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Determinants of place of delivery: A comparison between an urban and a rural community in Nigeria

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Child-birth is a risk producing event that requires timely and adequate medical intervention for women who experience obstetric complications. The provision of a health worker with midwifery skills at every birth, plus access to emergency hospital obstetric care, is the option to mitigate this risk. However, in sub Saharan Africa, most births take place outside health facilities and without skilled attendants. This study aimed to determine and compare the factors which influence the choice of place of delivery among women in an urban and a rural community in Sokoto. It was a cross-sectional comparative study of 600 randomly selected women of reproductive age, in Sokoto South and Gwadabawa Local Government Areas of Sokoto State, Nigeria using semi-structured interviewer administered questionnaires. The proportion of women who delivered in health facilities was 65.0 and 4.7% in the urban and rural groups, respectively; whereas the proportion that had skilled attendants at delivery was 70 and 4.3% in the urban and rural groups, respectively. Lack of consent from husband, no privacy in health facilities, distance to the health facility and non-availability of delivery wards were the reasons for home deliveries in the rural study group, while the emergency nature of labour was the reason in the urban group. Women residing in rural areas need health promotion interventions in order to meet the International Conference on Population and Development + target of achieving 90% births attended by skilled attendants by 2015.

Key words: Determinants, place of delivery, skilled attendant, urban and rural, Sokoto.

INTRODUCTION

In Africa, about 50% of births were attended by a skilled health worker (WHO, 2014) despite an increase from 55 to 66% between 1990 and 2011 in all developing regions as indicated by the 2013 Millennium Development Goals Report (The MDG Report, 2013). These figures are 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 (UNFPA, 2011). Though about 85% of women do not experience major problems during childbirth (WHO, 2013), complications that do occur can be sudden and unpredictable, requiring immediate action. Maternal and

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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 (UNFPA, 2011).

In Nigeria, estimates of maternal mortality ratio vary from 300 to 400 per 100,000 live births in parts of Southwest Nigeria to as high as 1,800 per 100,000 live births in Northwest and Northeast of Nigeria (FMOH, 2011). The number of maternal deaths in Nigeria going by the WHO, UNFPA and UNICEF estimates of maternal mortality in 2010 was 57,000; giving a maternal mortality ratio of 867 per 100,000 live births; range from 673 to 1,130 per 100,000 live births. According to the 2013 Nigerian Demographic and Health Survey (NDHS, 2013), 11.5% of women of the Northwest region of Nigeria delivered at a health facility, while 19.5 and 45.7% of women of the Northeast and Northcentral regions, respectively delivered at a health facility. This was in sharp contrast to the 78.1 and 75.0% of women in the Southeast and Southwest region of the country who delivered at a health facility. In another baseline survey by UNFPA of UNFPA Assisted States in Nigeria, the proportion of women who delivered in a health facility was found to be high in Anambra (87.9%), Abia (82.8%), Osun (76.4%) and Ogun (74.2%) states, while in Sokoto (5.7%), Kebbi (8.2%) and Katsina (7.5%) states, the proportions were extremely low (UNFPA, 2010). Furthermore, a cross-sectional study carried out among women in a semi-urban settlement in Giwa, Northwestern Nigeria revealed that majority (76%) of the women had their deliveries at home and were not supervised by skilled personnel (Idris et al., 2013), while another study of women attending antenatal care at the Usmanu Danfodiyo University Teaching Hospital Sokoto showed that despite the fact that these women received antenatal care at the Tertiary Institution, 31.5% delivered elsewhere and majority (15.3%) of the deliveries elsewhere took place at the woman's home (Ekele and Tunau, 2007).

Previous studies have reported that factors that determine place of delivery include cultural, socioeconomic, demographic and service accessibility factors. Rural residence, low socioeconomic status, young maternal age, low maternal or paternal educational attainment and high birth-order have been observed to be associated with high probabilities of delivery outside a health facility (Envuladu et al., 2013; Yegezu and Kitila, 2014; Nanang and Atabila, 2014; Kruger et al., 2011). In a study in Aba, Southeastern Nigeria which aimed to identify determinants of choice of non-institutional birth places and reasons for such, the major factors found included cost, friendly staff and perceived experience of birth attendant (Nduka and Nduka, 2014), while educational attainment was found to be the most consistent determinant of both ANC attendance and skilled assistance in delivery in Kaduna State of Nigeria (Oguntunde et al., 2010).

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 (Silal et al., 2012). An estimated 90% of maternal deaths would be avoided if adequate care was provided during the intrapartum period (Crowe, 2012). Appropriate delivery care is important for both maternal and perinatal health, especially in cases where delivery complications arise. As such providing skilled care at birth not only reduces maternal mortality but has been found to also reduce infant mortality (Ekirapa-Kiracho et al., 2011).

Thus, the knowledge of possible factors that determine the choice of place of delivery among pregnant mothers will enable us to design appropriate interventions to meet the maternal health care needs of this sub-population. This has not been explored among the rural population of Sokoto as most quoted studies were health-facility based.

This aims of this study was to determine and compare the factors that influence the choice of place of delivery among women in an urban and a rural community in Sokoto, Northwest Nigeria, with a view to making recommendations that will improve deliveries by skilled birth attendants in the short term and hopefully, also reduce the high maternal mortality and improve other maternal health indicators in the area in the long term.

