

FACTORS CONTRIBUTING TO HOME DELIVERY AMONGST WOMEN UTILIZING ANTENATAL SERVICES IN JOS UNIVERSITY TEACHING HOSPITAL

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ABSTRACT

Background: Unskilled home delivery is a threat to maternal and child health and one of the factors associated with the very high maternal and fetal mortality is the occurrence of home deliveries as they are largely unplanned, accidental and unhygienic. The objective of this study was to determine the prevalence of home delivery among antenatal clinic attendees as well as factors contributing to their choice of place of delivery.

Methods: This was a cross sectional descriptive study that sampled the opinions of three hundred and forty (340) consenting pregnant women in Jos University Teaching Hospital using pretested and semi structured questionnaires which were self administered. Chi-squared test of statistical significance was used to determine relationships between relevant variables with p value set at 0.05.

Results: The prevalence of home delivery was 23.5% and high cost of hospital deliveries was the most predominant reason for home deliveries by the participants (76.5%). Other reasons for home delivery included unexpected labour (75.6%), long distance from the health facility (66.5%) and unfriendly attitude of health workers (49.1%) amongst others. Home deliveries were significantly associated with low educational attainment ($p < 0.0001$), polygamous family setting ($p < 0.05$), Hausa Fulani ethnicity ($p < 0.0001$), Islamic religion ($p < 0.0001$) and petty trading ($p < 0.0001$). Obstetric complications were also more likely when respondents delivered at home compared to hospital deliveries.

Conclusion: The high prevalence of home deliveries attributable to the inability of women to afford the cost of hospital deliveries shows the need for a subsidization of maternal and child health services, improved economic empowerment of women and elimination of bureaucracy and bottlenecks that increase the cost of institutional deliveries.

Key Words: Home, Delivery, Knowledge, Complication, Antenatal, Jos, Nigeria

INTRODUCTION

For more than 20 million women each year, pregnancy and childbirth mean suffering, ill health or death¹. Recent estimates suggest that more than 500,000 women die annually of pregnancy related complications; ninety nine percent (99%) of those deaths occur in less developed regions particularly Africa and Asia.¹

Labour or human parturition is the physiological process that results in birth of a baby, delivery of the placenta and the signal for lactation to begin.² Unskilled home delivery is a threat to maternal and child health. The vast majority of women who deliver outside the health facilities, give birth at home and in developing countries, one of the factors associated with the very high maternal and

fetal mortality is the occurrence of home deliveries as they are largely unplanned, accidental and unhygienic.^{3,4,5,6} In Northern Nigeria, many pregnant women attend antenatal care but opt to deliver at home despite knowing the potential consequences.⁷ Widespread home delivery amongst women of child bearing age and the low use of reproductive health services ensures that Nigeria continues to witness a high maternal-mortality ratio.⁶

Health facility delivery has been described as one of the major contributors to improved maternal and child health outcomes.^{8,9} Eighty five percent of maternal mortality in Africa are a direct result of complications arising during pregnancy, delivery or the puerperium and in sub Saharan Africa where 66% of the global maternal mortality occurred, only 56% of all births take place in health facility.^{9,10} Data from 2013 Nigeria Demographic and Health Survey involving 20,192 women revealed that non-utilization of health service for delivery is influenced by individual, community and state level factors, with substantial proportions of women not utilizing such service residing in the Northern Nigeria.^{8,9} Factors such as knowledge of pregnancy and health risks, importance given to pregnancy, earlier health facility use, pre-birth visits and pregnancy complications, can affect whether a woman perceives the need for institutional delivery.¹¹ Culture, local myths and misconceptions about pregnancy and birth have been noted as factors deterring health care seeking. If health care providers are familiar with different ideas, rituals and behavioral restrictions and proscriptions, they will be able to communicate with the women, enabling them make an informed choice.¹¹

Access to quality health care during pregnancy and in particular, during delivery is a crucial factor in explaining the huge disparity in maternal and perinatal mortality and morbidity between developing and the industrialized world.¹² In developing countries, about 35% of women have no antenatal care during pregnancy, almost 50% give birth without skilled attendants and 70% receive no postpartum care.^{8,10} Sixty percent of home

deliveries in these countries take place in rural areas with unskilled attendants.¹⁰

