

Original Research Article

Place of delivery and its determinants among women in rural and urban communities in Kano State, Nigeria

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ABSTRACT

Background: Childbirth poses significant risks, particularly in Nigeria where many births occur outside health facilities and without skilled attendants, skyrocketing maternal morbidity and mortality. This study assessed and compared place of delivery and its determinants among women in urban and rural Kano State.

Methods: A cross-sectional study was conducted. A multistage sampling technique selected 292 urban and 300 rural women of reproductive age group. Quantitative data were analysed using SPSS 20.

Results: Overall, 32.1% of women delivered in health facilities, while 67.9% delivered at home. Hospital deliveries were higher in urban (39.7%) than rural areas (24.7%). Safety, avoidance of problems, and trust in health workers facilitate hospital delivery. Conversely, customs, quick labour, and fear of hospital staff were major reasons for home delivery. Mother's education (Urban: aOR; 3.023 (95% CI; 1.459-6.264), p=0.003), (Rural: aOR; 2.311 (95% CI; 1.106-4.829), p=0.026) and spousal education level (Urban: aOR; 2.925 (95% CI; 1.357-6.306), p=0.006), (Rural: aOR; 2.183 (95% CI; 1.241-3.840), p=0.007) remained predictors in both areas with secondary and above likely to deliver in hospital. While occupation was significant in the urban communities (aOR; 2.392 (95% CI; 1.137-5.031), p=0.022), antenatal care visits in the rural communities (aOR; 2.427 (95% CI; 1.408 - 4.367), p=0.001).

Conclusions: The study found a high proportion of home deliveries with associated sociodemographic and socioeconomic factors. Emphasis on hospital delivery and addressing sociodemographic and socioeconomic factors facilitating home deliveries is recommended.

Keywords: Determinants, Place of delivery, Skilled birth attendant, Urban and rural

INTRODUCTION

Maternal and child mortalities remain pressing health challenges in developing countries, particularly in Nigeria,

despite being largely preventable through timely utilisation of skilled maternity services. Globally, about 260,000 preventable maternal deaths while pregnant or childbirth in 2023 of which 92% occurred in low- and

lower-middle-income countries. Sub-Saharan Africa alone accounted for around 70% (182, 000) of maternal deaths.^{1,2} The maternal mortality ratio (MMR) in low-income countries was 346 per 100 000 live births and for the Nigeria's MMR was 993 deaths per 100,000 live births in 2023.^{1,3,4}

The most effective internationally recognized intervention for reducing maternal deaths is skilled birth attendance in health facilities backed by emergency obstetric care. Sustainable Development Goal (SDG) 3 aims to reduce the global MMR by 70% between 2015 and 2030, with the proportion of births attended by skilled personnel serving as a key progress indicator.⁵ Despite the known benefits, many women in sub-Saharan Africa deliver at home without skilled attendants, contributing significantly to high maternal and neonatal deaths. Skilled Birth Attendants (SBAs) are midwives, doctors, and nurses trained to manage normal pregnancies, childbirth, and complications, and to provide referrals when needed. However, in Nigeria, 67% of births occur at home, with rural areas recording hospital delivery rates as low as 4-13%.⁶⁻⁹

Although antenatal care (ANC) coverage is relatively high, there is a disconnect between ANC attendance and health facility delivery.^{7,8} For example, while ANC coverage in the Southeast is 91%, only 37% of women deliver in facilities, with 63% still delivering at home. Facility-based delivery remains highest in the Southeast (78%) and lowest in the Northwest (12%). Reasons for home delivery preferences include beliefs that facility delivery is unnecessary (37%) or culturally uncommon (12%).^{8,9}

Deliveries in health facilities are associated with significantly lower maternal and newborn morbidity and mortality compared with home births. Complications during pregnancy and childbirth are unpredictable and may require immediate skilled intervention, which is often unavailable at home. Community perceptions of care quality, cultural beliefs, financial difficulties, educational level, spousal approval, and socio-economic status strongly influence whether women deliver in health facilities.^{6,9} Education, while positively linked to facility delivery, is interwoven with other factors such as residence and wealth, suggesting that individual characteristics alone cannot fully explain utilization patterns.⁶⁻⁹ Child mortality also remains unacceptably high, with infant and under-five deaths closely tied to maternal health outcomes. For instance, a child's risk of death doubles if the mother dies during childbirth.^{10,11}

