FARMERS-HERDERS CONFLICT AND MATERNAL HEALTH SERVICE UTILIZATION IN RURAL NIGERIA: A SYSTEMATIC REVIEW

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Abstract
Background: The persistent conflict between farmers and herders in rural Nigeria has emerged as a significant threat to public health, yet its specific impact on maternal health service utilization remains underexplored. This systematic review examines how the Farmers-Herders conflict affects maternal health service utilization in rural Nigeria, with particular focus on the North-Central and Middle Belt regions.
Methods: A systematic review was conducted. Literature was retrieved from PubMed, Scopus, Web of Science, and Google Scholar. Eighteen studies met the inclusion criteria and were synthesized.
Results: Findings show that the farmers-herders conflict significantly disrupts maternal health service utilization through both supply-side and demand-side pathways. Supply-side disruptions include destruction of health infrastructure, displacement of healthcare workers, and breakdown of medical supply chains. Demand-side barriers include insecurity-related fear, long travel distances, economic hardship, and restricted mobility. These factors collectively reduce antenatal care attendance, skilled birth delivery, and postnatal care utilization. Displaced populations experience additional barriers, including fragmented continuity of care and limited humanitarian support.
Conclusion: The Farmers-Herders conflict constitutes a structural determinant of maternal health service utilization in rural Nigeria. Addressing this crisis requires multi-pronged interventions, including secure healthcare infrastructure, mobile health units, conflict-zone allowances for health workers, community-based support integration, and comprehensive maternal health services within humanitarian responses for displaced populations. Sustainable land governance and effective conflict resolution mechanisms are essential complements to health sector reforms.

Keywords: Antenatal care, Farmer-herder conflict, Health service utilization, Internal displacement, Maternal health, Rural Nigeria

Introduction

In Nigeria, the recurring clashes between sedentary farmers and nomadic herders over land and water resources have escalated into a protracted crisis, primarily affecting the agrarian communities of the Middle Belt (Aderinto et al., 2019). This conflict, often referred to as the Farmers-Herders conflict, has resulted in thousands of deaths and the displacement of hundreds of thousands of individuals. Beyond the immediate loss of life and property, the conflict has profound secondary impacts on social infrastructure, most notably the health system.

Maternal health remains a critical concern in Nigeria, which accounts for a disproportionate share of global maternal mortality. Nigeria continues to experience one of the highest maternal mortality ratios globally, with rural assessments reporting 448 to 512 deaths per 100,000 live births (Eke et al., 2021; Stephen et al., 2016). In rural areas, where health systems are already fragile, the added burden of insecurity exacerbates existing disparities (Solanke et al., 2018). Maternal health service utilization including antenatal care (ANC), skilled birth attendance, and postnatal care (PNC) is essential for reducing maternal and neonatal morbidity and mortality. However, the Farmers-Herders conflict disrupts the safe delivery and uptake of these services through both supply-side and demand-side mechanisms.

There are previous studies that sought to build an understanding on Farmers-Herders conflict and maternal health service utilization in Rural Nigeria, however they differ in their focus. While studies such as Chukwuma et al. (2019) have examined maternal health during the Boko Haram insurgency, there is a scarcity of research specifically isolating the Farmers-Herders conflict as a distinct driver of maternal health service disruption. Most available evidence is generalized under "insecurity" or broader armed conflict categories, limiting context-specific

policy insights. Hence, this review aims to provide a comprehensive analysis of how the Farmers-Herders conflict influences maternal health service utilization in rural Nigeria. By examining infrastructure damage, workforce attrition, barriers to access, and outcomes for displaced populations, the paper highlights the urgent need for targeted interventions in conflict-affected zones.

Theoretical Framework

Resource Competition Theory Perspective

Resource Competition Theory, originally articulated by Thomas Robert Malthus (1798) and later expanded in environmental security scholarship by Homer-Dixon (1994-1999), posits that scarcity of essential resources such as land, water, and food generates competition among social groups. When combined with population growth, environmental degradation, and weak governance, such scarcity can escalate into violent conflict. The theory further argues that the consequences of resource-based conflict extend beyond immediate violence, producing systemic disruptions in social, economic, and institutional structures.

