

Assessment of Non-Medical Causes of Maternal Mortality in Tanzania

Hamisi Iddi Hamisi

Assistant Lecturer, Department of Water Supply and Sanitation Engineering, Water Institute, Tanzania

Abstract

Maternal mortality remains a pressing global health challenge, with Tanzania recording 524 maternal deaths per 100,000 live births, exceeding the global average, 211 per 100,000 live births. Despite government interventions including free reproductive health services and improved infrastructure, progress has been modest. This study addresses a research gap on how Tanzanians understand non-medical causes of maternal deaths.

A mixed-methods, exploratory research design was employed to examine non-medical causes of maternal deaths from insights of healthcare providers in Urambo District Council, Tabora Region, Tanzania. Using simple random sampling, 10 healthcare providers and social welfare officers participated in Focus Group Discussions guided by a Focus Group Discussions Guide. All respondents were adults aged 18-59 years with tertiary education, and 90% were parents. Content analysis was applied to process qualitative data and Microsoft Excel was applied to process quantitative data collected from respondents.

Non-medical causes were categorized into three domains. Socioculturally, failure to recognize obstetric danger signs was most prevalent (90%, $n = 9$), followed by reliance on traditional practices (70%, $n = 7$) and reluctance to seek professional medical care (60%, $n = 6$). Economically, lack of funds for transportation (70%, $n = 7$) and insufficient resources to procure essential supplies and equipment (60%, $n = 6$) were primary constraints. Institutionally, distance from home to the health facility (80%, $n = 8$), delayed referral from home and delayed arrival at referral facilities (70%, $n = 7$ each), and inadequate or delayed medical supplies and equipment (50%, $n = 5$) were the most critical barriers.

Therefore, maternal deaths in Tanzania are influenced by an interplay of sociocultural, economic, and institutional factors, consistent with the Three Delays Model. The findings indicate that maternal mortality is not solely a clinical issue but a multifaceted problem rooted in community practices, financial hardship, and health system weaknesses. Integrated strategies involving culturally-tailored community education, social protection mechanisms for transport, and health system strengthening in referral networks, infrastructure, and commodity security are recommended.

Keywords: Maternal Deaths, Maternal Mortality, Non-Medical Causes

1. Background

Maternal mortality remains one of the most pressing global challenges for health and social welfare and reducing maternal deaths continues to be a major worldwide priority in medicine, public health and social welfare. Between 2000 and 2017, the global maternal mortality ratio stood at 211 per 100,000 live births (World Health Organization (WHO), 2019). Regionally, the figures were 152 per 100,000 in Asia,

57 per 100,000 in the Americas, 13 per 100,000 in Europe, 525 per 100,000 in Africa, 533 per 100,000 in Sub-Saharan Africa, and 428 per 100,000 in Eastern Africa (World Health Organization (WHO), 2019). Nationally, Tanzania recorded 524 per 100,000 live births, exceeding the global average (World Health Organization (WHO), 2019).

Under the Third National Five Year Development Plan 2021/22–2025/26, Tanzania aims to improve maternal health by cutting the maternal mortality ratio from 321 to 220 per 100,000 live births between 2019/2020 and 2025/2026 (Ministry of Finance and Planning (MoFP), 2021). The Government of Tanzania has implemented several policies to lower maternal mortality, including providing free reproductive and child health services, rolling out the 2019 Maternal and Perinatal Death Surveillance and Response Guidelines, expanding health centers, acquiring and deploying ambulances, improving road infrastructure, and sustaining healthcare worker employment (Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDEG), 2019; Ministry of Health and Social Welfare (MoHSW), 2015).

Despite the interventions implemented, the results remain modest. A gap exists in research on how Tanzanian communities understand non-medical causes of maternal deaths, and this study addresses that gap. Earlier studies have taken different approaches; Said et al. (2021) focused on Tanzania's tracking and response to maternal deaths, Musarandega et al. (2021) analyzed medical causes across Sub-Saharan Africa and Said et al. (2020) compared Tanzania's standard maternal death surveillance system with expert obstetrician reviews to determine causes and delays in care. This study, therefore, examines non-medical factors behind maternal deaths.

