Original Article

Preferences regarding place of delivery among rural and urban women in Kaduna State, Nigeria: a comparative study

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Abstract

Background: The place of delivery is a recognised determinant of the outcome of the birth process for both mothers and their babies, thus having an effect on maternal and early neonatal mortality rates, which are high in many developing countries. Institutional deliveries have since been advocated as a panacea, but what are the preferences of women by residential location in northern Nigeria?

Aim: To comparatively ascertain the place of delivery preferences among rural and urban women in Kaduna State, north-western Nigeria and the factors that determine these choices.

Methods: A comparative, community-based, cross-sectional study was conducted among 340 women (170 rural and 170 urban). Data were collected with the aid of questionnaires and analysed using SPSS (version 25). Chi-squared (x^2) test was used to test for associations (p-value $\leq$0.05).

Results: About two-thirds (67.9%) of the women were aged 20-34 years (mean $\pm$ SD = 29.81 $\pm$ 7.63 years) and over 80% were married. Facility-based delivery was 67.7% across both study areas (rural 45.4%, urban 88.9%). Over half of the rural women delivered at home (51.9%) compared with 9.9% among urban women (p = 0.00). Determinants of choice of delivery location include respondents' tribe, religion and educational levels (in the rural area), and age, educational levels, income and parity (among urban women), and also spousal income and educational levels in both areas.

Conclusion: Institutional delivery was significantly higher among urban women with economic, cultural and literacy factors being the predominant determinants of place of delivery in both groups.

Keywords: Delivery, facility-based, preferences, rural, urban

Access this article online	
Quick Response Code:	**Website:** www.phmj.org.ng
	DOI: https://doi.org/10.60787/phmj.v18i2.146

INTRODUCTION

The location for eventual delivery is a decision every expectant mother needs to make during the gestation period or even prior to conception. While for most women in the developed parts of the world this decision is naturally and logically that of a health facility, for many of their counterparts in low-and-medium-income countries, such decisions may not always be so straightforward. Data published by the United Nations Children's Fund (UNICEF) for the period spanning the years 2006 to 2019 show that well over 80% to 90% of pregnant women in the western hemisphere as well as in Latin America, East Asia and the Caribbean and Pacific regions experienced institutional delivery; and only between 54% to 60% of births occurred in health facilities in sub-Saharan Africa.[1] The most recent National Demographic and Health Survey (NDHS-2018) conducted in Nigeria reports that the national rate of facility-based deliveries among pregnant women is about 39%.[2] These latter figures are quite low. The World Health Organization (WHO) emphasises that facility-based deliveries be adopted as a key strategy in ensuring skilled birth attendance at childbirths.[3] This makes early detection of potential (unexpected) complications as well as the institution of appropriate and timely medical interventions possible in order to salvage both mother and child, thus reducing both maternal and early neonatal mortality rates.[1,4]

Many sub-Saharan African countries still grapple under the heavy burden of high maternal and early neonatal death tolls.[5] These mortalities occur as a result of largely preventable causes as well as factors which centre around delays prior to, en route or upon arrival at health facilities. While institutional deliveries have significantly increased and improved globally in the last two decades following the institution of diverse intervention programmes,[6] the situation in sub-Saharan Africa remains poor, particularly in the western and central sub-regions of the continent.[1] Furthermore, diverse studies in these and similar sub-regions have reported geographical (residential) location as being consequential in determining the likelihood of facility-based deliveries (FBD).[1,4,5,7] For instance, a UNICEF report states that an urban-rural gap of 20% exists in FBD in sub-Saharan Africa, in favour of urban areas.[1] This scenario is further accentuated in Nigeria, where only 26% and 61% of rural and urban deliveries, respectively are facility-based.[2] The need for a positive change in the current statistics and narratives on the subject of location of deliveries in this region is certainly apparent.[5] This study aimed at comparatively ascertaining the place of delivery preferences among rural and urban women in Kaduna State, north-western Nigeria and the factors that determine these choices.

