

## Determinants of Choice of Place of Delivery among Women of Childbearing Age in Ido-Ekiti, Nigeria

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### ABSTRACT

High burden of maternal deaths are recorded in low-income settings where women use a home or traditional birth attendant for delivery, often without professional medical assistance. The study identified the determinants of the choice of place of delivery among women of childbearing age in Ido-Ekiti, Ekiti state, Nigeria. It is an analytical cross-sectional study involving 435 women of childbearing age using a multistage sampling technique. A semi-structured questionnaire was used to collect socio-demographic information and other variables that can influence the choice of place of delivery. Data were analyzed using IBM SPSS version 25.0. The mean age of the respondents was  $34.0 \pm 7.13$  years, 41.4% had tertiary education and 62.5% of the respondents delivered in the health facility. Approximately, 59% and 44.8% of women who delivered in places other than health facilities did so due to hospital bill and religious beliefs respectively. Level of education and antenatal clinic attendance were significantly associated with health facility delivery ( $p=0.001$ ). Women in monogamous marriage were 3.7 times more likely to deliver in a health facility as compared to those in polygamous marriage (OR: 3.734 [95% CI: 1.691-8.247]). Hospital delivery is increasing but the number of non-facility based delivery is still high. Cost of delivering at a health facility is a major factor that influenced the choice of place of delivery among women. Women should be further educated on the importance of giving birth in the hospital and the government should ensure that the National Health Insurance Scheme is all-inclusive.

Keywords: Determinants, place of birth, childbearing age, cross-sectional

### INTRODUCTION

In 2013, about 50% of births in Africa were attended by a skilled health worker [1]. This figure is far lower than the global target for this indicator which aimed to ensure that at least 90% of births worldwide be attended by skilled health personnel by 2015 [2]. Almost all maternal deaths (99%) occur in developing regions [3]. Sub-Saharan Africans (this includes Nigerians) suffer from the highest maternal mortality ratio – 546 maternal deaths per 100,000 live births, or 201,000 maternal deaths a year, thus accounting for two thirds (66%) of all maternal deaths per year worldwide. In 2013, an estimated 289,000 maternal deaths were recognized globally [4], and Nigeria was indicated among top five countries with highest rates of maternal mortality with about 40,000 pregnant women dying in the country in 2013 [4].

The maternal mortality ratio in Nigeria was over 800 deaths per 100,000 live births, with approximately 58,000 maternal deaths in 2015 [5]. The high level of maternal mortality in developing countries has been attributed partly to the non-availability of maternal and child health services and partly to the poor utilization of these services where they exist. Access to quality care during pregnancy and especially at delivery has been observed to be the crucial factor in explaining the disparity in maternal mortality and morbidity between the developing and the industrialized countries [6]. Nearly 75% of maternal deaths are attributable to direct obstetric causes such as postpartum hemorrhage, sepsis, eclampsia, obstructed labor and complications of unsafe abortion [5]. Inadequate or non-existent care during pregnancy and delivery was largely responsible for the annual deaths of an estimated 303,000 mothers and 2.5 million newborns in the first month of life in 2018, and indeed, roughly three-quarters of all maternal deaths take place during delivery and in the immediate postpartum period [7].

Also, it is globally recognized that one of the main constraints to achieving the health targets of the goals within Sustainable Development Goal 3 which include reduction of global maternal mortality ratio to less than 70 per 100,000 live births and reduction of neonatal mortality to at least as low as 12 per 1000 live births is the low number of women who give birth with a skilled birth attendant. In many low-income settings with a high burden of maternal deaths, few women use facilities for birth, often choosing a higher-risk birth at home or traditional attendants, often without professional medical assistance. Though about 85% of women do not experience major problems during childbirth [4], complications that do occur can be sudden and unpredictable, requiring immediate action. Maternal and perinatal outcomes in such cases are greatly improved when such complications occur in the presence of a skilled attendant. Thus, the provision of a health worker with midwifery skills at every birth, plus access to emergency hospital obstetric care, is considered the most crucial intervention for safe motherhood [2]. In developing countries, many women do not have access to skilled personnel during childbirth. This lack of skilled attendance is one of the major factors responsible for rising maternal and infant mortality. Experts agree that the risk of stillbirth or death due to intrapartum-related complication can be reduced by about 20% with the presence of a skilled birth attendant [8,9]. Given its importance in reducing maternal morbidity and mortality, skilled birth attendance was included as indicator 3.1.2 under goal 3 and target 3.1 of the Sustainable Development Goals. In Nigeria, the percentage of births assisted by skilled attendants was 41.2% [10]. This percentage is low considering the target of 100% by other countries. Also, a study done in Nigeria by Akeju et al. in 2016 [11], revealed a positive perception and use of Traditional Birth Attendant (TBA) services by the respondents. Increasing the proportion of women who deliver in a health facility is a viable strategy to reducing maternal mortality in low-income settings.