The burden of poor maternal health outcomes is most severe in Nigeria's Northeast and Northwest regions, where ANC coverage and SBA utilization are low. Surveys show that in northern states, only 25% of women attend ANC, while over 90% of births occur at home. This explains why the Northwest records one of the world's worst maternal mortality ratios.^{6,9}

Efforts to reduce maternal and child mortality must therefore focus on strengthening health systems, improving socio-economic conditions, and addressing cultural and gender-related barriers to health facility utilization. Community-based studies, especially those employing mixed methods, are crucial for understanding these determinants. Hospital-based studies and secondary data have been insufficient to capture the complexity of maternal healthcare behaviours. Comparing rural and urban differences can generate evidence-based recommendations for equitable resource allocation and service delivery.

The MMR for Kano State is 1700 per 100,000 and the infant mortality rate is 110 per 1000 live births. The neonatal mortality of 37/1000 live births and 8.4% hospital deliveries.^{12,13} The maternal deaths remain high despite free maternal services, understanding determinants of maternal service utilization is critical. Only through context-specific, evidence-driven interventions can Nigeria reduce its disproportionate burden of maternal and child mortality and progress toward global health targets. Which is why this study aimed to assess and compare the factors that influence choice of place of delivery among women in rural and urban communities in Kano.

METHODS

Study design, setting and participants

A comparative cross sectional descriptive study was conducted from February 2024 to June 2024. The Kano State has eight urban local governments and thirty-six rural local governments (LGAs). One urban LGA and Four rural LGAs were used for the study. The state has about 2,420,000 women within the reproductive age group.¹⁵ Women of the reproductive age group 15-49 years, who gave birth in the last one year and had been living in the study areas for at least one year at the time of the study.

Sample size calculation

The formula for comparing two proportions was used to calculate the minimum sample size.¹⁴

$$n = (Z\alpha + Z\beta)^2 [P_1(1-P_1) + P_2(1-P_2)] / (P_1 - P_2)^2$$

Where:

n = Minimum sample size for each group.

Z1- α /2 = Standard normal deviate corresponding to the probability of type I error (α) at 5% = 1.96.

Z1- β = To detect differences, 80% power will be used for this study. The value obtained from the normal distribution table is 1.28.

P_1 = Proportion of women in urban area of Kano State, who deliver at health facility = 19.3% = 0.19315.

P_2 = Proportion of women in rural area of Kano state, who deliver at health facility = 13.2% = 0.13215.

$P_1 - P_2$ = Minimum difference in proportion between the women in urban and rural areas who delivered in health facility.

Where it arrived at 128 women per group. Considering clustering effect (design effect) and non-response, minimum of 284 women was assigned per group.

Sampling technique

A multistage sampling technique was used. A list of all the forty-four (eight urban and thirty-six rural) LGAs was obtained from the National population commission.

Stage 1 (selection of study LGAs)

The five study LGAs were selected from a list of LGAs using simple random sampling by balloting. One LGA from the eight urban LGAs and four LGAs from the 36 rural LGAs.

Stage 2 (selection of wards)

Each of the five selected LGAs has ten political wards, 25% of 10 political wards in each local government area were selected by simple random sampling through balloting giving approximately 3 wards.

Stage 3 (selection of settlements)

From the three selected wards in each of the five local governments, 25% of the settlements were selected. The urban LGA has 200 settlements in the three wards and (50) settlements were selected. The other four rural LGAs have 532 settlements out of which (133) settlements were selected using simple random sampling method. From the total population of each of the selected settlements obtained from Kano State recent master list of settlements, a cumulative population was then calculated for each of the urban and rural LGAs to obtain a sampling frame. These gave a sampling frame of 34,557 for the urban LGA and 110,211 for the four rural LGAs. Sampling proportionate to size was used for the final selection of settlements which were taken as clusters. The sampling interval was then calculated as the cumulative population in the settlements divided by 30 using $(k \times 30)$ where k is the number of households to be interviewed per settlement $(34,557/30=1152)$ for the urban LGA and $(110,211/30=3676)$ for the four rural LGAs. The starting point was obtained by selecting a number within the interval using a random number table. Subsequent settlement was identified by adding the sampling interval to the preceding settlement number.

