

Reducing Maternal Mortality: An Examination of the Role of Skilled Birth Attendants and Healthcare System Strengthening

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ABSTRACT

Maternal mortality remains a significant public health challenge in Zimbabwe despite policy reforms and international support, with preventable deaths persisting particularly in rural and peri-urban areas where access to skilled birth attendants and functional health systems is limited. This study examined the role of skilled birth attendants and healthcare system strengthening in reducing maternal mortality in selected districts of Zimbabwe using an exploratory sequential mixed-methods design. Qualitative data from focus groups, interviews, and observations informed a structured questionnaire administered to 120 respondents, with thematic analysis for qualitative data and SPSS (Version 26) used for quantitative analysis, including Pearson Chi-square tests at a 5% significance level. Findings revealed that availability of skilled birth attendants, distance to facilities, quality of care, health system resources, household income, and education level significantly influenced maternal health service utilisation ($p < 0.05$). The study concludes that improving healthcare infrastructure, increasing access to skilled birth attendants, enhancing midwife training, and removing financial barriers are essential strategies for reducing maternal mortality in Zimbabwe.

INTRODUCTION

Maternal mortality remains a significant global health concern, particularly in low- and middle-income countries where health systems are often under-resourced and unevenly distributed. The World Health Organization (WHO, 2023) defines maternal mortality as the death of a woman while pregnant or within forty-two days of termination of pregnancy, from any cause related to or aggravated by the pregnancy or its management. Globally, an estimated 287,000 women died from pregnancy-related causes in 2020, with Sub-Saharan Africa accounting for nearly 70% of these deaths (WHO, 2023). Despite global commitments such as the Sustainable Development Goals (SDGs), maternal deaths remain largely preventable, indicating persistent gaps in access to quality maternal healthcare services.

Zimbabwe continues to experience high maternal mortality rates despite various interventions aimed at improving maternal health outcomes. The Zimbabwe Demographic and Health Survey (ZDHS, 2022) reports a maternal mortality ratio of approximately 462 deaths per 100,000 live births, which is significantly higher than the SDG target of fewer than 70 deaths per 100,000 live births by 2030 (United Nations, 2015). This study therefore seeks to examine the role of skilled birth attendants and healthcare system strengthening in reducing maternal mortality in Zimbabwe.

Background To the Study

Most maternal deaths in Zimbabwe are preventable and are commonly associated with complications such as postpartum haemorrhage, hypertensive disorders, sepsis, and unsafe abortions (Ministry of Health and Child Care [MoHCC], 2021). The utilisation of skilled birth attendants during pregnancy, childbirth, and the postnatal period has been widely recognised as one of the most effective strategies for reducing maternal

mortality (Campbell & Graham, 2006; WHO, 2019). Skilled birth attendants—accredited health professionals such as midwives, nurses, and doctors trained to manage normal pregnancies and identify complications—play a crucial role in ensuring safe delivery and timely referral (WHO, 2019). However, access to these professionals remains uneven in Zimbabwe, particularly in rural areas characterised by shortages of trained personnel, inadequate infrastructure, and long distances to health facilities.

Healthcare system strengthening is equally critical in addressing maternal mortality. A functional health system requires adequate human resources, essential medicines, reliable referral systems, and supportive governance structures (Kruk et al., 2018). Zimbabwe's health system has faced prolonged challenges, including economic instability, migration of health professionals, inadequate funding, and deteriorating infrastructure, all of which undermine the quality and accessibility of maternal healthcare services (Chikanda, 2019; MoHCC, 2021).

Although previous studies have examined maternal mortality in Zimbabwe, limited empirical research has comprehensively explored the combined role of skilled birth attendants and healthcare system strengthening using mixed-methods approaches. Understanding how these factors interact within specific local contexts is essential for developing targeted and sustainable maternal health interventions.

Research Objectives

The study was guided by the following objectives.

1. To examine the availability and utilisation of skilled birth attendants in selected districts of Zimbabwe.
2. To assess the influence of healthcare system factors on maternal health outcomes.
3. To analyse socio-demographic factors affecting women's utilisation of skilled maternal healthcare services.
4. To propose strategies for strengthening maternal healthcare systems to reduce maternal mortality in Zimbabwe.