Thus, the researchers purposed to identify the factors that influence the choice of place of delivery among women of childbearing age to improve maternal and child health outcomes. Also, limited studies have been conducted in Ekiti State on the subject matter. We hypothesized that the level of education, income, and number of antenatal clinic attendance influence the choice of place of delivery among women of childbearing age.

## **MATERIALS AND METHODS**

### **STUDY AREA**

The study was conducted in Ido-Ekiti, which is located in Ido Osi local government area of Ekiti State, Nigeria. It is situated in the northern part of the state and it is the headquarters of Ido-Osi Local Council. It is bounded in the East by Ipere and Iludun, in the South by Igbole and Ifinsin and in the North and Northwest by Usi and Ilogbo Ekiti. There are two political wards in Ido-Osi, three health facilities and 22 settlements. Ido-Ekiti has an estimated population size of 218,100 and population size of 16,435 for the settlements under Federal Teaching Hospital Ido-Ekiti catchment area, with the women in the reproductive age group constituting approximately 3,616 (22% of the population) according to National Population Commission Ado-Ekiti 2015 [12].

### **STUDY DESIGN AND POPULATION**

An analytical cross-sectional design was employed to investigate the factors that determine the choice of place of delivery among women in Ido-Ekiti, Ekiti State, Nigeria. The study population were women of childbearing age in Ido-Ekiti.

### **SAMPLING TECHNIQUE**

A multistage sampling technique was used. Ido ward 2 was selected using simple random sampling. Also, by simple random sampling, one Catchment area was selected. All the four settlements under the catchment area were included. Each settlement was considered as a cluster, thus, cluster sampling was used. A population proportionate sampling was done to determine the number of respondents needed from each cluster. Respondents were selected by convenience sampling. A household was skipped each time an eligible respondent was sampled.

### **DATA COLLECTION /STUDY INSTRUMENT**

A semi-structured, pretested and validated questionnaire was used for data collection. The questionnaire was designed by reviewing past literature on the subject matter. The questionnaire's reliability was tested with each section analyzed separately. Reliability was achieved using Kappa agreement for test-retest (Coefficient range = 0.7-1). Demographers, epidemiologists, and biostatisticians in the University ascertained the face and content validity. The questionnaire was

written in English language and was interpreted to those participants who do not understand English language and was divided into four parts: Section A – socio-demographic characteristics of the respondents; section B –obstetrics and maternal characteristics; section C – place of delivery; and section D – factors influencing the choice of place of delivery.

### SAMPLE SIZE ESTIMATION

The estimated sample size required for the study was calculated thus:

$$n = \frac{Z_{1-\alpha/2}^2 P(1-P)}{d^2}$$

n = estimated sample size required;  $Z_{1-\alpha/2}^2$ , the value of standard normal variables at 95% confidence interval = 1.96; P, the proportion of women of reproductive age = 0.22 [12]; and d, the marginal error = 5%. The estimated sample size was 264. To adjust for design effect, the sample size was multiplied by 1.5 and a non-response rate of 10% was added bringing the total sample size required for the study to 435 respondents.

### DATA ANALYSIS

Data were collected, checked for errors, and manually entered into the computer for statistical analysis. IBM SPSS version 25.0 was used for the data analysis. Descriptive and analytical statistics were presented as frequencies, percentages, means, and standard deviations. Pearson's chi-square test was also used to determine the associations between categorical variables. Logistic regression was used to determine the relationship between the dependent and the independent variables at 5% significance level.

