ORIGINAL ARTICLE

Perceptions, practices, and attitudes of communities related to maternal mortality in Tete province, Mozambique: a descriptive exploratory qualitative study

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Abstract

Objectives: to evaluate the perceptions, practices, and attitudes of communities regarding maternal mortality in Tete province, Mozambique.

Methods: a descriptive qualitative study of exploratory nature was conducted, with data collected in December 2024 from six districts of Tete province. Convenience sampling and a size determined by theoretical saturation included different community health workers and health professionals, such as traditional midwives, the so-called "model mothers", maternal and child health nurses, multipurpose health agents, members of community committees, community leaders, and relatives of women who died during pregnancy or within 42 days postpartum, using individual interviews and focus groups.

Results: the first delay was influenced by religious beliefs, low autonomy of women in health decisions, and distrust towards younger professionals. The second delay was related to long distances, poor road conditions, and limitations of waiting areas. The third delay involved delays in care, mistreatment, illegal fees, and negligence by some health professionals.

Conclusion: the three delays reflect the need for integrated interventions at the community and institutional level. It is recommended to strengthen the role of traditional midwives and enhance the capacity of health services to ensure proper care.

Key words *Maternal mortality, Three delays, Perceptions, Attitudes, Practices*

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Introduction

According to the World Health Organization (WHO),[1] more than 700 women die every day from preventable causes related to pregnancy and childbirth, which equates to one maternal death every two minutes. In 2023, approximately 260,000 maternal deaths were recorded worldwide, approximately 712 deaths per day. Of these, 92% occurred in low- and middle-income countries, with Sub-Saharan Africa accounting for 70% of the deaths.[1] Timely treatment and management of obstetric complications are essential to prevent maternal mortality.[2]

Mozambique undertook the commitment to reduce maternal mortality ratio to fewer than 70 deaths per 100,000 live births by 2030, in line with the *Objetivos de Desenvolvimento Sustentável* (ODS)[3] (Sustainable Development Goals). However, the country still has a high rate, estimated at approximately 223 deaths per 100,000 live births.[1]

Data from the *Objetivos de Desenvolvimento Sustentável* (ODS)[3] and *Eventos Vitais* (SIS-COVE)(Vital Events Surveillance System) for the of period 2019–2021 indicating that a significant proportion of maternal deaths occured at the community level, with the highest concentration in the Central and North regions of the country.[4] The *Inquérito Demográfico e de Saúde* (IDS) (Demographic and Health Survey) for 2022–2023 reported that, in Tete Province, 51% of the births took place in health facilities.[5] Within the *Sistema Nacional de Saúde* (SNS) (National Health System), traditional midwives play an acknowledged role in the community and are supported and guided to consult all pregnant women at the *Unidades Sanitárias* (US).[6](Health Units).

Although,barriers remain, such as long distances and a lack of transportation to reach the US (health units), financial difficulties, a lack of information about warning signs during pregnancy, and sociocultural beliefs that ultimately lead to delays in seeking care.[6–9] Poor infrastructure and the quality of care also discourage people from seeking care.[7,8] To understand this scenario, Thaddeus and Maine presented the Three Delays Model, which describes: (i) the delay in deciding to seek care, (ii) the delay in accessing health services, and (iii) the delay in receiving adequate care at US.[9]

In the Mozambican context, the first delay involves sociocultural aspects such as religious affiliation, decisions dependent on guardians, and perceptions of health professionals; occupational or economic barriers (the need for women to assist with agriculture); and institutional barriers (the requirement for partners to be present at the US and the community health workers' knowledge on the regulations). The second delay includes geographic and structural barriers, such as distance and accessibility. The third delay relates to the quality of care (delays in the service, mistreatment, illegal fees), and a lack of support infrastructure, such as the so-called "maternity home rooms" for pregnant women, which are often precarious and lack of food.