MATERIALS AND METHODS

Sokoto State in its present form came into being in October 1996 when Zamfara State was carved out. With a land area of 28,232.37 km^2, the state is located between longitudes 11° 30" to 13° 50" East and latitude 4° to 6° North. It is bordered in the North by Niger Republic, Zamfara State to the East and Kebbi State to the South and West. According to the provisional figures of the 2006 National Population Census, Sokoto State has population of 3,696,999 people made up principally of two major groups, namely, Hausa and Fulani. Culturally, the state is homogenous. The people of the state are Muslims and Islamic religion provides them with a code of conduct and behaviour.

Women of child bearing age constitute about 20% of the total population and are therefore a major consumer of health care services. Women die mainly from complications during pregnancy and delivery due to hemorrhage, sepsis, preeclampsia/eclampsia, anemia, and malaria resulting largely due to inadequate maternal healthcare (Shamaki et al., 2013). The population that largely reside in the rural areas are poor and uneducated. The state has 23 LGAS, 120 health districts and 244 political wards. Presently, there are 538 health facilities within the three tiers of health care delivery system. Among these are two tertiary health facilities owned by the Federal Government, namely, the Usmanu Danfodiyo University Teaching Hospital (UDUTH) and the Federal Neuro-psychiatric Center at Kware. The state government has a specialist hospital in Sokoto and 18 general hospitals fairly distributed within the 23 LGAs. The remaining are Primary Health Centres, Clinics and dispensaries run by the LGA councils. Free medical care was

restricted to leprosy, tuberculosis and HIV/AIDS, but has recently been extended to include children under five years and pregnant women.

Gwadabawa is a LGA in Sokoto State. Its headquarters are in the town of Gwadabawa on the A1 highway. It has an area of 991 km² and a population of 231,358 as per the 2006 census. Its coordinates are 13°22′11″N 5°13′48″E13.36972°N 5.23°E. It is mainly a rural area and the population are mainly farmers and artisans.

Sokoto South is also a LGA in Sokoto State, Nigeria. Its headquarters are in Shiyar Sarkin Zamfara. It has an area of 41 km² and a population of 194,914 at the 2006 census. Its coordinates are 13°03′N 5°13′E13.05°N 5.217°E. It is situated in the Sokoto metropolis which is highly urbanised. Traders form a greater percentage of the population, while the rest are civil servants, artisans and people of other occupations (Imam, 2006).

Study design

The study was a cross-sectional comparative study conducted in Sokoto South (urban) and Gwadabawa (rural) LGAs of Sokoto, Sokoto State, Nigeria, in August 2010. Quantitative research methods were employed and involved interviews to a random sample of 600 women, aged 15 to 49 years, who gave birth within two years prior to the study. The time restriction was to aid recall of reasons for choice of place of delivery. The minimum sample size in this cross-sectional study design was determined by using the formula:

$n = z^2 pq/d^2$ (the study population was more than 10,000)

where n = minimum sample size required, z = standard normal deviate at 95% confidence level =1.96, p = estimated proportion of variable of interest in the population =78%, that is, 0.78 (Idris et al., 2006), d = tolerable alpha error or precision = 0.05, q = complementary probability of p (q = 1 – p), n = was therefore estimated at 263.69, approximately 264 subjects.

To accommodate for non-response and rejection of participation, the estimated sample size, n, was divided by 0.9 (with the anticipation of a 90% response rate, R). Thus, $n_s = n/R = 263.69/0.9 = 292.98$ approximately 300 subjects, in each of the two study areas. They were selected by a multistage sampling method.

Stage 1: A random selection of one rural LGA and one urban LGA in Sokoto State, using balloting (rolled and picked papers) procedure was done. Gwadabawa and Sokoto South LGAs were picked respectively.
Stage 2: Then stratification of each randomly selected LGA by ward and random selection of five wards from each LGA using balloting (rolled and picked papers) procedure was done. Chimola, Gigane, Mammande, Mamman Suka and Attakwanyo wards were picked from Gwadabawa LGA while Sarkin Adar B, Shiyar Sarkin Zamfara A, Gagi B, Tudun Wada A and Rijiya B wards were picked from Sokoto South LGA.
Stage 3: Proportionate allocation of respondents to the 5 randomly selected wards was done based on the population of women of childbearing age. Sampling interval was determined using the proportionate allocation and the population of women of childbearing age in the selected wards.
Stage 4: House numbering and listing was then carried out to determine the number of houses in each of the selected wards. The calculated sampling interval was used to select the houses in the wards to be included in the study. To determine which integer to be used, simple random sampling by balloting was done. It was assumed that each house had a woman with a child of 2 years old or less. However, in an event that more than one woman in a house is qualified, balloting was done to select who was studied. On the other hand, where there was no woman that qualified in the selected house, the next house was used.

The houses were visited between 9am to 2pm each day except weekends until the study was completed. The starting point was the first house nearest to the well in the east and by simple random sampling every third house was selected for the study. Sampling occurred until the sample size was reached. All the women who agreed to participate were interviewed.

The method of data collection was by the use of questionnaires. An instrument, a semi-structured interviewer administered questionnaire with closed and open-ended questions was used. The questionnaire included: socio-demographic characteristics of the subjects, obstetric history of the subjects, availability and accessibility of maternity services to the subjects, antenatal attendance or otherwise in the last pregnancy, place of delivery of last child and reason for the choice, postnatal attendance and practise of family planning or otherwise in last pregnancy.

