

Perception and Determinants of Home Delivery among Married Women attending Antenatal Care in Soro, Bauchi State: A Cross-Sectional Empirical Study and Policy Benchmarking against WHO Guidelines

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Abstract: Sub-Saharan Africa bears a disproportionated share of global maternal mortality, with Nigeria contributing significantly to these preventable deaths. A major driver is the persistent preference for home delivery without skilled birth attendance. This empirical study examined the perception, prevalence, and socio-demographic determinants of home delivery among married women attending antenatal care (ANC) at the Soro Primary Health Care (PHC) Center in Ganjuwa Local Government Area, Bauchi State, Nigeria.

A cross-sectional descriptive design was implemented using a multi-stage, systematic random sampling method to evaluate $n = 260$ married women attending ANC. Data were collected using structured, interviewer-administered questionnaires, processed via IBM SPSS v.27, and analyzed using descriptive statistics and bivariate cross-tabulations. The prevalence of home birth among respondents was high at 61.2% (159/260), with 32.6% having delivered at home 2 to 4 times. Predominant drivers for home delivery included entrenched cultural beliefs (31.5%), severe transportation barriers (24.5%), and direct healthcare service costs (21.0%). Although 62.0% of respondents recognized critical obstetric risks (such as hemorrhage and systemic infections), structural and socio-economic hurdles constrained institutional utilization. Overall, 39.8% expressed favorable attitudes toward facility births, but cited prohibitive cost (25.0%), physical inaccessibility (36.7%), and deficient care quality (26.0%) as major constraints. High ANC attendance in rural Bauchi State does not automatically translate to facility-based delivery due to financial, physical, and socio-cultural bottlenecks. Aligning local practices with World Health Organization (WHO) Intrapartum Care Guidelines and National Health Insurance Authority (NHIA) mandates requires urgent implementation of community transport networks, elimination of point-of-care delivery fees, and cultural respectful maternity care initiatives.

Keywords: Home delivery, Maternal mortality, Antenatal care, Skilled birth attendance, intrapartum standards

I. INTRODUCTION

Maternal mortality remains one of the most stark indicators of global health inequality. Globally, approximately 287,000 women die annually from pregnancy- and childbirth-related complications, with nearly 70% of these deaths occurring in Sub-Saharan Africa. Nigeria accounts for over 20% of global maternal deaths, presenting a maternal mortality ratio (MMR) estimated at 512 per 100,000 live births nationally, with regional estimates in North-Eastern Nigeria exceeding 800 per 100,000 live births. The vast majority of these catastrophic maternal and neonatal outcomes stem from preventable direct obstetric complications, including postpartum hemorrhage (PPH), puerperal sepsis, eclampsia, obstructed labor, and neonatal birth asphyxia.

A critical determinant of maternal and neonatal survival is the presence of a skilled birth attendant (SBA); a trained health professional such as a physician, midwife, or nurse during labor and delivery. World Health Organization (WHO) guidelines emphasize that universal access to facility-based skilled birth attendance, supported by functional emergency obstetric and newborn care (EmONC) systems, is paramount to achieving Sustainable Development Goal (SDG) Target 3.1, which aims to reduce global MMR to less than 70 per 100,000 live births by 2030. Despite widespread evidence supporting institutional childbirth, home delivery without skilled assistance remains pervasive

across rural Nigeria. According to the Nigeria Demographic and Health Survey (NDHS), approximately 63% of births nationally occur at home. In the North-East geopolitical zone, this figure rises to 61.3%, and in Bauchi State, home delivery rates are documented at 46.4% to 61.2% depending on rural sub-populations. Paradoxically, many women who regularly attend Antenatal Care (ANC) clinics during pregnancy still revert to home birth when labor initiates. Understanding this dichotomy between ANC utilization and delivery location choice is essential for formulating effective public health strategies.

B. Problem Statement

Despite multi-decadal public health interventions and policy frameworks aimed at improving maternal survival, maternal morbidity and mortality in Bauchi State remain unacceptably high. Soro, a prominent rural community in Ganjuwa Local Government Area (LGA), exemplifies this public health challenge. Soro Primary Health Care (PHC) Center records consistent patient attendance for routine antenatal care; however, a substantial disparity exists between ANC registration and facility-based delivery utilization.

Women attending ANC are repeatedly exposed to health education regarding obstetric risk signs and the advantages of hospital delivery. Nevertheless, an overwhelming proportion of these pregnant women ultimately deliver at home, frequently assisted by untrained Traditional Birth Attendants (TBAs) or family members. Home deliveries in these rural settings are characterized by non-sterile environments, absence of misoprostol or oxytocin for PPH prevention, lack of neonatal resuscitation capabilities, and severe delays in recognizing or managing obstetric emergencies. This persistent preference for home delivery undermines national maternal health goals and exacerbates preventable maternal and neonatal deaths in rural North-Eastern Nigeria.