Stage 4 (selection of households)

Cluster sampling method (WHO modified), 139 was used for this selection. A total of 10 households in each of the selected settlements were approached and participated in the study. After arriving near the central location of the settlement, the interviewers proceeded in a randomly chosen direction (as indicated by spinning of a biro) to the nearest household. Subsequent houses (nearest) were identified as already determined by direction of movement. When more than one household was found in a house, one was selected by a single one-time ballot.

Stage 5 (selection of respondents)

Finally, a woman living in the household who had given birth in the last one year and met the inclusion criteria was approached to participate in the study. In a household with more than one eligible respondent, one of the women was selected through a one-time ballot. If in the sampled house there was no eligible respondent, the next house was moved into for the selection.

Data collection methods and tools

An interviewer-administered semi-structured questionnaire adapted from the study on utilization of non-skill birth attendant in Northern Nigeria was used to collect data from the eligible women.¹⁶ The tool has four sections: section I collected information on respondent's sociodemographic characteristics, while section II on respondent's obstetric history, section III assessed respondent's reasons for choice of a birthplace and section IV assessed the outcome of delivery. A total of 292 women in urban LGA and 300 women in four LGAs in study area were interviewed using interviewer administered questionnaire to generate information.

Data analysis

Data was analysed using SPSS (version 20) Statistical software. Frequency distributions of variables were generated and presented in tables and charts. Chi-square test was used for comparing the proportion of women who gave birth at facility and home between rural and urban communities, and t-tests was used for comparing means at bivariate level. Factors that were significantly associated with $p < 0.05$, $p < 0.10$ and those known to be significant in literature review but not in my study were entered into a binary logistic regression model for multivariate analysis to adjust for confounding factors. A p value of < 0.05 was considered statistically significant.

Ethical considerations

Ethical clearance was obtained from Health Research Ethic Committee of the Aminu Kano University Teaching Hospital. Informed written and oral consent were sought from all respondents selected for this study after being

provided with adequate information. Signatures of participants were obtained and were informed that participation was voluntary, and they were not obliged to provide answers to any question to which they are uncomfortable and have the right to opt out at any point in time when decided too with no consequences. Data was used only for research purposes and kept in a passworded computer.

RESULTS

Sociodemographic characteristics of study population

Two hundred and ninety-two and 300 questionnaires were administered to urban and rural LGAs with 97.3% and 100% response rates respectively. Women from the rural areas were relatively younger when compared with their urban counterpart and the age distribution of the two study arms were statistically different with the mean ages of urban and rural LGAs being 31.0±6.10 years and 26.9±6.88 years respectively (p<0.05).

Women in the urban areas were significantly older than their rural counterpart (p<0.05). Majority of the women in

the urban LGA had at least primary (58.1%) compared to their rural counterparts of (41.9%). The proportion of those gainfully employed in urban LGA was (65.0%) compared to (35.0%) in the rural LGAs. Most women in rural LGAs engaged in one form of petty trading or the other (63.4%) compared with 36.6% of the urban women. The average family size of between eleven to twenty was relatively higher for women in rural LGAs (51.9% rural and 48.1% urban). Most women in the urban (49.1%) and the rural LGAs (50.9%) were married for between one and ten years. The monthly income of women in both the LGAs was generally low. However, women in the urban areas earned a higher monthly income compared to their rural counterparts. There were statistically significant differences between urban and rural LGAs in age, ethnicity, education, occupation and income p<0.05 (Table 1).

Husbands of women in urban areas were significantly older than their rural counterpart (p<0.05). Similarly, spouses of women in urban attained higher education, monthly income and were more gainfully employed compared to their rural counterparts and these were statistically significant p<0.05 (Table 2).

Table 1: Socio-demographic characteristics of respondents by location.