Questionnaires were sorted out manually for accuracy and completeness. Data processing was done using the Epi-info version 3.4.1, Microsoft Excel and Graph pad Instat, Computer Statistical Software Packages. The data is presented using graphs and tables for frequencies and percentages of the variables. The Chi-square test was used to compare differences between proportions, while the student t-test was used for comparison of mean differences. All statistical analysis was at 5% level of significance, $p \leq 0.05$ (that is, 95% confidence interval).

Twenty female students of School of Midwifery, UDUTH, Sokoto who spoke the Hausa language fluently were recruited to serve as research assistants and a day training was organized to intimate them with the objectives and the various aspects of the study. They were trained specifically on the general principles and conduct of survey research, manner of entry and interaction with the community, use of survey instruments and the entire conduct of the study procedure. Approval to carry out the study was obtained from the ethics committee of the Usmanu Danfodiyo University Teaching Hospital, Sokoto. Permission to carry out the study was also obtained from the Health Department of the LGAs selected for the study. Advocacy visit was done to establish rapport with the village head of the rural local government area chosen. Informed consent was obtained from the women; the purpose of the study was explained to them. Strict compliance was made to Helsinki declaration on the use of human subject for studies (Helsinki, 1996).

RESULTS

A total of 600 women were recruited into this cross-sectional study; 300 were drawn from each of the two randomly selected LGA. Sokoto South LGA was the urban ward, while Gwadabawa LGA was the rural ward. Out of the two LGAs, five wards were randomly selected and they include Gagi B (11.0%), Rijiya B (11.0%), Sarkin Adar B (11.3%), Shiyar S. Zamafara A (6.2%) and Tudun Wada A (10.5%) wards from the Sokoto South (Urban) LGA, while Gwadabawa (Rural) LGA was represented by Attakwanyo (9.5%), Chimola (11.3%), Gigane (11.8%), Mamman Suka (8.8%) and Mammande (8.5%) wards (Figure 1).

The ages of respondents in both the urban and rural communities ranged between 14 and 50 years. The mean age of the urban respondents was 27.1 ± 5.7 years, while that of the rural was 26.1 ± 6.9 years. Demographically, the Hausa ethnic group dominated both
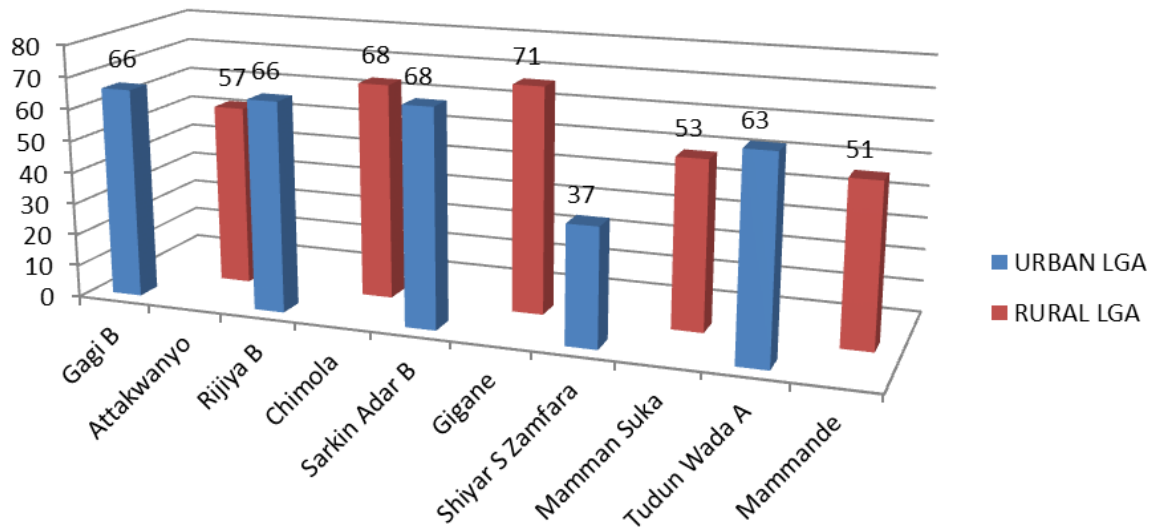
Figure 1. Number of respondents by wards.

groups; 146 (48.7%) in the urban and 266 (88.7%) in the rural LGA and this was a statistically significant difference (p < 0.0001). An overwhelming majority of the respondents in the two LGAs were Muslims, 74.3 and 100% in the urban and rural LGAs, respectively. Majority (94.7 and 98%) of respondents in both the urban and rural LGAs, respectively were married. There was higher literacy status in the urban (63.6%) when compared with the rural group (7.0%) and this was statistically significantly different (p < 0.0001). There were more women in government employment in the urban group (8.3%) than in the Gwadabawa group (2.3%) and it was statistically significantly different (p = 0.002). The level of unemployment in both groups was relatively the same (Table 1).

Majority (80.7%) of the spouses of the urban respondents attended primary, secondary or tertiary schools when compared with 11% of their rural counterparts and this was a statistically significant difference (p < 0.0001). Furthermore, 52.3 and 77.0% of the husbands' of respondents in the urban and rural groups, respectively were self-employed. There were more husbands' in government employment in the urban group (33.3%) than in the rural group (6.3%). The level of unemployment among the husbands' in the rural LGA (41.0%) was fourteen times more than the level in urban (3.0%) and this was statistically significantly different (p < 0.0001) (Table 2).