METHODS

Study areas

The study was conducted in Kaduna State in a rural area (Sabon Birni ward) and an urban area (Ungwan Rimi) located in Lere and Kaduna North Local Government Areas (LGAs) respectively. Lere LGA has a current projected population of 458,600 people.[8] Sabon Birni ward has an estimated population of 50,148 people; women of child-bearing age (15-49 years) constitute about 11,033 persons. The area consists mainly of hamlets and farm compounds. The predominant occupations include farming, fishing and trading. There is a Primary Health Care (PHC) clinic manned by auxiliary health workers in the community. Kaduna North LGA is entirely urban and constitutes part of Kaduna metropolis (the State capital). The LGA has a current projected population of about 492,100 people;[8] with about 108,262 women of child-bearing age. Health facilities of all three tiers of the healthcare system (both public and private) exist therein.

Study design

A comparative, community-based, cross-sectional study design.

Study population

All women within the reproductive age group (15-49 years) resident within the two study areas who had their last pregnancies within 5 years prior to the study.

Sample size
The sample size was calculated using the formula for comparing two proportions:

$$n = \frac{[Z_\alpha + Z_\beta]^2 \times [(P_1 \times (1 - P_1)) + (P_2 \times (1 - P_2))]}{(P_2 - P_1)^2}$$

Where,

n = desired minimum sample size per comparison group

Z_α = Z-score corresponding to 95% level of significance (ie, 1.96)

Z_β = Z-score corresponding to 80% statistical power of the study (ie, 0.84)

P_1 = estimated level of prevalence (among rural women) as obtained from a previous, similar study (NDHS-2018)[2] = 25.8% (ie, 0.258)

P_2 = estimated level of prevalence (among urban women) as obtained from the same study = 61.1% (ie, 0.611)

$$n = \frac{[1.96 + 0.84]^2 \times [(0.258 \times (1 - 0.258)) + (0.611 \times (1 - 0.611)]}{(0.611 - 0.258)^2}$$

$$n = \frac{[2.8]^2 \times [0.258 \times (0.742) + 0.611 \times (0.389)]}{(0.353)^2}$$

$$n = \frac{7.84 \times [0.191436 + 0.237679]}{0.124609}$$

$$n = \frac{7.84 \times 0.429115}{0.124609}$$

$$n = \frac{3.3642616}{0.124609}$$

$$n = 26.998544$$

A non-response rate of 10% was inputted:

n = 26.998544 + 2.6998544
  = 29.6983984 ≈ 30 respondents per group

Sampling method

A total of 340 respondents participated in the study (170 per location- rural and urban). In the rural area, single-stage, cluster sampling technique was used to select participants. Sabon Birni ward was divided into 12 clusters, according to its 12 hamlets (each hamlet representing a cluster), and 5 clusters were selected by simple random sampling method (by balloting). Consenting women of child-bearing age within these selected clusters participated in the study. In the urban area, multi-stage sampling technique was used. In the first stage, 5 out of the 37 major streets in the study area (Ungwan Rimi) were selected by simple random sampling method (by balloting). In the second stage, houses on the selected streets were numbered; and odd-numbered houses were selected by systematic sampling method. In the final stage, all consenting women of child-bearing age in the selected houses participated in the study.

Data management

Data were collected in April and May, 2020 using structured, open and close-ended, self-administered questionnaires (except in cases where respondents were illiterate) and analysed using Statistical Package for Social Sciences (SPSS-version 25) (manufactured by International Business Machines Corporation (IBM), with headquarters in Armonk, New York, United States of America). Results were presented in tables. Chi-squared (x^2) test was used to test for associations (p-value was set at ≤0.05).

Ethical considerations

Ethical approval was obtained from the Ethics Committee of Barau Dikko Teaching Hospital (BDTH), Kaduna, Kaduna State (BDTH-HREC Reference number: 20-0059). Informed consent was obtained from the respondents and the confidentiality of the information obtained from them was assured.

RESULTS

Tables 1 and 2 show that the respondents in both rural and urban locations were similar in age distribution and marital status. Most (67.9%) of them were between the ages of 20-34 years (mean ± SD = 29.81 ± 7.63 years) and over 80% are married. However, they significantly differed in features such as educational levels, occupation and monthly income. Respondents' husbands also significantly differed in educational levels, occupation and monthly income across both study locations.

