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Original Article

Determinants of Facility-Based Delivery Among Pregnant Women Attending the Tertiary Hospital in Ondo State, South West, Nigeria.

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Abstract

Background: A significant number of pregnant women in developing countries like Nigeria do not have the opportunity of giving birth in health facilities where their delivery can be supervised by skilled birth attendants, which is a major factor contributing to maternal mortality. **Aim**: The aim of this study was to assess the determinants of institutional births among pregnant women in Ondo State. **Methods**: This study was a cross- sectional study conducted at the University of Medical Sciences Teaching Hospital Complex located in Akure and Ondo town between July and September 2023. A semi-structured questionnaire was used to obtain information by trained research assistants and the data collected were analysed using Statistical Package for Social Science Version 22. Descriptive statistics were computed for all relevant variables and Chi-Square test was used to derive factors responsible for institutional births with the level of significance set at $p < 0.05$. **Results:** A total of 205 pregnant women were recruited into the study. A larger proportion of them; 193(94.1%) attended antenatal clinic (ANC) and 184(89.7%) had their last delivery in health facilities. Determinants of health facility were age: younger women (61.4%) had facility delivery compared to older women (31.5%) (P=0.722). Married women (P=0.261), living in urban area and religion had association but were not statistically significant (P>0.05) while occupation (traders, civil servants and artisans) had significant association (P=0.002) in addition education. The client's partner's age, tertiary level of education, family resources, health insurance and monogamous family setting had association but were also not statistically significant(P>0.05). Others were being able to deliver in a friendly environment that allows labour companionship. **Conclusion:** Most of the pregnant women had facility delivery which could be due to government's policy on user fee removal and improved lifestyle. The determinants for this were; having tertiary level of education, living in urban areas, having high family income, health insurance coverage, having antenatal care and being able to deliver in a friendly environment that allows labour companionship. Efforts need to be intensified to encourage women to deliver at health facilities.

Key words: Determinants, Facility Delivery, Pregnant Women, Ondo State.

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Introduction

Maternal mortality is a major concern in developing countries particularly in the sub-Saharan countries because a significant number of women do not have the opportunity to be attended to by skilled birth attendants (SBA) during childbirth [1,2]. This results in high maternal mortality in this part of the globe [2] as there is preference for home-based delivery carried out by unskilled birth attendants [2]. The World Health Organization (2019) reported that 810 women died from pregnancy related complications and childbirth globally [3]. Nigeria is presently the global capital of maternal mortality contributing 23% of the global maternal deaths (67,000 out of 300,000) in 2015 [4]. India which is 7 times the population of Nigeria came a distant second with a total maternal mortality of 35,000 [4] in the same year. The use of health facilities still remains low with 69% of young women still opting for home-based delivery [1], because it is perceived to be cheaper with its attendants' complications [5].

This trend calls for urgent concern globally and against this backdrop, successive government and non-governmental organizations and International Donor agencies have launched various programmes/ interventions over the years to reduce maternal mortality ratio (MMR) in the country [6]. Nigeria has always been part of the global effort for reducing the high MMR in developing countries [6] from the launching of Safe-Motherhood Initiative (SMI) in 1987 [7] through the Millenium Development Goal (MDG) 5 [8] to the Sustainable Development Goal (SDG) 3 [9]. The SMI was designed to improve maternal health and cut the number of maternal deaths in half or (50%) by the year 2000. The 6 pillars of SMI include: family planning, ANC, skilled birth attendance (obstetric care), post natal care, post abortion care and STD/HIV control. Skilled birth attendance is a key factor in reducing maternal mortality [10]. The MDG 5 called for 75% reduction in MMR of the number of maternal deaths per 100,000 live births between 1990 and 2015 [8]. This remains a challenging target as some of the programmes were poorly implemented particularly in Nigeria [6]. The consequence of this is failure of reduction of MMR in the last 3 decades. In 2015, a report by the WHO, the United Nation Population Fund (UNFPA) and the World Bank showed that Nigeria had not made any significant progress at the end of the MDG period [11]. The SDG 3 was then initiated in 2015 to reduce MMR to less than 70 per 100,000 live births by 2030 [9]. Unfortunately, all these programmes have not yielded significant positive results.