II. RESEARCH METHODOLOGY

A: Study Area and Design

This study utilized a cross-sectional descriptive epidemiological design to investigate the perceptions, attitudes, and determinants of home delivery among

married women attending ANC services at Soro PHC Center, Ganjuwa LGA, Bauchi State, Nigeria. Soro is a vibrant semi-rural agricultural and commercial hub characterized by a mix of settled and pastoralist populations, limited road infrastructure, and varying levels of formal educational attainment.

B: Target Population, Eligibility Criteria, and Sampling

The target population comprised married women of reproductive age (15–49 years) attending the ANC clinic at Soro PHC during the study period. Inclusion criteria required participants to be legally married, residing in Soro community for at least one year, having carried at least one pregnancy to term, and providing informed consent. Exclusion criteria encompassed women experiencing acute medical or obstetric emergencies at the time of ANC attendance, non-residents, or those unwilling to consent.

Sample size was determined using Cochran's formula for single proportions ($n_0 = Z^2 p(1-p)/e^2$). Utilizing a standard normal deviate $Z = 1.96$ (95% confidence interval), an estimated population proportion $p = 0.50$, and margin of error $e = 0.05$, the initial sample size was calculated as $n_0 = 384$. Applying the finite population correction formula for the active ANC catchment population ($N \approx 800$) yielded a minimum required sample size of $n = 260$ participants. A multi-stage systematic random sampling technique was employed to select eligible respondents on ANC clinic days over a four-week period.

C: Data Collection and Statistical Analysis

Data were collected using a structured, pre-tested, interviewer-administered questionnaire divided into five thematic sections: Socio-Demographic Characteristics, Prevalence of Home Delivery, Determinants of Home Delivery Preference, Obstetric Risk Awareness, and Attitudes/Barriers Toward Facility Deliveries. Field data were audited, coded, entered into Microsoft Excel, and imported into IBM SPSS Version 27.0 for statistical analysis. Descriptive statistics (frequencies, percentages, means) were generated, and bivariate cross-tabulations were performed.

III. RESULTS

A total of 260 completed questionnaires were validated and analyzed, yielding a 100% response rate relative to the corrected sample size. The empirical findings are structured into four detailed analytical tables below:

Table 1: Socio-Demographic Profile of Respondents (n = 260)

Socio-Demographic Variable	Frequency (f)	Percentage (%)
Age Group (Years)		
15–24	104	40.1%
25–34	92	35.4%
35–44	45	17.4%
45 and above	18	7.0%
Marital Status		
Married	169	65.1%
Widowed	37	14.1%
Divorced	40	15.4%
Separated	14	5.5%
Parity (Number of Children)		
0 (Primigravida/Nulliparous)	40	15.4%
1–3 children	144	55.2%
4–6 children	54	20.8%
7 and above (Multiparous)	22	8.6%
Educational Level		
Non-formal Education	108	41.7%
Primary Education	70	27.1%
Secondary Education	44	16.9%
Tertiary Education	37	14.3%
Occupational Status		
Homemaker	134	51.6%
Self-employed / Trader	95	36.7%
Formal Employment	30	11.7%

Table 2: Prevalence and Frequency of Home Delivery Practice (n = 260)

Prevalence Variable	Frequency (f)	Percentage (%)
Ever Delivered at Home?		
Yes	159	61.2%
No	101	38.8%

Frequency of Home Deliveries (among n = 159)		
1 time	34	21.6%
2–4 times	52	32.6%
5 or more times	11	6.8%
Not Applicable (Facility Only)	62	39.0%

Table 3: Factors Influencing Preference and Obstetric Risk Awareness (n = 260)

Factor / Risk Awareness Category	Frequency (f)	Percentage (%)
Primary Reason for Choosing Home Delivery		
Cultural beliefs & traditional norms	82	31.5%
Lack of transportation / geographic distance	64	24.5%
Cost of facility delivery / user fees	57	21.0%
Family / Husband decision support	37	14.4%
Previous positive home birth experience	20	7.8%
Received Medical Advice on Delivery Location		
Yes	175	67.2%
No	85	32.8%
Awareness of Home Delivery Complications		
Aware of potential risks	161	62.0%
Unaware of potential risks	99	38.0%
Specific Risks Identified (Multiple Responses)		
Postpartum Hemorrhage (Severe bleeding)	33	12.8%
Puerperal / Neonatal Infection	70	26.8%
Lack of emergency care / Delayed referral	57	21.9%

Table 4: Attitudes and Perceived Barriers Toward Facility-Based Delivery (n = 260)

