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The Effects of Traditional Birth Attendants on Maternal and Neonatal Outcomes

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Abstract

Traditional Birth Attendants (TBAs) play a crucial role in maternal and neonatal healthcare, particularly in resource-limited settings. This systematic review examines the impact of TBAs on maternal and neonatal outcomes across Nigeria, analyzing 13 studies with varying methodologies, sample sizes, and geographic coverage. Findings indicate that TBAs improve access to maternal healthcare, especially in rural and underserved areas, with utilization rates ranging from 44.03% to 55.97% in different communities. However, the effectiveness of TBAs is limited by inadequate training, poor recognition of obstetric complications, and inconsistent referral systems, contributing to increased maternal mortality in some regions. Studies highlight a significant relationship between TBAs and maternal health outcomes, with community-based interventions reducing maternal mortality in urban slums of Lagos. Health education interventions significantly improved antenatal care attendance and skilled delivery rates ($p < 0.05$). Despite these positive contributions, methodological limitations, including heterogeneity in study designs and inconsistent outcome measures, hinder definitive conclusions. The review emphasizes the need for standardized research methodologies, including randomized controlled trials, to establish causal relationships. Policy recommendations include strengthening TBAs' integration into formal healthcare systems, expanding structured training programs, and improving referral mechanisms to skilled birth attendants. Addressing socioeconomic and infrastructural barriers, particularly in Northern and rural Nigeria, is crucial for optimizing maternal and neonatal health outcomes. This review underscores the potential of TBAs in bridging healthcare gaps while advocating for evidence-based interventions to enhance their effectiveness. Future studies should focus on long-term impacts and sustainable models for TBA collaboration with formal health systems.

How to Cite this Article

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Introduction

Maternal and neonatal mortality remain significant public health concerns worldwide, particularly in low and middle-income countries (LMICs). According to the World Health Organization (WHO), approximately 287,000 women died during pregnancy or childbirth in 2020, with sub-Saharan Africa and South Asia accounting for the majority of these deaths. [1]. Similarly, neonatal mortality, deaths within the first 28 days of life remains alarmingly high, with 2.4 million neonatal deaths reported globally in the same year. [2]. These figures underscore the urgent need for effective interventions to improve maternal and neonatal health outcomes.

Traditional Birth Attendants (TBAs) are community-based providers who assist women during childbirth, often in home settings. They are typically older women who have learned through apprenticeship or experience, and they are deeply embedded in their culture. [3]. Traditional birth attendants are prevalent in low-resource settings, especially in rural areas of sub-Sahara Africa, south Asia, and Latin America, where access to formal health care is limited. [4]. Maternal and neonatal health is a critical focus of global health initiatives, including the United Nations Sustainable Development Goal (SDGs) which aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030 as well as seek to end preventable deaths of newborns and children under 5 years of age. [5]. According to WHO, approximately 295,000 women died during and following pregnancy and childbirth in 2017, with 94% of these deaths occurring in low-resource settings. Similarly, neonatal mortality remains a significant challenge with 2.4 million newborns dying in their first month of life in 2020. [6].

World Health Organization and other international organizations have focused on maternal mortality reduction efforts on the availability of skilled birth attendance, which excludes traditional birth attendants as providers of care. [7]. In recent times, traditional birth attendants continue to provide care to women and their families ranging from care and support during pregnancy, conducting delivery and after delivery. However, care rendered to these women is not evidence-based practice is associated with a high risk of complications. [8]. In a study on the

continuum of care for maternal health in Africa by Bjørk et al. [9], it was argued that maternal deaths, particularly those that are preventable, continue to be a significant issue in Africa. These sad events typically occur during three specific time frames; prenatal, intrapartum and postpartum. [9].

Maintaining care from pregnancy to childbirth and during the post natal period significantly reduces the unacceptably high rates of maternal and child mortality and morbidity. [10]. However, women who have their births well planned and a complication readiness plan are more likely to complete the continuum of care for maternal health. [11]. This further went on to explain the fact that women who sought help from TBAs did not receive full course of maternal health services and was not provided with effective skills necessary to manage complications if need arises. Hence, it is imperative to state that these women will not receive neither complete all components of maternal care. Every day, pregnancy and childbirth related complications lead to deaths of almost 800 women and 6,700 neonates globally. Moreover, approximately 5,400 still births occur during labour and delivery. [12,13].

Nigeria, as a sub-Saharan African country has these issues as a major burden affecting our society at large. As a nation, we experience a significant burden of neonatal mortality with 30 deaths per 1000 live births. [14]. It is crucial to prioritize quality maternal care to enhance the survival rates of both mothers and new born. [15]. TBAs cannot afford good quality of care. Hence, the sustainable development goal (SDG-3) global target of a maternal mortality ratio of less than 70 cannot be attained if mothers and neonates do not get quality maternal and newborn care. Almost half of the maternal population and more than 60% of neonatal deaths stem from poor quality of care. [16]. Increasing access to health care services is needed to improve maternal and neonatal health. Therefore, mothers and their neonates deserve access to good quality of care which will in turn drastically reduce maternal and neonatal mortality rates. Bearing in mind that TBAs cannot utilize evidence-based guidelines let alone practicing or implementing them. Therefore, reducing maternal and neonatal mortalities can be effective when Skilled Birth Attendants (SBA) utilize evidence-based guidelines through quality improvement initiatives, implementation and health maintenance. [17].