Table 3 shows that facility-based delivery was 67.7% across both study areas (rural 45.4%, urban 88.9%). About 82.9% of the women in the urban area attended ANC in their last pregnancy; however, only half of that proportion (40.6%)

Table 1: Demographic and socio-economic characteristics of respondents (n=340)

Variables	Rural Freq. (%)	Urban Freq. (%)	Total Freq. (%)	X^2	P value
Age group (years)					
15-19	13 (7.6)	8 (4.7)	21 (6.2)	8.944	0.177
20-24	39 (22.9)	28 (16.5)	67 (19.7)		
25-29	55 (32.4)	45 (26.5)	100 (29.4)		
30-34	28 (16.5)	36 (21.2)	64 (18.8)		
35-39	16 (9.4)	27 (15.9)	43 (12.6)		
40-44	13 (7.6)	17 (10.0)	30 (8.8)		
45-49	6 (3.5)	9 (5.3)	15 (4.4)		
Tribe					
Hausa	42(24.7)	80(47.1)	122(35.9)	80.578	0.000
Fulani	32(18.8)	32(18.8)	64(18.8)		
Igbo	15(8.8)	11(6.5)	26(7.6)		
Yoruba	5(2.9)	22(12.9)	27(7.9)		
Kurama	36(21.2)	6(3.5)	42(12.4)		
Amo	14(8.2)	1(0.6)	15(4.4)		
Gure	21(12.4)	1(0.6)	22(6.5)		
Others (Gbagyi, Chawai, Nupe, Igala, Tiv etc)	5(2.9)	17(10.0)	22(6.5)		
Religion					
Islam	93(54.7)	126(74.1)	219(64.4)	13.973	0.000
Christianity	77(45.3)	44(25.9)	121(35.6)		
Marital status					
Single	11(6.5)	8(4.7)	19(5.6)	0.983	0.912
Married	144(84.7)	149(87.6)	293(86.2)		
Divorced	6(3.5)	5(2.9)	11(3.2)		
Separated	2(1.2)	1(0.6)	3(0.9)		
Widowed	7(4.1)	7(4.1)	14(4.1)		
Level of education					
No formal education	60(35.3)	13(7.6)	73(21.5)	46.916	0.000
Primary education	34(20.0)	25(14.7)	59(17.4)		
Secondary education	36(21.2)	67(39.4)	103(30.3)		
Tertiary education	40(23.5)	65(38.2)	105(30.9)		
Occupation					
Housewife	84(49.4)	56(32.9)	140(41.2)	18.783	0.005
Civil servant	9(5.3)	28(16.5)	37(10.9)		
Petty trading	32(18.8)	43(25.3)	75(22.1)		
Teaching	15(8.8)	12(7.1)	27(7.9)		
Tailoring	18(10.6)	14(8.2)	32(9.4)		
Catering	7(4.1)	11(6.5)	18(5.3)		
Others (farming, artisanship etc)	5(2.9)	6(3.5)	11(3.2)		
Monthly income					
N0-N9,999	96(56.5)	37(21.8)	133(39.1)	68.308	0.000
N10,000 –N19,999	36(21.2)	26(15.3)	62(18.2)		
N20,000-N29,999	22(12.9)	37(21.8)	59(17.4)		
N30,000-N39,999	4(2.4)	27(15.9)	31(9.1)		
N40,000-N49,999	10(5.9)	27(15.9)	37(10.9)		
N50,000-N59,999	1(0.6)	7(4.1)	8(2.4)		
N60,000-N69,999	0(0.0)	3(1.8)	3(0.9)		
$\geq$N70,000	1(0.6)	6(3.6)	7(2.1)		

Table 2: Demographic and socio-economic characteristics of respondents' husbands (n=293)