2. Research Methodologies

2.1. Research Design

This study was guided by pragmatism, a philosophy that emphasizes applying knowledge, usefulness, and practical solutions (Simpson, 2018). It implies that pragmatism prioritizes practicality, problem-centered approaches, and adaptability, focusing on real-world implications and actionable findings. A mixed-methods strategy was adopted for this study. As Dawadi et al (2021) noted mixed-methods research integrates both qualitative and quantitative techniques. An exploratory research design was used to examine non-medical causes of maternal deaths from insights of healthcare providers. The study took place in Urambo District Council, Tabora Region, Tanzania.

2.2. Population of the Study

According to the National Bureau of Statistics et al., (2022), Urambo District Council has a total population of 260,322, comprising 127,424 males and 132,898 females. The sex ratio is 96, with 47,039 households and an average household size of 5.5. The total reproductive population aged 15 to 49 years is 109,012, including 52,041 males and 56,971 females. This study employed probability sampling to select 10 respondents working in health facilities. Using simple random sampling, staff who picked wrapped papers with a respondent code participated, while those who picked papers without a respondent code were excluded.

2.3. Operational Definition of Variables

As previously stated, the study is composed of two variables; non-medical causes as independent variable, while maternal deaths were the dependent variable.

2.3.1. Maternal Death means the death of a woman during pregnancy or within 42 days after pregnancy

ends, from causes related to or aggravated by the pregnancy, excluding accidental or incidental causes (MoHCDGEC, 2019).

2.3.2. Non-Medical Cause means sociocultural, economic and institutional factors that contributing to maternal death. Ministry of Health, Community Development, Gender, Elderly and Children classifies non-medical causes of maternal deaths as indirect or associated causes, separate from direct medical causes of maternal deaths (MoHCDGEC, 2019).

2.3.3 Sociocultural Factors means factors relating to beliefs, practices, norms, decision-making and social support within families or communities.

2.3.4 Economic Factors means factors relating to cost, poverty and financial access to available medical care.

2.3.5. Institutional Factors means factors relating to health system, infrastructure, facility readiness and issues relating to a healthcare provider.

3. Study Instruments

Data were collected using Focus Group Discussions (FGDs) guided by a Focus Group Discussions Guide. Ten (10) healthcare providers and social welfare officers participated, as the study required in-depth qualitative information from small sample, given the qualitative nature of the study and the small sample size. Content analysis was, then, applied to process and analyze the qualitative data obtained from Focus Group Discussions.

4. Ethical Considerations

To uphold anonymity, the researcher used identification codes for participants instead of disclosing their names, in line with ethical standards (National Association of Social Workers (NASW), 2017). Consequently, respondents in this study were identified using special respondent codes. In accordance with NASW (2017), confidential information must not be shared with third parties without client consent. This study, therefore, treated all data confidentially and used it solely for academic purposes to protect respondents' privacy. Furthermore, NASW (2017) requires that clients be informed of the purpose, procedures, terms, and conditions of services. Consistent with this principle, the researcher explained the study's objective to potential participants and sought their voluntary consent before participation.

5. Characteristics of Respondents

The study considered four demographic characteristics of respondents: age group, education level, marital status, and parental status.

5.1. Distribution of Respondents by Age and Sex

Age was categorized as 0-17 years (child), 18-59 years (adult), and 60+ years (older people). All 10 respondents were adults aged 18-59 years, comprising 70% (n=7) males and 30% (n=3) females. No respondents were recorded in the remaining age categories. This implies that the results of this study specifically reflect the views and experiences of working-age adults and cannot be extended to children (0-17) or older people (60+) (Table 1).

Table 1: Distribution of Respondents by Age and Sex

Age Group (Years)	Category	Sex	
		Male (n)	Female (n)
0-17	Child	0	0
18-59	Adult	7	3
60+	Older people	0	0
Total		7	3

5.2. Distribution of Respondents by Education Level

Respondents' education level was categorized as primary, secondary, college, and university education. Of the 10 respondents, 60% (n=6) had university education and 40% (n=4) had college education. None of the respondents had primary or secondary education only. It implies all respondents had tertiary education - 60% university and 40% college. This suggests that sample of the study consists of professionals or skilled healthcare providers and social welfare officers (Table 2).

