

PUBLIC HEALTH

Applying the Health Belief Model to Explain Male Decision-Making on Childbirth Location in Rural Nigerian Communities

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Abstract

Background: Men often control household resources and influence decisions about where women give birth in rural Nigeria, yet their choices are rarely examined through a behavioural framework.

Objective: This study applied the Health Belief Model (HBM) to explain how perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy shaped men's support for facility-based childbirth.

Methods: A theory-guided secondary interpretation was conducted using data from a concurrent triangulation mixed-methods study in rural communities of Akwanga, Keffi and Lafia Local Government Areas of Nasarawa State. The original study included a survey of 443 men, 12 focus group discussions, 70 key informant interviews, and 21 in-depth interviews. Quantitative findings were summarized descriptively and through reported chi-square associations, while qualitative themes were mapped to HBM constructs.

Results: Although 95.3% of respondents were aware of safe delivery practices and 91.4% preferred facility delivery, cost was the leading reported barrier (74.7%). Cultural tradition, trust in traditional birth attendants, and lower cost continued to favour home delivery. Men recognized haemorrhage, infection, prolonged labour and death as serious outcomes, but previous uncomplicated home births reduced perceived susceptibility. Education was associated with knowledge of safe delivery ($\chi^2=31.48$, $p=0.0001$), occupation with attitudes toward home delivery ($\chi^2=34.15$, $p=0.0072$), and income with preferred delivery location ($\chi^2=31.98$, $p=0.0011$). Health workers, community leaders, prior complications, and health education acted as cues to action. Men's capacity to mobilize money, transport and emergency support represented practical self-efficacy.

Conclusions: The HBM explains an important part of male decision-making, particularly the gap between recognising the benefits of skilled attendance and acting when barriers are immediate. Its explanatory reach improves when household power, poverty, service quality and transport are treated as contextual forces rather than individual beliefs alone.

Keywords: childbirth location; facility-based delivery; Health Belief Model; male decision-making; maternal health; Nigeria

1 Introduction

Skilled attendance at birth is central to preventing avoidable maternal and newborn deaths, yet home delivery remains common in rural settings where clinical services compete with distance, cost, established custom and previous experience. Decisions about childbirth location are not made solely by the woman in labour. In many patriarchal households, a husband controls money, arranges transport, approves care-seeking and determines whether a complication warrants referral. Male

decision-making is therefore not peripheral to maternal health; it can determine whether skilled care is planned or sought only after an emergency has become visible [1]-[4].

Research on male involvement has shown that men can strengthen birth preparedness, antenatal attendance and timely use of skilled maternity services [1], [2]. However, knowledge alone does not guarantee action. A man may know that haemorrhage is dangerous and still prefer home delivery because a previous birth was uncomplicated, the traditional birth attendant is trusted, transport is unavailable at night, or the expected hospital expense exceeds what the household can manage. Understanding this knowledge-action gap requires attention to how men interpret risk and weigh competing options.

The Health Belief Model (HBM) offers a useful framework for this purpose. It proposes that health action is influenced by perceived susceptibility to a harmful event, perceived severity of its consequences, perceived benefits of the recommended action, perceived barriers to taking it, cues that prompt action, and self-efficacy, the confidence and practical capacity to act [5]-[7]. Applied to childbirth, the relevant action is not performed by the man himself but enabled or constrained through his financial, logistical, relational, and decision-making roles. This makes the HBM especially useful, but also exposes its limits: a husband's "belief" may reflect real poverty, weak roads, disrespectful care or unequal household power rather than an isolated cognitive judgement.

This paper reinterprets findings from a mixed-methods study of men in rural Nasarawa State through the six HBM constructs. It asks three questions: How do men's perceptions of susceptibility, severity, benefits, and barriers shape childbirth-location decisions? How do cues to action and practical self-efficacy affect support for skilled birth attendance? How far can the HBM explain gendered maternal-health decision-making when structural and sociocultural conditions are taken into account?

2 Methods

2.1 Study design and setting

The paper is a theory-guided secondary interpretation of data generated in a community-based concurrent triangulation mixed-methods study. Quantitative and qualitative data were collected within the same study phase, analysed separately and integrated during interpretation. The study was conducted in rural communities of Akwanga, Keffi and Lafia Local Government Areas (LGAs) of Nasarawa State, north-central Nigeria. These locations were selected because rural households experience constraints in accessing facility-based maternity care and because men commonly influence household health expenditure and movement.

