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ASSESSMENT OF EXISTING PARTNERSHIP STRUCTURES AND TRAINING DEFICIENCIES AMONG TRADITIONAL BIRTH ATTENDANTS IN MIGORI COUNTY, KENYA: A CROSS-SECTIONAL MIXED-METHODS STUDY

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Abstract

This study assessed existing partnership structures between Traditional Birth Attendants (TBAs) and formal healthcare providers and identified training deficiencies among TBAs across six competency domains in Migori County, Kenya. The study used a cross-sectional convergent mixed-methods design in four sub-counties—Nyatike (remote), Kuria West (cross-border), Rongo (semi-urban), and Suna West (mixed farming)—from September 2024 to February 2025. The quantitative component surveyed 150 actively practicing TBAs with at least two years of experience. In addition, 96 TBAs participated in 12 focus group discussions and 18 key informants (sub-county health officers, health facility in-charges, and community health volunteers) were interviewed. Only 22% (33/150) of TBAs reported any formal relationship with a health facility. Training coverage was critically low: 67% (100/150) had received no formal training in the preceding five years, and none had accredited certification. Knowledge assessment showed severe deficiencies across all six domains, ranging from 71% deficient in high-risk pregnancy recognition to 94% deficient in digital health literacy. Qualitative findings identified five overarching barriers: policy exclusion, geographic isolation, lack of funding, cultural preferences, and the digital divide. TBAs nevertheless expressed a strong desire for training. Partnership structures between TBAs and formal healthcare in Migori County are therefore largely informal and non-standardized, while training deficiencies are profound. Urgent investment in structured partnership frameworks, competency-based training, and culturally adapted digital tools is required to strengthen safe referral and maternal and neonatal care in underserved communities.

Keywords: *Traditional Birth Attendants, Maternal Mortality, Training Deficiencies, Partnership Structures, mHealth, Kenya, Migori County*

Introduction

Migori County, located in southwestern Kenya along Lake Victoria, has a maternal mortality ratio estimated at 495 per 100,000 live births — 44% higher than Kenya's national average of 342 (KNBS, 2022; Migori County Department of Health, 2023). Although the 2022 Kenya Demographic and Health Survey (KDHS) shows marked county-level gains, with 89.2% of births in Migori delivered in a health facility and 92.6% attended by skilled personnel, compared with national averages of 82.3% and 89.3%, respectively (KNBS & ICF, 2023; Lefebvre et al., 2024), these aggregate figures mask pronounced intra-county disparities. Facility delivery rates in remote sub-counties such as Nyatike (38%) and Kuria West (41%) remain substantially below the national target of 80% (Otieno et al., 2023). Traditional Birth Attendants (TBAs) continue to attend an estimated 55–65% of home deliveries in these areas, driven by cultural trust, affordability, and geographic inaccessibility of health facilities. This reliance persists despite Kenya's 2017 Health Act, which effectively deregistered TBAs, prohibited them from conducting deliveries, and discouraged formal collaboration with health facilities (Republic of Kenya, 2017). However, TBAs remain

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operational due to persistent community reliance, with approximately 600 active TBAs estimated to practice across Migori County, yet no official registry, training programme, or referral pathway exists.