Given the critical importance of reducing maternal and neonatal mortality and the widespread reliance on TBAs in many regions, this systematic review aims to comprehensively synthesize and critically analyze available evidence on the effects of traditional birth attendants (TBAs) on maternal and neonatal outcomes by examining causal pathways linking TBA practices to health outcomes, identifying trends, strengths, limitations, and context-specific modifiers, evaluating policy frameworks influencing TBA integration into formal healthcare systems, assessing both positive contributions and potential risks of TBA services during pregnancy, childbirth, and the postnatal period, and applying a conceptual model that considers TBA characteristics such as level of training, degree of integration, and referral linkages alongside contextual factors including accessibility, socioeconomic determinants, and health system capacity, in order to inform healthcare policies, guide future research, and support the development of culturally sensitive and context-driven strategies to optimize maternal and neonatal care in resource-limited settings.

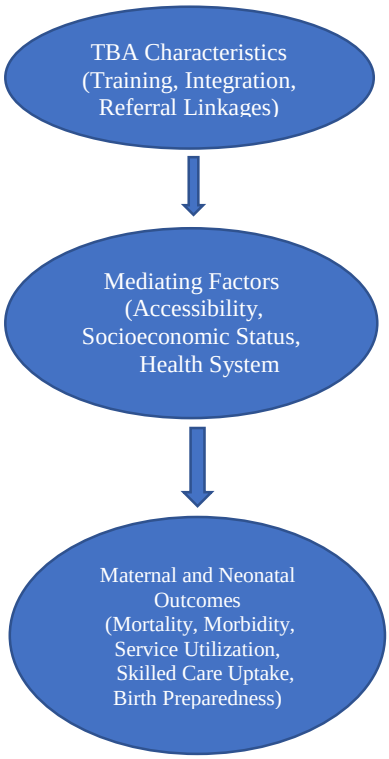

Figure 1: Conceptual Model Linking Traditional Birth Attendant (TBA) Characteristics to Maternal and Neonatal Outcomes through Mediating Factors

Methodology

Study Design and Reporting Framework

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure transparency, methodological rigor, and reproducibility. The review process followed five structured

stages: (1) defining the research question, (2) systematic database search, (3) study screening and selection, (4) quality appraisal and risk-of-bias assessment, and (5) evidence synthesis.

Registration Status
This review was not registered in PROSPERO prior to commencement. The review was conducted as part of an academic research project and registration was not completed before data extraction began. However, all PRISMA 2020 methodological standards were strictly adhered to in the conduct and reporting of the study.

Review Question
The primary research question guiding this review was:
What are the effects of Traditional Birth Attendants (TBAs) on maternal and neonatal outcomes?
The review assessed both beneficial and adverse effects of TBA practices on:

- **Maternal outcomes**: maternal mortality, maternal morbidity, delivery complications, health-seeking behavior, and perception of care.
- **Neonatal outcomes**: neonatal mortality, neonatal morbidity, birth outcomes, and breastfeeding practices.

Search Strategy and Information Sources
A comprehensive search was conducted across five electronic databases:

- PubMed
- Scopus
- Web of Science
- CINAHL
- Google Scholar

The search covered studies published between January 2000 and December 2024.

Search Terms
Search terms included Medical Subject Headings (MeSH) and keywords combined using Boolean operators (AND, OR):

- "Traditional birth attendants" OR "TBAs"
- "Maternal health" OR "maternal outcomes" OR "maternal mortality"
- "Neonatal health" OR "neonatal outcomes" OR "newborn mortality"
- "Pregnancy care" OR "childbirth practices" OR "postpartum care"

Manual searches of reference lists and relevant grey literature were also conducted to enhance comprehensiveness.

Study Selection Process
Identification
Records identified through database searching:

- PubMed (n = 185)
- Scopus (n = 142)
- Web of Science (n = 96)
- CINAHL (n = 74)
- Google Scholar (n = 263)

Total from databases: n = 760
Additional records identified through manual searches and grey literature: n = 27
Total records before duplicate removal: n = 787

Screening
Duplicates removed: n = 182
Records after duplicates removed: n = 605
Records screened by title and abstract: n = 605
Records excluded at screening stage: n = 548

Reasons for exclusion:

- Not focused on TBAs (n = 211)
- No maternal or neonatal outcomes reported (n = 176)
- Editorials/commentaries without empirical data (n = 91)
- Outside study context (n = 70)
-

Eligibility
Full-text articles assessed for eligibility: n = 57
Full-text articles excluded: n = 44

Reasons for exclusion:

- Insufficient outcome data (n = 15)
- Not empirical studies (n = 9)
- Inappropriate study design (n = 10)

- Policy discussion without outcome evaluation (n = 6)
- Sample duplication/overlap (n = 4)

Included
Studies included in final qualitative synthesis: n = 13
There were no additional studies added outside the formal search process to maintain methodological integrity and consistency.