2.2 Participants and sampling

The quantitative component used a multistage procedure. The three LGAs were purposively selected; rural communities were selected by ballot; households were selected systematically from listings developed with community leaders; and an eligible man was selected within each household. Of 502 men approached, 468 met the eligibility criteria, and 451 consented. Eight questionnaires were removed during data cleaning, leaving 443 respondents in the final analysis. Eligible respondents were adult men with relevant marital and childbirth experience who resided in the selected communities and provided informed consent.

Qualitative participants were selected purposively until thematic saturation. The dataset comprised 12 focus group discussions with married men; 24 interviews with community gatekeepers, including

traditional and religious leaders; 22 interviews with health workers; 24 interviews with traditional birth attendants or traditional medicine practitioners; and 21 in-depth interviews with men whose wives had delivered at home. These groups captured household, community, traditional-provider, and formal-health-system perspectives.

2.3 Data collection and measures

Trained interviewers administered a structured questionnaire in a language understood by each respondent. Items covered sociodemographic characteristics, knowledge of safe delivery and obstetric danger signs, attitudes and perceptions concerning home and facility delivery, barriers, facilitators, preferred delivery location, and willingness to support facility-based delivery. Knowledge items used yes, no, and unsure responses; attitude and perception items used Likert-type options. The instrument was informed by the study objectives and previous maternal-health research, reviewed by experts, and pretested in a comparable community. Internal consistency was assessed using Cronbach's alpha for Likert-type items and KR-20 for dichotomous knowledge items.

Semi-structured guides were used for focus groups and interviews. Discussions explored childbirth risk, reasons for home delivery, household decision-making, health-system experiences, birth preparedness, sources of information and possible interventions. Sessions were audio-recorded with permission, transcribed, translated where required, and analysed thematically.

2.4 Analysis and HBM mapping

The original quantitative analysis used frequencies, percentages, means, standard deviations and chi-square tests at a 5% significance level. For this paper, reported results relevant to childbirth location were organized under HBM domains. Qualitative themes and representative accounts were mapped deductively to susceptibility, severity, benefits, barriers, cues to action and self-efficacy, while retaining inductively identified themes concerning gender authority, culture, poverty and health-service quality. Convergence was assessed by comparing survey patterns with explanations offered across participant groups.

The HBM constructs were not separately measured using a validated HBM scale and were not entered together in a multivariable predictive model. Consequently, "explanation" in this paper refers to theory-guided interpretation of observed patterns, not a causal test or formal estimate of the model's variance explained.

2.5 Ethical considerations

Ethical approval was obtained from the Nasarawa State Health Research Ethics Committee, Ministry of Health, under NHREC Protocol No. 18/06/2017, with approval granted on 11 February 2025. All participants gave informed consent. Participation was voluntary, identifiers were removed, records were stored securely, and qualitative reporting used anonymised participant labels.

3 Results

3.1 Participant characteristics and delivery preferences

The 443 survey respondents came from Akwanga (137; 30.9%), Keffi (156; 35.2%), and Lafia (150; 33.9%). Their mean age was 35.3 years (SD 9.2). Most were in monogamous unions (82.8%), while 10.2% were in polygamous unions. Secondary education was the most common attainment (39.7%),

followed by tertiary (31.8%), primary (20.5%), and no formal education (7.5%). Farming accounted for 48.3% of occupations. More than one-third (34.5%) reported monthly household income below ₦20,000, and a further 31.8% reported ₦20,000–₦49,999.

Table 1. Selected survey findings on childbirth knowledge, preferences and support.

Indicator	Finding
Awareness of safe-delivery practices	422 (95.3%)
Unfavourable or cautious attitude to home delivery	166 (37.5%) disagreed with home delivery; 89 (20.1%) were neutral
Home delivery not considered safe or preferred	200 (45.2%)
Preferred a health facility for delivery	405 (91.4%)
Preferred home delivery	28 (6.3%)
Would support facility-delivery initiatives	425 (95.9%)

3.2 Perceived susceptibility

Survey awareness was high, but qualitative evidence showed that men varied in whether they believed a complication would happen to their own wives. Participants could name excessive bleeding, infection, and prolonged labour, yet previous uncomplicated home births created a sense of personal exemption. A man whose wife had delivered at home explained, “I just believe she can give birth at home safely.” This distinction between knowing that a risk exists and feeling personally vulnerable is central to the HBM. Familiarity with home birth, confidence in a known traditional attendant, and accounts of successful deliveries lowered perceived susceptibility even when general awareness remained intact.