LITERATURE REVIEW

Maternal Mortality: A Global and Regional Overview

Maternal mortality remains a critical indicator of the effectiveness of health systems and the overall socioeconomic status of a country. Despite global progress over the past two decades, maternal deaths continue to disproportionately affect women in low- and middle-income countries, particularly in Sub-Saharan Africa (WHO, 2023). The region accounts for nearly two-thirds of global maternal deaths, reflecting deep structural inequalities in access to quality maternal healthcare services (Alkema et al., 2016).

Several factors contribute to high maternal mortality rates, including weak health systems, shortages of skilled health personnel, poor referral mechanisms, poverty, and socio-cultural barriers that delay or prevent women from seeking care (Thaddeus & Maine, 1994; Say et al., 2014). These factors are often compounded in rural settings, where geographical isolation and infrastructural deficits further limit access to skilled care during pregnancy and childbirth.

Maternal Mortality in Zimbabwe

Zimbabwe has experienced fluctuating maternal mortality trends over the past decades, influenced by economic instability, health sector challenges, and policy shifts. During the early 2000s, the country witnessed a sharp rise in maternal deaths due to economic decline, shortages of medical supplies, and the migration of skilled health workers (Chikanda, 2019). Although recent years have seen some improvement through donor-supported health programmes, maternal mortality remains high and unevenly distributed across regions (ZDHS, 2022).

The Ministry of Health and Child Care (MoHCC, 2021) reports that the leading causes of maternal deaths in Zimbabwe include postpartum haemorrhage, hypertensive disorders of pregnancy, infections, and complications arising from unsafe abortions. Many of these deaths occur during labour, delivery, or shortly after childbirth, highlighting the critical importance of skilled attendance and timely emergency obstetric care.

Role of Skilled Birth Attendants in Reducing Maternal Mortality

Skilled birth attendants (SBAs) are internationally recognised as a cornerstone of safe motherhood initiatives. According to the World Health Organization (2019), skilled birth attendants are trained health professionals capable of managing uncomplicated deliveries, identifying complications, and facilitating prompt referrals. Evidence consistently shows that deliveries attended by skilled personnel significantly reduce the risk of maternal and neonatal mortality (Campbell & Graham, 2006; Kassebaum et al., 2014).

In Zimbabwe, skilled birth attendance rates have improved over time, yet disparities persist between urban and rural areas. While urban centres report relatively high SBA coverage, rural districts continue to rely on traditional birth attendants or unassisted home deliveries due to distance, cost, and perceived quality of care (Mutswanga & Mafaune, 2019). Studies indicate that women who deliver in facilities with skilled personnel are more likely to receive lifesaving interventions such as assisted delivery, management of haemorrhage, and neonatal resuscitation (WHO, 2019).

However, the mere presence of skilled birth attendants is insufficient if they are not adequately supported. Shortages of equipment, poor working conditions, and lack of continuous professional development undermine the effectiveness of SBAs and contribute to burnout and attrition (Kruk et al., 2018).

Healthcare System Strengthening and Maternal Health Outcomes

Healthcare system strengthening refers to improving the six core building blocks of a health system: service delivery, health workforce, health information systems, access to essential medicines, financing, and leadership/governance (WHO, 2010). Strong health systems are essential for delivering quality maternal healthcare services and ensuring continuity of care across the antenatal, intrapartum, and postnatal periods.

In Zimbabwe, healthcare system challenges include inadequate funding, dilapidated infrastructure, shortages of essential medicines, and weak referral systems, particularly in rural areas (MoHCC, 2021). Women experiencing obstetric complications often face delays in receiving care due to lack of transport, poor road networks, and understaffed facilities, contributing to preventable maternal deaths (Munyati et al., 2020).

Research shows that investments in health system strengthening—such as upgrading maternity wards, improving emergency obstetric care, and strengthening referral networks—are associated with improved maternal outcomes (Kruk et al., 2018; Freedman et al., 2014). In Zimbabwe, donor-supported initiatives such as Results Based Financing (RBF) have demonstrated positive effects on service utilisation and quality of maternal healthcare services, although sustainability remains a concern (Witter et al., 2019).

Socio-Demographic Determinants of Maternal Healthcare Utilisation

Women's utilisation of skilled maternal healthcare services is influenced by a complex interplay of sociodemographic factors, including age, education, income, marital status, and cultural beliefs. Education has been widely associated with increased utilisation of skilled birth attendants, as educated women are more likely to recognise danger signs and seek professional care (Babalola & Fatusi, 2009). However, some studies in rural African contexts suggest that structural barriers may override educational advantages (Gabrysch & Campbell, 2009).