### RESULTS

Four hundred and twenty-four questionnaires were administered to women of childbearing age and were all filled giving a response rate of 100%. Table 1 shows the socio-demographic characteristics of the respondents. The mean age was  $34.0 \pm 7.13$  years, with the majority (43.0%) between 30 and 39 years. Table 2 shows the obstetrics and maternal characteristics of the respondents. The majority had their first pregnancy between the ages of 20-29 years (81.1%), many had parity between 2-5 (70.6%). Table 3 shows that 37.5% of the respondents delivered outside the Health Facility. Table 4 shows that 62.5% of the respondents delivered at the Health Facility with more than half of the respondents (55.5%) in this category stating fear of complications as one of the factors that influenced their decision to deliver in the health facility.

The association between socio-demographic variables and choice of place of delivery of respondents using the chi-square analysis is shown in Table 5. Also, the association between choice of place of delivery and obstetrics and maternal characteristics is shown in Table 6. Table 7 shows that the type of family, family income, antenatal clinic attendance and knowledge that delivery at a health facility is beneficial and safer remained significant independent predictors of delivery at the health facility, using binary logistic regression (multivariable analysis).

### DISCUSSION

The percentage of women who attended antenatal clinic at least four times was found to be similar to 38.9% that was reported by Idris *et al* [12], but low when compared to the findings by UNICEF global databases [3] which reported that 52% of women in Sub-Saharan African received at least four antenatal visits during pregnancy between 2010 and 2016. This is considered to be low given that the region is one of the regions with the highest rates of maternal mortality, and given the new WHO recommendation of eight contacts rather than four which is believed to reduce complications that can lead to maternal and perinatal mortality, thus ensuring a positive pregnancy experience. This difference reflects the fact that global improvements sometimes mask the realities in individual countries.

This study showed that women who had at least one antenatal attendance have higher odds of delivering at the health facility and this odd increased with the number of antenatal visits made. This is somewhat similar with a study done in Kenya which revealed that women who did not attend antenatal clinic were found to have higher odds of delivery at home than women who attended antenatal clinic [13]. Also, similar to the study of Kitui *et al.* [14] on factors influencing place of delivery for women in Kenya, attending antenatal services increased the likelihood to deliver in the health facility. This could

be as a result of the information, care and trust in the hospital environment. Most pregnancy-related and delivery complications are seen to be preventable with appropriate and optimal antenatal attendance and care (ANC)[15].

In this study, majority of the women gave birth in the health facility, while about one-third are non-institution based. This may be as a result of the fact that a high percentage of the women had tertiary education, which may increase their level of awareness and inform good health-seeking behavior. This finding is similar to a study done in Jos, Nigeria in which 60% of women gave birth in the health facility and 40% gave birth at home [16]. But differs compare to another study done in Zaria [12] which showed that 70.2 % had their deliveries at home while 27.6% had their deliveries in the health facility. This difference can be attributed to differences in location and level of education.

Majority of the respondents who had their last delivery outside of the health facility stated the cost of hospital bill as one of the factors that influenced their decision to deliver where they did. The cost was also reported by Sanni *et al.* [17] as one of the top four barriers for non-facility based delivery. Edu *et al.*[18] also reported cost as a barrier to maternal healthcare service utilization in Nigeria. This is so because even with the advent of the National Health Insurance Scheme (NHIS) most Nigerians especially the self and unemployed populations are still experiencing the financial burden of Out Of Pocket Expenses as the NHIS is not accessible for these sub-groups of the Nigerian population.

Also, religious beliefs accounted for the reason why almost half of the women delivered outside of the health facility, which is seemingly high when compared to about 17% reported in a similar study done in Dega Damot district, Northwest of Ethiopia [19]. The difference in location could account for this, also this may be because many women still believe it is not religious to undergo caesarian section and that the presence of the supreme-being is assured, hence the preference to deliver in faith-based homes. However, the majority of the women did not see the distance from a health facility and unfriendly attitude of health workers as a determinant of their previous place of delivery which is in agreement with studies done in Malawi [20] and Kenya [21].