Variables	Rural Freq. (%)	Urban Freq. (%)	Total Freq. (%)	X²	P-value
Husband's level of education					
No formal education	43(29.9)	11(7.4)	54(18.4)	50.294	0.000
Primary education	24(16.6)	6(4.1)	30(10.2)		
Secondary education	37(25.7)	40(26.8)	77(26.3)		
Tertiary education	40(27.8)	92(61.7)	132(45.1)		
Husband's occupation					
Farming	68(47.2)	10(6.7)	78(26.6)	63.882	0.000
Trading	39(27.1)	58(38.9)	97(33.1)		
Teaching	9(6.3)	14(9.4)	23(7.8)		
Civil servant	25(17.4)	60(40.3)	85(29.0)		
Others (driver, security officer, politician)	3(2.1)	7(4.7)	10(3.4)		
Husband's monthly income					
N0-N9,999	9(6.1)	0(0.0)	9(3.0)	38.355	0.000
N10,000-N19,999	17(11.5)	10(6.7)	27(9.1)		
N20,000-N29,999	23(15.5)	11(7.4)	34(11.4)		
N30,000-N39,999	11(7.4)	13(8.7)	24(8.1)		
N40,000-N49,999	17(11.5)	32(21.5)	49(16.5)		
N50,000-N59,999	6(4.1)	15(10.1)	21(7.1)		
N60,000-N69,999	4(2.7)	4(2.7)	8(2.7)		
N70,000-N79,999	2(1.4)	3(2.0)	5(1.7)		
N80,000-N89,999	2(1.4)	2(1.3)	4(1.3)		
N90,000-N99,999	2(1.4)	10(6.7)	12(4.0)		
≥ N100,000	3(2.0)	13(8.7)	16(5.4)		
I don't know	52(35.1)	36(24.2)	88(29.6)		

Table 3: Summary of respondents' last pregnancy history (n=340)

Variables	Rural Freq.(%)	Urban Freq.(%)	Total	X²	P value
Last pregnancy					
1 year ago	78(45.9)	54(31.8)	132(38.8)	17.558	0.002
2 years ago	49(28.8)	70(41.2)	119(35.0)		
3 years ago	17(10.0)	28(16.5)	45(13.2)		
4 years ago	8(4.7)	12(7.1)	20(5.9)		
5 years ago	18(10.6)	6(3.5)	24(7.1)		
ANC attendance					
Yes	69(40.6)	141(82.9)	210(61.8)	64.563	0.000
No	101(59.4)	29(17.1)	130(38.2)		
Pregnancy outcome					
Live birth	152(89.4)	159(93.5)	311(91.5)	3.024	0.220
Stillbirth	2(1.2)	3(1.8)	5(1.5)		
Abortion/miscarriage	16(9.4)	8(4.7)	24(7.1)		
Place of delivery (*n=316)					
Government hospital	61(39.6)	103(63.6)	164(51.9)	74.415	0.000
Private hospital	9(5.8)	41(25.3)	50(15.8)		
TBA's home	4(2.6)	2(1.2)	6(1.9)		
Respondent's house	80(51.9)	16(9.9)	96(30.4)		
Total	**154 (100)**	**162 (100)**	**316 (100)**		

(*Abortions/miscarriages excluded; TBA = traditional birth attendant; ANC = antenatal care)

Table 4: Bivariate analysis between demographic & socio-economic characteristics of rural respondents and their choice of delivery location (n=154)

Variables	Government Hospital/Clinic Freq. (%)	Private Hospital/Clinic Freq. (%)	TBA's Home Freq. (%)	Respondent's House Freq. (%)	X²	P-value
Age group (yrs)						
15-19	2(3.3)	2(22.2)	1(25.0)	8(10.0)	17.100	0.516
20-24	13(21.3)	2(22.2)	1(25.0)	18(22.5)		
25-29	19(31.1)	1(11.1)	0(0.0)	31(38.8)		
30-34	13(21.3)	2(22.2)	2(50.0)	8(10.0)		
35-39	7(11.5)	1(11.1)	0(0.0)	6(7.5)		
40-44	4(6.6)	1(11.1)	0(0.0)	6(7.5)		
45-49	3(4.9)	0(0.0)	0(0.0)	3(3.8)		
Tribe						
Hausa	16(26.2)	1(11.1)	1(25.0)	24(30.0)	33.047	0.046
Fulani	7(11.5)	0(0.0)	3(75.0)	16(20.0)		
Igbo	9(14.8)	1(11.1)	0(0.0)	5(6.3)		
Yoruba	0(0.0)	0(0.0)	0(0.0)	3(3.8)		
Kurama	11(18.0)	4(44.4)	0(0.0)	19(23.8)		
Amo	9(14.8)	0(0.0)	0(0.0)	5(6.3)		
Gure	7(11.5)	2(22.2)	0(0.0)	8(10.0)		
Others	2(3.3)	1(11.1)	0(0.0)	0(0.0)		
Religion						
Islam	25(41.0)	2(22.2)	4(100)	54(67.5)	17.083	0.001
Christianity	36(59.0)	7(77.8)	0(0.0)	26(32.5)		
Level of education						
No formal education	11(18.0)	1(11.1)	3(75.0)	39(48.8)	47.325	0.000
Primary	5(8.2)	1(11.1)	0(0.0)	24(30.0)		
Secondary	20(32.8)	3(33.3)	1(25.0)	10(12.5)		
Tertiary	25(41.0)	4(44.4)	0(0.0)	7(8.8)		
Monthly income						
N0-N9,999	31(50.8)	5(55.6)	4(100)	47(58.8)	20.937	0.283
N10,000 – N19,999	10(16.4)	3(33.3)	0(0.0)	22(27.5)		
N20,000-N29,999	8(13.1)	1(11.1)	0(0.0)	10(12.5)		
N30,000-N39,999	4(6.6)	0(0.0)	0(0.0)	0(0.0)		
N40,000-N49,999	6(9.8)	0(0.0)	0(0.0)	1(1.3)		
N50,000-N59,999	1(1.6)	0(0.0)	0(0.0)	0(0.0)		
N60,000-N69,999	0(0.0)	0(0.0)	0(0.0)	0(0.0)		
N70,000-N79,999	1(1.6)	0(0.0)	0(0.0)	0(0.0)		
N80,000-N89,999	0(0.0)	0(0.0)	0(0.0)	0(0.0)		
≥ N90,000	0(0.0)	0(0.0)	0(0.0)	0(0.0)		