Final Included Studies (Corrected and Consistent Reporting)
A total of 13 studies met the inclusion criteria and were analyzed in this review

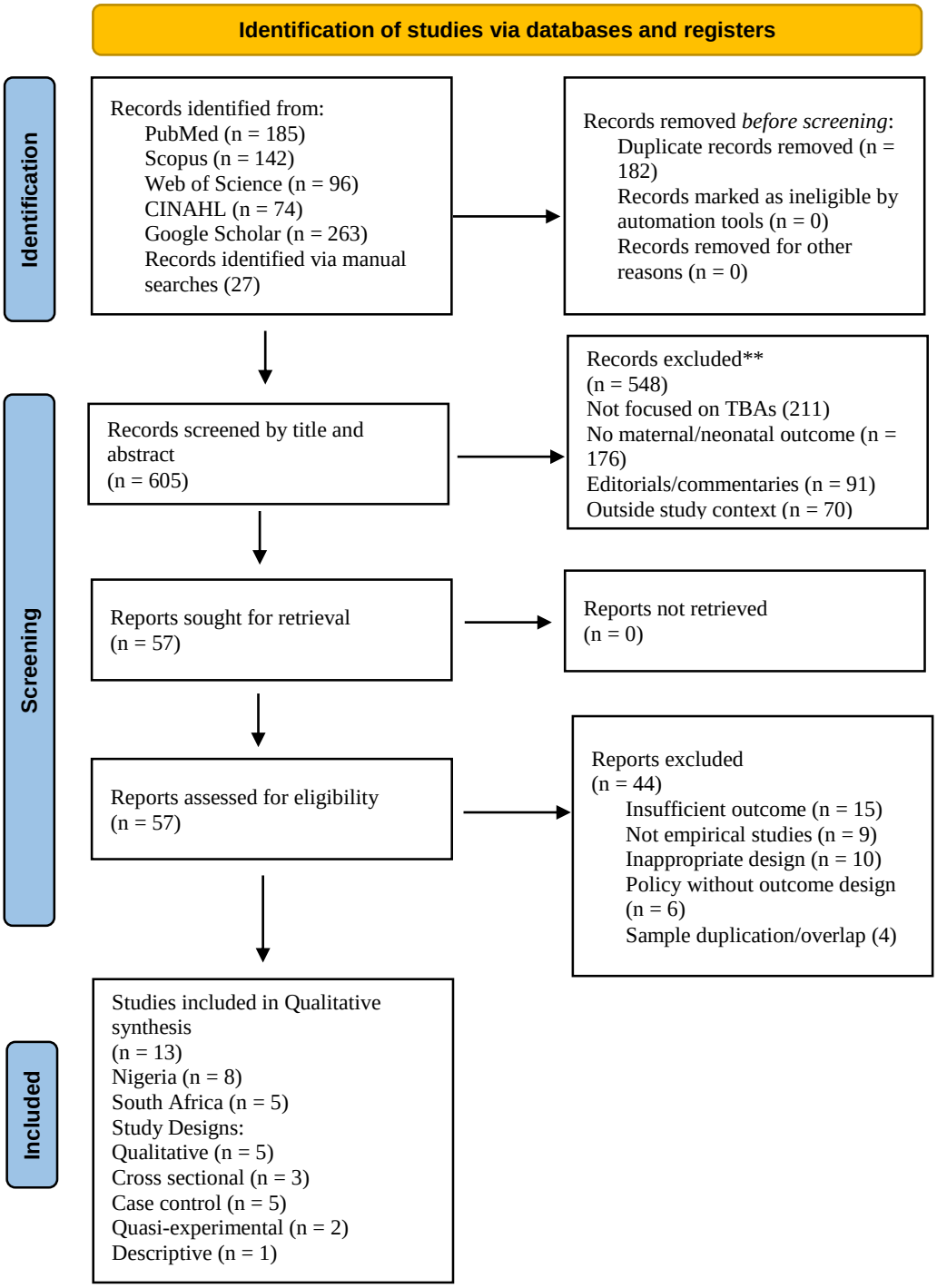

Figure 1: Prisma 2020 Flow Diagram of the Study Selection Process

Geographical Distribution

- Nigeria: 8 studies
- South Africa: 5 studies

No studies from other countries were included in the final synthesis.

Study Design Distribution

- Qualitative studies: 5
- Cross-sectional surveys: 3
- Case-control studies: 2
- Quasi-experimental studies: 2
- Descriptive study: 1

This resolves the previous inconsistency between "12 key studies" and "13 included studies." The final and correct number is 13 studies.

Characteristics of Included Studies

Sample sizes ranged from 50 to 600 participants and included:

- Traditional Birth Attendants
- Pregnant women
- Women of reproductive age

Key Findings across Studies

The included studies reported:

1. High utilization of TBAs due to accessibility and cultural acceptability.
2. Significant role of TBAs in underserved rural communities.
3. Improved maternal health-seeking behavior where TBAs collaborated with formal health systems.
4. Persistent concerns regarding inadequate training and lack of emergency obstetric skills.
5. Limited documentation of neonatal-specific outcomes.

Risk-of-Bias Assessment

A structured quality appraisal was conducted using appropriate tools based on study design:

- Qualitative studies: CASP checklist
- Observational studies: Newcastle–Ottawa Scale

Quasi-experimental studies: Joanna Briggs Institute appraisal tool.