Table 2: Distribution of Respondents by Education Level

Education Level	Frequency (n)	Percentage (%)
Primary	0	0
Secondary	0	0
College	4	40
University	6	60
Total	10	100

5.3. Distribution of Respondents by Marital Status

Respondents' marital status was classified as single, married, and divorced. The majority (70%, n=7) were married, 20% (n=2) were single, and 10% (n=1) were divorced. Predominantly married sample (70% married) suggests most respondents may have personal or family experience that could influence their views on maternal health while single and divorced respondents captures varied social perspectives on non-medical causes of maternal death (Table 3).

Table 3: Distribution of Respondents by Marital Status

Marital Status	Frequency (n)	Percentage (%)
Single	2	20
Married	7	70
Divorced	1	10
Total	10	100

5.4. Distribution of Respondents by Parental Status

Respondents' parental status was classified as having children, not having children, or infertile. The majority (90%, n=9) had children, while 10% (n=1) did not have children. No respondents reported infertility. With 90% of respondents being parents, the sample likely has direct, lived experience with

pregnancy, childbirth, antenatal care, and family decision-making. This adds experiential depth to their views on non-medical causes of maternal death (Table 4).

Table 4: Distribution of Respondents by Parental Status

Parental Status	Frequency (n)	Percentage (%)
Have child/children	9	90
Do not have children	1	10
Infertile	0	0
Total	10	100

6. Results

This study examined non-medical causes of maternal deaths in Tanzania based on three domains: sociocultural factors, economic factors, and institutional factors. The results are presented below according to these three domains.

6.1. Sociocultural Factors Associated with Maternal Deaths

The study found several sociocultural determinants contributing to maternal mortality. Failure to recognize danger signs was the most frequently reported factor, cited by 90% (n = 9) of respondents. Reliance on traditional practices was reported by 70% (n = 7) of respondents. Furthermore, 60% (n = 6) of respondents indicated reluctance to seek professional medical care, and 50% (n = 5) of respondents reported lack of decision to go to health facility. Less commonly cited barriers included lack of support from family or community members (40%, n = 4), fear of ill-treatment at health facility was reported by 30% (n = 3) of respondents, and unavailability of someone to take care of children or house was reported by 30% (n = 3) of respondents (Table 5).

Table 5: Sociocultural Factors Associated with Maternal Deaths

Sociocultural Factor	Frequency (n)	Percentage (%)
Failure to recognize danger signs	9	90
Traditional practices	7	70
Unwillingness to seek professional medical help	6	60
Lack of decision to go to health facility	5	50
Lack of support from family or community members	4	40
Fear of ill-treatment at health facility and	3	30
Unavailability of someone to take care of children or house	3	30

6.2. Economic Factors Associated with Maternal Deaths

Findings revealed that economic factors adversely affected maternal health outcomes. Lack of funds for transportation to health facilities was reported by 70% (n = 7) of respondents, representing the primary economic constraint. Furthermore, insufficient financial resources to procure essential supplies and equipment was noted by 60% (n = 6) of participants (Table 6).

Table 6: Economic Factors Associated with Maternal Deaths

Economic Factor	Frequency (n)	Percentage (%)
Lack of money for transport	7	70
Lack of money for supplies and equipment	6	60

6.3. Institutional Factors Associated with Maternal Deaths

Institutional factors contributing to maternal deaths were widely reported. Distance from home to the health facility was cited by 80% (n = 8) of respondents. Delayed arrival at the referral facility and delayed referral from home were each noted by 70% (n = 7) of respondents. Lack of transportation and delayed or insufficient medical supplies and equipment were each reported by 50% (n = 5) of respondents. Additional factors included delayed management after admission, lack of healthcare providers at the facility and lack of roads, each was reported by 40% (n = 4) of respondents. The least reported factors were lack of accompaniment to the health facility, gender insensitivity of healthcare providers and inadequate skills of healthcare providers were each reported by 20% (n = 2) of respondents (Table 7).

Table 7: Institutional Factors Associated with Maternal Deaths

Sociocultural Factor	Frequency (n)	Percentage (%)
Distance from home to the health facility	8	80
Delayed arrival to the referred facility	7	70
Delayed referral from home	7	70
Delayed or lacking medical supplies and equipment	5	50
Lack of transportation	5	50
Delayed management after admission	4	40
Lack of health care provider at the health facility	4	40
Lack of roads	4	40
Gender insensitivity of health care provider	2	20
Inadequate skills of healthcare provider	2	20
Lack of accompaniment to the health facility	2	20

7. Discussion

The present study examined sociocultural, economic, and institutional factors contributing to maternal deaths in Tanzania. The findings reveal that maternal mortality is a complex outcome of interacting demand-side and supply-side barrier, consistent with the Three Delays Model. This discussion interprets the key findings in relation to existing literature and conceptual frameworks.