Parity

1	13(21.3)	5(55.6)	1(25.0)	17(21.3)	21.221	0.130
2	14(23.0)	3(33.3)	0(0.0)	18(22.5)		
3	14(23.0)	0(0.0)	1(25.0)	11(13.8)		
4	10(16.4)	0(0.0)	0(0.0)	17(21.3)		
5	6(9.8)	1(11.1)	0(0.0)	9(11.3)		
≥ 6	4(6.6)	0(0.0)	2(50.0)	8(10.0)		

Husband's level of education

No formal education	1(1.9)	0(0.0)	3(75.0)	31(44.3)	58.827	0.000
Primary	4(7.4)	0(0.0)	0(0.0)	18(25.7)		
Secondary	23(42.6)	2(33.3)	0(0.0)	13(18.6)		
Tertiary	26(48.1)	4(66.7)	1(25.0)	8(11.4)		

Husband's income

N0-N9,999	2(3.7)	1(16.7)	0(0.0)	6(8.6)	48.209	0.042
N10,000-N19,999	9(16.7)	0(0.0)	0(0.0)	8(11.4)		
N20,000-N29,999	10(18.5)	3(50.0)	0(0.0)	8(11.4)		
N30,000-N39,999	3(5.6)	1(16.7)	2(50.0)	5(7.1)		
N40,000-N49,999	8(14.8)	0(0.0)	1(25.0)	7(10.0)		
N50,000-N59,999	2(3.7)	0(0.0)	0(0.0)	1(1.4)		
N60,000-N69,999	2(3.7)	0(0.0)	0(0.0)	1(1.4)		
N70,000-N79,999	2(3.7)	0(0.0)	0(0.0)	0(0.0)		
N80,000-N89,999	1(1.9)	1(16.7)	0(0.0)	0(0.0)		
N90,000-N99,999	2(3.7)	0(0.0)	0(0.0)	0(0.0)		
≥ 100,000	1(1.9)	0(0.0)	0(0.0)	1(1.4)		
I don't know	12(22.2)	0(0.0)	1(25.0)	33(47.1)		

Table 5: Bivariate analysis between demographic & socio-economic characteristics of urban respondents and their choice of delivery location (n=162)

	Delivery Location					
Variables	**Government Hospital/Clinic Freq. (%)**	**Private Hospital/Clinic Freq. (%)**	**TBA's Home Freq. (%)**	**Respondent's House Freq. (%)**	**X^2**	**P-value**
Age group (yrs)						
15-19	6(5.8)	2(4.9)	0(0.0)	0(0.0)	29.964	0.038
20-24	17(16.5)	3(7.3)	1(50.0)	6(37.5)		
25-29	30(29.1)	10(24.4)	0(0.0)	2(12.5)		
30-34	19(18.4)	15(36.6)	0(0.0)	1(6.3)		
35-39	19(18.4)	4(9.8)	1(50.0)	1(6.3)		
40-44	8(7.8)	4(9.8)	0(0.0)	5(31.3)		
45-49	4(3.9)	3(7.3)	0(0.0)	1(6.3)		
Tribe						
Hausa	44(42.7)	22(53.7)	1(50.0)	8(50.0)	20.063	0.329