The parity of the study population ranged between 1 and 14 in both LGAs. The mean parity of the urban respondents was 3.22 ± 2.04, while that of the rural was 3.77 ± 2.44. This was statistically significantly different (p < 0.003). The age at first pregnancy among both study groups ranged between 13 and 37 years. The mean age at first pregnancy in the urban group was 20.18 ± 4.28 years, while that in the rural group was 16.54 ± 2.64

years and it was statistically significantly different (p < 0.0001). Majority (92.7%) in the urban community had antenatal care, while few (25.7%) in the rural area had any care. There was statistically significant difference in antenatal attendance among the two groups (p < 0.0001). Among the women that had antenatal care, 98.2 and 88.4% in the urban and rural areas, respectively attended the antenatal clinic more than once. There was no statistically significant difference in number of antenatal' attended between the two groups (p = 0.2) (Table 3).

The husband was the major influence for ANC attendance in the urban and rural groups (69.1 and 66.2%), respectively. Majority (81.3%) of the respondents in the urban LGA had no other reason for attending ANC compared to the 46.7% of respondents in the rural LGA whose other reason for attending ANC was to avoid problems in pregnancy. This difference was statistically significant (p < 0.0001). Majority (86.5%) of the respondents in the rural group who did not attend ANC said the reason was because there was no problem with the pregnancy, while the majority (36.4%) of those in the urban area gave non-affordability of service charges as their reason for not attending ANC in the last pregnancy. This difference in reasons was statistically significant among the two groups (p < 0.0001).

Majority, 89.0 and 97.7% of the respondents in the urban and rural LGAs, respectively had a health facility close by. However, there was statistically significant difference between the availability of health facilities in the urban and the rural study areas as up to 11.0% of the urban group did not have a nearby health facility when compared with only 2.3% in the rural group (p < 0.0001). Majority, 63.3 and 86.7% of the respondents in the urban and rural LGAs, respectively lived less than 5 km to a health centre. However, many more respondents in the urban LGA (36.7%) lived more than 5 km from the

Table 1. Socio-demographic characteristics of the respondents.

Socio-demographic characteristics	No. (%) Sokoto South LGA	No. (%) Gwadabawa LGA	Statistic and p values
Age			
15 – 24	88 (29.4)	144 (48.0)	
25 – 34	176 (58.7)	107 (35.6)	t = 1.94
35 – 44	35 (11.6)	48 (16.0)	df = 598
≥45	1 (0.3)	1 (0.3)	p = 0.053
Mean	27.1± 5.7	26.1± 6.9	
Ethnic group			
Hausa	146 (48.7)	266 (88.7)	
Fulani	38 (12.7)	33 (11.0)	χ^2 = 148.4
Igbo	33 (11.0)	0	df = 4
Yoruba	43 (14.3)	0	p = 0.0001
Others	40 (13.3)	1 (0.3)	
Religion			
Christianity	77 (25.7)	0 (0.0)	p <0.0001
Islam	223 (74.3)	300 (100.0)	(Fisher's exact)
Marital status			
Divorced	3 (1.0)	6 (2.0)	
Married	294 (98.0)	284 (94.7)	χ^2 =5-64
Separated	1 (0.3)	4 (1.3)	df = 4
Single	1 (0.3)	1 (0.3)	p = 0.23
Widowed	1 (0.3)	5 (1.7)	
Education of respondent			
None	13 (4.3)	6 (2.0)	
Quranic	96 (32.0)	273 (91.0)	χ^2 =235.8
Primary	42 (14.0)	17 (5.7)	df =4
Secondary	97 (32.3)	1 (0.3)	p <0.0001
Tertiary	52 (17.3)	3 (1.0)	
Respondent's employment			
Govt employed	25 (8.3)	7 (2.3)	
Private institution	11 (3.6)	3 (1.0)	χ^2 = 17.064
Self employed	152 (50.7)	169 (56.3)	df = 4
Student	7 (2.3)	4 (1.3)	p = 0.002
Unemployed	105 (35.0)	117 (39.0)	
Total	300	300	

nearest health facility than those in the rural LGA (13.3%) (p < 0.0001). All (100.0%) of the health facilities in the urban study area had delivery facilities compared to 80.7% in the rural community. There was statistically significant difference in availability of delivery facilities among the study areas as up to 19.3% of the health facilities in the rural community lacked delivery rooms (p < 0.0001) (Table 4).

Majority (65.0%) of the women in the urban LGA, delivered in a health facility. This is in sharp contrast to the few (4.7%) women in the rural LGA that also delivered in a health facility. Majority (95.3%) of the rural respondents had home deliveries as did 32.3% of the urban respondents. Few, 2.7% of the urban respondents delivered in faith homes. There was statistically significant difference in place of delivery among the two groups (p < 0.0001). Majority, 91.8% of the urban respondents had as birth attendant a nurse/midwife compared to 35.7% of the rural respondents. A doctor assisted 8.2 and 35.7% of urban and rural respondents,

Table 2. Educational and employment status of husband.