The Nigeria Demographic and health survey (NDHS) of 2008 showed that Ondo state had the worst maternal outcomes in the South Western region of Nigeria [12]. In order to address these problems, the Ondo State government implemented the "Abiye" (safe motherhood) programme in 2010 [13]], which included user fee removal, community engagement and health system strengthening (political will). Maternal health services utilization subsequently improved following the implementation of the "Abiye" initiative as evidenced by the report of the NDHS: majority of births (85.6%) took place in health facilities compared to only 56.5% in NDHS 2013 [12] which represented a 29.1% increase in reducing maternal mortality. Sadly, many of the laudable programmes executed by the state government such as the "Abiye" programme in Ondo state [14] were not sustainable and ended with the regime of the government that started them.

The trend in recent times seems to be high antenatal clinic attendance (ANC) which may not translate to facility delivery [15]. This is worrisome as some women still opt for non-facility delivery even after booking for ANC only to come back to health facility when complications arise. According to NDHS 2018 [16] only 39% of Nigerian women give birth in health facilities which may explain why maternal deaths in Nigeria has remained high [16]. Also, the strategies/initiatives which have been universally acclaimed to bring success in other countries, with reduction of maternal mortality are not really helpful in Nigeria because of the use of inappropriate and poorly implemented strategies [6]. As the causes of maternal mortality in Nigeria are multi-factorial and previous laudable programmes such as "Abiye " programme in Ondo State got stalled because it was not sustainable due to lack of funding. The political will that birthed the programme was through a top- to-bottom approach in which the visioner was the political leader and the Will died at the end of the tenure [6] and the commitment of the NGOS has also hit the snag : There may be need to look at it , the other way round(the Bottom-Up) approach to tackle this hydraheaded problem, where the individual factors, household and community contextual factors and stakeholders(doctors and nurses) at the lower level may cause a paradigm shift.

Hence the need to identify and find out reasons for this trend as there could be other factors such as demographic, social, economic, obstetrics aside health system factors [17] and political Will that influence facility delivery. This is imperative, if we must achieve the SDG3 target. The study is therefore aimed at assessing the determinants of institutional based delivery among pregnant women.

Materials and Methods

Study Area: The study took place at the University of Medical Sciences Teaching Hospital Complex located in Akure and Ondo between July and September 2023. Ondo state is located in the South Western region of Nigeria and populated mainly by Yoruba speaking people of Nigeria. The major occupation of the people of Ondo State includes fishing, farming, trading and civil service. The state has higher proportion of urban dwellers than rural dwellers.

Study Design: It was a cross-sectional study which was carried out at the University of Medical Sciences Teaching

Hospital Complex in Akure and Ondo township in Ondo State.

Study Population: The pregnant women who have had at least a child and attending antenatal clinic at the teaching hospital in either Ondo town or Akure.

Sampling method: Women were randomly selected at the health facilities until the sample size was reached.
Sample size: The sample size was calculated using the Kish Leslie's formula ($n=z^2pq/d^2$), with a standard normal deviate (Z) of 1.96 at 95% confidence level, P of 87.5% (prevalence of home deliveries in a previous Nigerian study) [18], q being 12.5 %(1-p) and degree of accuracy (statistical assumption of a type 1 error state) of 0.05. This gave a sample size of 168. Adding 20% for non-response, the total sample size was increased to 205.

Ethical Approval: The ethical approval for this study was obtained from the ethics committee of the University of Medical Sciences Teaching Hospital Complex, Ondo State. Consent to participate in the study was obtained from every participant.

Inclusion Criteria: Pregnant women who have delivered before and now attending antenatal clinic at the Ondo and Akure complex of the teaching hospital and those who gave consent to participate in the study were recruited.

Exclusion Criteria: Women in their first pregnancy, women who were sick or have mental illness and those who could not give consent to participate were excluded.

Data collection: Pregnant women were randomly recruited at the antenatal clinics of both complexes of the teaching hospital. The antenatal clinic in Ondo complex is run three times in a week while that in Akure complex is run twice in a week. Only mothers who have had at least a child were recruited using semi-structured questionnaires which were administered by trained research assistants. A total of 205 pregnant women were interviewed in both complexes. The questionnaires were pre-tested on 20 mothers before the commencement of the study.