Fulani	18(17.5)	5(12.2)	1(50.0)	6(37.5)		
Igbo	7(6.8)	4(9.8)	0(0.0)	0(0.0)		
Yoruba	19(18.4)	3(7.9)	0(0.0)	0(0.0)		
Kurama	2(1.9)	3(7.3)	0(0.0)	1(6.3)		
Amo	0(0.0)	1(2.4)	0(0.0)	0(0.0)		
Others	13(12.6)	3(7.3)	0(0.0)	1(6.3)		
Religion						
Islam	73(70.9)	30(73.2)	2(100)	15(93.8)	4.492	0.213
Christianity	30(29.1)	11(26.8)	0(0.0)	1(6.3)		
Level of education						
No formal education	2(1.9)	0(0.0)	1(50.0)	8(50.0)	81.773	0.000
Primary	16(15.5)	2(4.9)	0(0.0)	6(37.5)		
Secondary	46(44.7)	13(31.7)	1(50.0)	2(12.5)		
Tertiary	39(37.9)	26(63.4)	0(0.0)	0(0.0)		
Monthly income						
N0-N9,999	18(17.5)	3(7.3)	1(50.0)	13(81.3)	63.802	0.000
N10,000 – N19,999	17(16.5)	4(9.8)	1(50.0)	2(12.5)		
N20,000-N29,999	24(23.3)	10(24.4)	0(0.0)	1(6.3)		
N30,000-N39,999	20(19.4)	5(12.2)	0(0.0)	0(0.0)		
N40,000-N49,999	19(18.4)	8(19.5)	0(0.0)	0(0.0)		
N50,000-N59,999	3(2.9)	4(9.8)	0(0.0)	0(0.0)		
N60,000-N69,999	1(1.0)	2(4.9)	0(0.0)	0(0.0)		
N70,000-N79,999	0(0.0)	2(4.9)	0(0.0)	0(0.0)		
N80,000-N89,999	1(1.0)	1(2.4)	0(0.0)	0(0.0)		
≥ N90,000	0(0.0)	2(4.9)	0(0.0)	0(0.0)		
Parity						
1	20(19.4)	11(26.8)	0(0.0)	1(6.3)	26.889	0.030
2	20(19.4)	15(36.6)	0(0.0)	2(12.5)		
3	30(29.1)	4(9.8)	0(0.0)	4(25.0)		
4	20(19.4)	6(14.6)	1(50.0)	4(25.0)		
5	8(7.8)	5(12.2)	1(50.0)	5(31.3)		
≥ 6	5(4.9)	0(0.0)	0(0.0)	0(0.0)		
Husband's level of education						
No formal education	6(6.3)	0(0.0)	0(0.0)	5(33.3)	62.746	0.000
Primary	1(1.1)	0(0.0)	1(50.0)	4(26.7)		
Secondary	28(29.5)	4(12.1)	0(0.0)	5(33.3)		
Tertiary	60(63.2)	29(87.9)	1(50.0)	1(6.7)		
Husband's monthly income						
N0-N9,999	0(0.0)	0(0.0)	0(0.0)	0(0.0)	46.385	0.029

N10,000-N19,999	6(6.3)	0(0.0)	1(50.0)	3(20.0)
N20,000-N29,999	10(10.5)	1(3.0)	0(0.0)	0(0.0)
N30,000-N39,999	7(7.4)	1(3.0)	0(0.0)	5(33.3)
N40,000-N49,999	23(24.2)	6(18.2)	1(50.0)	2(13.3)
N50,000-N59,999	11(11.6)	4(12.1)	0(0.0)	0(0.0)
N60,000-N69,999	3(3.2)	1(3.0)	0(0.0)	0(0.0)
N70,000-N79,999	2(2.1)	0(0.0)	0(0.0)	0(0.0)
N80,000-N89,999	0(0.0)	2(6.1)	0(0.0)	0(0.0)
N90,000-N99,999	4(4.2)	5(15.2)	0(0.0)	1(6.7)
≥ 100,000	8(8.4)	5(15.2)	0(0.0)	0(0.0)
I don't know	21(22.1)	8(24.2)	0(0.0)	4(26.7)