A 2013 community based cross-sectional study conducted amongst 140 pregnant women in Russia village of Jos North, Nigeria on the factors determining the choice of a place of delivery among pregnant women revealed that 39.3% of the women opted for home delivery.⁶ The determinants of choice of delivery place revealed by the study included the cost of hospital bill (93.6%), unfriendly attitude of health care workers (61.4%), unexpected labour (75%), distance to health care centers (36.4%), and failure to book for antenatal care (10.7%). No reason was given by 3.6% of the women.⁶

A retrospective analysis of the complications of home delivery conducted in Nepal, where attendance at delivery by skilled health workers was only 6%, revealed that complications associated with home deliveries were retained placenta (84.1%), postpartum haemorrhage (10.2%) and peri-natal mortality which was 65.9/1000 births (compared to 29.4/1000 in hospital delivered cases). The study showed that home deliveries were associated with increased maternal morbidity especially the third stage complications.¹³

Home births are always a source of controversy, eliciting strong reactions from proponents and opponents.¹⁴ The ideal place and organization of care provision has not been established¹⁵. Even though it is an established fact that women need care by a skilled health professional during pregnancy and childbirth to identify, prevent and treat health issues for her and her baby should they arise, we do not know if providing that care at home is as safe as in a hospital, particularly in poorer and developing countries.¹⁵ Studies done in developed countries have shown that home birth is safe for normal, low risk women, with adequate infrastructure and support i.e. given a well trained midwife and facilities to transfer to hospital if necessary.¹³

The World health organization recommends a two-tier maternity care system involving first-level care in community facilities, with back up hospital

care.¹⁵ Outside of high income countries, birth outside of hospitals is more common, and access to medical facilities and obstetricians may be restricted by a lack of many factors such as recognition of need, availability, transport, finances, or culturally or socially appropriate care.¹⁵ According to UNICEF, only 59% of births in west and central Africa are attended by skilled personnel.¹⁶ The unavailability of essential medical services at home, as well as the lack of proper supervision, in low-middle income countries makes home deliveries a significant risk factor for maternal and peri-natal morbidity and mortality.¹⁷ The home environment as a place of delivery in developing countries is shown to be unsafe. As such, monitoring deliveries in health facilities is essential to ensuring that women receive quality care and deliver in an environment that is prepared for an emergency.^{16,17} A recent large meta-analysis of mostly cohort studies (500,000 births) showed a doubling of the risk of excess neonatal deaths for home birth from 0.09% to 0.2%- one extra death in 900 births.¹⁷ Sub-Saharan Africa unfortunately has the lowest number of births taking place in a health facility and continues to bear the highest burden of maternal and newborn deaths.¹⁶ Considering the need for supervised deliveries in achieving the targets of sustainable development goal number 3, which entails ensuring healthy living and promotion of well-being for all at all ages,¹⁶ it is crucial to explore the factors that influence the choice of place of delivery in developing countries and as such availability of skilled attendance and emergency obstetric care when needed. Very few qualitative studies have explored women's need for supervised delivery services.¹⁸

METHODS

Study design: This study was a cross sectional descriptive study that evaluated the factors contributing to home delivery by pregnant women attending antenatal care clinic. The study was a facility – based study that was conducted in the Jos University Teaching Hospital. The Jos University Teaching Hospital (JUTH) is located in Lamingo,

Jos East Local Government Area of Plateau State. It was established in June, 1981 and presently has a bed space capacity of six hundred and thirty-four beds.

Study setting: The Obstetrics and Gynaecology department serves as one of the major providers of antenatal care services in Plateau State which is situated in North Central Nigeria. The state has 904 primary health care facilities, 59 secondary health facilities and 2 tertiary health facilities, one of which is the Jos University Teaching hospital.¹⁹ It serves as a referral center for complicated pregnancies that require expert care both within the state and for neighboring states like Bauchi, Nasarawa and Taraba.¹⁹ The department runs antenatal care clinics from Mondays to Thursdays every week with about four thousand one hundred pregnant women registering for antenatal care clinics annually.⁶

Study Population: The study population for this study comprised of women that register for antenatal care clinics annually in Jos University Teaching Hospital. The women come from within the state and neighboring states, are of different ethnic/religious groups, socioeconomic status, ages, educational background and at different stages of their pregnancies.