| Sociodemographic characteristic | Urban (n=292) N (%) | Rural (n=300) N (%) | Test statistics |
|----------------------------------|------------------------|------------------------|---------------------------------|
| Age group (years) | | | |
| 16-19 | 21 (23.6) | 68 (76.4) | $\chi^2=44.00$ $p=0.001^*$ |
| 20-29 | 103 (44.2) | 130 (55.8) | |
| 30-39 | 129 (62.0) | 79 (38.0) | |
| 40-49 | 39 (62.9) | 23 (37.1) | |
| Ethnicity | | | |
| Hausa/Fulani | 279 (48.5) | 296 (51.5) | $\chi^2=5.18$ $p=0.03^*$ |
| Others | 13 (76.5) | 4 (23.5) | |
| Education | | | |
| Non-formal | 43 (23.4) | 141 (76.6) | $\chi^2=93.37$ $p=0.001^*$ |
| Primary | 100 (58.1) | 72 (41.9) | |
| Secondary | 78 (52.0) | 72 (48.0) | |
| Tertiary | 71 (82.6) | 15 (17.4) | |
| Occupation | | | |
| Business | 82 (36.6) | 142 (63.4) | $\chi^2=25.12$ $p\leq 0.001$ |
| Civil service | 39 (65.0) | 21 (35.0) | |
| None | 171 (55.5) | 137 (44.5) | |
| Marital status | | | |
| Not married | 8 (42.1) | 11 (57.9) | $\chi^2=0.41$ $p=0.64$ |
| Married | 284 (49.6) | 289 (50.4) | |
| Marriage duration (years) | | | |
| ≤10 | 193 (49.1) | 200 (50.9) | $\chi^2=0.04$ $p=0.99$ |
| 11-20 | 78 (50.0) | 78 (50.0) | |
| 21-30 | 21 (48.8) | 22 (51.2) | |
| Parity | | | |
| ≤4 | 180 (48.4) | 192 (51.6) | $\chi^2=0.35$ $p=0.61$ |
| 5-10 | 112 (50.9) | 108 (49.1) | |
| Family type | | | |
| Monogamous | 183 (48.0) | 198 (52.0) | $\chi^2=0.72$ $p=0.44$ |
| Polygamous | 109 (51.7) | 102 (48.3) | |

Continued.

| Sociodemographic characteristic | Urban (n=292) N (%) | Rural (n=300) N (%) | Test statistics |
|---------------------------------|------------------------|------------------------|----------------------------|
| Family size | | | |
| ≤10 | 230 (49.7) | 233 (50.3) | $\chi^2=0.11$ p=0.77 |
| 11-20 | 62 (48.1) | 67 (51.9) | |
| Monthly income (₦) | | | |
| ≤3000 | 160 (42.2) | 219 (57.8) | $\chi^2=29.64$ p=0.001* |
| 3100-14999 | 84 (55.6) | 67 (44.4) | |
| 15000-20000 | 48 (77.4) | 14 (22.6) | |

*Statistically significant, χ^2 =Chi-square, ₦=Nigerian Naira.

Table 2: Socio-demographic characteristics of respondents' spouses by location.

| Sociodemographic characteristic | Urban (n=292) N (%) | Rural (n=300) N (%) | Test statistics |
|---------------------------------|------------------------|------------------------|----------------------------|
| Age group (years) | | | |
| 19-29 | 8 (16.0) | 42 (84.0) | $\chi^2=28.36$ p=0.001* |
| 30-39 | 101 (47.6) | 111 (52.4) | |
| 40-49 | 101 (53.2) | 89 (46.8) | |
| ≥50 | 82 (58.6) | 58 (41.4) | |
| Education | | | |
| Non-formal | 16 (12.3) | 114 (87.7) | $\chi^2=94.85$ p=0.001* |
| Primary | 52 (51.5) | 49 (48.5) | |
| Secondary | 100 (61.7) | 62(38.3) | |
| Tertiary | 124 (62.3) | 75 (37.7) | |
| Occupation | | | |
| Business | 127 (42.3) | 173 (57.7) | $\chi^2=22.24$ p≤0.001* |
| Civil service | 70 (58.3) | 50 (41.7) | |
| Farming | 61 (48.0) | 66 (52.0) | |
| Others | 34 (75.6) | 11 (24.4) | |
| Monthly income (₦) | | | |
| >5000 | 7 (18.9) | 30 (81.1) | $\chi^2=56.07$ p=0.001* |
| 5000-19999 | 68 (35.4) | 124 (64.6) | |
| 20000-49999 | 159 (55.2) | 129 (44.8) | |
| ≥50000 | 58 (77.3) | 17 (22.7) | |

*Statistically significant, χ^2 =Chi-square, ₦=Nigerian Naira

Place of delivery among women in urban and rural communities

Overall, 67.9% of the deliveries were at home, while 32.1% occurred in hospital. In rural communities, 75.3%

of the deliveries took place at home compared to 60.3% urban. In the urban communities, 39.7% of deliveries occurred in hospital compared to 24.7% in rural (Figure 1). Reasons for choice of place of delivery among women in urban and rural communities is shown in Figures 2 and 3.