Table 6: Reasons for respondents' choice of delivery location (n=316)

Variables	Rural Freq. (%)	Urban Freq. (%)
Proximity to health facility	16(10.4)	63(38.9)
Affordability of services	3(1.9)	15(9.3)
Private (personal) reasons	47(30.5)	18(11.1)
Concerns for safe delivery	77(50.0)	55(34.0)
Family/friends' influence	15(9.7)	21(13.0)
Total	**154 (100)**	**162 (100)**

(Multiple responses were entertained)

did in the rural area. These rural-urban differences were statistically significant. More than half of the rural women delivered at home (51.9%) as compared with the 9.9% among urban women.

Tables 4 and 5 show that respondents' tribe, religion and educational levels, and their husbands' educational levels and income were statistically significant determinants of their choices of delivery location in the rural area. In the urban area, respondents' ages, educational levels, income and parity; and their husbands' educational levels and income were statistically significant determinants of their choices of delivery location.

Table 6 shows that the leading reason for choice of delivery location among half (50%) of the rural women was concerns for safe delivery. This was also the second reason among urban women (34%). Proximity to health facility was the leading reason in the urban area.

DISCUSSION

Majority of the respondents in this study were in their twenties and early thirties in both locations (rural 71.8%, urban 64.2%). This is corroborated by findings in NDHS-2018 and other similar studies.[2,4,7,9] Majority (86.2%) were married. Most women within the reproductive ages of 15-49 years in this and similar contexts are usually married.[2,4,7] One-third of the rural women had no formal education (35.3%), while 38.2% of the urban women had tertiary level of education. About half (49.4%) of the rural women were full-time housewives while about two-thirds (67.1%) of their urban counterparts were gainfully employed or engaged, with more than half (56.5%) of the rural women earning less than ₦10,000 per month and a quarter (25.4%) of the urban women earning between ₦40,000 to ≥ ₦90,000 monthly. These rural-urban disparities in educational levels, occupations and monthly incomes were statistically significant, and correspond with the general

national situation.[2] This same phenomenon is also similar among the respondents' husbands.

About 73.8% of the respondents had their last pregnancies within the period 2 years before the study (rural 74.7%, urban 73%). In Nigeria, about 25% of non-first births occur within a 2-year interval; this figure increases by another 38% in the third year.[2] Out of the 340 respondents in this study, 24 experienced miscarriages in their last pregnancies. These were excluded from the place of delivery analysis, leaving a total of 316 women. Facility-based delivery was 67.7% across both study areas (urban 88.9%, and rural 45.4%). This rural-urban disparity in institutional deliveries was statistically significant and in favour of urban residence as is similarly reported in other like studies conducted within and outside Nigeria.[1,4,7,9,10] However, regional variations do exist nationally and within sub-Saharan Africa.[1,4,5,10,11]

Institutional deliveries are encouraged by WHO and many other health authorities in order to safeguard the lives and health of both mothers and their babies.[3,4-7,9,11] This is because skilled health personnel and the requisite facilities and environment needed to quickly detect and attend to unexpected complications which may arise during the process of delivery are more guaranteed to be available intra-facility.[1-7,11] This contributes significantly in reducing the relatively high maternal and early neonatal mortality rates characteristic of many sub-Saharan countries.[2,4-7,10-13] In Nigeria, the current national rate of facility-based deliveries is less than 40% (rural 25.8%, urban 61.1%).[2,14,15] In addition to the obvious rural-urban disparity, the northern parts of the country have much lower rates of facility-based deliveries[10-13] ranging from 15.6 % in the north-western zone, where this study was conducted (the index state, Kaduna having 17.6%) to 49.2% in the north-central zone as compared to the southern regions, ranging from 50.2% in the south-south zone to 81.8% in the south-eastern zone.[2] However, the trend in institutional deliveries in Nigeria over the last 3 decades reflects an increase nationwide;[10] albeit, rather very slow- from 32% in 1990 to 39% currently.[2] The trend is not any different in many sub-Saharan African and Asian nations.[4,6,7,9,12,13,15] This has been attributed to the deliberate institution of interventions revolving around emergency obstetric care by national governments coupled with support from international bodies and agencies.[4-7,9,11]