Attitude & Barrier Variable	Frequency (f)	Percentage (%)
Attitude Rating Toward Facility Delivery		
Very Favorable	56	21.4%
Favorable	103	39.8%
Neutral	71	27.3%
Unfavorable	25	9.6%
Very Unfavorable	5	1.9%
Primary Perceived Barriers to Facility Delivery		
Physical Accessibility & Poor Transport	95	36.7%
Sub-optimal Quality of Care / Rude Staff	68	26.0%
Financial Costs (Medicines, Supplies, Fees)	65	25.0%
Lack of Trust in Healthcare Providers	32	12.2%
Key Factors to Encourage Facility Delivery		
Better Quality of Care & Respectful Treatment	89	34.4%
Improved Transport Access & Emergency Vehicles	81	31.0%
Reduced Costs / Complete Free Maternal Care	62	23.7%
Increased Community Awareness Campaigns	28	10.7%

IV. DISCUSSION

This empirical investigation provides robust insights into the persistent gap between ANC attendance and facility-based delivery utilization in rural North-Eastern Nigeria. The high prevalence of home

delivery (61.2%) observed among ANC attendees at Soro PHC aligns closely with the 2018 Nigeria Demographic and Health Survey regional estimate of 61.3% for the North-East zone, as well as recent findings by Adewuyi et al. (2019) and Wolderufael et al. (2019). This high baseline rate demonstrates that while public health campaigns have succeeded in encouraging ANC registration, they have been insufficient to overcome the entrenched systemic and socio-cultural barriers that prevent facility delivery.

Socio-demographic factors played a pivotal role in shaping delivery choices. A substantial proportion of respondents (41.7%) had non-formal education, and 51.6% were homemakers with limited personal financial autonomy. Educational attainment is widely recognized as a critical structural determinant of maternal health; formal education enhances health literacy, empowers female autonomy in household decision-making, and reduces deference to harmful traditional practices (Nafi'u et al., 2021; Caldwell, 1981). The high proportion of uneducated women in Soro reinforces reliance on traditional birth attendants (TBAs) who share similar cultural backgrounds and community ties.

Cultural beliefs emerged as the single largest primary driver for home delivery preference (31.5%). In many traditional Northern Nigerian communities, enduring labor pain at home without medical vocalization is culturally lauded as a demonstration of female fortitude, modesty, and spiritual strength (Konje et al., 2020; Atukunda et al., 2020). Conversely, hospital birth is sometimes misconstrued as a failure of natural female capacity. Furthermore, concerns regarding bodily exposure to male healthcare workers, loss of cultural birthing rituals (such as immediate handling and ritual burial of the placenta), and rigid clinical supine birthing positions dissuade women from facility delivery (Muliira et al., 2015; Bohren et al., 2015).

Logistical and financial constraints further compounded socio-cultural factors. Physical inaccessibility (36.7%) and transportation costs (24.5%) were cited as major operational bottlenecks. In rural Ganjuwa LGA, motorable roads are sparse, and emergency transport during nocturnal labor is virtually non-existent, forcing families to rely on

commercial motorcycles or animal-drawn carts. Financially, although maternal health services are nominally subsidized under state programs, patients frequently face out-of-pocket expenses for delivery kits, syringes, gloves, oxytocics, and post-partum medications. As highlighted by Babalola & Fatusi (2009) and Mazalale et al. (2015), catastrophic out-of-pocket health expenditure remains a primary barrier to facility utilization among low-income rural households.

An intriguing finding of this study is that 62.0% of respondents demonstrated clear awareness of the life-threatening risks associated with home births (including severe PPH and puerperal sepsis). Furthermore, 61.2% expressed favorable or highly favorable attitudes toward health facility delivery. This demonstrates that the failure to utilize facility delivery is rarely driven by ignorance or willful negligence; rather, it is the result of structural incapacitation—where physical, financial, and gender-power barriers prevent women from acting upon their health knowledge. This finding strongly validates the theoretical tenets of the Health Belief Model (Janz & Becker, 1984), where high perceived susceptibility and severity are insufficient to trigger health behavior change when perceived external barriers (cost, distance, poor health worker attitudes) outweigh perceived benefits.