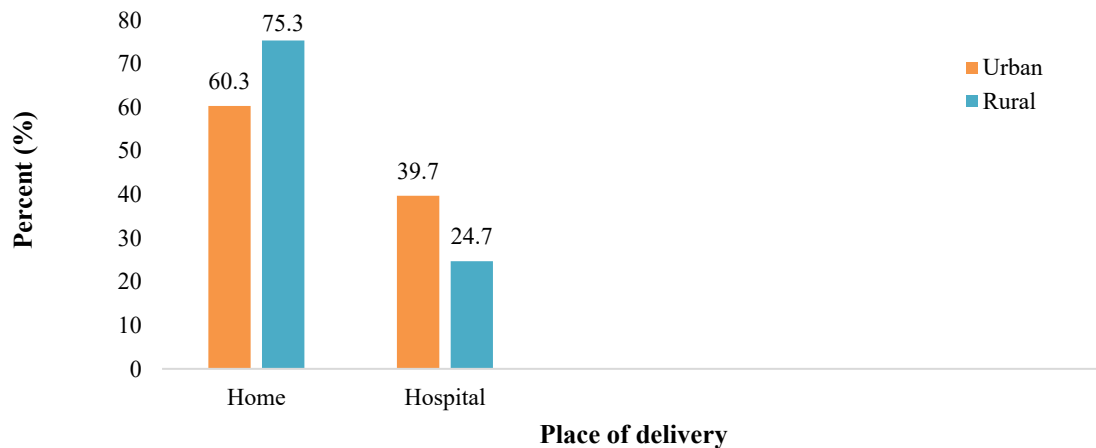


Figure 1: Place of delivery among women in urban and rural communities in Kano State.

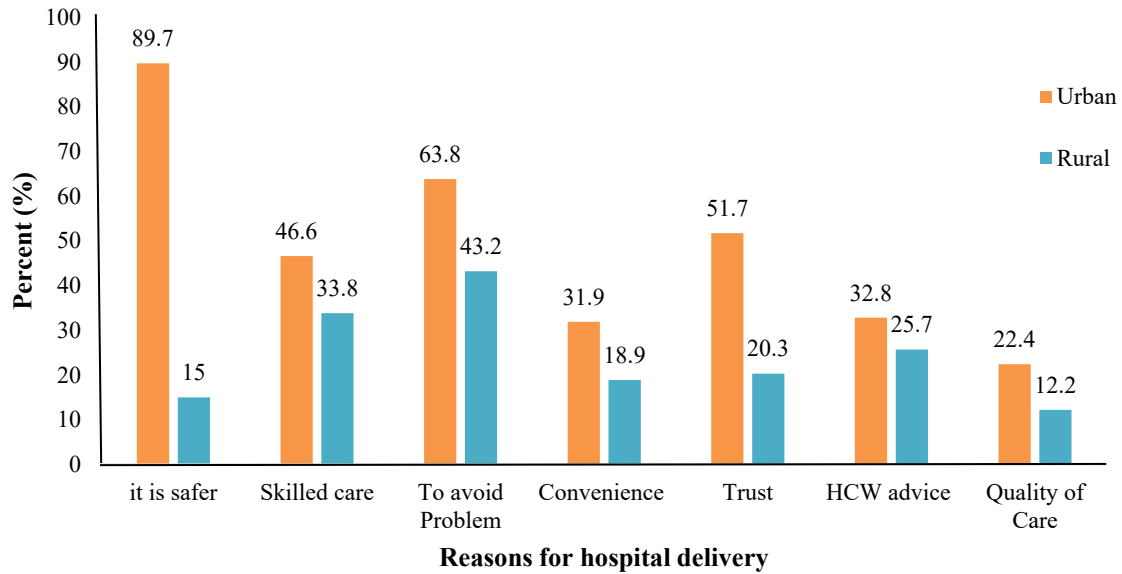


Figure 2: Reasons for choice of hospital delivery among women in urban and rural communities in Kano State.