However, there are facilitators that can reduce these barriers, such as community health workers, traditional midwives, and the so-called "model mothers" (women with experience and wisdom within the community), who help disseminate accurate information and promote safe practices.[7,8]

Few studies systematically examine the attitudes, knowledge, and practices of women, families, and health professionals, as well as the three delays. Vidler *et al*.[10] advocate for integrated care that ensures effective linkages among the different levels of the system.[10]

In Mozambique, including Tete Province, information on maternal deaths occurring in the community is scarce. Although the *Sistemas de Informação para Monitoria e Avaliação* (SIS-MA) (Information Systems for Monitoring and Evaluation) and SIS-COVE have identified the occurrence of these deaths, there is no programmatic, real-time monitoring system that allows for an in-depth understanding of the associated factors. Furthermore, the country lacks mechanisms to track maternal deaths during pregnancy or within 42 days after childbirth, which hinders the assessment of the actual situation and the planning of effective maternal health interventions. This research aims to highlight challenges in maternal health, focusing on community perceptions, practices, and attitudes related to maternal mortality in Tete Province, Mozambique, using accounts from community intermediaries and health system professionals, supplemented by a limited number of direct reports from the victims' family members.

Methods

This is a descriptive, qualitative, exploratory study that sought to understand the perceptions, practices, and attitudes of the communities regarding maternal mortality in Tete Province, Mozambique. Data collection took place in December 2024. The study was conducted and reported in accordance with the *Critérios Consolidados para Reporte de Pesquisa Qualitativa* (COREQ)(Consolidated Criteria for Reporting Qualitative Research).

The study was conducted in Tete Province, in the communities and the health units of the districts of Mutarara, Doa, Tsangano, Macanga, Angónia, and Magoe. The selection of these districts was based on community mortality data from SIS-COVE for 2019–2021, with areas having the highest mortality rates being chosen.[4]

The population included family members of pregnant women who died during pregnancy or up to 42 days

after the delivery, *Agentes Polivalentes de Saúde* (APS) (Multipurpose Health Agents), community or religious leaders, traditional midwives (TMW), the so-called "model mothers", the community health committees, and health care providers, specifically maternal and child health nurses (MCHN).

Sampling was conducted using convenience sampling, selecting participants with experience relevant to the phenomenon studied. Participants aged 18 years or older, residing in the studied communities, and with direct experience in caring for and interacting with pregnant women who had died were included.

The sample size was determined considering the principle of theoretical saturation, which guides qualitative studies and helps identify the point at which interviews no longer added new information.[11,12,13]

This process was monitored during data collection by two researchers involved in the analysis. Saturation was considered to have been reached when new interviews no longer added relevant information to the defined analytical categories. This assessment was made holistically, taking into account the different groups of participants included in the study.

Initially, 73 individual interviews were planned, distributed among different categories of participants, including 13 interviews with APS providers, 16 with traditional midwives, 15 with MCHNs, 13 with community leaders, and 16 with family members of the pregnant women who died during pregnancy or up to 42 days after delivery. In addition, 26 focus group discussions (FGDs) were planned, 13 with the so-called "model mothers" and 13 with members of the community health committees.

Data collection continued until the information began to repeat itself, with no new elements relevant to the objectives emerging to the study. There were no refusals or dropouts among participants during the data collection process.

The data collection instruments were developed based on a literature review and adapted to the local context. Prior to fieldwork, a pilot study was conducted to validate the instruments, and a coordination meeting was held to ensure the team was aligned on procedures and the use of the tools.

The team of interviewers was composed by a research team consisted of professionals from the fields of medicine, public health, general nursing, and maternal and child health,of both genders, all with experience in qualitative research and public health practice. The team responsible for conducting the interviews and the FGDs were composed of health professionals affiliated with the *Instituto Nacional de Saúde* (National Health Institute), with experience in this type of approach. There was no prior relationship among the researchers and the participants before data collection began.

It is considered that the researchers' institutional affiliation may have influenced the participants' responses in some way, especially on topics related to the quality of health services. To reduce this potential effect, measures were taken, such as ensuring confidentiality and anonymity and reinforcing participants' freedom of expression throughout the data collection process; furthermore, local health professionals were not included.

During the individual interviews and focus group discussions, no outsiders were present other than the participants and the research team.