Household income and indirect costs such as transport, user fees, and informal payments remain significant barriers to facility-based deliveries in Zimbabwe (Mutswanga & Mafaune, 2019). Cultural norms and religious beliefs also influence delivery choices, with some women preferring home births due to perceived familiarity, privacy, or mistrust of health facilities (Chigora & Guzura, 2018).

Conceptual Framework

This study is anchored in the “Three Delays Model” proposed by Thaddeus and Maine (1994), which identifies delays in seeking care, reaching care, and receiving adequate care as key contributors to maternal mortality. The framework provides a useful lens for analysing how skilled birth attendants and healthcare system factors interact with socio-demographic determinants to influence maternal health outcomes in Zimbabwe.

METHODOLOGY

Research Design

The study adopted an exploratory sequential mixed-methods research design, where qualitative data collection and analysis preceded the quantitative phase (Creswell & Plano Clark, 2018). This design enabled an in-depth exploration of maternal healthcare experiences, followed by quantification of key relationships between selected variables and maternal health service utilisation.

Study Area

The study was conducted in selected rural and peri-urban districts in Zimbabwe characterised by high maternal mortality rates and limited access to maternal healthcare services. These districts were purposively selected due to their diverse socio-economic profiles, health infrastructure challenges, and reliance on public health facilities for maternal care. The majority of residents depend on subsistence farming and informal economic activities, and long distances to health facilities are common.

Study Population

The study population comprised women of reproductive age (15–49 years) who had given birth within the last two years, skilled birth attendants (midwives and nurses), and key stakeholders involved in maternal health service delivery. These included district health officers, maternity ward managers, and community health workers.

Sample Size and Sampling Techniques

For the qualitative phase, a sample of 36 participants was selected using purposive sampling until data saturation was reached (Kumar, 2011). This included:

- 20 women of reproductive age,
- 10 skilled birth attendants,
- 6 key informants from the health sector.

For the quantitative phase, a sample of 120 women was drawn using cluster and purposive sampling techniques. Health facility catchment areas were used as clusters to ensure representativeness across different communities.

Data Collection Methods

Data were triangulated using multiple methods to enhance credibility and validity (Noble & Heale, 2019).

Focus Group Discussions (FGDs)

Four focus group discussions were conducted with women of reproductive age, each comprising 8–10 participants. Discussions focused on childbirth experiences, decision-making processes, and barriers to accessing skilled care.

In-Depth Interviews

Ten in-depth interviews were conducted with skilled birth attendants to capture their perspectives on service delivery challenges, workload, and system constraints affecting maternal care.

Key Informant Interviews

Six key informant interviews were conducted with district health officials and facility managers to provide policy and administrative insights into maternal health system functioning.

Questionnaire Survey

A structured questionnaire was administered to 120 respondents to collect quantitative data on sociodemographic characteristics, utilisation of skilled birth attendants, and health system factors.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review board and the Ministry of Health and Child Care. Informed consent was obtained from all participants prior to data collection. Confidentiality, anonymity, and voluntary participation were strictly upheld throughout the study in line with ethical guidelines outlined by Kombo and Tromp (2006) and Cohen et al. (2007).

Data Analysis

Qualitative data were analysed using thematic analysis following the six-step process outlined by Braun and Clarke (2006). Quantitative data were analysed using SPSS Version 26. Descriptive statistics were used to summarise respondent characteristics, while Pearson Chi-square tests were conducted at a 5% level of significance ($\alpha = 0.05$) to determine associations between selected variables and utilisation of skilled maternal healthcare services.

RESULTS

Demographic Profile of Study Respondents

The study recruited a total of 120 women of reproductive age (15–49 years) who had delivered within the last two years. Of these, 114 questionnaires were completed and returned, yielding a response rate of 95%. Respondents varied in age, marital status, education level, household income, and place of residence. Table 1.0 presents the socio-demographic characteristics of the respondents.