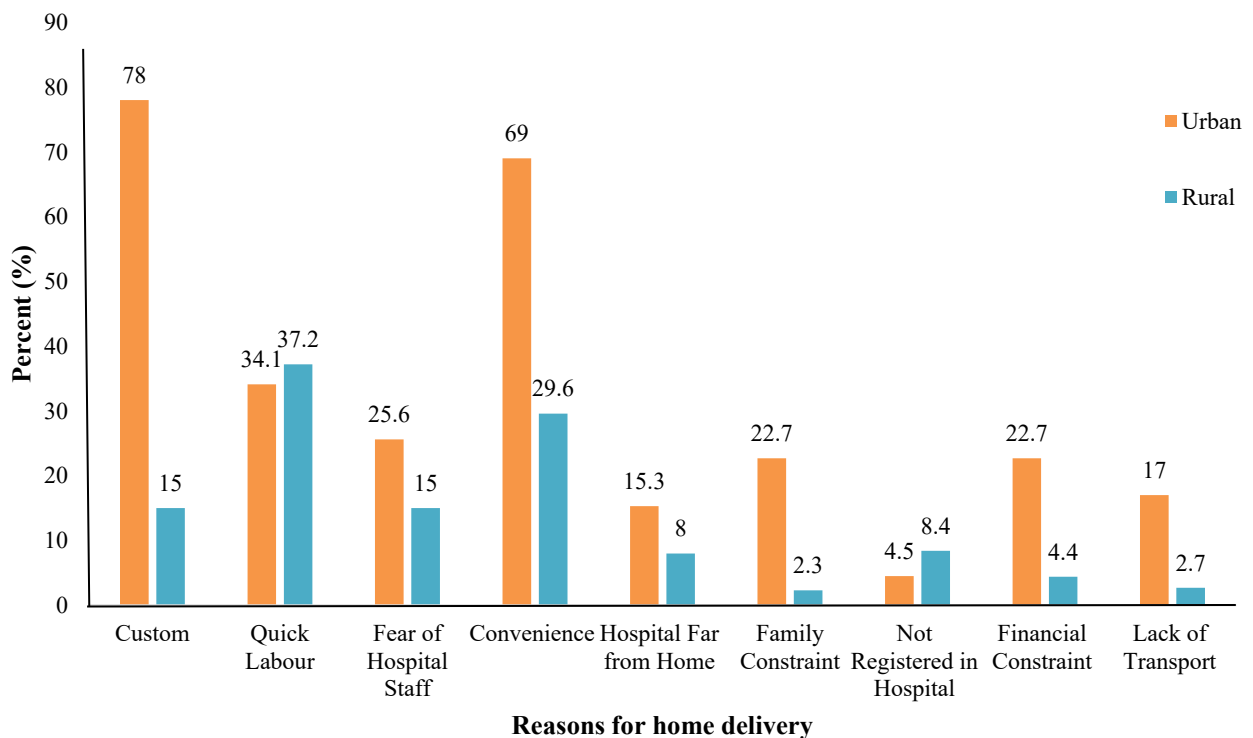


Figure 3: Reasons for choice of home delivery among women in urban and rural communities in Kano State.

Predictors of choice of place of delivery among women in urban and rural communities in Kano State

Educational level, occupation, family structure and mother monthly income remain significant predictors of place of delivery in urban communities. Specifically, those with non-formal education had almost three times the odd to deliver at home in both urban and rural LGAs ($p < 0.05$).

Spousal education, source of health information, attended ANC and number of ANC visits remained significant predictors of delivery in rural communities but not in urban communities where spousal education and awareness of birth preparedness remained significant predictors of delivery location. The odd is more than two times among those with secondary and above education to deliver in hospital in both the LGAs ($p < 0.05$) (Table 3 and 4).

Table 3: Predictors of choice of place of delivery among women in urban and rural communities in Kano State.