Semi-structured individual interviews and FGDs were used. The interview guide was developed specifically for this study and included open-ended questions regarding the perceptions, practices, and attitudes related to maternal mortality in the community. The individual interviews were conducted in person, in European Portuguese, and were audio-recorded with the participants' consent. Each participant was assigned a numerical code to preserve confidentiality; however, a pseudonym will be used (without necessarily identifying the participant).

In FGDs, a script covering the main research topics was also used. The conversations were also audio-recorded, translated from the local language into EuropeanPortuguese, and subsequently transcribed for textual analysis, ensuring the accuracy of the accounts for further analysis.

Data collection was conducted by a team of researchers of both genders who had previously been trained in qualitative research, research in ethics, and the conduct of interviews and focus group discussions. Although the team was affiliated with the *Instituto Nacional de Saúde* (National Institute of Health), all participants were informed that the study was conducted solely for scientific purposes and that their participation, as well as the opinions they shared, would have no influence on the health care they received or on their relationship with health services.

The interviews were translated by three local interpreters fluent in the local languages and European Portuguese; two participants translated the same information independently, and the third was used to correct any contradictions in interpretation between the first two, after which the translations were transcribed and coded anonymously. A directed content analysis was conducted, as proposed by Hsieh and Shannon,[14] using Thaddeus and Maine's "three delays" model as the theoretical framework.

The analytical categories were defined a priori, including: (i) decision to seek care, (ii) access to health services, and (iii) quality of care received. During the analytical process, we also sought to identify possible emerging categories outside this framework.

The data units were coded and subsequently organized into the previously defined categories based on the three-delay model. During this process, emerging categories were also considered whenever new relevant elements were identified in the data.

Data coding was performed by two independent researchers. Any discrepancies were discussed until consensus was reached, ensuring consistency and analytical rigor. The coding structure used in the analysis is presented in Table 1. Data analysis was performed manually, without the use of specific software for qualitative analysis.

No field notes were taken during data collection. The transcripts were not returned to the participants for validation due to logistical limitations, and no external validation of the results was conducted with the participants.

We analyzed aspects related to prenatal care (PNC) and postpartum accesses, including cultural, economic, and geographic barriers that influence the use of health services; traditional midwives' knowledge of the importance of PNC and postpartum care, as well as the practices adopted in the process of referring pregnant women to health units; risk factors associated with maternal deaths, as identified by the participants, including delays in seeking services and restrictions; implementation of Ministry of Health (MISAU) guidelines by community health workers, their ability to use registration and referral tools, and the types of care provided before and during the referral process.

The protocol was approved by the *Comitê Interinstitucional de Bioética para a Saúde* (CIBS) (Committee of Interinstitutional Bioethics for Health) of Tete (Ref. 58/CIBST/24) and encompassed the investigation of factors associated with maternal mortality, including the collection and analysis of the perceptions, practices, and attitudes of the community health workers and health professionals related to the three delays. Thus, the analyses presented in this manuscript fall within the approved scientific and ethical scope.

All procedures followed the principles of the Declaration of Helsinki and Good Clinical Practice, under which all interviews and focus group discussions were conducted in accordance with strict principles of confidentiality and anonymity. The quotes presented in the article were identified only by the participant's category and district of origin, without any information that would allow for the identification of specific individuals or professionals. At no time were names, health facilities, or other identifiable details disclosed.

Table 1

Coding framework used in the content analysis.

Code	Category	Example
Religious beliefs	First delay: sociocultural factors	"...they cannot receive blood because of their religion..."
Woman's autonomy	First delay: family influence	"...she needs to wait for her husband to decide..."
Mistrust of young nurses	First delay: sociocultural factors	"...Sometimes, for cultural reasons, here in the suburbs there are very conservative pregnant women who are afraid to give birth in the health unit because of the age of the nurses who assist with childbirth there. They say they can't take their clothes off for a child to see them...."
Lack of safety in the so-called "maternity waiting room"	Second delay: safety factors	"....At our hospital, there's a "maternity waiting room " for pregnant women to stay.....but safety conditions aren't good..." "...Here at the health unit, there's a "maternity waiting room" for pregnant women, but as you can see, the conditions aren't the best, and I've been mobilizing local structure to see what can be done to resolve this issue..."
Distance to the health unit	Second delay: geographic barriers	"...the health unit is very far away..."
Transportation difficulties	Second delay: economic barriers	"...it takes money to get to the hospital..."
Long distances	Second delay: accessibility factors	"...But there's a very big problem here in the community, which is the distance...." "..... In terms of distance, the distance is much greater , and the financial situation doesn't help either
Abuse in healthcare	Third delay: quality of care	"...the nurses even slap the women..."
Illegal fees	Third delay: healthcare system	"...it is necessary to pay to get good care..."