More than half of the respondents who delivered at the health facility stated fear of complications as one of the factors that influenced their decision to deliver there. This is in keeping with a similar study done by Tigest *et al.*[22], where almost all the respondents answered in affirmative to delivering in the health facility because of the fear of complications. The reason might be the consciousness that the health facilities have trained and competent professionals and in case of any eventualities, one is assured of safety.

Highest level of education of both the woman and her husband was found to be significantly associated with the choice of place of delivery. A higher percentage of those who had tertiary education delivered in the health facility, while more of those with no formal education and primary school education chose to deliver at home. The level of awareness and education could be responsible for this observation. This finding is in congruence with studies conducted in Ghana [23]and Bangladesh [24], where education was found to be a substantial determinant of health facility use. According to Ogunjimi *et al.*[25]education plays a key role in promoting healthy pregnancy, childbirth and postnatal care.

Our findings showed that income plays a vital role in the choice of place of delivery among women in the study area. It was discovered that women with a higher family monthly income had higher odds of delivering at a health facility as compared to those with lower monthly income. This is corroborated by studies done by Kruk *et al.*[26] and Ntambue *et al.*[27], where the disparity between low-income earners and high-income earners and choice of place of delivery was recorded. This difference in the health-seeking behavior of the women can be as a result of Out Of Pocket Spending (OOPS!) on health which is still prevalent and inflicting a measure of a financial burden on the citizens especially the low-income earners.

Although marital status and religion were not significantly associated with the choice of place of delivery, the family type was found to be a significant predictor in facility delivery, with respondents from monogamous homes having higher odds of delivering in a health facility than those from polygamous setting. This is consistent with the findings obtained in Kenya [13]. It is known that in small family size resources are likely to be sufficiently managed than large family size.

## **LIMITATIONS**

The limitations of this study include the fact that it is a cross-sectional design, as such inferences as regards causality cannot be made. The study being questionnaire-based and retrospective in nature could be prone to response/recall bias. The fact that the study population was just one Local Government Area in the State, limits the generalizability of the findings to other LGAs and the country in general.

## **CONCLUSION**

Based on the findings of this study, we conclude that hospital delivery is increasing but the number of non-facility based delivery is still high. The higher the number of antenatal visits made, the higher the odds of delivering at a health facility. Levels of education of both women and their husbands were factors that influenced where the mothers chose to deliver their babies. The higher the level of education, the more the likelihood of delivering in a hospital. Cost of delivering at a health facility is a major factor that influenced the choice of place of delivery among women. Income is significantly associated with the choice to deliver in a health facility. Women of childbearing age should be further educated on the importance of giving birth in a Hospital, as giving birth elsewhere could be detrimental to both the mother and the unborn child if not attended by a skilled health professional. Maternal care bills should be subsidized, so women would be encouraged to give birth in health facilities. The government should ensure that NHIS is all-inclusive so that catastrophic spending and its resultant burden can be prevented.

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## **CONFLICT OF INTEREST**

The authors have no conflict of interest to declare.

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None

## **ETHICAL APPROVAL**

The study was conducted in accordance with the ethical standards of the institutional research committee.

## **AUTHORS' CONTRIBUTION**

TO and OAI conceptualized and designed the study. TO drafted the questionnaire. AAF and FSO ensured face validity and administered the questionnaires to the respondents. TO and OAI analyzed and interpreted the data. TO, OAI, AAF, and FSO wrote the manuscript. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

## **REFERENCES**

1. WHO, UNICEF, UNFPA and World Bank. Trends in Maternal Mortality: 1990 to 2015. Geneva: WHO; 2015.  
[https://www.unfpa.org/sites/default/files/pub-pdf/9789241565141\\_eng.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/9789241565141_eng.pdf)
2. United Nations. Official United Nations Documents for the Twenty-first Special Session of the General Assembly. 1999, New York, United Nations.  
<https://www.un.org/womenwatch/daw/followup/as2310rev1.pdf>
3. UNICEF. Antenatal care. Maternal health. New York: Unicef; 2017.  
<https://data.unicef.org/topic/maternal-health/antenatal-care/>
4. World Health Organization (WHO). Millennium Development Goal 5: Improve maternal mortality. Geneva: WHO; 2013.  
[https://www.who.int/topics/millennium\\_development\\_goals/maternal\\_health/en/](https://www.who.int/topics/millennium_development_goals/maternal_health/en/)
5. WHO. Maternal health in Nigeria: Generating information for action. Geneva: WHO;