In rural Nigeria, particularly in the Middle Belt states of Benue, Plateau, and Nasarawa, the farmers-herders conflict exemplifies these theoretical assumptions. Rapid population growth, desertification in northern regions, shrinking grazing routes, and climate variability have intensified pressure on arable land and water resources. As pastoralists migrate southward in search of pasture, they compete directly with sedentary farming communities whose livelihoods depend on the same land. In contexts where land governance systems are weak and conflict resolution mechanisms are ineffective, this competition escalates into violent clashes. Resource Competition Theory helps integrate this agrarian conflict with maternal health service utilization by highlighting the cascading effects of resource-driven violence on social infrastructure. First, violent clashes frequently lead to the destruction of rural communities, including health facilities. Clinics may be burned, looted, or abandoned, while skilled health workers flee to safer urban areas. This directly reduces the availability of antenatal care (ANC), skilled birth attendance, and postnatal care (PNC). Thus, competition over land indirectly diminishes the supply of maternal health services.

Therefore, improving maternal health outcomes in conflict-affected rural Nigeria requires interventions that go beyond health sector reforms alone. Sustainable land management, climate adaptation strategies, strengthened local governance, and effective conflict resolution mechanisms are essential components of a comprehensive maternal health strategy. Resource Competition Theory thus provides a holistic framework linking environmental scarcity, violent conflict, and reduced maternal health service utilization into a single explanatory model.

Methodology

This study was conducted as a systematic review following the principles of the PRISMA Guidelines to ensure transparency, rigor, and reproducibility.

Search Strategy

A comprehensive literature search was conducted across multiple electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar. The search covered studies published between 2010 and 2025.

The following Boolean search string was adapted for each database:

(“farmers-herders conflict” OR “pastoral conflict” OR “armed conflict” OR “insecurity”)
AND (“maternal health” OR “antenatal care” OR “skilled birth attendance” OR “postnatal care”)
AND (“Nigeria” OR “Middle Belt”)

Manual searches of reference lists of selected articles were also conducted to identify additional relevant studies.

Inclusion and Exclusion Criteria

Inclusion Criteria:

Studies conducted in Nigeria; empirical studies (quantitative, qualitative, or mixed methods), studies examining conflict/insecurity and maternal health service utilization, peer-reviewed articles, systematic reviews, and meta-analyses. Publications in English

Exclusion Criteria:

Studies not focused on maternal health outcomes, studies conducted outside Nigeria without relevant comparative data; opinion papers, editorials, and commentaries; duplicate publications

Study Selection Process

All identified records were imported into a reference management system (e.g., Zotero), and duplicates were removed.

The selection process was conducted in three stages:

Title screening
Abstract screening
Full-text review

Studies were assessed against the inclusion and exclusion criteria at each stage. Disagreements were resolved through discussion among the authors.

A total of 330 records were identified through database and manual searches. After removing duplicates, 276 records were screened based on titles and abstracts, resulting in the exclusion of 214 studies. Sixty-two full-text articles were assessed for eligibility, of which 44 were excluded due to relevance, lack of focus on maternal health outcomes, or poor methodological quality. Ultimately, 18 studies met the inclusion criteria and were included in the paper.
Due to heterogeneity in study designs and outcome measures, a meta-analysis was not feasible.

Review of Literature

Conceptualizing Farmers-Herders Conflict in Nigeria

The Farmers-Herders conflict in Nigeria represents a prolonged struggle over land, water, and grazing rights between sedentary farming communities and nomadic or semi-nomadic herders. Although historically seasonal and localized, this conflict has intensified over the last two decades due to climate change, population growth, and diminishing pastoral grazing lands (Aderinto, et al., 2019). The Middle Belt, including states such as Benue, Plateau, Nasarawa, and parts of Kaduna has emerged as the epicenter of these disputes, often resulting in violent clashes, displacement of populations, and disruption of local economies (Nnaji et al., 2022). While the conflict has traditionally been framed as an agrarian dispute, scholars increasingly conceptualize it as a threat to rural social infrastructure, not least healthcare systems (Akor et al., 2024; Solanke et al., 2018). Theoretically, the conflict undermines the "social contract" between citizens and the state, exacerbating vulnerabilities in health service provision and utilization (Østby et al., 2018).

Maternal Health Utilization in Rural Nigeria: Baseline Status

Prior to the escalation of violent conflicts, rural Nigeria already experienced low levels of maternal health service utilization. Although antenatal care (ANC) attendance for at least one visit is relatively high, often exceeding 90% in some rural communities compliance with the World Health Organization's recommendation of four or more visits remains significantly weak (Okeke et al., 2019; Mohammed et al., 2018). This gap between initial contact and sustained care reflects systemic and structural barriers within rural health systems. Furthermore, facility-based deliveries remain limited, with a substantial proportion of women continuing to give birth at home under the supervision of traditional birth attendants rather than skilled health professionals (Solanke et al., 2018). Postnatal care (PNC) utilization is similarly inadequate and frequently neglected, largely due to entrenched cultural norms, transportation difficulties, financial constraints, and perceptions of poor service quality within health facilities (Solanke, 2018). Collectively, these baseline weaknesses illustrate the fragility of maternal healthcare systems in rural Nigeria even before the additional pressures imposed by insecurity and conflict.