Table 1.0: Socio-Demographic Profile of Respondents (n = 114)

VARIABLE	CATEGORY	FREQUENCY	PERDENTAGE
AGE	15-24 years	18	15.8
	24-24 years	46	40.4
	35-44 years	32	28.1
	45-49 years	18	15.8
MARITAL STATUS	Single	14	12.3
	Married	78	68.4
	Divorced/Widowed	22	19.3
Education Level	No formal education	21	18.5
	Primary	34	29.8
	Secondary	45	39.5
	Tertiary	14	12.3
Household Monthly income	<\$100 USD	63	55.3
	\$101-\$200 USD	28	24.6
	>\$200	23	20.1
Place Residence	RURAL	71	62.3
	PERI-URBAN	43	37.7

Source: Survey Results, 2024

The majority of respondents were aged between 25 and 34 years, representing the most active reproductive age group. Most respondents were married, reflecting prevailing social norms regarding childbearing in Zimbabwe.

Over half of the respondents reported household incomes below US\$100 per month, highlighting widespread poverty among study participants.

Utilisation of Skilled Birth Attendants

Findings show that 67.5% of respondents delivered their most recent child in a health facility assisted by a skilled birth attendant, while 32.5% delivered at home or outside a formal health facility. Facility-based deliveries were more common in peri-urban areas compared to rural settings.

Women who delivered at health facilities cited reasons such as perceived safety, availability of trained personnel, and management of complications. Conversely, those who delivered at home reported barriers including long distances to facilities, transport costs, user fees, and negative attitudes of healthcare workers.

A participant from a rural area stated during an FGD:

“The clinic is very far, and when labour started at night, there was no transport. I ended up delivering at home with help from an elderly woman.”

Availability of Skilled Birth Attendants and Health Facility Capacity

Health facility assessments and key informant interviews revealed critical shortages of skilled birth attendants, particularly in rural clinics. Some facilities operated with only one midwife per shift, increasing workload and compromising quality of care. Respondents also reported shortages of essential drugs, delivery kits, and basic equipment.

A midwife interviewed explained:

“We are very few, and sometimes you attend to several women at the same time. Even when complications arise, referral is delayed because there is no ambulance.”

Healthcare System Factors and Maternal Health Outcomes

Respondents identified several health system challenges affecting maternal health outcomes, including:

- Long distances to health facilities,
- Poor road networks,
- Inadequate referral systems,
- Stock-outs of essential medicines,
- Informal user fees.

Women who lived within 5 km of a health facility were significantly more likely to utilise skilled birth attendants compared to those residing further away.

Pearson Chi-Square (χ^2) is a statistical test used to determine whether there is a significant association between two categorical variables. It compares the observed frequencies in each category with the expected frequencies that would occur if there were no relationship between the variables.

In simple terms, it tests whether differences between observed and expected results happened by chance or indicate a real relationship. It is commonly used in social sciences, health research, and education studies, and is conducted at a chosen level of significance (e.g., 0.05).

Statistical Association Between Selected Variables and Skilled Birth Attendance

Pearson Chi-square tests were conducted to determine the association between socio-demographic and health system variables and utilisation of skilled birth attendants. Results are presented in Table 2.0.

Table 2.0: Pearson Chi-Square Tests on Determinants of Skilled Birth Attendance

VARIABLE	Chi-Square	Df p-value
Distance to health facility	26.418	12.009
Household income	22.731	10.012
Education level	18.904	12.090
Availability of skilled staff	29.557	14.006

Source: Survey Results, 2024

Distance to health facility, household income, and availability of skilled health personnel had statistically significant associations with utilisation of skilled birth attendants ($p < 0.05$). Education level was not statistically significant at the 5% level of significance.

DISCUSSION

The findings demonstrate that skilled birth attendants play a critical role in reducing maternal mortality in Zimbabwe, consistent with global evidence emphasising the importance of professional care during childbirth (Campbell & Graham, 2006; WHO, 2019). However, access to skilled birth attendants remains constrained by systemic and socio-economic barriers, particularly in rural areas.

Distance to health facilities emerged as a significant determinant of skilled birth attendance, supporting the “second delay” in the Three Delays Model (Thaddeus & Maine, 1994). Women residing far from health facilities often experience delays in reaching care, increasing the risk of complications and maternal death. Similar findings have been reported in other Sub-Saharan African contexts (Gabrysch & Campbell, 2009).

Household income was also significantly associated with utilisation of skilled birth attendants. Although maternal healthcare services are officially subsidised in Zimbabwe, indirect costs such as transport, food, and informal payments continue to deter poor households from seeking facility-based care. This finding aligns with studies by Mutswanga and Mafaune (2019), who observed that poverty remains a key driver of home deliveries.