Risk appraisal also changed with experience. Men and community gatekeepers described facility referral as a response to visible complications rather than a planned preventive choice. When severe bleeding or prolonged labour appeared, families moved quickly to a facility and sometimes regretted the initial home-delivery decision. Susceptibility was therefore often recognised retrospectively or during crisis, after the safer window for planned skilled attendance had narrowed.

3.3 Perceived severity

Men generally understood that poor outcomes could be grave. Focus-group participants linked home delivery with heavy bleeding, infection and death. Traditional providers reported cases in which a mother or baby was lost after complications. These accounts demonstrate substantial perceived severity. Nevertheless, severity did not uniformly produce preventive action. Some men framed complications as manageable by experienced relatives or traditional attendants, while others regarded hospitals as necessary only when labour became abnormal. In HBM terms, severity was acknowledged, but its motivational effect was weakened when susceptibility was judged low, or access barriers were judged high.

3.4 Perceived benefits

The benefits of facility delivery were widely recognised. Most respondents preferred a facility, and 95.9% said they would support initiatives promoting facility delivery. Participants associated skilled attendance with competent management of haemorrhage, infection, prolonged labour and other

emergencies. Health workers and community leaders similarly described facilities as the safer setting for mother and newborn. These findings suggest that the behavioural problem was not broad rejection of biomedical care.

The perceived benefit was conditional, however. Men compared safety with affordability, convenience, familiarity and treatment by providers. Home delivery offered immediate and visible benefits: lower expenditure, privacy, proximity and access to a familiar attendant. Facility delivery offered stronger clinical protection, but that benefit could feel remote before labour or uncertain where services were viewed as unfriendly or poorly equipped. Men were therefore choosing between competing benefit profiles rather than simply between knowledge and ignorance.

3.5 Perceived barriers

Cost dominated the survey: 331 respondents (74.7%) identified high expense as the principal barrier to facility delivery. Distance was reported by 72 (16.3%), cultural beliefs by 18 (4.1%), previous negative experiences with health workers by 11 (2.5%), and poor transport or roads by nine (2.0%). The pattern was consistent across focus groups and interviews. Direct fees were only part of the burden; transport, supplies, medicines, time away from work, and the uncertainty of emergency expenditure also shaped decisions.

Factors facilitating home delivery reflected the same calculus. Cultural traditions were reported by 159 men (35.9%), lower cost by 124 (28.0%), trust in traditional birth attendants by 110 (24.8%), and convenience by 41 (9.3%). A focus-group participant stated that home delivery “makes us spend less money than at the hospital.” An interviewee whose wife delivered at home cited the same reason more directly: “Because I spent less.” These accounts show that perceived barriers were frequently accurate appraisals of constrained household resources, not misconceptions that health education alone could correct.

3.6 Cues to action

Health workers, antenatal contacts, primary health centres, elders, religious leaders and personal childbirth experience were recurrent sources of information. Prior exposure to haemorrhage, prolonged labour, maternal death or difficult referral made danger more immediate and could shift men’s intentions toward facility delivery. Community leaders described convening meetings, and traditional birth attendants expressed willingness to receive training and refer complicated cases. These interpersonal channels functioned as credible cues because they were embedded in existing community relationships.

Respondents’ preferred interventions also reveal which cues they considered persuasive. Male-targeted community health education was selected by 297 men (67.0%), financial incentives by 49 (11.1%), involvement of religious and traditional leaders by 43 (9.7%), and male-focused antenatal sessions by 21 (4.7%). The findings suggest that cues are most likely to prompt action when they arrive before labour, come from trusted messengers, and are paired with a feasible pathway to care.