The Nigerian Middle Belt Context

The Middle Belt of Nigeria, comprising states such as Benue, Plateau, and Nasarawa, serves as the primary theater for the Farmers-Herders conflict. This region's unique socio-political and geographic characteristics, being the country's "food basket" and a zone of ethnic and religious diversity, make the conflict particularly complex. The displacement of farming communities in these states not only threatens food security but also destroys the local networks that support maternal health (Nnaji et al., 2022). Unlike the Boko Haram insurgency, which is often viewed as a centralized threat, the Farmers-Herders conflict is diffuse and localized, making it harder for the government to provide consistent protection for rural health centers.

Infrastructure & Workforce

The physical environment of healthcare in rural Nigeria has been severely compromised by the Farmers-Herders conflict. Evidence indicates that insecurity leads to the direct destruction of rural health facilities and the loss of essential medical equipment and drugs (Akor et al., 2024). Evidence from Plateau State highlights the baseline challenges; a study in Koghum, Jos South, found that while 97% of women had at least one ANC visit, 63.1% still delivered at home, primarily assisted by traditional birth attendants (Okeke et al., 2019). Similarly, research in other parts of Plateau State reported that only 52.9% of women received ANC from skilled providers, and nearly 70% of those who did not book ANC services delivered at home (Mohammed et al., 2018). These high rates of home delivery in relatively stable rural areas suggest that the additional burden of conflict-related infrastructure damage and workforce relocation as seen in Zamfara where 16,086 people were abducted and health facilities were destroyed (Akor et al., 2024) pushes the system beyond its breaking point. In Zamfara, the relocation of personnel and dearth of drugs has led to a "remarkable decline" in facility patronage (Akor et al., 2024).

Barriers to Care

The barriers to maternal health care utilization in conflict settings are multifaceted, involving geographic, economic, and psychological factors. One of the most prominent barriers is the increase in travel distance and time. In insecure regions of Zamfara, women have reported traveling between 10 to 15 kilometers, often taking 2

to 3 hours, to reach the nearest functional maternal health facility (Akor et al., 2024). These long journeys are not only physically demanding for pregnant women but also dangerous due to the risk of ambush or harassment by armed groups. Security concerns and the pervasive fear of violence also deter women from seeking facility-based care. Even when facilities remain open, the perceived risk of traveling during active conflict or at night prevents many from attending ANC sessions or seeking help during labor. This phenomenon of "delivering at home out of fear" has been documented in various Nigerian contexts where insecurity is high (Iliyasu et al., 2023). Additionally, movement restrictions such as checkpoints or informal blockades further impede access, particularly for those in the Middle Belt where rural roads are often controlled by varying factions (Leone et al., 2019). Supply chain disruptions also create significant barriers. The inability to safely transport essential drugs and medical supplies to rural clinics leads to chronic shortages, which in turn reduces the perceived value of visiting these facilities (Akor et al., 2024). When women expect that a facility will lack the necessary medications or staff, they are less likely to make the effort to attend, leading to a downward spiral in utilization.

Displacement & IDP Settings

The Farmers-Herders conflict has resulted in massive internal displacement, with estimates suggesting that over 400,000 people have been displaced in Benue and Nasarawa States alone over the past five years (Aderinto et al., 2019). For displaced women, the continuum of maternal care is often broken. Relocation to Internally Displaced Persons (IDP) camps or host communities disrupts established relationships with healthcare providers and can lead to a complete cessation of routine services such as ANC and PNC. In IDP settings, maternal health service utilization is generally lower than in stable rural populations. While some humanitarian interventions aim to provide basic health services in camps, these are often insufficient to meet the full range of maternal needs. Research in North-Central Nigeria indicates that displaced persons face unique determinants of access, including administrative hurdles and a lack of financial resources (Oladimeji, 2018). Furthermore, the transient nature of IDP populations makes it difficult for health systems to track patients and ensure they receive the recommended four or more ANC visits or timely postnatal checkups (Rammohan et al., 2021).

Maternal Outcomes

In Nigeria, the Boko Haram insurgency has been shown to significantly reduce the probability of any ANC visits and institutional delivery (Chukwuma et al., 2019), and similar patterns are observed in the context of rural insecurity in the Middle Belt. The reduction in institutional births is particularly concerning, as it increases the likelihood of unmanaged complications such as hemorrhage or obstructed labor. In some rural Nigerian communities, maternal mortality ratios are estimated to be as high as 2,000 deaths per 100,000 live births (Etokidem et al., 2022). While these figures reflect a broader health crisis, the added stress of conflict undoubtedly exacerbates these outcomes. Children born in conflict-affected areas are also at higher risk of neonatal death and low birth weight, further highlighting the intergenerational impact of the Farmers-Herders clashes (Zhang et al., 2023; Rammohan et al., 2021).