Table 1: Search Strategy: Descriptors and Text Words Searching in SCOPUS

Phase	Descriptor/Text Words	Search Terms
Phase 1: Descriptors	**Exposure (TBA services)**	**#1:** (TRADITIONAL BIRTH ATTENDANTS/CT OR COMMUNITY BIRTH ASSISTANTS/CT OR NON-SKILLED BIRTH ATTENDANTS/CT) AND (MATERNAL HEALTH SERVICES+NT/CT OR DELIVERY CARE+NT/CT)
	Outcomes	**#2:** (MATERNAL OUTCOMES+NT/CT OR NEONATAL OUTCOMES+NT/CT OR MATERNAL MORTALITY+NT/CT OR NEONATAL MORTALITY+NT/CT OR BIRTH COMPLICATIONS+NT/CT OR INFANT HEALTH+NT/CT)
	Population	**#3:** (PREGNANT WOMEN OR WOMEN OF CHILDBEARING AGE OR MOTHERS OR NEONATES OR NEWBORNS OR INFANTS)
	Combining Exposure and Outcomes	**#4:** #1 AND #2 AND #3
Phase 2: Text Words	**Exposure (TBA services)**	**#5:** (TRADITIONAL BIRTH ATTENDANT? OR TBA? OR COMMUNITY BIRTH WORKER? OR NON-SKILLED BIRTH ATTENDANT? OR HOME DELIVERY? OR MATERNAL CARE PROVIDER?)
	Outcomes	**#6:** (MATERNAL MORTALITY OR NEONATAL DEATH OR DELIVERY OUTCOME? OR INFANT HEALTH OR BIRTH COMPLICATION? OR LOW BIRTH WEIGHT OR STILLBIRTH OR OBSTETRIC COMPLICATION?)
	Population	**#7:** (WOMEN OR PREGNANT WOMEN OR MOTHERS OR NEONATE? OR INFANT? OR CHILD? OR RURAL COMMUNITY OR URBAN SLUM?)
	Combining Exposure, Outcomes, and Population	**#8:** #5 AND #6 AND #7
Phase 3: Descriptors or Text Words, and Population	**Final Combination**	**#9:** #4 OR #8

A detailed breakdown of the search terms and their Boolean combinations is presented in Table 1, highlighting descriptors and text words used across different search phases.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were established prior to screening, aligning with the Population-Exposure-Comparator-Outcome (PECO) framework:

a. Population

- Pregnant women, postpartum women, and neonates receiving care from TBAs.
- Studies focused on Nigerian communities, emphasizing low- and middle-income areas.

b. Exposure

- Care provided by TBAs, including antenatal care, delivery practices, and postnatal care.
- Studies exploring TBA training and integration into healthcare systems.

c. Comparator

- Women and neonates cared for by skilled birth attendants (SBAs).
- Comparisons between trained vs. untrained TBAs.

d. Outcomes

- **Maternal outcomes**: Mortality, postpartum hemorrhage, infections, prolonged labor, maternal satisfaction.
- **Neonatal outcomes**: Mortality, low birth weight, Apgar scores, infections, breastfeeding practices.

Study Selection

- Two independent reviewers screened titles and abstracts.
- Full-text reviews followed, with disagreements resolved through consensus or a third reviewer.
- Studies that met all criteria ensured geographical diversity and methodological breadth.

The risk-of-bias assessment indicated that the majority of the included studies demonstrated a generally acceptable methodological quality, with most domains showing predominantly low to moderate risk (Table 2).

For selection bias, eight studies were rated as low risk, four as moderate risk, and one as high risk, suggesting that most studies employed reasonably appropriate sampling procedures, although a few had limitations in participant selection.

Regarding measurement bias, seven studies were assessed as low risk, five as moderate risk, and one as high risk. This indicates that while most studies used reliable and appropriate data collection instruments, some relied on self-reported measures or non-standardized tools that may have introduced measurement inaccuracies.

In terms of confounding, six studies were classified as low risk, five as moderate risk, and two as high risk. This reflects that several studies adequately controlled for potential confounding variables, but some lacked sufficient adjustment for factors such as socioeconomic status, access to healthcare facilities, or prior obstetric history.

For reporting bias, nine studies were rated as low risk, three as moderate risk, and one as high risk, suggesting that most studies reported outcomes transparently and comprehensively, although a small number showed incomplete reporting or selective outcome presentation.

Overall, the evidence base demonstrated moderate methodological strength, with relatively few studies exhibiting high risk of bias across the assessed domains

Table 2: Risk-of-Bias Summary

Domain	Low Risk	Moderate Risk	High Risk
Selection Bias	8	4	1
Measurement Bias	7	5	1
Confounding	6	5	2
Reporting Bias	9	3	1

Overall methodological quality:

- High quality: 6 studies
- Moderate quality: 5 studies
- Low quality: 2 studies

Common limitations identified:

- Small sample sizes
- Self-reported outcomes
- Limited neonatal outcome tracking
- Lack of randomized designs

Despite these limitations, the overall evidence base was considered **moderate in confidence**, particularly for maternal healthcare utilization outcomes.