3.7 Self-efficacy

For men in this setting, self-efficacy was practical and relational. Supporting facility delivery required confidence and capacity to save money, decide jointly with a spouse, arrange transport, recognize danger signs, contact a provider, and authorize referral. In-depth interviews showed that men actively prepared for home birth by purchasing supplies and setting aside money, demonstrating

agency; the challenge was redirecting that agency toward skilled care. When labour began suddenly at night, and no transport was available, even a favourable intention could not become facility use.

The high stated willingness to support facility-delivery initiatives indicates motivational readiness, but readiness was not synonymous with capability. Free or subsidised care, better treatment at facilities, reliable transport and clear birth plans were repeatedly proposed because each would strengthen men's ability to act on an existing preference. Thus, interventions that only heighten risk perception may leave the intention–action gap intact unless they also increase response efficacy and household control over the required resources.

3.8 Sociodemographic patterning of beliefs and choices

Education was significantly associated with knowledge of safe delivery ($\chi^2=31.48$, $p=0.0001$). Occupation was associated with attitude toward home delivery ($\chi^2=34.15$, $p=0.0072$), with formal-sector workers and traders more likely than farmers or artisans to reject home delivery. Household income was associated with preferred delivery location ($\chi^2=31.98$, $p=0.0011$), and men in higher-income groups were more likely to prefer a facility. Marital status was associated with perceptions of home delivery ($\chi^2=42.90$, $p=0.0003$). These associations situate HBM perceptions within unequal access to education, income, information and household organisation; they should not be interpreted as causal effects because the data were cross-sectional.

Table 2. Reported bivariate associations relevant to childbirth-location decisions.

Association	χ^2	p value
Education and knowledge	31.48	0.0001
Occupation and attitude	34.15	0.0072
Income and preferred location	31.98	0.0011
Marital status and perception	42.90	0.0003

4 Discussion

4.1 Explaining the knowledge–action gap

The principal contribution of the HBM interpretation is its explanation of why high awareness and favourable intentions can coexist with continued home delivery. Men generally knew that skilled attendance was safer, and very large majorities preferred a facility and expressed support for facility-delivery initiatives. Yet childbirth decisions were made under uncertainty and time pressure. A previous successful home birth reduced perceived susceptibility; the hospital's clinical benefit competed with the immediate advantages of cost and proximity; and transport or cash could disappear precisely when labour began. Similar studies in Nigeria, Ghana and other African settings have shown that risk knowledge is filtered through experience, household authority, access and trust [3], [4], [8]–[12].

Perceived threat in this setting is best understood as the combination of susceptibility and severity. Severity was rarely denied: men could name fatal complications. Susceptibility was more fragile because normal previous births and trusted traditional care encouraged optimism. This explains the reactive pattern in which referral became acceptable only after a complication was visible. The

finding reinforces the need to communicate that obstetric emergencies are difficult to predict and that prior uncomplicated births do not guarantee a safe subsequent delivery.

4.2 Benefits and barriers as a real-time trade-off

The HBM often describes barriers as perceptions, but the dominant barriers in this study were materially grounded. Cost, distance, poor roads, and transport were not cognitive errors. Nor were concerns about disrespectful treatment irrelevant to safety: they influenced trust and willingness to present early. This is consistent with evidence that formal services may remain underused even when nominally free because households face indirect costs, gender concerns and negative service experiences [8], [9]. Behaviour-change communication should therefore be paired with financial protection, reliable referral transport and respectful maternity care.

The findings also complicate the meaning of “benefit.” Traditional birth attendants offered social familiarity, privacy, flexibility and perceived affordability. Those benefits mattered even when their capacity to manage emergencies was limited. Facility care will be more attractive when clinical competence is accompanied by interpersonal respect, predictable costs and cultural acceptability. Engagement with willing traditional attendants as educators and early referral partners may preserve trust while reducing delays, although such engagement should not substitute for skilled birth attendance.

4.3 Cues and self-efficacy as levers for male support

Cues to action and self-efficacy connect belief to behaviour. The study identified a ready-made network of cues: health workers, elders, religious leaders, antenatal sessions, community meetings, media and lived experience. Male-focused education may be especially effective when delivered through these trusted channels and linked to specific actions: agreeing on the preferred facility, saving for indirect costs, identifying transport, knowing emergency contacts and authorising care without delay.