Before the activities began, meetings were held with health and community authorities to present the objectives and methodologies of the research. All participants were fully informed about the purpose of the study, the potential risks and benefits, and their rights, including the freedom to withdraw at any time.

Informed consent was obtained from all participants. The consent form was read aloud and explained, and when necessary, translated into the local language for participants who did not speak European Portuguese. Participation was formalized by the participant's signature or fingerprint on the consent form and the signature of a witness. Each participant received a copy of the signed consent form.

Given the sensitive nature of the interviews conducted with family members of women who died during pregnancy or up to 42 days after childbirth, additional ethical precautions were taken. The interviews were conducted in a private setting, after informed consent was obtained, respecting the pace and emotional readiness of each participant. The researchers remained attentive to any signs of emotional distress during the interviews. If psychological distress were identified, a plan was in place to refer the participant to the designated health facility, where they could receive support from a psychologist. However, during the course of the study, no situation was identified that would justify such a referral.

Results

A total of 371 individuals participated in the research, distributed among 30 FGDs and 41 individual interviews, involving various community health workers and health professionals.

The FGDs were conducted with two groups: The so-called "model mothers" (n=20 groups), with an average of 12 participants per group, and members of the community health committees (n=10 groups), with an average of about 9 participants per group.

In addition to the FGDs, 41 individual interviews were conducted with various categories of the community health workers and health professionals, including 8 Multipurpose Health Agents (APS), 11 traditional midwives (TMW), 13 maternal and child health nurses (MCHN), 6 community leaders, and 3 family members of the women who died during pregnancy or up to 42 days after delivery.

Data collection was initially carried out in 21 health areas, spread across six districts in Tete Province. However, due to adverse weather conditions characterized by heavy rains, deteriorated access to roads, population mobility, leadership changes, and sociocultural factors, it was not possible to meet the interview target (Table 2), and these factors were considered limitations of the study.

Among the 41 participants in the individual interviews, ages ranged from 34 to 65 years, with a mean of 46 years. Detailed information on the characteristics of the activities performed and the sociodemographic profile of the participants can be found in Table 3.

First Delay: Decision to seek maternal health care

In general, the reports indicate that the decision to seek health care is strongly influenced by sociocultural and family factors, with variations across different districts. It is observed that women's autonomy in this process is often limited, being mediated by cultural norms, religious beliefs, and power dynamics within the family context, which contributes to delays in seeking care.

Table 2

Characterization of interview limitations.

Category	Planned	Conducted	Variation	Limitations
Interviews — Multipurpose Health Agents	13	8	–38%	Many eligible Multipurpose Health Agents were participating in training and technical courses organized by health services
Interviews — Traditional Midwives	16	11	–31%	Cross-border mobility, agricultural activities outside the covered areas, residences difficult to access due to weather conditions
Interviews — MCHN	15	13	–13%	Difficult access due to weather conditions, absence of key informants for work-related reasons
Interviews — Community Leaders	13	6	–54%	Cross-border mobility, agricultural activities outside the covered areas, residences difficult to access due to weather conditions, newly appointed leaders
Interviews — Relatives of Women Who Deceased at Childbirth	16	3	–81%	Sociocultural context in which they belong to matriarchal lineages (Angónia, Tsangano, Macanga, Doa), where, in cases of widowhood, the widow returns to her family of origin; cross-border mobility; agricultural activities outside the study areas; residences difficult to access due to weather conditions
Focus group discussions — the so-called "Model mothers"	13	20	+54%	There was very good participation from this group, linked to the fact that there are groups of "model mothers" trained by the health units to assist with community outreach
Focus group discussions — Community committees	13	10	–23%	Cross-border mobility, agricultural activities outside the covered areas, residences that are difficult to access due to weather conditions, newly formed committees

MCHN=maternal and child health nurses.