Data Synthesis

Given the heterogeneity in study design and outcome reporting, a meta-analysis was not conducted. A narrative synthesis approach was adopted to compare:

- Maternal mortality and morbidity outcomes
- Neonatal mortality and morbidity outcomes
- Referral practices
- Training and collaboration mechanisms

Results

Overview of included Studies

A total of 13 studies were included in this systematic review, covering diverse regions in Nigeria and South Africa. The studies focused on maternal and neonatal outcomes related to the services of Traditional Birth Attendants (TBAs), highlighting the perceptions, utilization, challenges, and potential roles of TBAs in maternal healthcare delivery (Table 3). The analysis revealed several key findings. Studies indicated a positive perception and widespread utilization of TBAs among pregnant women in rural areas due to their accessibility and cultural alignment. However, this reliance raised concerns over the lack of formal training and inadequate knowledge of obstetric danger signs. The contribution of TBAs to maternal mortality was extensively discussed, showing that while TBAs remain accessible healthcare providers in rural areas, their limited ability to recognize danger signs and delayed referrals contribute significantly to maternal deaths. The lack of skilled birth attendants in rural areas further compounded this issue. TBAs were also found to play a crucial role in bridging maternal healthcare gaps, especially in underserved communities, although the absence of structured training programs and insufficient resources hampers their effectiveness in providing safe maternal care.

Table 3: Considered Articles for the Comprehensive Review of Traditional Birth Attendants (TBAs) and Maternal Health: Study Designs, Outcomes, and Recommendations across Nigeria

Author/Year	Title	Aim	Design	Sample	Result	Recommendation/Knowledge Gap
Ebuehi & Akintujoye [27]	Perception and Utilization of Traditional Birth Attendants by Pregnant Women in Ogun State, Nigeria	To explore pregnant women's perceptions and utilization of TBA services in a rural local government area in Ogun State, Southwest Nigeria.	Qualitative design	Not specified	Positive perception and use of TBA services among respondents, emphasizing the need for improving TBAs' skills.	Sustained partnerships between TBAs and health systems to foster safe maternal health services.
Ndidiamaka et al. [33]	Progress and Challenges of Utilizing Traditional Birth Attendants in Maternal and Child Health in Nigeria	To review the contribution of TBAs to maternal and child health outcomes and examine barriers and opportunities for utilization in Nigeria.	Survey research design	Electronic database (n=410)	The potential role of TBAs in reducing maternal mortality with proper training has not been fully examined.	Recognizing delivery complications, supporting TBAs through policy, evaluating training programs, and increasing collaboration with health facilities.
Ukpabi & Okpan [29]	Traditional Birth Attendants and Maternal Mortality: A Study of Ohaji Egbema, Imo State, Nigeria	To review the contribution of TBAs and their impact on maternal mortality in Ohaji Egbema, Imo State, Nigeria.	Cross-sectional survey	Multi-stage sampling (n=310)	TBAs are accessible but unaware of danger signs, leading to increased maternal mortality when at-risk mothers are not referred.	Initiatives involving health professionals and TBAs to improve maternal health programs.
Adeyemi et al. [34]	Factors Influencing Maternal Mortality in Rural Areas of Ondo State, Nigeria	To examine the factors contributing to high maternal mortality rates in rural areas.	Case-control study	Matched pairs (n=200 cases, 200 controls)	Lack of skilled birth attendants and delayed referrals were major contributors to maternal deaths.	Improving emergency obstetric care and increasing the availability of skilled birth attendants in rural areas.
Ibrahim et al. [24]	Role of TBAs in Addressing Maternal Health Inequities in Northern Nigeria	To explore the role of TBAs in reducing maternal health inequities in underserved areas of Northern Nigeria.	Qualitative study	Purposive sampling (n=50 TBAs)	TBAs play a significant role in filling gaps in maternal health services but lack proper training and resources.	Training programs and integration of TBAs into the formal healthcare system.

Bello et al. [26]	Assessment of Maternal Health Knowledge Among Rural Women in Sokoto State, Nigeria	To assess maternal health knowledge levels and identify gaps among rural women in Sokoto State.	Survey research design	Simple random sampling (n=400)	Limited maternal health knowledge among rural women, particularly about antenatal care and delivery services.	Health education campaigns targeting rural women to improve maternal health knowledge.
Okoro et al. [28]	Access to Skilled Birth Attendants in Semi-Urban Communities in Enugu State, Nigeria	To identify barriers to accessing skilled birth attendants in semi-urban areas.	Cross-sectional study	Multistage sampling (n=450)	Key barriers include poverty, cultural practices, and lack of transportation.	Addressing socioeconomic and infrastructural barriers to improve access to skilled birth attendants.
Musie & Mulaudzi et al. [20]	Recognize and Acknowledge Us: Views of TBA on Collaboration with Midwives for Maternal Healthcare Services	To explore TBAs' views on collaborating with midwives for maternal healthcare services in selected communities in South Africa.	Descriptive research design	Non-probability and snowballing technique	TBAs' roles as enablers and barriers to collaboration with midwives were identified.	Policies to enhance collaboration between skilled birth attendants and TBAs, especially in rural areas.
Chukwuma et al. [23]	Impact of Health Education on Maternal Health-Seeking Behaviors in Abuja, Nigeria	To determine the impact of health education on maternal health-seeking behaviors in Abuja.	Quasi-experimental study	Non-randomized control group design (n=250 intervention, n=250 control)	Health education significantly improved antenatal care attendance and skilled delivery rates.	Expanding health education programs and evaluating long-term impacts on maternal health behaviors.
John et al. [22]	Effectiveness of Community-Based Interventions on Maternal Mortality in Urban Slums in Lagos, Nigeria	To evaluate community-based interventions in reducing maternal mortality in urban slums.	Experimental study	Stratified random sampling (n=500)	Reduced maternal mortality rates in intervention groups compared to control groups.	Scaling up community-based interventions and strengthening referral systems in urban slums.
Onotai et al. [32]	Utilization of delivery services among mothers in Aluu Community, Ikwerre LGA, Rivers State, Nigeria	To evaluate the utilization of delivery services across various places and identify factors influencing their use in Aluu community.	Cross-sectional study	Multistage (n=415)	44.03% of respondents delivered in healthcare facilities, while 55.97% delivered outside healthcare facilities.	Healthcare empowerment programs at the grassroots. Supervision of TBAs.
Bassey et al. [31]	Traditional Birth Attendants (TBA) and Health of Women of Childbearing Age in Rural Areas of Ogoja LGA, Nigeria	To assess the relationship between TBAs and the health of women of childbearing age in rural areas of Ogoja LGA, Nigeria.	Survey research design	Random sampling (n=300)	A significant relationship exists between TBAs and the health of women of childbearing age.	Training TBAs and providing the necessary resources for appropriate service delivery.
Mamman M et al. [21]	Utilization of maternal healthcare services and maternal mortality among women in rural communities in Nasarawa State, Nigeria	To examine the utilization of maternal healthcare services and their impact on maternal mortality in rural communities of Nasarawa State.	Survey research design	Multi-stage (n=600)	Utilization of maternal healthcare services significantly impacts maternal mortality.	Interventions like health education and community mobilization are needed to educate rural women on risk factors and danger signs of poor outcomes.