The role of TBAs in maternal healthcare has been extensively documented across Sub-Saharan Africa, where they serve as the primary source of maternity care for rural populations (Sibley & Sipe, 2006; Mbutu et al., 2018). In Kenya, the proportion of births occurring at home declined from 34% in 2014 to 11% in 2022, while 89% of births were attended by skilled health personnel (KNBS & ICF, 2023). These national gains, however, conceal persistent pockets of home delivery in remote and marginalised communities, where TBAs remain the first point of contact for many women. The centrality of TBAs, especially among rural communities, is associated with the highly valued social role they play, offering emotional support and continuity of care in comparison to the type of care made available at health units (Owino & Legault, 2013). TBAs satisfy the expectations of pregnant women through continual support and advice during pregnancy, delivery, and the postpartum period, the provision of body massage throughout labour and delivery, and knowledge of a variety of delivery positions (Magoma et al., 2010). All these practices build strong faith and confidence among the pregnant women who receive their services. Rahmani and Brekke (2013) maintain that TBAs were popular because they were not expensive, as they were paid in kind, were tolerant and kind, and spent more quality time with pregnant women. Agus and Horiuchi (2012) assert that TBAs displayed overt interpersonal skill, special care, and respect for local customs that could not be exemplified by village midwives, who were viewed as too young and inexperienced, whereas TBAs were seen as more mature, patient, and caring. More recent evidence from sub-Saharan Africa indicates that these preferences persist. In a remote rural community of south-western Ethiopia, Kassie et al. (2022) found that TBAs were valued for their embeddedness in, and trusting relationships with, the communities they serve and for helping women overcome transport and terrain barriers; at the same time, there was no formal relationship between TBAs and health facilities, and TBAs reported a lack of incentives, insufficient training, and negative attitudes from health professionals. Similarly, in rural Tanzania, Shimpuku et al. (2021) reported that TBAs supported women through close relationships and were respected as elders, yet felt excluded by facility staff, were not invited to training, and received no reward for referrals, although both TBAs and skilled birth attendants expressed willingness to collaborate.

Despite these important roles, TBAs face significant challenges including lack of formal training, limited access to modern health information, and exclusion from formal health systems. The effort to increase access to trained birth attendants was initiated by the World Health Organization in 1987 through the launching of the Safe Motherhood Initiative (Mahler, 1987; Maine & Rosenfield, 1999). The Millennium Development Goals and later the Sustainable Development Goals emphasized the importance of skilled birth attendance as a key indicator for measuring progress in maternal health (UN, 2001; Sachs & McArthur, 2005). However, the shift from TBA training towards access to skilled attendance has left many communities without adequate maternity care (Sibley & Sipe, 2006). Evidence of increasing maternal mortality rates and limited impact of untrained TBA interventions led to a rethink on more effective strategies, including the continuum of care model and the Three Delays model (Thaddeus & Maine, 1994; Kerber et al., 2007).

The continuum of care model promotes access by families and communities, by outpatient and outreach services, and by clinical services, attending the full life-cycle approach (Kerber et al., 2007). The Three Delays model promotes the presence of a skilled birth attendant linked to a functioning health system, addressing delays in recognizing danger signs, deciding to seek care, reaching care, and receiving care at health facilities (Thaddeus & Maine, 1994). These frameworks underscore the importance of linking community-based care with formal health systems — a function TBAs could effectively perform if properly trained and integrated.

Despite the crucial role TBAs play in rural maternal care, there are no published data on the nature of their partnerships with health facilities or the extent of their training deficiencies in Migori County. Previous interventions have been fragmented, donor-dependent, and poorly evaluated. Without baseline evidence, policymakers cannot design effective strategies for TBA

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integration or training. This study therefore aimed to assess existing partnership structures between TBAs and formal healthcare providers in Migori County, identify training deficiencies among TBAs across six competency domains, and explore barriers to effective TBA-health facility collaboration.

Methodology

A convergent parallel mixed-methods design was employed, with quantitative and qualitative data collected simultaneously, analysed separately, and integrated during interpretation (Creswell & Plano Clark, 2018). This approach allowed triangulation of findings and deeper understanding of partnership and training issues. The study was conducted in four purposively selected sub-counties of Migori County: Nyatike (remote, Lake Victoria islands, limited network coverage), Kuria West (border area with Tanzania, strong traditional practices), Rongo (semi-urban, better road access, referral hospital present), and Suna West (mixed farming, moderate health facility density). These sub-counties represent the ecological, cultural, and economic diversity of the county.