Data collection continued for a period of three months until the sample size was reached. Data analysis was done using the Statistical Package for Social Sciences (SPSS Version 22). Descriptive statistics were completed for all relevant variables and chi-square test was used to derive factors for the utilization of health facilities for births. The level of significance was set at $p<0.05$.

Results

The socio-demographic characteristics of the respondents showed that a larger proportion of them were in the age range of 25-34years (125, 61.0%) with a mean age of 29.5±2.64 years. Majority of them were married (201, 98.0%), were Christians (176, 85.9%), lived in the urban areas (161, 78.5%) and were mostly traders (84, 41.0%) followed by civil servants (45, 22.0%) Majority had health insurance (108, 52.7%) and monthly income of greater than #30,000 (150, 73.2%) Many of the women and their partners had tertiary level of education, 131(63.9%) and 138(67.3%) respectively. This is shown in Table 1

The obstetrics characteristics of the respondents showed that many have had one parous experience (100, 48.8%) followed by two parous experiences (71, 34.6%). A larger proportion of them had antenatal care (ANC) in their previous pregnancies (193, 94.1%) and (184, 89.7 %) delivered in a healthy facility with less complications following their delivery (28, 13.7%). Many of them have had 1-2 children (147, 71.7%), many registered early for ANC in their second trimester (117, 57.1%) and received ANC in this pregnancy (187, 91.2%) as shown in Table 2 and Figure 1.

The reasons by a larger proportion of the respondents for delivery at the health facilities were: low cost of health services, adequate security, and friendly attitude of the health care workers (HCW), good quality service and providers were readily available. Many (184, 89.8%) were in favour of facility delivery. A high proportion of the respondents however, indicated that there was no labour companion. See table 3 below.

Factors found to be associated with health facility delivery were age; younger women (113, 61.4%) had facility delivery compared to older women (58, 31.5%, P=0.722). Also, more of those with tertiary education were the ones who chose to have Institutional births compared to others (P=0.163). Marital status was also an influencing factor. Married women chose to have facility delivery (P=0.261), living in the urban area and religion (Christianity) had association with Health facility delivery but were not statistically significant (P>0.05) while occupation had significant association (P=0.002) as shown in Table 4.

The client's partner's age(advanced), tertiary education, family resources, health insurance coverage and monogamous family setting had association with Institutional births but were also not statistically significant (P>0.05) as shown in Table 5.

Table 1: Socio-demographic Characteristics of the Women and their Partners

Characteristics	Frequency (n)	Percentage (%)
Client's Age		
15-24	14	6.8
25-34	125	61.0
35-44	65	31.7
≥45	1	0.5
Partner's Age		
15-24	2	1.0
25-34	60	29.3
35-44	117	57.1
≥45	26	12.7
Occupation		
Artisan	33	16.1
Civil Servant	45	22.0
Farmers	4	2.0
Traders	84	41.0
Housewife	8	3.9
Others	31	15.1
Marital Status		
Single	3	1.5
Married	201	98.0
Widowed	1	0.5
Religion		
Christianity	176	85.9
Islam	24	11.7
Traditional	1	0.5
Others	4	2.0
Client's Level of Education		
Primary	11	5.4
Secondary	63	30.7
Tertiary	131	63.9
Partner's Level of Education		
No formal education	4	2.0
Primary education	7	3.4
Secondary education	56	27.3
Tertiary education	138	67.3
Place of Residence		
Urban	161	78.5
Semi-urban	33	16.1
Rural	11	5.4
Ethnic Group		
Yoruba	176	85.9
Hausa	3	1.5
Igbo	16	7.8
Others	10	4.9
Family Resources (Monthly income in #)		
5,000-10,000	17	8.3
11,000-20,000	14	6.8
21,000-30,000	24	11.7
>30,000	150	73.2
Health insurance		
Yes	108	52.7
No	97	47.3
Family Type		
Monogamy	188	91.7
Polygamy	17	8.3