Educational and employment status	No. (%) Sokoto South LGA	No. (%) Gwadabawa LGA	Statistic and p values
Education of husband			
None	3 (1.0)	3 (1.0)	
Quranic	55 (18.4)	264 (88.0)	χ^2 =322.5
Primary	22 (7.4)	21(7.0)	df = 4
Secondary	115 (38.5)	6 (2.0)	p <0.0001
Tertiary	104 (34.8)	6 (2.0)	
Total	300 (100.0)	300 (100.0)	
Husband's employment			
Govt employed	100 (33.3)	19 (6.3)	
Private institution	37 (12.3)	4 (1.3)	χ^2 = 129.13
Self employed	157 (52.3)	231(77.0)	df = 4
Student	3 (1.0)	5 (1.7)	p < 0.0001
Unemployed	3 (1.0)	41 (13.7)	
Total	300 (100.0)	300 (100.0)	

Table 3. Respondents obstetrics characteristics.

Respondents obstetrics history	No. (%) Sokoto South LGA	No. (%) Gwadabawa LGA	Statistic and p values
Parity	73 (24.3)	49 (16.3)	
Primipara (1)	155 (51.7)	160 (53.3)	T = 2.995
Multipara (2 – 4) Grandmultipara (≥ 5)	72 (24.0)	91(30.3)	df = 598
Mean	3.22 ± 2.04	3.77 ± 2.44	p = 0.003
Age at first pregnancy			
<15	16 (5.4)	56 (18.7)	
15 – 24	234 (77.9)	239 (79.7)	t = 12.537
25 – 34	49 (16.3)	5 (1.6)	df = 598
35 – 39	1 (0.3)	0 (0.0)	p < 0.0001
Mean	20.18 ± 4.28	16.54 ± 2.64	
Antenatal attendance			
No	22 (7.3)	223 (74.3)	χ^2 = 275.94
Yes	278 (92.7)	77 (25.7)	df = 1, p < 0.0001
Number of ANC visits			
1	5 (1.8)	9 (11.6)	
2 – 4	147 (52.9)	35 (45.5)	t =1.29
≥ 5	126 (45.3)	33 (42.9)	df = 353
Mean	4.41 ± 1.39	4.71 ± 2.82	p = 0.2
Total	278 (100.0)	77 (100)	

respectively while a community health worker assisted 35.7% also of the rural respondents and none in the urban group. There was statistically significant difference in birth attendant among the two study groups (p = 0.007). Traditional Birth Attendants (TBA) conducted 66.7 and 79.0% of the deliveries that occurred outside health facilities among the urban and rural groups, respectively.

Skilled attendants participated in 14.2 and 1.0% of the deliveries in the urban and rural groups, respectively. Few, 11.9% in the rural and 4.8% in the urban had no assistant during labour and delivery. There was statistically significant difference in the birth attendants elsewhere among the two study groups (p < 0.017) (Figures 2 and 3).

Table 4. Availability and accessibility of health facility and delivery services.

Health facility	No. (%) Sokoto South LGA	No. (%) Gwadabawa LGA	Statistic and p values
Availability of health facility close to place of residence			p < 0.0001
Not available	33 (11.0)	7 (2.3)	
Available	267 (89.0)	293 (97.7)	(Fisher's exact)
Total	300 (100.0)	300 (100.0)	
Approximate distance to health facility			$\chi^2 = 40.12$
< 5 km	169 (63.3)	254 (86.7)	
>5 km	98 (36.7)	39 (13.3)	df = 1
Total	267 (100.0)	293 (100.0)	p < 0.0001
Availability of delivery facility			
Not available	0 (0.0)	58 (19.3)	p < 0.0001
Available	300 (100.0)	242 (80.7)	(Fisher's exact)
Total	300 (100.0)	300 (100.0)	
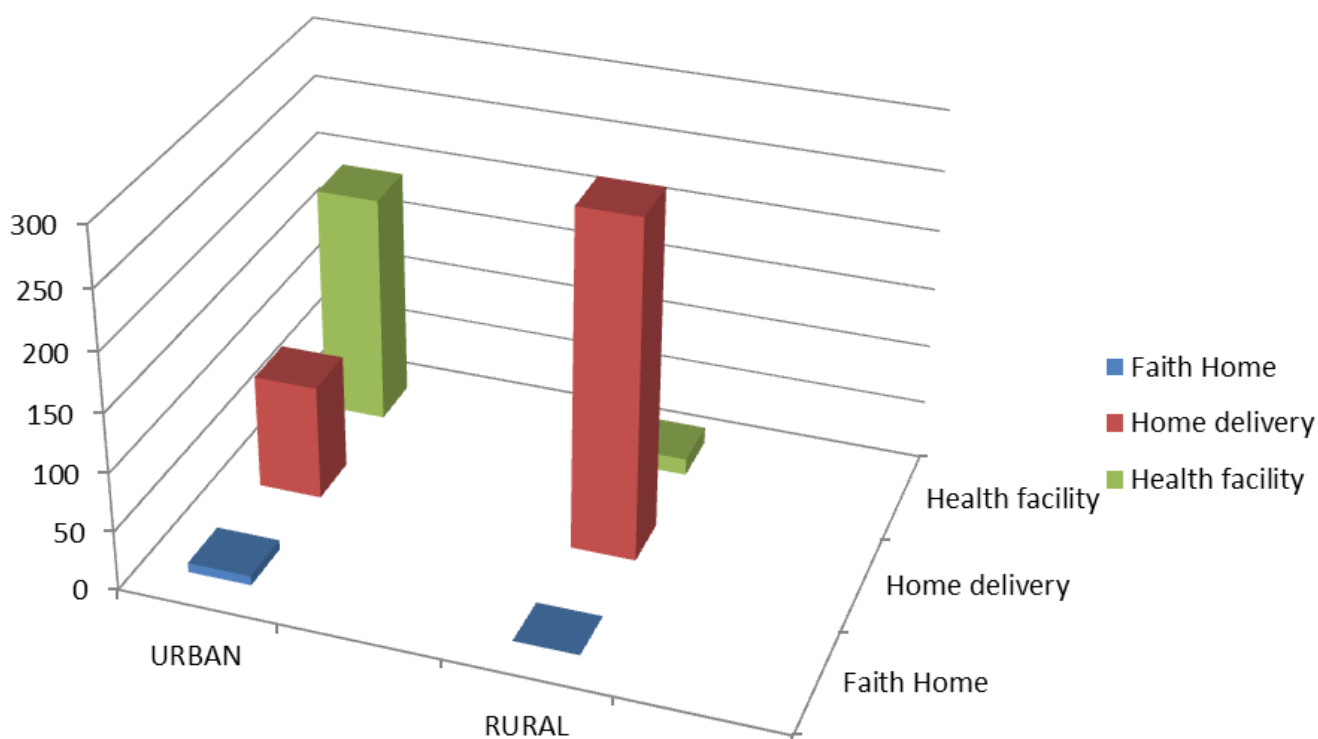
Figure 2. Place of delivery of last child.