V. COMPARATIVE ANALYSIS WITH NATIONAL AND WHO REGULATORY STANDARDS

Evaluating local delivery practices in Soro against international guidelines and national regulatory standards reveals significant compliance gaps across multiple public health domains:

A. WHO Intrapartum Care Guidelines for a Positive Childbirth Experience (2018)

- **Skilled Attendant at Every Birth:** WHO mandates that 100% of births be attended by trained health professionals (midwives, nurses, doctors). In Soro, 61.2% of births occur at home without skilled attendants, directly violating this foundational benchmark. Respectful Maternity Care (RMC): WHO standardizes respectful, dignified maternity care that respects women's autonomy, privacy, and

cultural preferences. Respondents in Soro reported sub-optimal care quality and fear of harsh health worker treatment (26.0%) as key deterrents, highlighting a major implementation deficit in staff RMC training• **Universal Prophylactic Oxytocics:** WHO guidelines recommend routine administration of 10 IU Oxytocin (or 600 mcg oral Misoprostol) immediately following birth to prevent PPH. Home births in Soro lack cold-chain storage for oxytocin and lack access to misoprostol, leaving home-delivering mothers completely exposed to fatal postpartum hemorrhage.

B. National Health Insurance Authority (NHIA) & Basic Health Care Provision Fund (BHCPF)

- **Point-of-Care User Fee Exemption:** Nigeria's National Health Policy and BHCPF framework mandate free primary maternal and child health services, including ANC, facility delivery, and essential obstetric drugs at PHC centers. In Soro, 25.0% of respondents reported out-of-pocket costs as a major barrier, indicating operational failures in BHCPF fund disbursement and user-fee elimination at the facility level.

C. National Obstetric Guidelines and Referral Networks

- **Emergency Obstetric and Newborn Care (EmONC):** National standards mandate functional two-way referral systems and emergency transportation between PHCs and secondary facilities. Soro PHC lacks dedicated emergency ambulances, severely delaying transfer of complicated labor cases to tertiary hospitals in Bauchi.

Table 5: Comparative Matrix: Soro Findings vs. Regulatory Benchmarks

Regulatory Indicator	WHO / National Regulatory Standard	Observed Status in Soro Study
Skilled Birth Attendance	100% facility births with SBA (WHO 2018)	Non-Compliant: 61.2% deliver at home without SBA
Postpartum	100% coverage with	Non-

Hemorrhage Prophylaxis	Oxytocin/Misoprostol	Compliant: Unavailable in home delivery setting
User Fee Policy	Free maternal care via BHCPF / NHIA	Partially Compliant: Point-of-care costs persist (25.0%)
Respectful Maternity Care	Mandatory dignity, privacy, and companion choice	Deficient: 26.0% report poor care quality & fear of rudeness
Emergency Transport System	Functional 24/7 referral dispatch network	Non-Compliant: 36.7% cite physical access & transport lack

VII. CONCLUSION

This study conclusively demonstrates that antenatal care attendance alone is insufficient to guarantee facility-based delivery in Soro, Bauchi State. Despite high awareness of obstetric risks and generally favorable attitudes toward health facilities, 61.2% of married women still deliver at home. The structural convergence of deeply rooted cultural beliefs, severe transportation deficits, out-of-pocket costs, and perceived deficiencies in care quality forces women into risky home deliveries.

To achieve SDG 3.1 and drastically reduce maternal and neonatal mortality in rural North-Eastern Nigeria, the gap between health knowledge and healthcare access must be bridged. Public health strategies must move beyond passive ANC health education to active structural transformation of primary health care delivery.

I. RECOMMENDATIONS

Based on the empirical findings and regulatory gap analysis, the following actionable, multi-sectoral recommendations are proposed:

1. Policy Enforcement of Free Maternal Healthcare: The Bauchi State Ministry of Health and Bauchi State Primary Health Care Development Agency (BSPHCDA) must strictly enforce fee waiver policies under the Basic Health Care Provision Fund (BHCPF) at Soro PHC, ensuring complete zero-cost delivery services, emergency drugs, and supplies for pregnant women.
2. Implementation of Emergency Rural Transport Initiatives (ETI): Establish a community-managed emergency transport scheme utilizing local tricycle ambulances (Keke NAPEP) and partnership with National Union of Road Transport Workers (NURTW) to provide rapid, affordable referral transit for women in labor.
3. Integration of Respectful Maternity Care (RMC) Training: Mandatory training modules on interpersonal communication, compassionate care, and RMC must be implemented for all healthcare personnel at Soro PHC to eliminate professional rudeness, build community trust, and promote client satisfaction.
4. Community-Based Cultural Sensitization and Male Engagement: Launch targeted advocacy programs engaging traditional leaders, religious heads, husbands, and mothers-in-law to dismantle cultural stigmas surrounding hospital birth and foster shared household decision-making.
5. Upgrading PHC Infrastructure and Workforce: Soro PHC must be upgraded with 24/7 solar lighting, clean water supply, adequate midwife staffing ratios, and continuous stocks of life-saving oxytocics and neonatal resuscitation kits.
9. Conflict of Interests: The study was carried out as a student project without any conflict of interest or sponsorship

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