The predominance of failure to recognize obstetric danger signs (90%, n = 9) as a sociocultural barrier aligns with numerous studies across sub-Saharan Africa. Thaddeus and Maine's seminal work on the Three Delays Model identified delayed decision-making as the first critical delay, often stemming from inadequate knowledge of complications. The high prevalence in this study suggests persistent gaps in community health literacy despite decades of safe motherhood initiatives. Similar findings were reported in Tanzania and in a systematic review, where lack of awareness significantly reduced timely care-seeking (Reuben Musarandega, et al., 2021).

The influence of traditional practices (70%, $n = 7$) and unwillingness to seek professional medical help (60%, $n = 6$) further underscores the role of cultural norms in shaping health-seeking behavior. This supports the work of Grace Bantebya (2003), who found that cultural beliefs regarding childbirth as a “natural” event often conflict with biomedical models, leading families to prefer traditional birth attendants. The reported fear of ill-treatment at health facilities (30%, $n = 3$), though less prevalent, is clinically significant. Global systematic review demonstrated that disrespect and abuse during childbirth constitute a powerful deterrent to facility use, creating a cycle where poor experiences reinforce traditional preferences (Reuben Musarandega, et al., 2021).

Economic barriers emerged as critical determinants of the second delay. Lack of money for transport (70%, $n = 7$) was the leading economic factor, corroborating evidence from John Massito, et al., (2025) that transport costs represent catastrophic health expenditures for poor households in Tanzania. This finding is consistent with the Tanzania Demographic and Health Survey, which identified distance and cost as major problems in accessing care. The inability to afford medical supplies and equipment (60%, $n = 6$) reflects policy-implementation gaps in Tanzania’s free maternal health care policy. Studies by Doris Mollel, et al (2024) and Megan Ginivan, et al (2018) have documented that unofficial fees and requirements to purchase supplies remain common, effectively reintroducing financial barriers. These economic constraints force families into dangerous trade-offs between seeking care and financial ruin, thereby prolonging the second delay.

Institutional factors contributed to both the second and third delays. Distance from home to the health facility (80%, $n = 8$) was the most frequently cited institutional barrier, highlighting the persistent challenge of geographic inaccessibility in rural Tanzania. This finding echoes Reem Saleem, et al. (2020), who demonstrated that travel time over 2 hours significantly increases maternal mortality risk. The problem is compounded by lack of transportation (50%, $n = 5$) and poor road infrastructure (40%, $n = 4$), indicating that physical access remains a structural challenge despite health facility expansion.

The third delay was evidenced by delayed referral from home and delayed arrival to the referred facility (70%, $n = 7$ each), and delayed management after admission (40%, $n = 4$). These findings are consistent with Maternal and Perinatal Death Surveillance and Response reports in Tanzania, which frequently cite referral system failures as contributors to deaths. Inadequate or delayed medical supplies and equipment (50%, $n = 5$) and absence of qualified healthcare providers (40%, $n = 4$) further illustrate supply-side weaknesses. Similar health system deficiencies were identified in comprehensive EmONC assessments across Tanzanian facilities, where few facilities met criteria for basic or comprehensive EmONC functionality (Sunday Dominico, et al., 2022).

Notably, gender insensitivity and inadequate skills of providers (20%, $n = 2$ each) were less frequently reported but remain critical. Low-prevalence health worker factors can have disproportionate impacts on outcomes during emergencies (Yusrawati, et al., 2024). The presence of these factors suggests quality-of-care issues that extend beyond infrastructure and commodities to encompass provider attitudes and competence.

While the factors identified are largely consistent with existing literature in Tanzania and similar settings, the relative weighting differs. The exceptionally high proportion reporting failure to recognize danger signs (90%) exceeds rates in some regional studies, suggesting either a particularly high-risk population or methodological differences in data collection. The prominence of distance (80%) as an institutional factor is higher than in urban-focused studies, reinforcing the urban-rural disparity in maternal health outcomes documented by the Ministry of Health.