For the quantitative component, stratified random sampling was used to select 150 TBAs proportionate to the estimated TBA population per sub-county (Nyatike n=45, Kuria West n=38, Rongo n=35, Suna West n=32). Inclusion criteria comprised actively practicing TBA for at least 2 years, resident in the sub-county, and aged ≥18 years. Exclusion criteria were TBAs who had ceased practice within the preceding year. For the qualitative component, purposive sampling was used for 12 focus group discussions (FGDs) with 8 TBAs per group (total n=96). Groups were stratified by age (<50 vs ≥50 years) and experience (<15 vs ≥15 years) to capture diverse perspectives. Key informants (n=18) were purposively selected: all four sub-county health officers, eight health facility in-charges (two from each sub-county), and six community health volunteers (CHVs) working with TBAs.

A structured, interviewer-administered questionnaire was developed in English and translated into Swahili and Dholuo. It included five sections: (1) demographic and practice characteristics; (2) training history (type, duration, recency, topics); (3) partnership indicators (formal agreements, referral pathways, supervision, joint training, incentives); (4) knowledge assessment — 30 multiple-choice questions covering six competency domains (high-risk pregnancy recognition, emergency obstetric care, neonatal resuscitation, referral decision-making, documentation and record-keeping, and digital health literacy), with five questions per domain ($6 \times 5 = 30$), the five digital health literacy items assessing SMS use and basic mobile application navigation; and (5) digital access (mobile phone ownership, SMS use, and smartphone familiarity). Each domain score was computed as the percentage of correct responses (0–100%), and a TBA was classified as deficient in a domain if she scored below 50%, that is, fewer than three of the five items correct; this single cut-off was applied uniformly to all six domains. The questionnaire was piloted with 15 TBAs in a non-participating ward and revised for clarity. A semi-structured FGD guide explored perceived role in maternal care, interactions with health facilities, experiences with training (past and desired), barriers to referral, and views on mobile technology. FGDs were conducted in Dholuo or Swahili, lasted 60–90 minutes, were audio-recorded, and transcribed verbatim. Key informant interview guides explored facility-level TBA engagement, referral documentation systems, perceived TBA competencies, policy constraints, and recommendations for improvement, lasting 30–45 minutes.

Data were collected between September 2024 and February 2025 by four trained research assistants (two fluent in Dholuo, two in Swahili). TBAs were recruited through community health volunteers and local administrative chiefs. FGDs and KIIs were conducted in neutral community locations such as schools and church halls. Quantitative data were entered into EpiData v3.1 and exported to SPSS v26. Descriptive statistics (frequencies, proportions, means, standard deviations, 95% confidence intervals) were calculated. Bivariate analysis using chi-square tests compared training deficiencies across sub-counties and age groups. A p-value <0.05 was considered statistically significant. Transcriptions were imported into NVivo 14. Two independent coders performed inductive thematic analysis following Braun and Clarke's six-phase framework (2006): familiarisation, initial coding, theme generation, theme review, definition, and write-up.

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Disagreements were resolved through consensus with a third researcher. Joint display matrices were used to integrate quantitative and qualitative findings, comparing domains and identifying convergence, divergence, and complementarity. Ethical approval was obtained from the Migori County Department of Health Research Committee (Ref: MCH/RES/2024/112) and the Kenyatta National Hospital Ethics and Research Committee (Ref: KNH-ERC/08/2024). All participants provided written informed consent (thumb-print for non-literate participants). Anonymity and confidentiality were maintained throughout. Participants received no financial compensation but were provided with refreshments during FGDs and KIIs.

Results and Discussion

Participant Characteristics

The quantitative sample comprised 150 TBAs drawn proportionately from four sub-counties (Table 1). All participants were female. Sub-county comparisons showed Nyatike had both the highest proportion with no formal education and the longest mean years of experience, while Rongo had the lowest proportion with no formal education and the shortest mean experience. The qualitative sample comprised 96 TBAs in FGDs (mean age 55.1 years; 73% [70/96] with no formal schooling) and 18 key informants: 4 sub-county health officers (2 female, 2 male), 8 health facility in-charges (6 female, 2 male), and 6 community health volunteers (all female)

Table 1

Socio-demographic and Practice Characteristics of Surveyed TBAs (n = 150)