Of the respondents that delivered in a health facility, 54.8 and 42.9% in the urban and rural groups respectively said their husbands influenced the decision. Only 33.3% of the urban and 14.3% of the rural respondents took personal decisions to have their babies in a health facility while 35.7% in the rural group were influenced by the midwife at ANC to have a hospital delivery.

Majority (69.2%) of the urban respondents gave no reason for hospital delivery while 35.7% of the rural respondents said they delivered in the health facility to avoid intra and postpartum complications. Also, 21.4% of
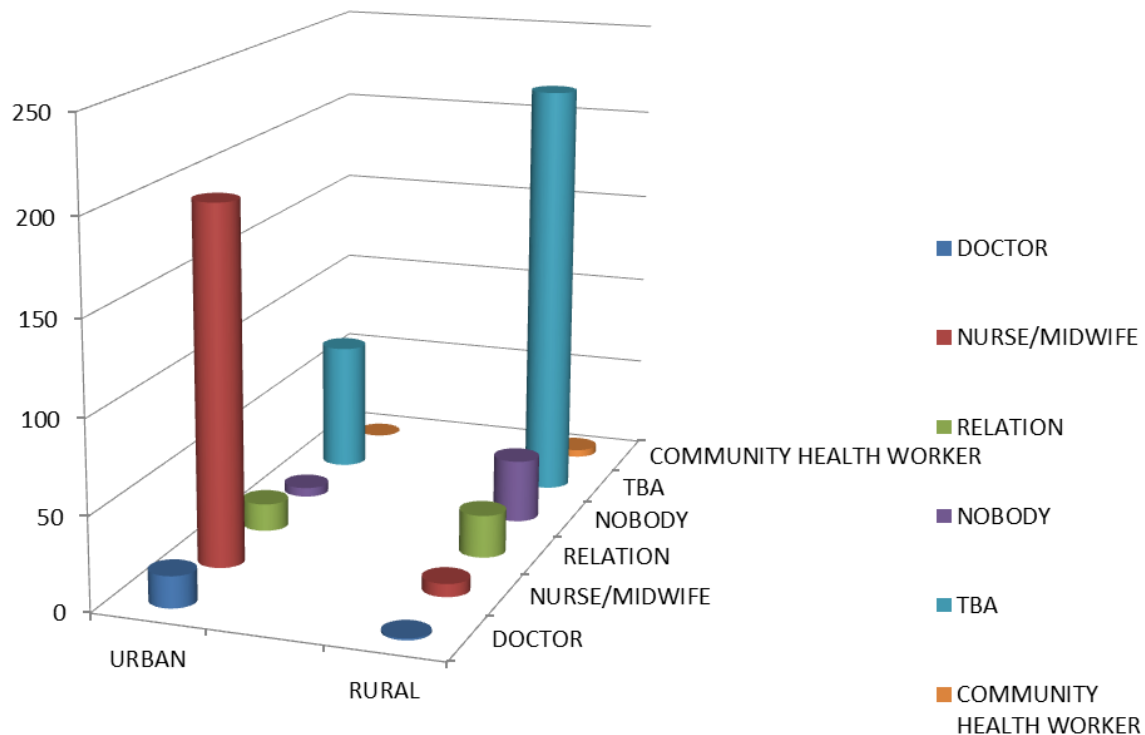
Figure 3. Birth attendant at last delivery.

the rural group had antenatal and intrapartum conditions that necessitated their deliveries to take place in a health facility compared to 4.6% of the urban group. There was statistically significant difference in the responses of the two study groups (p = 0.005).

Of the 105 respondents that delivered outside a health facility in the urban LGA, majority (53.3%) said labour and delivery occurred very fast and this was echoed by only 15.4% of the rural respondents. Majority (46.5%) of the rural respondents could not deliver in a health facility, because their husbands did no grant them permission as compared to 8.6% in the urban group. Only 5.7 and 4.9% in the urban and rural groups, respectively gave lack of adequate privacy as a reason for Faith home/Home delivery. There was statistically significant difference in the reasons adduced for delivery elsewhere among the two study groups (p < 0.0001) (Figure 4).