Discussion of Findings

This systematic review demonstrates that the farmers-herders conflict in Nigeria operates as a significant structural determinant of maternal health service utilization in rural communities. Guided by the Resource Competition Theory, the findings highlight how competition over land and water resources escalates into violence that disrupts both health systems and healthcare-seeking behaviour.

A key finding is the dual pathway through which conflict affects maternal health services. On the supply side, repeated attacks on rural communities contribute to the destruction of health facilities, interruption of medical supply chains, and the relocation or flight of healthcare workers. These disruptions severely weaken the availability and functionality of antenatal, delivery, and postnatal care services. On the demand side, insecurity reduces care-seeking behaviour as pregnant women avoid health facilities due to fear of violence, kidnapping, or road ambushes. This results in increased home deliveries and reduced skilled birth attendance.

The review also shows that geographical inaccessibility and economic hardship intensify the effects of insecurity. Long travel distances to functional health facilities, combined with poor transport infrastructure, increase both the physical and financial burden of accessing maternal care. These challenges are further compounded in internally displaced persons (IDP) settings, where continuity of care is often disrupted. Displaced women face fragmented health records, limited access to skilled providers, and inadequate humanitarian maternal health services. Although direct maternal mortality data specific to the farmers–herders conflict remains limited, the consistent reduction in antenatal care attendance and institutional delivery strongly suggests an increased risk of adverse maternal outcomes. Evidence from related conflict contexts further supports the conclusion that insecurity undermines maternal health-seeking behaviour and worsens reproductive health outcomes.

Overall, the farmers–herders conflict should be understood not only as a security issue but also as a public health crisis. Its impacts extend beyond immediate violence to the long-term deterioration of maternal health systems in rural Nigeria.

Conclusion

The farmers-herders conflict constitutes a major impediment to achieving maternal health targets in rural Nigeria. The systematic destruction of health infrastructure, the loss and displacement of skilled healthcare personnel, and the pervasive climate of fear among pregnant women have collectively led to a marked decline in the utilization of essential maternal health services. Beyond these direct effects, the conflict has also weakened already fragile health systems by disrupting medical supply chains, reducing the availability of essential drugs and equipment, and limiting the operational capacity of primary healthcare centres. Insecurity and violence often force pregnant women to delay or completely forgo antenatal care visits, opt for unsafe home deliveries, and miss critical postnatal care services. Long travel distances, increased transportation costs, and restricted mobility further exacerbate these challenges, particularly in remote and conflict-affected communities.

Moreover, internally displaced persons (IDPs) face compounded vulnerabilities, including overcrowded living conditions, poor sanitation, and inadequate access to emergency obstetric care. The breakdown in continuity of care for displaced pregnant women increases the risks of maternal and neonatal morbidity and mortality. Collectively, these dynamics not only undermine progress toward national and global maternal health targets but also deepen existing health inequities between urban and rural populations. Addressing these challenges requires integrated and context-sensitive interventions, including strengthening health system resilience, improving security around healthcare facilities, deploying mobile and community-based health services, and ensuring targeted support for displaced populations.

Recommendations

Based on the study, the following recommendations were made:

Secure Healthcare Infrastructure: The Nigerian government must prioritize the security of rural health facilities. This includes providing physical protection for clinics and establishing "safe corridors" for the transport of medical supplies and personnel.

Mobile Health Units: In areas where facilities have been destroyed or are too dangerous to reach, mobile health clinics should be deployed to provide ANC, basic delivery services, and PNC directly to rural communities and IDP camps.

Incentives for Health Workers: To counter the relocation of medical staff, the government and NGOs should offer "conflict-zone allowances" and enhanced security packages to encourage skilled providers to remain in or return to rural areas.

Community-Based Support: Leveraging traditional birth attendants (TBAs) and community health extension workers (CHEWs) for basic maternal care and referrals can bridge the gap in areas where formal facilities are inaccessible. However, this must be integrated with efforts to improve facility access for complicated cases.

Humanitarian Integration: Maternal health services must be a core component of the humanitarian response for IDPs. This includes ensuring that camps are equipped with basic obstetric care and that referral systems to secondary hospitals are functional and secure.

By addressing the security and systemic barriers identified in this review, Nigeria can begin to protect the health and lives of mothers and children in its most vulnerable rural communities.

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