| Predictor | Urban | | Rural | |
|------------------------------------|---------------------|---------|---------------------|---------|
| | aOR (95% CI) | P value | aOR (95% CI) | P value |
| Mother's educational level | | | | |
| Non-formal | 1.609 (0.863-2.997) | 0.134 | 1.583 (0.837-2.996) | 0.158 |
| Primary | 1.449 (0.764-2.749) | 0.257 | 1.417 (0.728-2.760) | 0.305 |
| Secondary | 3.023 (1.459-6.264) | 0.003* | 2.311(1.106-4.829) | 0.026* |
| Tertiary | 1 | | 1 | |
| Occupation | | | | |
| Business | 2.392 (1.137-5.031) | 0.022* | 0.892 (0.415-1.916) | 0.768 |
| Civil Service | 0.231 (0.086-0.622) | 0.004* | 0.571 (0.125-2.616) | 0.471 |
| None | 1 | | 1 | |
| Family structure | | | | |
| Monogamous | 0.387 (0.192-0.779) | 0.008* | 1.132 (0.520-2.465) | 0.754 |
| Polygamous | 1 | | 1 | |
| Mother's monthly income (₦) | | | | |
| 0-3000 | 0.264 (0.104-0.672) | 0.005* | 0.444 (0.069-2.841) | 0.391 |
| 3100-14999 | 0.535 (0.196-1.459) | 0.222 | 1.111 (0.155-7.966) | 0.91 |
| 15000-20000 | 1 | | 1 | |
| Husband's educational level | | | | |
| Non-formal | 1.954(0.290-13.181) | 0.492 | 1.943(0.854-4.537) | 0.114 |
| Primary | 2.257(0.911-5.591) | 0.079 | 1.761(0.893-3.510) | 0.102 |
| Secondary | 2.925(1.357-6.306) | 0.006* | 2.183(1.241-3.840) | 0.007* |
| Tertiary | 1 | | 1 | |

*Statistically significant, aOR=adjusted odds ratio, CI=confidence interval.

Table 4: Predictors of choice of place of delivery among women in urban and rural communities in Kano State.

| Predictor | Urban | | Rural | |
|--|---------------------|---------|---------------------|---------|
| | aOR (95% CI) | P value | aOR (95% CI) | P value |
| Awareness of birth preparedness | | | | |
| Aware | 0.030(0.003-0.254) | 0.001* | 0.384(0.126-1.167) | 0.091 |
| Not aware | 1 | | 1 | |
| Antenatal care | | | | |
| Booked | 1.177(0.532-2.603) | 0.688 | 2.427 (1.408-4.367) | 0.001* |
| Not booked | 1 | | 1 | |
| Number of antenatal care visits | | | | |
| 1-3 | 1.054(0.564-1.968) | 0.870 | 0.168 (0.064-0.446) | 0.001* |
| 4-6 | 1 | | 1 | |
| Sources of information | | | | |
| Hospital | 4.63(0.499-42.853) | 0.178 | 0.206(0.15-0.325) | 0.001* |
| TV/Newspaper | 0.301 (0.067-1.351) | 0.117 | 0.134(0.016-1.111) | 0.063 |
| Radio | 1.363(0.657-2.827) | 0.405 | 0.446(0.111-1.800) | 0.257 |
| Multiple | 1 | | 1 | |

*Statistically significant, aOR=adjusted odds ratio, CI=confidence interval

DISCUSSION

The study revealed poor utilisation of health facilities for childbirth, however, noted some improvement compared to preceding studies. Generally, only 32.1% of women delivered in health facilities 67.9% at home. This is higher than earlier findings from Kano (19.3% urban and 13.2% rural hospital deliveries) but still the findings are lower than global and regional references.^{17,18}

The urban–rural disparity was noted, with 39.7% of urban women delivering in hospitals compared to only 24.7% of

rural women. By contrast, 75.3% of rural women delivering at home compared to 60.3% of urban women. These patterns reflect broader national estimates from the Nigerian Demographic and Health Surveys, which consistently reported approximately two-thirds of deliveries occurring at home between 2003 and 2013.^{17,19} Similar findings have been reported in other northern states, including Gombe (70% home deliveries), Yobe (90% home deliveries), and in a wider survey across three northern states where up to 91% of births occurring outside health facilities.²⁰ The findings validate that the Nigerian

health system persistently underperform regarding safe maternal service utilisation.

When compared internationally, the rates of health facility delivery in Kano remain low. In Namibia, Congo, and Gabon, facility-based deliveries exceed 80%, while in Ethiopia, Chad, and Niger they are below 20%, compared to findings from northern Nigeria.²¹ Bangladesh reports facility delivery rates as low as 14%.²² In West Africa, rates vary from 7.2% in rural Burkina Faso and 11.7% in some Nigerian regions to 63% in Northern Ghana and 78% in Senegal.²³ East African countries similarly show variation, from 36% in Tanzania to 83% in Uganda.²⁴ In Southern Africa, the lowest rate recorded was 32.5% in Zambia, while Zimbabwe achieved 85%.²⁵ These comparisons demonstrate that while Nigeria's rates are not the lowest globally, they remain far below regional and global averages and highlight the persistent gap in maternal health service utilisation.