Religious affiliation plays a decisive role in seeking care, particularly in communities, especially in the districts of Tsangano, Angónia, and Macanga, where Jehovah's Witnesses and Joahan Malangue (the Johane Marange Apostolic Church, a movement with a documented presence in the region and a doctrinal stance opposing blood transfusions and biomedical interventions) discourage blood transfusions, the use of medications, or other biomedical procedures.

> *"... Now, from a religious standpoint, you can't donate blood, you can't receive blood, because of a certain religion. This also ends up having an influence; you can't get certain vaccines because the church forbids it.... We're talking about the Jehovah's Witnesses and Joahan Malangue..." (MCHN, Angónia)*

Women's decision-making power does not belong to them, but is delegated to their guardians or older family members, which also contributes to delays in seeking services and additionally requires the presence of a partner during the first antenatal care visit, especially when the partner is absent or unavailable.

> *".... Sometimes it's the husband who accompanies her... she has to wait until her husband returns to give her permission to go, or it's her mother-in-law, or her own mother, who decides whether she should go to the hospital..." (APS, Mutarara)*

It was also observed that some older women expressed fear of receiving care from young nurses, associating age with a lack of clinical experience, which negatively affects their trust in and use of health services.

> *"... Sometimes, for cultural reasons, here in the outskirts there are very conservative pregnant women who are afraid to give birth at the maternity because of the nurses' age who assist with deliveries there. They say they can't take their clothes off for a child to see them..." (MCHN, Magoe)*
>
> *"... Our community is a bit dismissive because it focuses more on the issue of age; they say I won't go there to be treated by a child, this is a major challenge we face..." (MCHN, Tsangano)*

With regard to the community health workers, such as TMW and APS (Multipurpose Health Agents), they reported being aware of the operating guidelines for the referral system established by MISAU, but its implementation faces challenges such as the availability of registration resources, as well as the failure in the health sector to follow up on the community programs, compounded by the fact that the community also prefers not to travel due to long distances, lack of transportation, and economic factors.

> *"... We know that giving birth in the community is not recommended... it's a long way to the health center, because from where we are, the health center isn't close, and leaving here is very difficult and costs a lot of money..." (TMW, Tsangano)*
>
> *"... They don't bring any documents. Only when they arrive here at the health center do they say that so-and-so sent them, and since we already know our community health workers and "model mothers", we just attend them..." (MCHN, Macanga)*

Second Delay: Late arrival at health units

With regard to access to health services, it is observed that the difficulties faced by communities go beyond distance, also involving economic and structural factors that limit travel.

Table 3

Characteristics of the activities and the participants.

Characteristics	Description
Districts covered	6
Planned health areas	21
Health areas reached	18
Study activities	
Focus group discussions with "model mothers"	20 (average of 12 participants per group)
Focus group discussions with community committees	10 (average of 9 participants per group)
Individual interviews	41
Total of participants	371
Age of participants in individual interviews (n=41)	
Age range (years)	34 - 65
Mean age (years)	46

It was not possible to disaggregate the data by sex and district for all participants, nor to present the variation in the number of participants per group, due to the way the information was recorded during data collection. The information on age refers exclusively to participants in the individual interviews (n=41). Individual sociodemographic characteristics were not recorded in the focus group discussions, as the data were collected and documented in aggregate at the level of each group.

The second delay was found to be associated with geographic, economic, and structural barriers.

The long distances between health centers and communities hinder timely access to care, especially in hard-to-reach areas, causing some families to turn to traditional midwives.

> *"... Some of our communities are located far from the health unit, and given our lack of resources and the difficulty in accessing roads, it is sometimes hard to provide basic health services..." (Members of the community health committee, Doa)*
> *"... We've faced several challenges because of the distance; there are certain childbirths that take place on the street..." ("Model Mothers", Angónia)*

Financial constraints were also mentioned, hindering not only transportation but the entire process of traveling to health care services.