Inclusion Criteria: All pregnant women at all gestational ages with at least one prior health facility or home delivery.⁷

Exclusion Criteria: Nulliparous women

DATA COLLECTION TOOL

Data was collected with a pretested questionnaire. The questionnaire had twenty-nine (29) questions distributed into six sections (A – F) namely: socio-demographic characteristics, reproductive characteristics, Outcomes of home delivery, Outcomes of hospital delivery, knowledge of complications of unsupervised home delivery, Awareness of the benefits of hospital delivery.

SAMPLING TECHNIQUE

A consecutive sampling technique was employed for this study. This involved recruiting women that met inclusion criteria for the study on a daily basis as they came for their antenatal care clinic until the required sample size was achieved.

PROCEDURE FOR DATA COLLECTION

The pretested semi structured questionnaires were issued to the consenting pregnant women who met the inclusion criteria by the Nursing staff of the booking clinic, trained for data collection, after the researcher had obtained informed verbal and

written consent for the study. The questionnaires were self-administered and clarifications were provided by the researcher whenever requested for. Interviews were given and the questionnaires filled by the Nursing staff for women who could not read and write.

SAMPLE SIZE DETERMINATION

The sample size for this study was estimated from the formulation for determining sample size in observational studies as follows.²⁰

$$\text{Sample size} = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

$Z_{1-\alpha/2}$ = Is the standard normal variate (at 5% type 1 error (P < 0.05) it is 1.96.

p = Expected proportion in population based on previous studies or pilot studies.

74.1% is the prevalence obtained for home deliveries in a more recent study in Kano, Nigeria as such p = 0.74.⁷

d = Margin of error or precision. We set the margin of error as 5%.

$$\begin{aligned} &= \frac{1.96^2 \times 0.74 \times (1 - 0.74)}{0.05^2} \\ &= 0.73912384 / 0.0025 \\ &= \mathbf{295 \text{ samples}} \end{aligned}$$

The minimum sample size therefore required for this study was 295.

An attrition rate of 10% was used to avoid bias and ensure validity of the results.²¹ This was added to the minimum sample size obtained. That is 10% of 295 which is equal to 29.5. The total sample size required was therefore 29.5 + 295 = 324.5

This was rounded up to 350 samples. Ten questionnaires were not properly filled as such only 340 questionnaires were analyzed.

The data obtained was entered directly into and analyzed using the statistical package for the social sciences software version 23 (SPSS Inc, Chicago, IL). When analyzing the respondents knowledge of birth complications associated with home delivery, individual scores of the respondents were summed

up and those who had a score of 70 to 100% were classified as having good knowledge of these complications, those who score 50 to 69%, had a fair knowledge while those who scored less than 50% had a poor knowledge.

Ethical Issues: Ethical approval to conduct this study was obtained from the JUTH Health Research Ethics committee, Jos Plateau state with reference number JUTH/DS/IRE/127/XXXI/547. In addition, verbal informed consent was obtained from each respondent.

RESULTS

TABLE 1: Socio-demographic characteristics of pregnant women interviewed at the Antenatal clinic of Jos University Teaching Hospital (n= 340)

Variables	Frequency (n)	Percentage (%)
Age group (years)		
<20	3	0.9
20-29	155	45.6
30-39	170	50.0
40	12	3.5
Religion		
Christianity	180	53.9
Islam	160	47.1
Marital Status		
Unmarried	15	4.4
Married	325	95.6
Occupation		
Civil servant	83	24.4
House wife	101	29.7
Business	69	20.3
Student	30	8.8
Tailor	21	6.2
Others	36	10.6
Level of education		
Primary	36	10.6
Secondary	122	35.9
Tertiary	155	45.6
Islamic	12	3.5
No formal education	15	4.4
Family monthly income (naira)		
6,000 – 10,000	39	11.5
11,000 – 30,000	155	45.6
> 30,000	146	42.9

Type of Family		
Polygamy	109	32.0
Monogamy	231	67.9
Ethnicity		
Hausa Fulani	168	49.4
Berom	36	10.6
Yoruba	21	6.2
Mwaghavul	18	5.3
Taroh	15	4.4
Afizere	15	4.4
Others	67	19.7

From table 1 above, pregnant women aged between 30 – 39 years made up 50% of the study population, with the teenage age group accounting for the least number of those studied. Furthermore, Christian and Muslim population were nearly equal in proportion with the Christians accounting for 52.9% of the population and the Muslims accounting for 47.1%. It can also be seen that most of the respondents (95.6%) were married. Only 4.4% were unmarried. Notably, a significant number of the respondents (45.6%) had completed tertiary education. Only 4.4% of the respondents

had no formal education.