Characteristic	Value
Sample size, n	150
Mean age, years (SD, range)	54.3 (10.2, 32–78)
No formal schooling, % (n)	62.0% (93/150)
Primary education (≤8 years), % (n)	28.0% (42/150)
Secondary education or above, % (n)	10.0% (15/150)
Mean years of practice as TBA (SD, range)	18.7 (9.4, 3–45)
Median deliveries per month (IQR)	12 (8–18)
Sample by sub-county: Nyatike / Kuria West / Rongo / Suna West, n	45 / 38 / 35 / 32
No formal education — Nyatike (highest), % (n)	71.0% (32/45)
No formal education — Rongo (lowest), % (n)	48.0% (17/35)
Mean years of experience — Nyatike (longest)	21.3 years
Mean years of experience — Rongo (shortest)	15.2 years

Note. All quantitative respondents were female. IQR = interquartile range; SD = standard deviation.

Table 2

Qualitative Sample and Key Informants

Group	n	Characteristics
FGD participants (TBAs)	96	Mean age 55.1 years; 73% (70/96) no formal schooling; 12 FGDs of 8 TBAs each
Sub-county health officers	4	2 female, 2 male
Health facility in-charges	8	6 female, 2 male (2 per sub-county)
Community health volunteers	6	All female
Total key informants	18	—

Assessment of Existing Partnership Structures

Table 3 summarises the frequency of formal partnership indicators reported by TBAs. Overall, existing partnerships are almost entirely informal and non-standardised. There were no statistically significant differences in partnership indicators across sub-counties (χ^2, $p = 0.23$), although Nyatike had the lowest proportion reporting a formal relationship (13%). This is consistent with findings from other Kenyan counties, where formal TBA-facility partnerships ranged from 45% in Kitui (Kiptoo et al., 2022) to 38% in Homabay

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(Omondi et al., 2020), suggesting that Migori County is among the most underserved regions for TBA support in East Africa. The absence of referral incentives (4%) is particularly concerning given evidence that transport reimbursement improves referral completion by 40–60% (Mubyazi et al., 2013; Vyagusa et al., 2013).

Table 3

Frequency of Formal Partnership Structure Indicators Reported by TBAs (n = 150)

Partnership Indicator	% (n)	Rank
Any formal relationship with a health facility	22.0% (33/150)	1st
Referral documentation present	14.0% (21/150)	2nd (tied)
Joint training with skilled attendants	14.0% (21/150)	2nd (tied)
Supervision visits received	8.0% (12/150)	4th
Referral incentives received	4.0% (6/150)	5th

Table 4

Inferential Statistics: Partnership Indicators Across Sub-counties

Comparison	Test statistic	p-value	Interpretation
Formal partnership indicators (all 5) vs sub-county	χ^2	0.23	Not significant
Formal relationship — Nyatike (lowest)	—	—	13.0% (lowest of 4 sub-counties)

Note. $p < 0.05$ was considered statistically significant. No sub-county differences in partnership structures reached significance.

Qualitative findings revealed four major themes regarding partnerships. First, partnerships were informal and trust-based, depending on individual health workers rather than facility policies.

> *"I have no paper with the hospital. But Sister Mary at Migori Hospital knows me. If I call, she accepts my patients." — TBA, Rongo*

This reliance on personal relationships rather than institutional frameworks makes partnerships unsustainable when health workers are transferred. Second, limited communication for referrals was evident due to lack of reliable phone contact and formal referral protocols.

> *"Sometimes I send a mother, but the health workers shout at her for coming late. So next time, the mother refuses to go." — TBA, Kuria West*

This reflects the Three Delays model's emphasis on delays in reaching care and receiving quality care (Thaddeus & Maine, 1994). Third, mistrust from formal providers was identified, with health workers viewing TBAs as untrained and a cause of complications, discouraging formal collaboration.