> *"... The distance is much greater, and financial constraints don't help either, because to get from here... to the hospital, you need money, which makes it very complicated. So, if we had a hospital nearby, it would be good for our community..." (Members of the community health committee, Tsangano)*

Occupational barriers, such as farming, along with a lack of supporting infrastructure, such as the so called "maternity home rooms" for pregnant women, were cited by interviewees as factors influencing the use of health services for pregnant and postpartum women. Many of these women have to help their husbands and families in the farm fields that provide for the family's livelihood, which often forces them to travel to locations far from their usual homes. When this reality is compounded by the scarcity of the so-called "materity home rooms" for pregnant women or poor conditions of those that exist, which do not ensure safety and do not provide food, using these spaces becomes discouraging.

> *"... The lack of a "maternity home room" may be affecting childbirth in the community, since there are communities here that are very remote and difficult to access, especially during the rainy seasons..." (MCHN, Tsangano)*
> *"... Our health unit has a "maternity home room", but it's in poor condition... you need money for transportation to get to the hospital, and once you arrive, you'll need food, soap..." ("Model Mothers", Doa)*
> *"... Mothers need a "maternity home room"; for example, it's quite difficult for mothers living in the villages far away from here while they are in the active phase of labor, and besides, the access to the roads aren't good..." (Leaders, Magoe)*

Third Delay: Receiving adequate care at the health units

Regarding care at the health units, the reports highlight weaknesses in the quality of care, which directly influence the trust in the community services. Negative experiences related to delays, the conduct of healthcare professionals, and informal fees tend to impact the decision to seek institutional care.

Regarding the third delay, interviewees reported issues related to the quality and timeliness of care, including delays, mistreatment, and illegal fees.

> *"... At the hospital, to avoid being treated badly, you have to give money to the nurses who assist with childbirths... only then, when she sees the money, you will deserve good care; without it, you'll get slapped even while in labor..." ("Model Mothers", Doa)*
> *".... We've seen nurses hitting women when they're in pain during childbirth... it's best to give birth in the community because going to the hospital doesn't help..." ("Model Mothers", Macanga)*

Another issue identified during the interviews with family members of the pregnant women who died in the health units, before, during, or after childbirth,concerns their perception of the nurses' conduct. The three family members of deceased women interviewed reported that they could not identify any reasons that, in their point of view, would justify the deaths and attributed responsibility to aspects of the care received, including delays in care, inadequate care, or possible technical incompetence. This perception is reinforced by accounts such as:

> *"... Going to the hospital is very important, but the problem is in the care. I can go to the hospital when I'm feeling unwell, call a nurse, and still not receive help. Few nurses actually help, and that's one of the reasons we don't go to the hospital..." (A victim's relative, Angónia)*
> *"...She had a normal delivery, it wasn't her first, and since we don't have a hospital nearby here, people give birth right here. And her death was due to the lack of postpartum care..." (A victim's relative, Doa)*

Discussion

Delayed seeking of maternal health services remains a problem in Tete Province, contributing to maternal mortality. Studies show that these findings are consistent with other

studies published in Sub-Saharan African countries.[15,16] Regarding the first delay, studies have shown that there are religious norms that discourage medical procedures, such as the use of medications, vaccines, and blood transfusions, affecting adherence to prenatal visits and vaccination campaigns. These results are similar to studies highlighting the role of religion in seeking care, depending on the principles and involvement of religious leaders.

In Mozambique, Agadjanian and Cau found that religious beliefs and social norms can influence the decision to seek health services.[17] In the context of East Africa, including Mozambique, a study shows that religious practices can act as barriers or facilitators.[17] The requirement for a male partner to be present and dependence on the family during the first prenatal visit reveal women's low autonomy, which is already linked to lower use of health services and contributes to delays in seeking care. Several studies reveal that, in low- and middle-income countries, social and cultural factors continue to sideline women in family decisions, including those regarding their own health.[15,18,19] Cultural barriers related to nurses' age and perceptions of a lack of experience have also emerged as determining factors, confirming that some older women are reluctant to receive care from young nurses, associating the age and experience of healthcare professionals with the quality of care. This perception reduces the demand for health services.[15] Economic and occupational factors, such as farming, are essential for survival, forcing women to remain in areas far from health units. Results from previous studies confirm that women engaged in agricultural work are less likely to begin prenatal care early.[18] Furthermore, poverty and direct and indirect costs, such as food and Transportation, are significant challenges.[8,20]