The study found the absence of skilled attendance at many deliveries. Majority of births were attended by traditional birth attendants instead of skilled birth attendants. This is typical of low- and middle-income countries compared to developed nations, where almost all deliveries are attended by skilled birth attendants.²⁶ The lack of skilled attendance at birth is a major contributor to maternal and neonatal morbidity and mortality and underscores the urgency of improving access to skilled care.²⁷

The study also found that socio-demographic and economic factors significantly influenced the choice of place of delivery. Education is a strong determinant in the urban communities, with women who had tertiary education were more likely to have health facility deliveries. The association between maternal education and health facility delivery is similar to other studies within Nigeria and Africa.²⁸ Occupation and income were also determinants. Urban women with higher average incomes were more likely to deliver in hospitals. Civil servants showed higher facility delivery rates, reflecting the combined effect of education, income, and awareness.²⁹

Spousal education was also a significant determinant in both urban and rural settings. Husbands with higher educational attainment were more likely to support hospital delivery. While this study did not find consistent associations with spousal occupation or income, husband's education stood out as the most important predictor across both groups. This emphasizes the importance of targeting male partners in maternal health interventions, given their influential role in household decision-making.³⁰

Antenatal care (ANC) utilisation was another key factor. Women who booked for ANC and completed multiple visits were more likely to deliver in health facilities, particularly in rural areas. ANC provides opportunities for health education, birth preparedness, and professional advice, which have been shown to influence decisions

around place of delivery.³¹ However, a paradox persists in northern Nigeria: ANC attendance is relatively high, yet facility-based deliveries remain low. This disconnect suggests that while women recognize the value of ANC, cultural traditions, cost, and other structural barriers continue to push them toward home deliveries.³²

Age was not significantly associated with delivery location in this study, although urban women tended to deliver later in their reproductive years compared to rural women. This differs from findings in some African studies where maternal age correlated positively with institutional delivery.³³ Similarly, parity did not show a strong association in this study, although evidence from Ethiopia suggests that birth order can influence place of delivery.³⁴

Multivariate analysis confirmed that maternal education, husband's education, occupation, income, family structure, and ANC use were significant predictors of facility-based delivery in urban areas. In rural areas, maternal education, husband's education, ANC booking, number of ANC visits, and access to health information remained significant. Women with no formal education were almost three times more likely to deliver at home in urban areas and twice as likely in rural areas, confirming that education is among the most powerful predictors of institutional delivery.³⁵

The persistence of home deliveries in Kano, despite improvements in education and ANC attendance, reflects the influence of broader structural and cultural barriers. Poverty, distance to health facilities, and inadequate health infrastructure remain central challenges. Even where facilities are available, perceptions of poor quality of care, high out-of-pocket costs, and mistrust of health workers discourage women from using them.³⁶ The dominance of cultural traditions that normalize home deliveries, particularly in northern Nigeria, continues to exert a strong influence despite awareness of the benefits of facility-based care.³⁷

Taken together, these findings underscore the need for multifaceted interventions to improve maternal health outcomes in Kano and similar settings. Both maternal and spousal education is a predictor of facility-based delivery, highlighting the importance of long-term investment in female education and literacy. Male involvement is equally critical, given the strong influence of husbands on delivery decisions. Strengthening ANC programs to emphasize the importance of facility delivery, while simultaneously addressing structural barriers such as cost, transport, and health system quality, will be essential to narrowing the gap.³⁸

Despite some progress over the past decade, Nigeria's maternal health system continues to underperform compared to regional and global averages. The low rates of institutional delivery observed in Kano are consistent with other northern states and reflect systemic inequities between urban and rural populations. Without significant

policy and programmatic interventions to address the combined effects of education, poverty, gender dynamics, and health system weaknesses, progress toward reducing maternal morbidity and mortality will remain slow.^{39,40}

Nevertheless, some limitations were noted. The source of data for this study was based on the self-report of respondents which were subject to social desirability bias. There was recall bias since women were asked for events that had already happened within the last one year prior to the survey, all of which were taken into consideration during the data analysis.

CONCLUSION

The study found a high proportion of home deliveries associated with sociodemographic and socio-economic factors. Kano State government and all stakeholders in both communities should emphasize the importance of hospital delivery and discourage the long customary practices of home delivery.

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