Also, the findings highlight progress and gaps in policy implementation. Tanzania's commitment to free maternal health services has not fully eliminated economic barriers, while investments in health infrastructure have not yet overcome geographic barriers for remote populations. This indicates a need to shift from availability of services to accessibility, acceptability, and quality of services.

8. Conclusion

This study concluded that maternal deaths in Tanzania are influenced by an interplay of sociocultural, economic, and institutional factors. Socioculturally, failure to recognize obstetric danger signs (90%, n = 9), reliance on traditional practices (70%, n = 7), and reluctance to seek professional medical care (60%, n = 6) were the predominant barriers. Economically, lack of funds for transportation (70%, n = 7) and inability to afford essential medical supplies (60%, n = 6) significantly constrained access to maternal care. Institutionally, geographic distance to health facilities (80%, n = 8), delays in referral and arrival at referral facilities (70%, n = 7), and inadequate or delayed medical supplies and equipment (50%, n = 5) were the most critical health-system barriers. Collectively, these findings indicate that maternal mortality is not solely a clinical issue but a multifaceted problem rooted in community practices, financial hardship, and health system weaknesses.

9. Recommendations

Based on failure to recognize danger signs (90%, n = 9) and unwillingness to seek professional medical help (60%, n = 6), the Ministry of Health, in collaboration with local government authorities, should implement sustained, culturally-tailored community education programs on obstetric danger signs. This should utilize community health workers, women's groups, and influential local leaders to deliver messages. Emphasis should be placed on recognizing key danger signs during pregnancy, labor, and postpartum, and on the importance of timely facility-based care. Use of local media, including radio programs in Swahili and local dialects, should be prioritized to maximize reach.

Based on traditional practices (70%, n = 7), a strategy of partnership with Traditional Birth Attendants (TBAs) and traditional healers should be adopted. Traditional Birth Attendants should be trained and incentivized to serve as referral agents who can identify danger signs and escort women to facilities, not conduct deliveries. Dialogue with cultural and religious leaders should be facilitated to address harmful traditional practices while respecting community values, promoting facility delivery as complementary to cultural norms.

Based on fear of ill-treatment at the health facility (30%, n = 3), health facilities should institutionalize respectful maternity care charters and conduct routine training for providers on client-centered communication, privacy, and dignity. Facility-level quality improvement teams should establish feedback mechanisms, such as exit interviews and community scorecards, to monitor and address disrespectful care. This will rebuild community trust and reduce fear as a barrier to seeking care.

Linked to lack of money for transport (70%, n = 7), public-private partnerships for transport solutions should be established, district health authorities should formalize partnerships with local transport associations, such as bodaboda and taxi operators, to provide subsidized or credit-based emergency transport for laboring women. Formal agreements should include pre-negotiated rates, 24-hour availability, and direct payment mechanisms from health facilities or emergency funds to reduce delays caused by fare negotiations.

Linked to lack of money for supplies and equipment (60%, n = 6), the Ministry of Health should reinforce the policy of free maternal health services by ensuring that essential supplies for delivery, including gloves, uterotonics, and basic equipment, are consistently available at public facilities without out-of-pocket payment. Facility budget allocations should be reviewed to prevent stock-outs that force families to purchase supplies externally. Regular auditing and community monitoring should be implemented to ensure compliance with fee-exemption policies.

Associated with distance from home to the health facility (80%, n = 8), lack of transportation (50%, n = 5) and lack of roads (40%, n = 4), local government authorities, in collaboration with the Ministry of Transport, should prioritize the maintenance and construction of all-weather roads to health facilities in underserved areas. District health systems should establish functional ambulance services or community emergency transport systems, including contracted vehicles stationed at strategic primary facilities. Maternity waiting homes near district hospitals should be expanded and adequately resourced to accommodate women from remote areas during late pregnancy.

Associated with delayed or lacking medical supplies and equipment (50%, n = 5), the Medical Stores Department and facility management teams should strengthen supply chain management through improved forecasting, timely procurement, and redistribution mechanisms to prevent stock-outs of life-saving commodities such as oxytocin, magnesium sulfate, blood products, and delivery kits. Facilities should implement “emergency obstetric care trays” that are pre-packed and routinely audited. The use of electronic logistics management information systems should be scaled up to track commodity levels in real time.

10. Acknowledgement

This written work has been supported with organizations and individuals whose contributions are hereby acknowledged.

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