Majority (87.0 and 85.7%) of the respondents in the urban and rural groups respectively did not suffer any complications during labour or in the immediate post-partum period. Of the 13.0 and 14.3% in the urban and rural community, respectively that suffered complications, majority (30.7%, urban) and (34.9%, rural) had postpartum haemorrhage. Some, 10.3% (urban) and 6.9% (rural) had still births while 2.6 and 20.9% in the urban and rural groups, respectively had retained placenta. There was statistically significant difference in complications of labour among the two study groups (p < 0.007).

Most, 81.7% of the respondents in the urban group had post natal care compared to 17.0% in the rural group. This difference was statistically significant at p < 0.0001.

DISCUSSION

This study aimed at determining and comparing the factors that influence the choice of place of delivery in an urban and a rural community in Sokoto. It was found that a number of socio demographic and economic factors have a significant influence on place of delivery among the two groups. They include woman's place of residence, tribe, religion, educational level, and employment status. Husbands educational and employment status also had a significant influence on both groups. These findings agree with those of previous studies (Ravi and Ravishankar, 2014; Shah and Bélanger, 2011; Lwelamira and Safari, 2012; Nekesa et al., 2013; Yar'zever and Said, 2013). However, age of the woman and marital status did not seem to have a significant influence in this study in the two groups as was also reported by other workers (Kitui et al., 2013). These variables also influence the status of the woman in the society which has been found to influence decision making. A woman who is educated, single and of higher socio economic status is able to make wise decisions about her own health than their counterparts. Similar findings have been reported by previous researchers
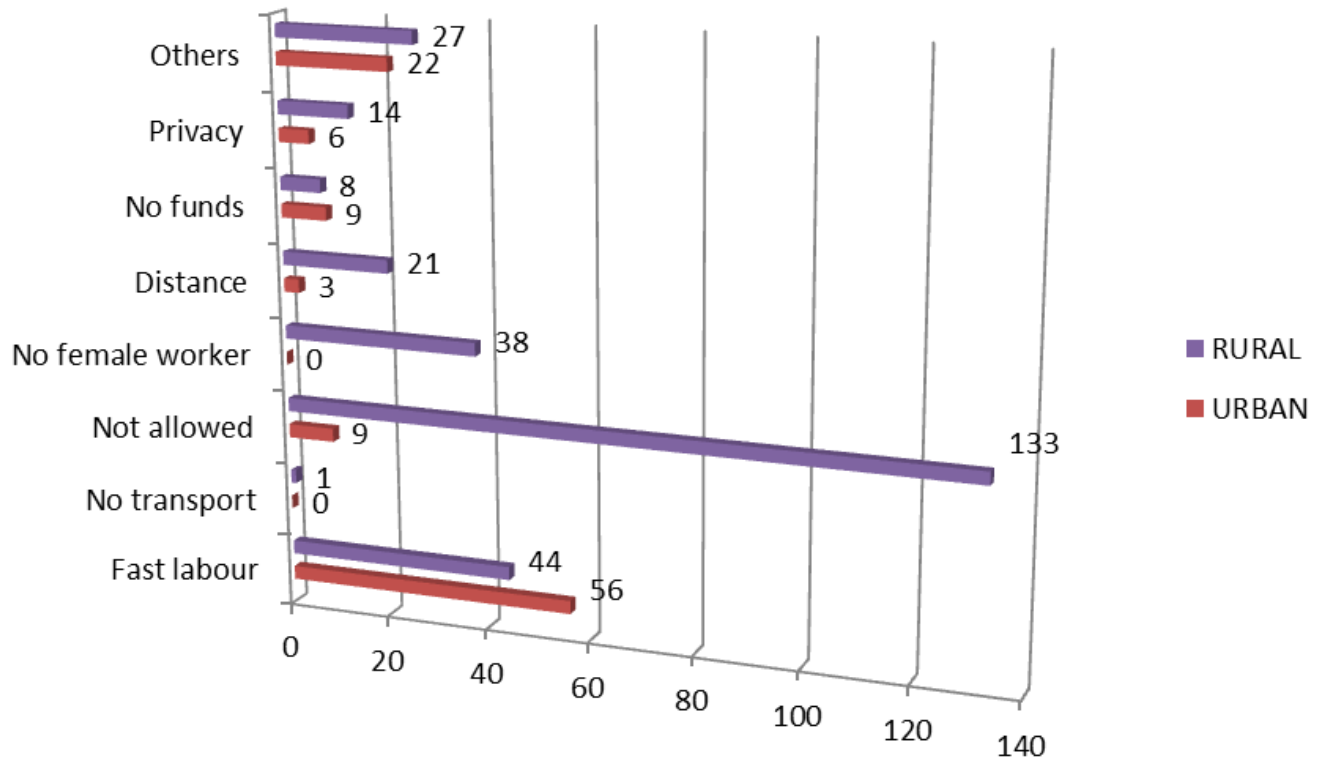
Figure 4. Reasons for not giving birth in a Health facility.

(Shimamoto and Gipson, 2015; Adekoya and Aluko-Arowolo, 2012; Adekunle and Similoluwa, 2012). It has been reported that both economic and social dimensions of the distribution of power between spouses also influence the place of delivery (Doss, 2013).