Government-owned health facilities were patronised by about half (51.9%) of the respondents (rural 39.6%, urban 63.6%), while 15.8% of them delivered in private facilities (rural 5.8%, urban 25.3%). Contrary to data from Indonesia,[9] institutional deliveries in Nigeria occur more frequently in public facilities compared to private facilities.[2] This may be because maternal and child health services in government-owned facilities are usually relatively subsidised (or even free) and are therefore, more affordable and in many rural areas, public facilities remain largely the only option available.[10,11,15] However, a study assessing public and private facilities in Nigeria reports that private facilities are significantly better prepared to render both basic essential obstetric care and comprehensive obstetric care relative to public facilities.[16]

It is a concern that more than half (51.9%) of the rural women in this study delivered at home compared to 9.9% of the urban women as similarly reported by other surveys.[2,4,9-11,13] This may not be unconnected to the factors determining their choice of place of delivery; namely tribe, religion and educational level. Home delivery in the rural study area is evidently more prevalent among Muslim women of Hausa and Fulani ethnic extractions, and also women with primary or no formal level of education.[2,10] This is corroborated by other authors regarding northern Nigeria.[10,11,13-15] Many women shy away from health facilities during delivery, maintaining the relatively conservative customs of home delivery prevalent in this area. They would rather avoid having to expose themselves to health workers of the male gender during delivery.[5,10,13] These factors did not seem to come into play in the urban study area, where age, educational levels, income and parity were the significant determinants of place of delivery. Women with at least primary level of education and those earning a minimum of N30,000 monthly (or more) were more likely to deliver at health facilities; while home delivery increased among those with parity of between 3 to 5 births.[2,4,9-12,14,15] Women of higher parity often exhibit an air of self-confidence usually arising from a

sense of having had a number of experiences in child-bearing.[4,10,11,14] Spouses' income and educational levels were significantly associated with choice of place of delivery in both study areas. Findings from other studies report that both maternal and spousal levels of education are recognised, consistent, positive influencing factors in determining facility delivery.[4,10-14,15]

Top among respondents' reasons for the choice of place of delivery in this study is the concern for safe delivery. This is corroborated by other authors, some of whom have reported that perceived quality of care was an important independent predictor of delivery place.[4,5,12] This appears to reflect in the slight increase of about 4.8% and 6% in facility-based delivery relative to ANC attendance among rural and urban women, respectively. Irrespective of their socio-economic situations and demographic realities, it is evident that safe delivery remains a concern for many women. This is understandably so as the joy and satisfaction of the obstetric journey and adventure is both a live and healthy mother and baby. Other factors mentioned by respondents directly or indirectly reflect socio-economic issues such as proximity to health facilities (by implication, transport costs and logistics) and costs of services as well as the influence of friends and family members; as also reported in other similar studies.[4-7,10-12,14,15]

This study had some limitations. Even though the study comparatively explored the preferences of women in rural and urban locations regarding place of delivery, the category of attendants at birth was not covered in this study. Institutional deliveries are advocated by WHO and other health bodies as a means to achieving the ultimate end of improving outcomes for both mothers and their babies. This is with the understanding that skilled birth attendants would be at hand to oversee such deliveries. However, this may not be automatically inferred from (only) place-of-delivery data. This gap is acknowledged by the authors and is an area for further research.

CONCLUSION

Empirical evidence of an obvious rural-urban disparity in the pattern of delivery location choices exists in the two study populations with institutional delivery being favoured by urban women and home delivery practised more among rural women. Determining factors include respondents' tribe, religion and educational levels (in the rural area), and age, educational levels, income and parity (among urban women) as well as spousal income and educational levels in both areas. This provides supportive evidence for policy and decision-making in developing maternal and child health programmes. Priority attention ought to be given to the training and recruitment of more skilled female personnel in the area of delivery services in the rural north of Nigeria, in order to improve facility-based deliveries and safeguard maternal and neonatal lives.

Conflicts of interest
There are no conflicts of interest

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