Most of the women (45.6%) were from families whose total income did not exceed the current minimum wage of 30,000 naira in Nigeria and monogamous family setting dominated the study population (67.9%) while polygamous setting was 32.1%.

Hausa Fulani ethnic group had the highest number of participants (49.4%). Other ethnic groups were Berom (10.6%), Yoruba (6.2%), Mwaghavul (5.3%), Taroh (4.4%), Afizere (4.4%) and others.

Table 2: Distribution of the participants by obstetric history

Variable	Frequency	Percentage
Parity		
0	6	1.8
1 -2	194	57.1
3 - 4	108	31.8
	32	9.4
Number of Booked Pregnancies		
0	9	2.6
1 – 2	205	60.3
3 - 4	105	30.9
	21	6.2
No. Of previous Home deliveries		
0	260	76.5
1 – 2	57	16.8
3 – 4	15	4.4
	8	2.4
Number of booked pregnancies that were delivered at home		
0	260	76.5
1 – 2	60	17.6
3 – 4	15	4.4
	5	1.5
Number of home deliveries attended by a health worker		
0	3	3.8
1 – 2	62	77.5
3 – 4	15	18.7

Table two above shows that more than half of the participants had a parity of 1 – 2 and most of them (97.4%) had booked at least one pregnancy in the past. An overwhelming majority had experienced hospital delivery with only 8.8% of the participants delivering entirely outside the hospital.

Figure 1 below shows that twenty three percent of the respondents have had home delivery in the past, whereas 76.5% have never had a home delivery.

Although most of the respondents (76.5%) never proceeded to deliver at home after utilizing antenatal care, 23.5 % of booked pregnancies were eventually delivered at home. Notably, most of the respondents (96.2%) had their home deliveries attended by a health worker (Figure 1).

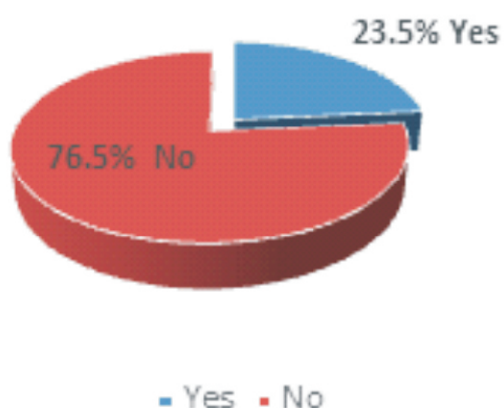


Figure 1: Distribution of Participants by Home delivery

Table 3: Relationship between socio-demographic characteristics and Home delivery

Variable	Total number	Number who had home delivery	Percentage who had home delivery
Age group			
<20	3	3	100
20 - 29	155	39	25.2
30 - 39	170	32	18.8
.	12	6	50
$\chi^2 = 14.094$		p= 0.000	
Ethnicity			
Berom	36	3	8.3
Hausa Fulani	168	74	44.0
Mwagavul	18	3	16.7
Others	118	0	0
$\chi^2 = 75.438$		P= 0.000	
Religion			
Christianity	180	12	6.7
Islam	160	68	42.5
Total	340	80	49.2
$\chi^2 = 60.448$		P=0.000	
Occupation			
Civil servant	83	14	16.9
House wife	101	42	41.6

Petty trader	3	3	100
Business	69	12	17.4
Student	30	6	20
Tailor	21	3	14.3
Farmer	6	0	0.0
Others	27	0	0.0
$\chi^2= 40.411$		P= 0.000	
Level of Education			
Primary	36	15	41.7
Secondary	122	44	36.1
Tertiary	155	15	9.7
Islamic	12	6	50.0
No Formal Education	15	0	0.0
$\chi^2= 44.775$		P=0.000	
Type of Family			
Polygamy	109	35	32.1
Monogamy	231	45	19.5
$\chi^2= 6.565$		P=0.037	

Table 3 above shows that statistically significant relationships were established between home delivery and extremes of ages (< 20 years and > 40 years), Hausa Fulani ethnicity, Islamic religion, Petty traders, low educational achievement and polygamous family setting.