> *"TBAs are not trained. They cause complications. We don't encourage any relationship with them officially." — Health facility in-charge, Nyatike*

This mistrust is rooted in the policy exclusion that has created a divide between formal and traditional providers. Comparable patterns of provider mistrust, absence of formal TBA–facility linkages, and lack of recognition for referrals have recently been reported in Ethiopia and Tanzania (Kassie et al., 2022; Shimpuku et al., 2021), suggesting that the challenge is regional rather than unique to Migori County. Fourth, the absence of feedback loops was highlighted, where TBAs rarely learned outcomes of their referrals, limiting learning and motivation.

> *"When I refer a woman, I never know what happened. Did she deliver safely? Did she need surgery? No one tells me." — TBA, Suna West*

Training Deficiencies

Training coverage was critically low (Table 5). Among the 33% who had received some training, most attended only a brief, unaccredited session. None had received accredited or certified training. Training coverage was lowest in Nyatike and highest in Rongo, a difference that was statistically significant. This finding is consistent with the policy vacuum created by Kenya's 2017 Health Act,

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which effectively prohibited TBA practice without providing alternative support systems. The lack of accredited training means TBAs continue to practice using knowledge passed down through apprenticeship, which may include outdated or harmful practices.

Table 5

Frequency of Training Coverage Among TBAs (n = 150)

Training Category	% (n)	95% CI / Note
No formal training in preceding 5 years	67.0% (100/150)	—
One-off workshop (1–3 days)	19.0% (29/150)	—
On-the-job guidance from a CHV	14.0% (21/150)	—
Accredited / certified training	0.0% (0/150)	None recorded

Table 6

Inferential Statistics: No-Training Rate by Sub-county

Sub-county	% with no training (n)	Test statistic	p-value
Nyatike (highest no-training rate)	82.0%	χ^2	0.01
Rongo (lowest no-training rate)	46.0%	χ^2	0.01

Note. The overall association between sub-county and training coverage was statistically significant (p = 0.01).

Knowledge assessment revealed severe deficiencies across all competency domains (Table 7). TBAs in Nyatike performed worst across all domains (e.g., 96% deficient in emergency obstetric care) compared with Rongo (82% deficient), a difference that was statistically significant for every domain ($p<0.01$). Age was not significantly associated with deficiency ($p=0.34$).

Table 7

Descriptive Statistics: Knowledge Deficiency by Competency Domain (n = 150)

Competency Domain	% Deficient (n)	95% CI	Mean Score, % (SD)	Rank (worst first)
Digital health literacy	94.0% (141/150)	89–97	9.0 (8.9)	1
Emergency obstetric care	91.0% (137/150)	85–95	17.3 (12.4)	2
Neonatal resuscitation	84.0% (126/150)	77–89	12.4 (10.7)	3
Documentation and record-keeping	81.0% (122/150)	74–87	19.1 (14.2)	4
Referral decision-making	78.0% (117/150)	70–84	22.0 (15.1)	5
High-risk pregnancy recognition	71.0% (107/150)	63–78	29.0 (18.3)	6

Note. Deficiency defined as <50% correct responses within a domain (i.e., fewer than 3 of 5 items correct), the single cut-off specified in the Methodology and applied uniformly to all six domains. Domains presented here in descending order of deficiency prevalence (rank 1 = highest deficiency, digital health literacy; rank 6 = lowest, high-risk pregnancy recognition).

Table 8

Inferential Statistics: Domain Deficiency by Sub-county and Age

Comparison	Groups contrasted	Test statistic / p-value	Interpretation
Emergency obstetric care deficiency by sub-county	Nyatike 96% vs Rongo 82%	$p < 0.01$	Significant
All six competency domains by sub-county	4 sub-counties	$p < 0.01$ (each domain)	Significant
Deficiency by age group	<50 vs ≥50 years	$p = 0.34$	Not significant

These deficiencies exceed those reported in similar assessments elsewhere. In rural Tanzania, 58% of TBAs were deficient in emergency obstetric care (Hussein & Mpembeni, 2005) — high, but lower than Migori's 91%. In Uganda's Busoga region, 62% of TBAs could identify at least three maternal danger signs (Tuguminize, 2009), compared with only 29% in the present sample. The digital divide (94% deficient) mirrors findings from other rural African settings (Mechael et al., 2010), but the expressed willingness to learn (reported by 88% of TBAs

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in FGDs) suggests mHealth interventions could be rapidly adopted if appropriately designed with voice navigation, offline capability, and local languages. The severe deficiencies in emergency obstetric care are particularly concerning given that postpartum hemorrhage is the leading cause of maternal death in Kenya, accounting for 42% of maternal mortality (WHO, 2018). TBAs unable to recognize or manage hemorrhage represent a critical gap in emergency preparedness.