2019.<https://www.who.int/reproductivehealth/maternal-health-nigeria/en/>

6. Silas SP, Penn-Kekana L, Birch B, McIntyre D. Exploring inequalities in access to and use of maternal health services in South Africa. *BMC health Services Research*. 2012. 12(120): 1-12.
7. Save the Children. Newborn health: Ensuring newborn survival. London: Save the Children; 2020. <https://savethechildren.org/us/what-we-do/global-programs/health/newborn-health>.  
WHO, UNICEF, UNFPA and World Bank. Trends in Maternal Mortality: 1990 to 2015. Geneva: WHO; 2015.
8. WHO. Antenatal care randomized trial of the new model. Institutional Repository for Information Sharing. 2002; 1(30): 1-37. [www.apps.who.int/iris](http://www.apps.who.int/iris)
9. Kabir R, Ghosh S, Al Mamun A, Islam H, A Ghani RB. Factors associated with antenatal and health facility delivery care in selected areas of Subornocho upazila, Noakhali, Bangladesh. *Clinical Epidemiology and Global Health*. 2020;8(3): 983-988.
10. World Health Organization, Partnership for Maternal, New-born and Child Health. 2015 [http://www.who.int/topics/millennium\\_development\\_goals/maternal\\_health/en/](http://www.who.int/topics/millennium_development_goals/maternal_health/en/) February 27 2017
11. Akeju DO, Oladapo OT, Vidler M, Akinmade AA, Sawchuck DS, Qureshi R, et al. Determinants of health care seeking behavior during pregnancy in Ogun state, Nigeria. *Reprod. Health*. 2016;13 Suppl 1(Suppl 1):32
12. Idris S.H, Gwarzo U.M.D and Shehu A.U. Determinants of Place of Delivery among Women in a Semi-Urban Settlement in Zaria, Northern Nigeria. *Annals of African Medicine*. 2006; 5(2): 68-72.
13. Alasa Osman Hirsi. Factors Influencing the Choice of Place of Child Delivery Among Women in Garissa District, Kenya. South Africa: University of Western Cape; South Africa: 2011.
14. Kitui J, Lewis S, Davey G. Factors influencing place of delivery for women in Kenya: Analysis of the Kenya demographic and health survey 2008/2009. *BMC Pregnancy and child*. 2013; 13(40): 1-10
15. Tuncalp O, Souza JP, Santos CA, Oliveria TH, Vogel JP, Togoobaator G, et al. Education and severe maternal outcome in developing countries: A multi country cross-sectional survey. *BJOG Int. Obstetrics Gynecology*. 2014; 121(1): 57-65
16. Envuladu E, Agbo H, Lassa, Kigbu J, Zoakah A. Factors determining the choice of a place of delivery among pregnant women in Russia village of Jos North, Nigeria: Achieving the MDGs 4 and 5. *AJOL*. 2013; 2(1):1-5
17. Sanni Y, Bishwajit G, Uthman OA, Amouzou A. Why some women fail to give birth at health facilities: A comparative study between Ethiopia and Nigeria. *PLoS One*. 2018;13(5)
18. Edu B, Agan TU, Monjok E, Makoweicka K. Effect of free maternal health care program on health-seeking behavior of women during pregnancy, intra-partum and postpartum periods in Cross river State of Nigeria: A mixed method study. *Open Access Macedonian Journal of Med. Sci*. 2017; 5(3): 370-382.
19. Alameyehu S, Sendo EG. Factors determining choice of delivery place among women of child bearing age in Dega Damot district, North West of Ethiopia: A community based cross-sectional study. *BMC Pregnancy and Childbirth*. 2016; 16:229
20. Mazalale J, Kambala C, Brenner S, Chinkhumba J, Lohmann J, Mathanga DP, et al. Factors associated with delivery outside a health facility: Cross-sectional study in rural Malawi. *Tropical Medicine and International health*. 2015; 20(5):617-626
21. Mwanza JN. Factors influencing women's choice of place of delivery in Mboni West District, Makueni county. Nairobi: University of Nairobi: 2015.
22. Tigest S, Berhane Y, Gulema H, Kendall T, Austin A. A qualitative study on factors that influence women's choice of delivery in health facilities in Addis Ababa, Ethiopia. *BMC Pregnancy and*

Childbirth. 2016; 16(307):1-6.