Table 4: Comparison of Complications Experienced Following Hospital and Home Delivery

Complications	Following home delivery (n=80)	Following Hospital delivery(n=260)
Neonatal death	21.3%	4.2%
Postpartum haemorrhage	26.3%	5.4%
Birth Asphyxia	3.8%	3.1%
Neonatal Birth Injuries	10.0%	5.8%
Maternal Birth Injuries	22.5%	8.1%
Puerperal sepsis	30.0%	7.3%

Some of the participants had more than one birth related complication. Table 4 above shows that participants were more likely to experience birth-related complications if the delivered at home. Major complication following home delivery were; Postpartum maternal infection (30.0%), Postpartum haemorrhage (26.3%), Maternal birth

injuries (22.5%), neonatal death (21.3%) and Neonatal Sepsis (15.0%).

Some of the participants' (11.3%) who attempted home deliveries had to be referred to the hospital due to prolonged labour

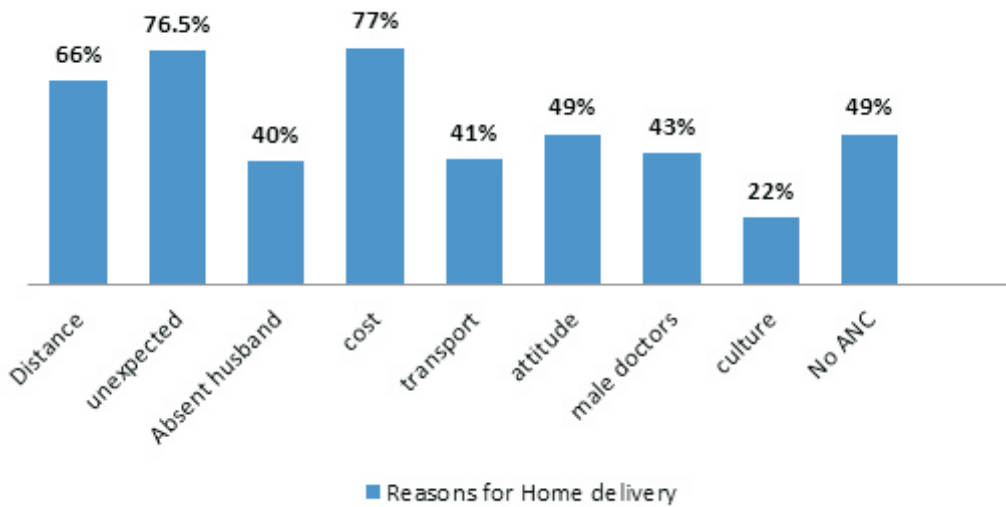


Figure 2: Reasons for Home delivery

Figure 2 above shows that most of the participants (76.5%) considered the high cost of hospital deliveries to be a reason for home deliveries. Other reasons were; unexpected labour (75.6%), long distance from health facility (66.5%) and unfriendly attitude of health workers (49.1%) amongst others.

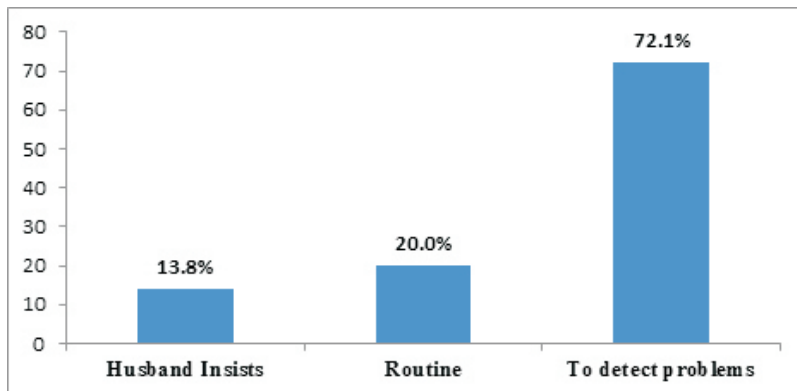


Figure 3: Reasons for Antenatal visits despite intention to deliver at home

Figure 3 above shows that most of the women gave more than one reason for antenatal clinic attendance despite intention to deliver at home. Most of the participants (72.1%) who have had home deliveries in the past attended Antenatal clinics despite their intention to deliver at home because they believed that Antenatal care help to detect any likelihood of complications during the pregnancy, labour and delivery.