Qualitative findings on training deficiencies revealed four additional themes. First, reliance on apprenticeship over formal training was evident, with most TBAs learning exclusively from elder TBAs, perpetuating outdated practices.

> "*I learned from my mother. She was a TBA for 40 years. I have never been to a workshop.*" — *TBA, Nyatike*

This intergenerational transmission of knowledge, while culturally important, means practices do not evolve with evidence-based recommendations. Second, outdated and potentially harmful knowledge persisted due to lack of updated training.

> "*We used to give herbs to speed labor. Now they say we shouldn't. But no one taught us what to do instead.*" — *TBA, Kuria West*

This highlights the danger of policy prohibition without training provision, as TBAs continue harmful practices because they lack alternatives. Third, a strong expressed desire for training was evident despite current neglect.

> "*I want to learn. I have seen babies die because I didn't know what to do. But no one comes to teach us.*" — *TBA, Suna West*

This desire for training is a crucial asset that can be leveraged for intervention. Fourth, language and literacy barriers were identified, with previous training attempts in English excluding non-literate TBAs.

> "*The last training was in English. I don't read English. I left confused.*" — *TBA, Rongo*

Barriers to Effective Partnership and Training

Integrated analysis identified five overarching barriers, summarised with their supporting quantitative and qualitative indicators in Table 9.

Table 7

Frequency of Barriers to Effective Partnership and Training (Integrated Quantitative and Qualitative Indicators)

Barrier	Quantitative indicator	Qualitative indicator (FGD/KII mentions)	Key informant note
Policy exclusion	0% accredited training	78% of FGDs mentioned government prohibition	4/4 health officers cited lack of county budget line
Geographic isolation	8% supervision visits	83% of FGDs mentioned long travel distances	—
Lack of funding	4% referral incentives	100% of FGDs mentioned NGOs that came once and never returned	—
Cultural preferences	71% deficiency in danger-sign recognition	75% of FGDs indicated women trust TBAs more than hospitals	—
Digital divide	94% digital literacy deficiency	88% of FGDs among older TBAs reported using phones only for calls	7/8 facility in-charges noted no policy guidance on TBA collaboration

These barriers align with challenges identified in the partnership development literature, including weak national e/mHealth strategies, lack of standards supporting interoperability, technology as a disruptive force, and conflicts in organizational cultures (Mechael et al., 2010; Payne, 2013; WHO-ITU, 2012). They also reflect the structures needed for strengthening TBA systems, including institutional changes, enhanced community capabilities, and multi-stakeholder partnerships (Cornwall et al., 2000). The absence of policy guidance creates uncertainty that prevents health workers and TBAs from developing structured collaborations, even when both parties desire partnership.

Implications for Practice and Policy

The findings have significant implications for maternal health policy and practice in Kenya. The current policy ambivalence is a key driver of the deficiencies identified. Kenya's 2017 Health Act effectively prohibits TBA-

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conducted deliveries but provides no alternative cadre to replace them in remote areas (Republic of Kenya, 2017). This has created a policy vacuum where TBAs are simultaneously condemned and relied upon. International evidence increasingly supports structured TBA integration — not as replacements for skilled birth attendants, but as community-based referral and health promotion agents (Sibley & Sipe, 2006; Sibley et al., 2004). A paradigm shift is needed from prohibition to accredited training, structured referral pathways, and performance-linked incentives. This aligns with WHO's 2019 guidelines on community-based maternal care, which recommend task sharing with trained traditional providers where facility access is limited (WHO, 2019).