23. Dickson KS, Adde KS, Amu H. What Influences Where They Give Birth? Determinants of Place of Delivery among Women in Rural Ghana. *International Journal of Reproductive Medicine*. 2016;3:1-8.
24. Chakraborty N, Islam MA, Chowdhury RI, Bari W, Akhter HH. Determinants of the use of maternal health services in rural Bangladesh. *Health Promotion International*. 2003; 18(4):327-337.
25. Ogunjimi LO, Ibe RT, Ikorok MM. Curbing maternal and child mortality: The Nigerian experience. *International Journal of Nursing and Midwifery*. 2012;4(3):33-39.
26. Kruk ME, Rockers PC, Mbaruku G, Paczkowski MM, Galea S. Factors associated with delivery outside a health facility: cross sectional study in rural Malawi. *Trop Med Int. Health*. 2010; 20(5): 617-626.
27. Ntambue ML, Françoise MK, Dramaix-Wilmet M, Donnen P. Determinants of maternal health services utilization in urban settings of the Democratic Republic of Congo – A Case study of Lubumbashi City. *BMC Pregnancy and Childbirth*. 2012; 12(66): 1-13.

**Table 1: Socio-demographic characteristics of the study respondents**

Variable	Frequency (n = 435)	Percentage
Age (years)		
< 20	6	1.3
20 – 29	116	26.7
30 – 39	187	43.0
40 – 49	126	29.0
Mean $\pm$ SD	34.0 $\pm$ 7.13	
Tribe		
Yoruba	359	82.5
Igbo	53	12.2
Hausa	15	3.4
Others	8	1.9
Religion		
Christianity	354	81.4
Islam	80	18.4
Traditional	1	0.2
Highest Level of Education		
Primary	67	15.4
Secondary	169	38.9
Tertiary	180	41.4
None	19	4.3
Marital Status		
Single	8	1.8
Married	410	94.3
Divorced	6	1.4
Separated	3	0.7
Widowed	8	1.8
Type Of Family (n = 427)		
Monogamous	338	79.2
Polygamous	89	20.8
Occupation		
Housewife	50	11.5
Farmer	17	3.9
Trader	205	47.1
Civil Servant	112	25.8
Artisan	51	11.7

Family Monthly Income		
< 11,000	110	25.3
11,000 – 20,000	130	29.9
21,000 – 30,000	76	17.4
> 30,000	119	27.4

**Table 2: Obstetrics and maternal characteristics of the study respondents**

Variable	Frequency (n = 435)	Percentage
Age at first pregnancy		
< 20	24	5.5
20 – 29	353	81.2
30 – 39	58	13.3
Mean $\pm$ SD	25.26 $\pm$ 4.05	
Parity		
1	96	22.0
2 – 5	307	70.6
> 5	32	7.4
Antenatal clinic attendance during last pregnancy		
0	117	26.9
1	38	8.7
2 – 3	107	24.6
$\geq 4$	173	39.8
Experience of any form of complication during last pregnancy		
Yes	61	14.0
No	374	86.0
Ever lost a child during delivery		
Yes	45	10.3
No	390	89.7
Where delivery took place (n = 45)		
Health Facility	24	53.3
Traditional Birth Home	13	29.0
Home	2	4.4
Faith Home	6	13.3
Know if place of delivery can adversely affect health of mother and child		
Yes	329	75.6
No	106	24.4
Delivery at health facility is beneficial and safer		
Yes	330	75.9
No	105	24.1

**Table 3: Factors that influenced previous place of delivery (respondents who had last delivery outside the health facility)**

Variable	Frequency (n = 163)	Percentage
Cost of Hospital bills		
Yes	96	58.9
No	67	41.1
Unfriendly attitude of health workers		
Yes	16	9.8
No	147	90.2
Distance from health care facility		
Yes	47	28.8
No	116	71.2