Table 5a : General Knowledge of the risks and complications associated with unsupervised home deliveries

Complications	Knowledge (%)
Prolonged labour	78.2%
Obstructed labour	53.8%
Worsening of Hypertension, Diabetes or other medical conditions in the mother	69.4%
Baby might acquire an infection at birth	87.9%
Baby might be injured during the delivery	88.8%
Mother might sustain a tear or be injured at birth	86.2%
Mother might acquire an infection during the delivery	92.1%
The baby might die during the delivery	85.0%
The mother might bleed excessively during/after the delivery	92.1%
The mother might die during the delivery	89.4%

Table 5a above shows that generally, the participants had good knowledge of risk factors associated with home deliveries. Majority (92.1%) were knowledgeable about the fact that mother might acquire an infection during the delivery and that the mother might bleed excessively during/ after the delivery (92.1%). Figure 4 below shows that majority (85.3%) had good knowledge, 7.6% had fair knowledge while 7.1% had poor knowledge respectively (Figure 3).

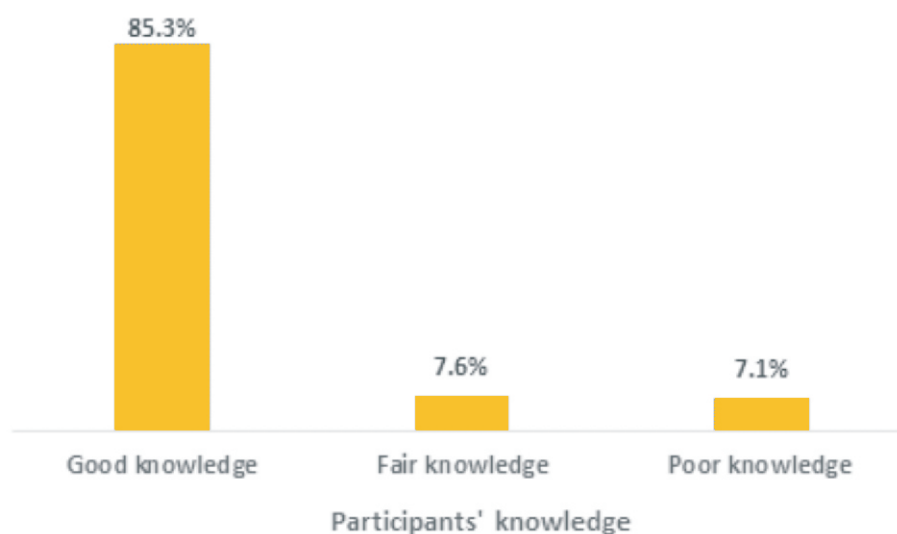


Figure 4: Participants' overall knowledge of the risk and complications associated with unsupervised home deliveries

Table 5b : Knowledge of the complications of home deliveries amongst women who have ever had home delivery

Knowledge	percentage
Good knowledge	20.7%
Fair knowledge	30.8%
Poor knowledge	50%

$\chi^2= 11.403$ $p= 0.003$

Table 5b above shows that most of the women who have had home deliveries in the past (50%) had a poor knowledge of the complications of home delivery. This was statistically significant.

DISCUSSION

The prevalence of home deliveries obtained from the study was significantly low when compared to studies done in Jos North⁸, Kano⁹, Zaria¹, Birnin Kudu²², Zambia⁷ and Ethiopia⁶, but higher than the prevalence obtained from Hausa women in Kaduna South Local Government.¹⁰ Most of these home deliveries were attended by health workers. This finding could be attributed to the fact that majority of the participants demonstrated a good knowledge of the risks and complications associated with unsupervised home deliveries and had completed tertiary education as such either avoided home deliveries completely or engaged a skilled birth attendant to mitigate negative outcomes. Knowledge of the complications of unsupervised home deliveries amongst women who have had previous home deliveries was however poor.