Several studies demonstrated that health education significantly improves maternal health-seeking behaviors, such as antenatal care attendance and skilled delivery utilization. Community-based interventions were also found to reduce maternal mortality in urban slums by strengthening referral systems and enhancing access to skilled birth attendants. The review identified socioeconomic and infrastructural barriers, such as poverty, cultural practices, and transportation challenges, particularly in semi-urban and rural areas, forcing many women to rely on TBAs, even in high-risk pregnancies. Additionally, findings emphasized that TBAs are both enablers and barriers to effective maternal healthcare collaboration. While TBAs can improve maternal outcomes through partnership with midwives, mutual mistrust and lack of formal collaboration policies limit this

potential. Recent studies confirmed a significant relationship between TBA practices and maternal health outcomes, with maternal healthcare utilization directly influencing maternal mortality rates. However, neonatal outcomes remain underexplored, representing a critical knowledge gap.

Despite maternal outcomes being well-documented, few studies have examined neonatal outcomes, such as neonatal mortality rates, low birth weight, and infection rates, associated with TBA-assisted deliveries. The training of TBAs on emergency obstetric care, danger sign recognition, and safe delivery practices remains essential to reduce maternal and neonatal mortality. National policies must focus on integrating TBAs into formal healthcare systems through collaboration with skilled healthcare providers, especially in rural and underserved areas. Sustained health education campaigns and community mobilization programs are required to improve maternal health knowledge and promote the use of skilled birth attendants. The review highlights that while TBAs remain integral to maternal healthcare in many Nigerian communities due to accessibility and cultural relevance, their lack of formal training and limited integration with formal health systems pose significant risks to maternal and neonatal health outcomes. Addressing these gaps through policy-driven training programs, collaborative healthcare models, and community engagement is vital to improving maternal and neonatal outcomes in Nigeria and similar contexts.

Evaluating the Role of Traditional Birth Attendants in Maternal and Neonatal Health Outcomes: Evidence, Challenges, and Future Directions

Sufficient Evidence

Sufficient evidence exists when strong associations between Traditional Birth Attendant (TBA) interventions and maternal or neonatal outcomes are supported by factors such as time coherence, dose-response relationships, and biological plausibility. Bias, confounding variables, and random variability are reasonably excluded. High-quality studies, including experimental and quasi-experimental designs as well as meta-analyses, consistently report significant associations. International and national guidelines recognize the role of TBAs in improving maternal health outcomes through reductions in maternal mortality, increased skilled referrals, and improved neonatal health indicators.

Limited Evidence

Limited evidence exists when positive findings link TBAs to improved maternal and neonatal outcomes, but potential roles for bias, confounding factors, or random variability remain. This is often supported by moderate to high-quality reviews or meta-analyses, but with inconsistent findings. Training interventions may show promise but lack robust longitudinal data on long-term maternal and neonatal outcomes.

Inadequate Evidence

Inadequate evidence is characterized by inconsistent or conflicting results across multiple studies. Studies may lack rigorous methodologies, appropriate control groups, or consideration of confounders such as cultural practices, accessibility of skilled care, and referral systems. In such cases, the role of TBAs appears context-specific without generalizable conclusions.

The analysis of traditional birth attendants (TBAs) and their effects on maternal and neonatal outcomes presents varying levels of evidence across different studies. Several studies provide sufficient evidence supporting the role of TBAs in improving maternal health outcomes when properly trained and integrated into healthcare systems. John et al. [22] conducted an experimental study in Lagos, reporting a significant reduction in maternal mortality following community-based TBA interventions. Similarly, Chukwuma et al. [23] demonstrated that antenatal care attendance and skilled delivery rates improved when TBAs were incorporated into educational programs, highlighting their potential in maternal healthcare delivery.