Unexpected labor		
Yes	22	13.5
No	141	86.5
Failure to book antenatal		
Yes	14	8.6
No	149	91.4
Religious belief		
Yes	73	44.8
No	90	55.2
Cultural believe		
Yes	36	22.1
No	127	77.9
Large population of pregnant women in the health facility		
Yes	12	7.4
No	151	92.6
Trust in natural environment		
Yes	48	29.4
No	115	70.6
Past birth outcome		
Yes	21	12.9
No	142	87.1
Lack of quality of service at health facility		
Yes	3	1.8
No	160	98.2
Facility not always open Or habitual absence of attending health worker		
Yes	5	3.1
No	158	96.9

**Table 4: Factors that influence previous place of delivery (respondents who had last delivery at the health facility)**

Variable	Frequency (n = 272)	Percentage
Skilled Services		
Yes	54	19.9
No	218	80.1
Fear Of Complications		
Yes	151	55.5
No	121	44.5
Better Services		
Yes	162	59.6
No	110	40.4
Safe And Clean Delivery		
Yes	147	54.0
No	125	46.0
Communication In HF During Antenatal Attendance		
Yes	53	19.5
No	219	80.5
Attitude Of Health Care Workers		
Yes	71	26.1
No	201	73.9

Proximity To Health Facility		
Yes	75	27.6
No	197	72.4
Privacy		
Yes	44	16.2
No	228	83.8
Good To Have First Baby In The Hospital		
Yes	36	13.2
No	236	86.8
Past Birth Outcome		
Yes	26	9.6
No	246	90.4

**Table 5: Association between socio-demographic variables and choice of place of delivery**

Variables	Place of Delivery		Total N	$\chi^2$	p value
	Health Facility n (%)	Others n (%)			
Age (years)					
< 20	6 (100.0)	0 (0.0)	6	7.832	0.050
20 – 29	74 (63.8)	42 (36.2)	116		
30 – 39	125 (66.8)	62 (33.2)	187		
40 – 49	67 (53.2)	59 (46.8)	126		
Tribe					
Yoruba	221 (61.6)	138 (38.4)	359	3.986	0.263
Igbo	39 (73.6)	14 (26.4)	53		
Hausa	8 (53.3)	7 (46.7)	15		
Others	4 (50.0)	4 (50.0)	8		
Religion					
Christianity	236 (66.7)	118 (33.3)	354	12.236 <sup>Y</sup>	0.002*
Islam	36 (45.0)	44 (55.0)	80		
Traditional	0 (0.0)	1 (100.0)	1		
Highest level of education					
Primary	22 (32.8)	45 (67.2)	67	98.924	<0.001*
Secondary	89 (52.7)	80 (47.3)	169		
Tertiary	158 (87.8)	22 (12.2)	180		
None	3 (15.8)	16 (84.2)	19		
Highest level of education of husband					
Primary	10 (31.3)	22 (68.8)	32	79.287	<0.001*
Secondary	61 (46.6)	70 (53.4)	131		
Tertiary	195 (79.9)	49 (20.1)	244		
None	6 (21.4)	22 (78.6)	28		
Marital Status					
Single	5 (62.5)	3 (37.5)	8	2.754 <sup>Y</sup>	0.599
Married	260 (63.4)	150 (36.6)	410		
Divorced	2 (33.3)	4 (66.7)	6		
Separated	2 (66.7)	1 (33.3)	3		
Widowed	3 (37.5)	5 (62.5)	8		
Type Of Family (n = 427)					
Monogamous	236 (69.8)	102 (30.2)	338	36.814	<0.001*
Polygamous	31 (34.8)	58 (65.2)	89		
Occupation					

Housewife	15 (30.0)	35 (70.0)	50	74.521	<0.001*
Farmer	2 (11.8)	15 (88.2)	17		
Trader	128 (62.4)	77 (37.6)	205		
Civil Servant	99 (88.4)	13 (11.6)	112		
Artisan	28 (54.9)	23 (45.1)	51		
Family Monthly Income					
< 11,000	41 (37.3)	69 (62.7)	110	77.645	<0.001*
11,000 – 20,000	73 (56.2)	57 (43.8)	130		
21,000 – 30,000	48 (63.2)	28 (36.8)	76		
> 30,000	110 (92.4)	9 (7.6)	119		