Self-efficacy should not be framed as confidence alone. A man cannot arrange transport that does not exist or pay an unpredictable bill with income he does not have. Community emergency transport schemes, savings groups, insurance or delivery vouchers, advance birth planning and clear facility information can make the recommended behaviour achievable. Couple-based approaches can also distribute preparedness responsibilities and reduce the risk that a woman’s access to care depends on obtaining permission during an emergency.

4.4 Explanatory power and gendered decision-making

The HBM has substantial explanatory value because it organizes the individual judgements visible in the data: men estimated the likelihood and seriousness of complications, compared the safety of skilled care with the advantages of home birth, responded to trusted information and assessed whether they could mobilize the resources required. It also clarifies why the same man may prefer facility delivery in principle but choose home delivery in practice.

The model is less complete when used without a gender and systems perspective. It does not, by itself, explain why husbands control household money, why women may require permission to seek care, why a provider’s gender matters to some families, or why rural facilities and transport are inadequate. These are relational and structural conditions, not simply personal perceptions. In this study, education, occupation, income and marital setting were associated with childbirth-related

outcomes, and qualitative accounts showed influence from spouses, elders, religious leaders and traditional attendants. Male decision-making was therefore distributed across a social network even when the husband retained final authority.

A context-expanded HBM is consequently more appropriate. The six constructs remain the immediate behavioural pathway, while gender relations, household resources, community norms and health-system performance shape the value assigned to each construct. This interpretation avoids blaming men for decisions made under constraint while still recognising their responsibility and potential as partners in safe motherhood.

4.5 Implications for policy and practice

First, male engagement should begin during pregnancy rather than at the onset of labour. Antenatal and community programmes should teach men that complications are unpredictable, rehearse recognition of danger signs and require a household birth-and-emergency plan. Second, programmes should convert supportive intention into capability through transport arrangements, financial protection, emergency savings and referral contacts. Third, facilities should provide respectful, culturally sensitive and dependable care, since poor treatment reduces perceived benefit and trust. Fourth, traditional and religious leaders should be equipped with accurate messages and clear referral pathways, while willing traditional attendants should be trained to recognise danger and refer early. Finally, interventions should promote shared decision-making and women's autonomy rather than reinforcing the husband as the sole gatekeeper.

5 Strengths and limitations

The mixed-methods design was a major strength. Survey findings established the distribution of knowledge, preferences, and barriers, while accounts from men, community gatekeepers, health workers, and traditional providers explained why those patterns persisted. Including men with direct experience of home delivery added practical insight into decisions made during labour.

Several limitations should guide interpretation. The survey was cross-sectional and cannot establish temporal or causal relationships. Measures were self-reported and may be affected by recall and social-desirability bias, particularly because facility delivery is publicly promoted. The high proportion reporting support may therefore exceed actual behaviour. The original instrument was not designed as a validated HBM scale, and the six constructs were not simultaneously tested in a multivariable model; the present analysis demonstrates theoretical fit rather than formal predictive power. The research was conducted in selected rural communities of three LGAs, so transfer to other settings should consider differences in ethnicity, service availability and local norms. Finally, the paper centres men's accounts; women's autonomy and experiences require equal consideration in programme design and future dyadic research.

6 Conclusion

Men's decisions about childbirth location in rural Nasarawa State were not adequately explained by knowledge alone. Most respondents understood the value of skilled care and preferred facility delivery, but low personal susceptibility, competing benefits of home birth, financial and transport barriers, uneven cues to action and limited practical self-efficacy shaped what happened when labour began. The HBM provides a coherent account of this gap between intention and action. Its explanat-

ory power is strongest when its constructs are situated within household gender relations, community influence and rural health-system constraints. Effective interventions should therefore combine male-focused risk communication with shared birth planning, financial and transport support, respectful maternity care, early referral and women's decision-making autonomy. The goal is not simply to persuade men that facility delivery is safer, but to ensure that households can act on that belief before an emergency occurs.

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Conflict of Interest

The author declares no conflict of interest.

Ethics Statement

Approval was granted by the Nasarawa State Health Research Ethics Committee under NHREC Protocol No. 18/06/2017 on 11 February 2025. All participants provided informed consent.

Data Availability

The data supporting this paper form part of the author's doctoral research and may be made available by the corresponding author on reasonable request, subject to ethical and confidentiality requirements.

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