The age at first pregnancy was also found to be a statistically significant factor in determining the place of delivery in both the urban and rural communities studied as more women who had the first pregnancy before the age of 18 years delivered at home. This finding may not be unrelated to the cultural practice in the study area of newly married young girls being taken back to their parents' home to have their first babies. This practice cuts across urban and rural communities hence the finding. Ashimi and Amole (2015), also reported similar findings in Birnin Kudu, North-West Nigeria. However, this finding may just be an association and not necessarily causal

Distance to the health facility was also a statistically significant finding. However, it was more glaring in the rural group than the urban. This was made worse by the fact that there were no means of transport to the facility. Similar findings were reported by a number of researchers previously (Awoyemi et al., 2011; Gabrysch et al., 2011).

Findings of this study showed that almost all women (92.7%) in the urban group sought antenatal care at least once during their last pregnancy. These findings compare

well with those of the Nigerian Demographic and Health Surveys 2013 but this was the opposite in the rural group where only about a quarter of the women had any form of ante natal care. It has been reported that women who had more than 4 ANC visits were more likely to deliver with a skilled attendant than those with fewer visits (Singh et al., 2014; Pervin et al., 2012). This may be due to the fact that women with more ANC visits also showed a higher satisfaction with the quality of care and hence are more likely to use health services for delivery. It is also a fact that many ANC visits expose the women to more health education and counseling which are both likely to increase service utilization. This finding lead previously to a recommendation that although antenatal care may not be efficient in identifying women who are most in need of obstetric care, if promoted it may become an effective instrument to facilitate better use of emergency obstetric care services. However, some other studies have failed to find this association between ANC attendance and subsequent delivery in a health facility (Berhan and Berhan, 2014; Choe et al., 2016)

The proportion of women who delivered in the health facility was 65.0 and 4.7% in the urban and rural groups respectively; whereas the proportion that had skilled assistance was 70 and 4.3% in the urban and rural groups, respectively. These estimates compare well with the national level rates (67 vs. 60% for urban groups and 27 vs. 24% for rural populations) for the respondents in

Sokoto South LGA than Gwadabawa (NDHS, 2013). Lack of consent from the husband and lack of privacy in the health facility were found to be the major causes of home deliveries in the rural study group. This is in contrast to some studies in rural populations where distance to health facility and the non-friendly attitude of care givers were the major reasons given for opting for home delivery with a traditional birth attendant or a relative (Some et al., 2011; Onta et al., 2014). Another major finding in the rural community was the absence of delivery rooms or suites within the health care facility making it impracticable for any woman to desire to have a delivery there. In the urban group, the emergency nature of labour was the major reason given for home deliveries. This agrees with findings in many other studies (Tukur and Oche, 2015; Nduka and Nduka, 2014). This low utilization of skilled attendants at delivery represents the greatest challenge to achieving the MDG's in the study area.

Health facility deliveries are more likely to be attended to by a doctor or nurse/midwife, whereas home deliveries are likely to be attended to by a traditional birth attendant (TBA), a relative (or other unskilled persons), or no one. This was the finding in this study and this brings to the fore, the ongoing debate of training of TBAs so that they can be better skilled at recognizing some obstetric danger signs and hasten referral of such cases to better equipped health facilities. The presence of a TBA within a community as in the rural study group is associated with an increased probability of TBA assistance and a reduced probability of assistance by a relative or other unskilled persons, while the probabilities associated with medical or no delivery assistance remain unchanged. Thus, it is evident that the TBAs play an important role in communities underserved by trained medical personnel. At the same time, their presence does not draw people away from seeking care from trained medical professionals.

Furthermore, women residing in rural areas are more likely to deliver at home and are less likely to be attended by trained medical personnel, possibly because of their stronger attachment to cultural values and beliefs. Different cultural groups have different practices relating to childbearing, which probably explains the observed ethnic differences in delivery care. The fact that the urban study group was associated with the higher probabilities of health facility deliveries is possibly due to better quality of services, the LGA being relatively more developed socioeconomically compared to the rural LGA.

LIMITATION

Qualitative methods, such as focused group discussions, were not conducted as they would have better addressed some of the questions raised. Interviews of spouses would have also enriched the discourse whether as focused groups or as individuals. Some of the rural respondents may not have aired all their views to the researcher and assistants.

Conclusion

The analysis of place of delivery in this study examined delivery care in terms of "home" deliveries versus health facility deliveries. Factors influencing place of delivery are very similar to factors associated with childbirth attendant, which is not surprising, given the high correlation between the two.

In the rural study area, few pregnant women sought antenatal care, few delivered in health facilities and fewer still had deliveries attended by skilled personnel. Therefore, women residing in rural areas need urgent and intensive health promotion interventions in order to meet the International Conference on Population and Development + target of achieving 90% births attended by skilled attendants by 2015.

On the other hand, the findings in the urban study area were more encouraging. However, more still needs to be put in place to tackle the reasons/factors shown from this study that affected choice of place of delivery.

RECOMMENDATIONS

The following recommendations are put forward in order to increase our pace towards the millennium development goal targets and they include improve coverage of health facilities which provide skilled delivery care in the rural areas, encourage women during antenatal care to reach out for skilled attendants when home delivery becomes inevitable, raise the status of women in terms of education and socio-economic status and finally, intensify individual counseling of women on facility-based delivery.

Conflict of Interests

The authors have not declared any conflict of interests.

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