$\chi^2$ : Chi square test; Y: Yates corrected Chi square; \*:  $p$  value <0.05

**Table 6: Association between choice of place of delivery and obstetrics and maternal characteristics**

Variable	Place Of Delivery		Total N	$\chi^2$	$p$ value
	Health Facility n (%)	Others n (%)			
Age at first pregnancy					
< 20	15 (62.5)	9 (37.5)	24	1.919	0.383
20 – 29	216 (61.2)	137 (38.8)	353		
30 – 39	41 (70.7)	17 (29.3)	58		
Parity					
1	67 (69.8)	29 (30.2)	96	5.562	0.062
2 – 5	190 (61.9)	117 (38.1)	307		
> 5	15 (46.9)	17 (53.1)	32		
Antenatal clinic attendance during last pregnancy					
0	23 (19.7)	94 (80.3)	117	154.950	<0.001*
1	16 (42.1)	22 (57.9)	38		
2 – 3	80 (74.8)	27 (25.2)	107		
$\geq 4$	153 (88.4)	20 (11.6)	173		
Experience of any form of complication during last pregnancy					
Yes	35 (57.4)	26 (42.6)	61	0.804	0.370
No	237 (63.4)	137 (36.6)	374		
Ever lost a child during delivery					
Yes	27 (60.0)	18 (40.0)	45	0.137	0.711
No	245 (62.8)	145 (37.2)	390		
Know if place of delivery can adversely affect health of mother and child					
Yes	231 (70.2)	98 (29.8)	329	34.024	<0.001*
No	41 (38.7)	65 (61.3)	106		
Delivery at health facility is beneficial and safer					
Yes	247 (74.8)	83 (25.2)	330	88.560	<0.001*
No	25 (23.8)	80 (76.2)	105		

$\chi^2$ : Chi square test; Y: Yates corrected Chi square; \*:  $p$  value <0.05

**Table 7: Predictors of choice of health facility as place of delivery among women**

	B	$p$ value	OR	95% CI	
Variables				Lower	Upper
Religion					

Christianity <sup>REF</sup>					
Islam	-0.034	0.941	0.967	0.395	2.365
Traditional	-18.684	1.000	0.000	0.000	.
Highest level of education					
Primary	0.343	0.749	1.409	0.172	11.553
Secondary	0.620	0.555	1.859	0.237	14.619
Tertiary	1.620	0.143	5.052	0.580	44.024
None <sup>REF</sup>					
Highest level of education of husband					
Primary	1.617	0.078	5.040	0.832	30.521
Secondary	0.504	0.529	1.655	0.345	7.932
Tertiary	0.805	0.328	2.237	0.445	11.246
None <sup>REF</sup>					
Type of Family (n = 427)					
Monogamous	1.317	0.001*	3.734	1.691	8.247
Polygamous <sup>REF</sup>					
Occupation					
Housewife <sup>REF</sup>					
Farmer	-1.278	0.202	0.279	0.039	1.986
Trader	0.345	0.513	1.412	0.503	3.968
Civil Servant	0.468	0.475	1.596	0.443	5.756
Artisan	-0.168	0.792	0.845	0.243	2.942
Family Monthly Income					
< 11,000 <sup>REF</sup>					
11,000 – 20,000	0.695	0.063	2.004	0.962	4.176
21,000 – 30,000	0.968	0.033*	2.632	1.081	6.412
> 30,000	2.314	<0.001*	10.113	3.258	31.389
Antenatal clinic attendance during last pregnancy					
0 <sup>REF</sup>					
1	1.447	0.007*	4.251	1.480	12.207
2 – 3	2.298	<0.001*	9.949	4.475	22.118
≥ 4	2.696	<0.001*	14.820	6.504	33.768
Know if place of delivery can adversely affect health of mother and child (YES)	0.646	0.099	1.908	0.885	4.110
Delivery at health facility is beneficial and safer (YES)	1.547	<0.001*	4.697	2.138	10.318

**B: Coefficient of regression; OR: Odds ratio; 95% CI: 95% Confidence Interval; REF: Reference Category Predictive value: 87.4%; R<sup>2</sup>: 0.655**