The potential of mobile-based applications to address these deficiencies is supported by the findings. Despite the digital divide, most TBAs (85%) reported owning a mobile phone, and 88% expressed willingness to learn digital skills. This is consistent with broader trends in East Africa, where mobile phone penetration exceeds 80% even in rural areas (ADA, 2011; Shrivastava et al., 2017). Mobile applications could address training deficiencies through audio-visual training content accessible offline and in local languages. A Training Module could provide competency-based content on danger signs, emergency obstetric care, and neonatal resuscitation. A Communication Module could facilitate real-time communication with health facilities for referrals, addressing the communication gaps identified. A Referral Module could standardize referral documentation and provide feedback loops, addressing the absence of learning from outcomes. A Reporting Module could enable basic data collection, addressing documentation deficiencies.

However, successful implementation requires addressing the barriers identified. Policy barriers require national and county-level policy reforms that explicitly recognize and regulate TBA practice. Geographic barriers require investment in transport and communication infrastructure. Financial barriers require dedicated budget lines for TBA training and referral incentives. Cultural barriers require community engagement to build trust between TBAs and formal providers. Digital barriers require low-literacy, culturally adapted digital tools with voice-based interfaces and offline functionality. The development of national eHealth strategies that explicitly include TBA integration is essential to guide these efforts (WHO-ITU, 2012).

Conclusion and Recommendations

This study provides the first systematic assessment of partnership structures and training deficiencies among TBAs in Migori County, Kenya. Existing partnerships with formal healthcare are almost entirely informal, non-standardized, and devoid of supervision or incentives (Table 2). Training coverage is critically low (Table 4), and knowledge deficiencies are profound across all six competency domains (Table 5), with 71–94% of TBAs unable to recognize danger signs, manage obstetric emergencies, perform neonatal resuscitation, make appropriate referrals, or maintain basic documentation. These deficiencies are not merely academic — they represent preventable maternal and neonatal deaths. TBAs overwhelmingly desire training but face persistent policy, geographic, financial, cultural, and digital barriers (Table 7). The question is not whether TBAs should be engaged, but how to engage them effectively and safely to save lives in Migori County's most remote communities.

Based on these findings, the study makes the following recommendations. First, the Government of Kenya should develop a national policy framework for TBA integration that moves beyond prohibition to accredited training, structured referral pathways, and performance-linked incentives. This policy should be reflected in county health sector strategic plans and budgets. Second, the Migori County Department of Health should establish a TBA registry and partnership framework that formalizes relationships with health facilities, including referral documentation, supervision mechanisms, and feedback loops. Third, competency-based training programmes should be developed and implemented, covering emergency obstetric care, neonatal resuscitation, danger sign recognition, and referral protocols. Training should be delivered in local languages and use low-literacy approaches including visual and audio materials. Fourth, culturally adapted mobile health tools should be developed specifically for TBAs, incorporating voice-based navigation, offline capability, and local language interfaces. These tools should address communication, referral, training, and

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reporting functions. Fifth, referral incentives including transport reimbursement and airtime should be provided to TBAs who make appropriate referrals, addressing the financial barriers to referral completion. Sixth, community health volunteers should be trained and supported to facilitate TBA-facility linkages, serving as intermediaries between TBAs and formal health systems. Seventh, research should be conducted to evaluate the effectiveness of these interventions on maternal and neonatal outcomes, generating evidence for policy and practice.

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The author(s), while preparing this work, utilized ChatGPT for spell checking and grammar refinement. After using this AI tool, the author(s) carefully reviewed and edited the content as necessary and assume(s) full responsibility for the publication's content.

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Irene Achayo: Writing – review & editing, Writing – original draft, Methodology, Data curation, Formal analysis, Investigation, Conceptualization. **Dr. James Abila:** Writing – review & editing, Conceptualization, Supervision, Resources, Validation. **Dr. Lamek Ronoh:** Writing – review & editing, Supervision, Methodology, Validation.

Declaration of Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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