Table 2: Obstetrics Characteristics of the Women

Characteristics	Frequency (n)	Percentage (%)
Parity		
1	100	48.8
2	71	34.6
3	23	11.2
4	8	3.9
≥5	2	1.0
Gestational age		
First trimester	49	23.9
Second trimester	117	57.1
Third trimester	38	18.5
Number of Children		
1-2	147	71.7
3-4	53	25.9
≥5	5	2.4
Mode of Previous delivery		
Spontaneous Vaginal delivery (SVD)	160	78.0
Caesarean Section (C/S)	45	22.0
Complications following delivery		
Yes	28	13.7
No	177	86.3
Type of complications		
Bleeding (PPH)	13	46.4
Infections	6	21.4
Others	9	32.2
Received ANC in last pregnancy		
Yes	193	94.1
No	12	5.9
Received ANC in this pregnancy		
Yes	187	91.2
No	18	8.8

Figure 1: Showing the place of Last Delivery of the Respondents

Table 3: Determinants of Delivery Locations among Respondents

Determinants	Frequency (n)	%	Yes	No
lack of transport	42	10.2	21	36
High cost of health services	48	11.7	24	38
Unfriendly attitude of HCW	30	7.3	15	46
No security	26	6.3	13	37
Long distance to health facility	58	14.1	30	30
Poor quality of health service	36	8.8	18	32
Facility not open	36	8.8	18	31
Lack of HCW	36	8.8	18	31
Poor roads	40	9.8	20	33
Preference for home delivery/ TBA'S	20	4.9	10	6
No reason	20	4.9	10	6
Culture forbids	10	2.4	5	9
No labour companion	14	2.0	7	6

Multiple responses applied. HCW: Health care workers.

Table 4: Association between Socio-demographic Characteristics of the Clients and Delivery Locations

Characteristics	Delivery Location		X^2	P
	Health facility 184 (89.8%)	Non-Health facility 21 (10.2%)		
Client Age				
15-24	12(6.5%)	2(9.5%)	8.773	0.722
25-34	113(61.4%)	11(52.4%)		
35-44	58(31.5%)	7(33.3%)		
≥45	1(0.5%)	1(4.8%)		
Occupation				
Artisan	30 (16.3%)	3 (14.3%)	25.271	0.002
Civil servant	41 (22.3%)	4 (19.0%)		
Farmers	4 (2.2%)	-		
Trading	76 (41.3%)	8 (38.1%)		
Housewife	7 (3.8%)	-		
Others	26 (14.1%)	5 (23.8%)		
Marital Status				
Single	2 (1.1%)	1 (4.8%)	10.060	0.261
Married	181 (98.4%)	19 (90.5%)		
Widowed	1 (0.6%)	1 (4.8%)		
Religion				
Christianity	158 (85.9%)	17 (81.0%)	6.347	0.898
Islam	22 (12.0%)	2 (9.5%)		
Traditional	1 (0.5%)	1 (4.8%)		
Others	3 (1.6%)	1 (4.8%)		
Level of Education				
Primary	10 (5.4%)	1 (4.8%)	11.744	0.163
Secondary	59 (32.1%)	4 (19.0%)		
Tertiary	115 (62.5%)	15 (71.4%)		
Place of Residence				
Urban	142 (77.2%)	18 (85.7%)	8.929	0.348
Semi-Urban	32 (17.4%)	1 (4.8%)		
Rural	10 (5.4%)	1 (4.8%)		
Ethnic group				
Yoruba	159 (86.4%)	16 (76.2%)	10.858	0.541
Hausa	2 (1.1%)	1 (4.8%)		
Igbo	14 (7.6%)	2 (9.5%)		
Others	9 (5.0%)	1 (4.8%)		

Table 5: Association between Socio-demographic Characteristics of Client's Partners and Delivery Locations

Determinants	Frequency (n)	%	Yes	No
lack of transport	42	10.2	21	36
High cost of health services	48	11.7	24	38
Unfriendly attitude of HCW	30	7.3	15	46
No security	26	6.3	13	37
Long distance to health facility	58	14.1	30	30
Poor quality of health service	36	8.8	18	32
Facility not open	36	8.8	18	31
Lack of HCW	36	8.8	18	31
Poor roads	40	9.8	20	33
Preference for home delivery/ TBA'S	20	4.9	10	6
No reason	20	4.9	10	6
Culture forbids	10	2.4	5	9
No labour companion	14	2.0	7	6

