organisation *World Health Report: Make Every Mother and Child Count*. Geneva: World Health Organisation, 2005.
  28. World Health Organisation *Global and regional estimates of the incidence of unsafe abortion and associated mortality in*. Geneva: World Health Organisation, 2007.
  29. World Health Organization *Maternal mortality in 2005. Estimates Developed by WHO, UNICEF, UNFPA and the World Bank*. Geneva: World Health Organisation, 2007.
  30. World Health Organisation 'Emergency Contraception, dispelling the myth and misperceptions', *Bulletin of the World Health Organization*, 2010; 88: 243-243.