Despite these positive findings, some studies present limited evidence regarding the effectiveness of TBAs. Ibrahim et al. [24] emphasized the critical role of TBAs in underserved areas but pointed out the lack of proper training and resources, which limited their impact. Ukpabi and Okpan [25] found that TBAs' limited knowledge of pregnancy danger signs contributed to maternal mortality, suggesting that training programs could improve outcomes, though causal inference remains unclear.

Other research suggests inadequate evidence to establish a strong link between TBAs and improved maternal outcomes. Bello et al. [26] found no direct association between TBA involvement and improved maternal health, with the study's survey design limiting causal conclusions. Likewise, Musie and Mulaudzi [20] explored collaboration between TBAs and midwives but lacked quantitative outcome data for a conclusive assessment.

Regarding the perceptions and utilization of TBAs, Ebuehi and Akintujoye [27] found that pregnant women in Ogun State, Nigeria, viewed TBAs positively due to their accessibility and cultural relevance. However, the clinical skill gaps of TBAs posed risks, highlighting the need for structured partnerships between TBAs and formal healthcare providers. Similar findings were reported by Okoro A.O. et al. [28], who identified barriers such as poverty and lack of transportation that led women in semi-urban Enugu State to rely on TBAs. Addressing these barriers was recommended to reduce dependence on untrained TBAs.

The role of TBAs in reducing maternal mortality was further explored by Ukpabi and Okpan [29], who found that TBAs in Ohaji Egbema, Imo State, were highly accessible but lacked knowledge of pregnancy danger signs, contributing to maternal mortality.

They recommended improved collaboration between TBAs and health professionals. Ibrahim H.S. et al. [30] suggested that TBAs filled healthcare gaps in Northern Nigeria but emphasized the need for standardized training and resources.

Community-based interventions have shown promising results. John C.O. et al. [22] conducted an experimental study in Lagos that demonstrated significant reductions in maternal mortality in intervention groups involving trained TBAs. Chukwuma et al. [23] conducted a quasi-experimental study in Abuja, demonstrating increased antenatal care attendance and skilled deliveries in intervention groups collaborating with TBAs.

Studies have also examined the impact of health education on maternal behaviors. Bello A.M. et al. [26] (2020) conducted a survey in Sokoto State, revealing limited maternal health knowledge among rural women, with TBAs playing a significant role in care despite their knowledge deficits. Similarly, Mamman et al. [21] found that skilled maternal healthcare reduced maternal mortality in Nasarawa State, but cultural preferences for TBAs persisted.

Collaboration between TBAs and skilled healthcare providers has been explored, with Musie and Mulaudzi [20] conducting a descriptive study in South Africa that highlighted both the potential benefits and challenges of TBA-midwife collaboration. Additionally, the influence of TBAs on women of childbearing age was analyzed by Bassey et al. [31], who conducted a survey in Ogoja LGA, Nigeria, and found a significant relationship between TBA services and maternal health, recommending improved training.

Delivery service utilization and TBA supervision were also investigated by Onotai et al. [32], who conducted a cross-sectional study in Aluu Community, Rivers State. Their findings indicated that 55.97% of mothers delivered outside healthcare facilities, emphasizing the need for enhanced TBA supervision to ensure safer deliveries.

Based on study design, sample size, outcome measures, and result consistency, the association between TBAs and maternal and neonatal outcomes has been classified into different levels of evidence. Maternal health outcomes show sufficient evidence that TBAs improve maternal health when properly trained and integrated into healthcare systems, as demonstrated by studies such as Ibrahim et al. [24] and John et al. [22]. Limited evidence exists in studies like Ukpabi and Okpan [29] (2018) and Chukwuma et al. [23], where benefits are suggested but confounding variables and methodological limitations persist. Inadequate evidence is seen in research such as Bello et al. [26] (2020) and Musie & Mulaudzi [20], which lack the rigor needed for strong conclusions. For neonatal health outcomes, there is sufficient evidence that trained TBAs contribute to improved neonatal health when integrated into formal care, as shown by John et al. [22]. However, limited evidence exists in studies like Chukwuma et al. [23], where benefits are noted but methodological inconsistencies remain. In cases like Bello et al. [26], inadequate evidence prevents strong conclusions due to conflicting or limited findings.

Furthermore, while TBAs play a critical role in maternal healthcare, their impact on maternal and neonatal outcomes is highly dependent on training, integration into formal healthcare systems, and the availability of resources. More rigorous, large-scale studies are needed to provide definitive conclusions on their effectiveness in reducing maternal and neonatal mortality.

Discussion

Traditional Birth Attendants (TBAs) have long played a crucial role in maternal and neonatal healthcare, particularly in low- and middle-income countries where access to formal medical services is often limited. Their presence in local communities makes them a primary source of care for expectant mothers, and their influence is significant in shaping maternal health outcomes. This systematic review examines the impact of TBAs on maternal and neonatal healthcare, focusing on their modus operandi, strategies, integration into modern healthcare systems, and the challenges associated with their inclusion in formal medical frameworks.

TBAs are community-based practitioners who provide assistance during pregnancy, childbirth, and the postpartum period. Their practices vary across cultural settings, but they share a common role in ensuring safe delivery, offering traditional remedies, and providing emotional and psychological support to mothers. The World Health Organization acknowledges their potential in supporting maternal and newborn health, particularly when they receive adequate training and are integrated into formal healthcare systems. Training programs for TBAs have been developed in many regions to enhance their skills and knowledge, ultimately improving maternal and neonatal outcomes. Studies have shown that well-structured training for TBAs can lead to a reduction in perinatal and neonatal mortality, although the impact on stillbirth rates remains inconclusive. However, inconsistencies in study designs and variations in training programs highlight the need for more rigorous research to establish standardized best practices.