Participants at extremes of ages were more likely to deliver at home. This finding was statistically significant and may not be unrelated to the direct correlation of age with parity and other socio-demographic indices⁴. Younger women are probably less experienced or empowered/influential to resist certain cultural norms and taboos that prohibit hospital deliveries and encourage home delivery. Envuladu et.al and Okeshola et.al, in Jos North and Kaduna south respectively also found similar association between age and home deliveries, with the older women more likely to deliver at home.^{8,10} The older

women probably have a higher parity and are as such over confident, believing that their long and successful obstetric experience guarantees continued success, irrespective of the location or circumstance of delivery.¹⁰ This could explain the significant association of high parity with home delivery from this study. A similar study in Kano also found that willingness for home delivery was associated with age and parity of the study respondents.⁹ In Jos North, however, no significant correlation between parity and home delivery was found.⁸

The Hausa/Fulani ethnic group had the most number of home deliveries and this was statistically significant. This may be attributed to certain socio-cultural beliefs relating to gender empowerment and the rights of women in decision making, affinity for home deliveries, aversion to male involvement in maternity care and financial status.¹⁰ Beliefs that birth is a test of endurance and care seeking is seen as a sign of weakness may be another reason for delivery at home¹⁰. “Kunya” or shame plays an extremely important role in Hausa childbirth, particularly in the first pregnancy. The newly pregnant girl should not draw attention to her state, and all mention of the pregnancy should be avoided in conversation and action. Older women stand ready to scold her, should her actions deviate from the expected norm.¹⁰ These socio-cultural beliefs might also have religious undertones hence the preponderance of Muslim participants to having home deliveries compared to

their Christian counterparts. Furthermore, in contemporary Nigerian society, most polygamous families are of the Hausa Fulani extraction⁴² and the study showed a preponderance of home deliveries amongst polygamous families.

Participants who were housewives and petty traders were more likely to deliver at home, probably due to their relatively meager income and inability to afford health facility delivery. This is noteworthy given that a significant number of the respondents opined that the cost of hospital deliveries is responsible for home deliveries. A similar result was obtained in a study by Enzuladu et.al and Okeshola et.al in Jos North and Kaduna South respectively where most of the respondents affirmed that cost of delivery determines women choice of place of delivery.^{8,10} In Kano Nigeria though, the women who had delivered at home did not consider the cost of hospital delivery a significant factor, claiming that unfriendly attitude of hospital staffs, presence of male health workers, custom, and safety were more relevant determinants of home delivery.⁹

Level of education was significantly related to the prevalence of home delivery. Women who had only Islamic education or who had only completed primary school were more likely to have home deliveries. Similarly, Idris et.al in Zaria Northern Nigeria, reported that the mother's educational level amongst others was the main determinant of place of delivery.¹ Regardless of their level of education however, some of the participants had booked the index pregnancy and utilized antenatal services before proceeding to deliver at home. Most of them recognized that antenatal care helps to detect any likelihood of complications during the pregnancy, labour and delivery, hence their involvement in antenatal care despite their intentions to deliver at home. In Kano, Nigeria, Salisu et.al discovered that most of the respondents opted out of antenatal care and proceeded to deliver at home citing family issues, attitude of health workers, long distance of health facility, and financial difficulties.⁹

From the study, the most common complication experienced following home delivery was

puerperal sepsis characterized by any either high grade fever, severe lower abdominal pain or offensive vaginal discharge and a direct comparison of the complication rates from home and hospital delivery showed consistently higher risk of complications following home delivery. Other major complications following home delivery included post partum haemorrhage, maternal birth injuries, neonatal death and neonatal sepsis. Some of the participants who attempted home deliveries had to be referred to the hospital due to prolonged labour. A retrospective study on the complications of home delivery in Nepal by Tuladhar et.al revealed that retained placenta and postpartum haemorrhage were major complications of home delivery^{23,24}.

CONCLUSION

The study showed that unexpected labour and the cost of hospital deliveries were the major factors contributing to home deliveries amongst pregnant women attending antenatal clinic in Jos University Teaching hospital. This implies that most of the women were not aware of the signs of labour and had not properly ensured birth preparedness and complication readiness. Clinicians and nurses must thus recognize the need for proper counseling during antenatal care. Furthermore, home deliveries resulting from the inability of women to afford the cost of hospital deliveries shows the need for a subsidization of maternal and child health services by government at state and federal levels, improved economic empowerment of women and the avoidance of bureaucracy / bottlenecks that increases the cost of delivery within health facilities. One key limitation of this study however is the fact that it was carried out in one, not multiple health facilities. Hospitals in other regions might have varying factors impeding institutional delivery. Further research will be required in this respect.

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