The availability of skilled health personnel significantly influenced maternal healthcare utilisation. Facilities with adequate staffing were more likely to attract women for delivery services. However, shortages of midwives and nurses, coupled with heavy workloads, undermine quality of care and contribute to negative patient experiences. These challenges reflect broader health system weaknesses documented in Zimbabwe’s public health sector (Chikanda, 2019; MoHCC, 2021).

Interestingly, education level was not statistically associated with skilled birth attendance, suggesting that structural barriers such as distance and cost may outweigh individual knowledge or awareness. This finding resonates with earlier studies in rural African settings where access constraints limit health-seeking behaviour regardless of education (Destaus, 2003; Gabrysch & Campbell, 2009).

Overall, the results underscore the need for integrated interventions that address both demand-side and supply side barriers to maternal healthcare. Strengthening healthcare systems and ensuring equitable distribution of skilled birth attendants are essential for achieving sustainable reductions in maternal mortality in Zimbabwe.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to reduce maternal mortality in Zimbabwe through strengthened utilisation of skilled birth attendants and improved healthcare systems:

1. Strengthening the Health Workforce

The Government of Zimbabwe, through the Ministry of Health and Child Care (MoHCC), should prioritise the recruitment, training, and retention of skilled birth attendants, particularly midwives, in rural and hard-to-reach areas. Incentive packages such as rural hardship allowances, housing, and continuous professional development opportunities should be expanded to address staff shortages and improve morale.

2. Improving Health Facility Infrastructure and Equipment

Health facilities should be adequately equipped with essential drugs, delivery kits, blood supplies, and functional referral systems, including ambulances. Strengthening maternity waiting homes near health facilities can help reduce delays for women living far from clinics.

3. Reducing Financial Barriers to Maternal Healthcare

Although maternal services are officially subsidised, indirect costs remain prohibitive. Policies should be enforced to eliminate informal user fees, while transport voucher schemes and community-based health insurance mechanisms should be scaled up to support low-income households.

4. Enhancing Community Engagement and Awareness

Community health education programmes should be strengthened to promote early antenatal booking, facility-based deliveries, and timely referral of complications. Traditional leaders, community health workers, and religious leaders should be engaged as change agents to address cultural norms that discourage utilisation of skilled birth attendants.

5. Strengthening Referral and Emergency Obstetric Care Systems

The referral system between primary health facilities and higher-level hospitals must be improved through reliable communication, functional transport, and emergency preparedness. This will reduce maternal deaths arising from obstetric complications that require specialised care.

6. Policy Integration and Health System Financing

Maternal health interventions should be integrated into broader health system strengthening frameworks. Increased and sustained public financing for maternal and neonatal health is critical for achieving national and global maternal mortality reduction targets.

CONCLUSION

Maternal mortality remains a major public health challenge in Zimbabwe, disproportionately affecting women in rural and low-income settings. This study demonstrated that the utilisation of skilled birth attendants significantly contributes to improved maternal health outcomes. However, access to skilled care is constrained by systemic barriers including distance to health facilities, shortages of skilled health personnel, inadequate infrastructure, and household poverty.

The findings revealed that healthcare system factors—particularly availability of skilled birth attendants, proximity to health facilities, and household income—have a statistically significant influence on the utilisation of skilled delivery services. Conversely, education level alone was insufficient to overcome structural constraints to accessing maternal healthcare.

Reducing maternal mortality in Zimbabwe therefore requires a multifaceted approach that strengthens healthcare systems, ensures equitable distribution of skilled birth attendants, and addresses socio-economic barriers faced by women. By investing in health workforce development, infrastructure, and community-centred interventions, Zimbabwe can make meaningful progress towards achieving Sustainable Development Goal 3.1 and safeguarding the lives of mothers.

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Competing Interests

The authors declare that there are no competing interests associated with this study.

Authors' Contributions

- **Author A** conceptualised the study, conducted fieldwork, and drafted the manuscript.
- **Author B** analysed quantitative data and contributed to the results section.
- **Author C** reviewed and edited the manuscript.
- **Author D** supervised the research process and provided technical guidance.

All authors reviewed and approved the final manuscript.

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Data Availability

All data generated and analysed during this study are included in this manuscript. Additional information can be made available upon reasonable request.

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