The integration of TBAs into formal healthcare systems has been proposed as a strategic approach to improving maternal and neonatal health outcomes. Successful integration requires effective communication, mutual respect between TBAs and professional healthcare providers, and ongoing support mechanisms. In many regions, TBAs are trained to recognize complications, provide basic obstetric care, and refer high-risk cases to medical facilities. In Haiti, for example, standardized training, clear referral pathways, and enhanced collaboration with healthcare professionals have been recommended to optimize

the contributions of TBAs. These measures aim to bridge the gap between traditional and modern healthcare practices, ensuring that maternal and neonatal care is both culturally appropriate and medically effective.

Despite the potential benefits of integrating TBAs into formal healthcare systems, several challenges hinder this process. One of the primary obstacles is the variability in training quality, as inconsistent training programs lead to differences in practice, affecting the overall quality of care. Cultural barriers also pose a significant challenge, as both TBAs and formal healthcare providers may resist integration due to longstanding mistrust and differing belief systems. Additionally, resource limitations, including insufficient funding and a lack of medical supplies, further impede effective integration. Some studies suggest that while TBA training improves certain health behaviors, it does not always result in a significant reduction in maternal and neonatal morbidity and mortality. Overcoming these challenges requires comprehensive strategies that involve community engagement, health system strengthening, and continuous support for TBAs.

Methodological challenges further complicate the assessment of TBAs' effectiveness in improving maternal and neonatal health outcomes. Many studies on this topic rely on observational designs such as cross-sectional and retrospective cohort studies, which limit the ability to establish causal relationships. Intervention variability also poses a challenge, as differences in training content, duration, and follow-up mechanisms make it difficult to assess the true impact of TBA programs. Moreover, inconsistencies in outcome measures, particularly regarding maternal and neonatal mortality rates, hinder direct comparisons between studies. Short follow-up periods also limit the scope of many studies, as they often focus on immediate postpartum outcomes rather than long-term maternal and neonatal health effects.

Heterogeneity among studies adds another layer of complexity to data interpretation. Differences in population characteristics, cultural practices, socioeconomic backgrounds, and healthcare access affect the generalizability of findings. The variability in intervention designs, ranging from basic hygiene education to emergency obstetric care training, also makes it difficult to draw definitive conclusions. Additionally, the lack of standardized assessment tools for measuring maternal and neonatal outcomes further complicates comparisons. Healthcare system integration levels also vary, with some regions achieving strong collaboration between TBAs and medical professionals while others struggle with fragmented healthcare services. Cultural and contextual differences influence TBA roles and maternal-neonatal outcomes, further impacting the effectiveness of intervention programs.

Addressing these methodological challenges and heterogeneity issues requires several key strategies. Future research should prioritize longitudinal study designs to establish clearer causal links between TBA interventions and maternal/neonatal health outcomes. Standardized outcome measures should be developed to enhance study comparability, while comprehensive exposure assessments should evaluate training programs in greater detail. Context-specific research is essential to tailor interventions to different cultural and healthcare settings. Strengthening health system integration efforts will also be critical in optimizing the contributions of TBAs, ensuring that they work effectively alongside medical professionals to improve maternal and neonatal healthcare.

Despite the valuable insights provided by this systematic review, several limitations affect the robustness and generalizability of the findings. Many included studies rely on observational designs, making it difficult to establish causality. Variability in outcome measurement methods, particularly concerning maternal and neonatal health indicators, further complicates data synthesis. Differences in TBA training programs and healthcare integration approaches also affect impact assessments. The lack of high-quality randomized controlled trials limits the strength of evidence, and reliance on self-reported data introduces recall and reporting biases. Additionally, short follow-up periods in many studies fail to capture the long-term effects of TBA interventions on maternal and neonatal health. Addressing these limitations through more rigorous research designs and standardized methodologies will be essential for developing evidence-based policies that maximize the contributions of TBAs to maternal and neonatal healthcare.

Conclusion

This systematic review highlights the critical role that traditional birth attendants (TBAs) play in influencing maternal and neonatal health outcomes, especially in resource-limited settings. The findings suggest that TBAs contribute significantly to improving access to maternal healthcare services, particularly where formal healthcare systems are inaccessible. However, the impact of TBAs on maternal and neonatal outcomes varies depending on their level of training, integration into formal healthcare systems, and cultural context. Despite these positive contributions, the review identifies substantial methodological limitations, including heterogeneity in study designs, inconsistent outcome measures, and limited data from high-quality randomized controlled trials. Addressing these gaps requires more robust, standardized research methodologies, incorporating longitudinal studies and randomized controlled trials to establish causal relationships. Additionally, policies aimed at enhancing TBA training, promoting collaboration between TBAs and skilled healthcare providers, and ensuring timely referrals during obstetric emergencies are essential for optimizing maternal and neonatal health outcomes. Overall, while TBAs remain integral to maternal healthcare in many communities, their effectiveness can be significantly enhanced through supportive interventions and evidence-based practices.

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