Discussion

The findings from this study showed that 89.8% of the respondents had delivery at the health facilities. This result is in contrast with the findings in Calabar where 52% had facility delivery [15]. The socio-demographic and maternal characteristics showed that most of the pregnant women were younger, educated, and lived in urban areas of Ondo State. Educated women are more likely to choose health facility for birth as revealed in previous studies [19, 20]. Education and information are interlinked because assimilation of health messages is a function of the educational level of an individual therefore more attention should be drawn to educational status of the women [21]. Many of the women were found to live in the urban areas of Ondo State which probably provided access to information on pregnancy related complications which in turn contributed to their utilization of health facility for delivery as reported in a similar study [22].

The study showed that 94.1% had ANC in their previous delivery and 89.8% had their last delivery in health facilities. This is at variance with a study conducted in Zaria [23] where adequate ANC attendance during pregnancy did not significantly influence hospital delivery [23]. The proportion of women who had institutional births in this study (89.9%) shows a significant improvement from the 39% reported by the NDHS of 2018 for health facility [16]. This has also surpassed the 80% recommended by SDG 3 of reducing maternal mortality [9] by the year 2030.

Several factors could have contributed to this great feat in Ondo State among which include improvement in the reproductive services; the "Abiye" Safe motherhood programme [12] and the political Will. Long after the expiration of the administration that implemented the programme, the percentage of pregnant women who utilize health facility is still high because maternity care is still being subsidized by the successive governments as shown in this study.

The study also showed that other socio-demographic factors such as maternal age and paternal age, obstetrics and health systems factors are major predictors of childbirth in health facilities. Traders (41%), civil servants (22%) and artisans (16.1%) were among respondents that topped the list of those who patronized health facilities. This showed that women's employment status (as civil servants) has a strong relationship with facility delivery. This is in line with a study conducted in sub-Saharan African countries [24]. This is in contrast to other studies where women of lower socio-economic status choose non-facility delivery [2, 25].

Early ANC registration and regular ante-natal visits may predict probability of delivery in health facility [26, 27]. This study also showed that younger age is a major determinant of institutional births and this is in agreement with a similar study [15], probably the older women feel they are more experienced and may decide to opt for other delivery outlets.

Furthermore, our study also showed that multiparity was a negative predictor of health facility delivery which was similar to a study in Tanzania which showed that hospital supervised delivery was higher among women with low parity as compared to their high parity counterparts [27]. This is in contrast with the Ghana Demographic Health Survey analysis which revealed that multiparous women had increased tendency to deliver at a health institution than low parity women [28]. This may also increase their confidence to deliver in a non- health facility.

Majority of the respondents booked early in their second trimester (57.1%) and first trimester (23.9%). Early ANC registration and regular visits may predict the utilization of an orthodox health facility for delivery. Access to other reproductive services during ANC may promote institutional service utilization [26, 27], as shown in this study. Several of the respondents also experienced positive providers approach from this study; this is in keeping with studies in Ghana and Ethiopia [28]. The findings from this study provide an opportunity for attitudinal change among health workers to ensure quality maternal and newborn care in health facilities.

Tertiary level of education in the couple, health insurance coverage [1], high family income [1] and companionship in labour [29] are other factors that can also promote institutional births as unveiled in this study.

Conclusion

The study showed that many of our women attended antenatal care and had health facility delivery. It is possible that the Ondo State "Abiye" Safe motherhood programme has helped to achieve this. The major predictors of the utilization of health facility for child birth among the respondents were having tertiary level of education, living in urban areas, having high family income, health insurance coverage, having antenatal care and being able to deliver in a friendly environment that allows labour companionship. Friendly environment should be created by the stakeholders (doctors and nurses) as well as labour companionship which should form part of the National guidelines.

Efforts should be intensified to improve on the welfare of the citizens especially at this time of economic hardship, in order to allow pregnant women, access quality and respectful maternity care.

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Conflicts of Interest: The authors declare no conflict of interest.

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