Regarding to the second delay, the study found that long distances, difficult access to roads, and a lack of transportation influence the use of health services. This finding is confirmed by several other studies, which indicate that the second delay is strongly influenced by geographic and structural barriers, with consensus regarding long distances,[21–25] although, in the context of a different healthcare system, a study conducted in the United States also shows that geographic inequalities in access to obstetric services remain a challenge to timely access to maternal care.[26] However, some of these articles also discuss the lack of community referrals, the absence of health units, and low income as factors contributing to the second delay,[21] which, according to the classic definition of delays, are considered components of the first delay, as they cause women to remain at home. On the other hand, improvements to the so-called "maternity waiting rooms" influence adherence to prenatal visits and are considered an intervention associated with reducing the second delay. In this study, so-called "maternity waiting rooms" were classified as part of the second delay, as they are directly related to access to health services, especially in areas where travel is difficult. However, it was observed that, even when available, these structures often have poor conditions, such as a lack of food, safety, and basic comfor, which limits their use.

Finally, the third delay, whereas the findings of this study reveal delays in care, mistreatment, and illegal fees charged by healthcare professionals, reasons that erode pregnant women's trust in the health units and lead them to opt for home births. Studies conducted at Maputo Central Hospital and in district hospitals throughout the province found reports of disrespectful treatment, such as humiliation, shouting, lack of privacy, abandonment during labor, and the performance of procedures without consent.[27] Similar findings have been observed in different regions of sub-Saharan Africa, including West Africa, where disrespectful practices, such as psychological and physical violence and illegal fees, negatively affect women during childbirth in health units.[16,28,29] Studies conducted with health professionals indicate that these practices are related to overwork and a lack of resources in the health units, showing that measures should include courtesy training, increased staffing, and infrastructure improvements.[30,31]

Another crucial aspect is the lack of adequate support, including the so-called "maternity waiting rooms" for pregnant women. Even when such structures exist, they are often in poor condition, lacking food, privacy, and security, which discourages their use. Studies conducted in various African countries have found that the so-called "maternity waiting rooms" can reduce maternal and perinatal mortality, but only when they provide minimal conditions of comfort and logistical support.[32]

The findings of this study reveal limitations in the information regarding women's knowledge of warning signs during pregnancy and the postpartum period, as well as regarding prenatal visits and childbirth at the health units.

Furthermore, although 21 health areas were initially selected, only 18 could be reached due to adverse weather conditions, particularly heavy rains and deteriorated access to roads, which may have limited the scope of the data.

We also acknowledge the possibility of response bias in the focus group discussions, as participants may have been influenced by recent experiences or group dynamics.

Another relevant aspect concerns the age range of the 41 participants, which ranged from 34 to 65 years, with no younger individuals included. This finding may be related to the composition of the groups included in the study, which consisted predominantly of community leaders, traditional midwives, and other community health workers with greater experience in the communities.

On the other hand, positive aspects were identified, such as situations in which Multipurpose Health Agents, traditional midwives, community leaders, and the community health committees demonstrated knowledge that Health Units are appropriate settings for providing care to pregnant women; and they also understand the existence of Ministry of Health (MISAU) regulations that limit childbirth care at the community level. Additionally, motivational experiences were reported that improved pregnant women's adherence to Multipurpose Health Agents he so-called "maternity waiting rooms", such as the existence of a o-called "farming hospital" so that pregnant women can use to prepare their own food; although this finding was not prevalent in other health units, but it constitutes as an important fact.

The results of this study show that the three delays continue to pose a significant challenge to reduce maternal mortality in Tete Province. The first delay primarily reflects sociocultural influences and limitations on women's autonomy; the second is related to geographical and structural access difficulties; and the third highlights weaknesses in the quality and humanization of care.

Therefore, it is essential to strengthen strategies that promote community education and expand access to health services and improve the quality of care provided, which can guide community- and institution-based strategies with the potential to reduce barriers associated with maternal mortality.

Limitations

Data saturation was assessed globally, considering all participating groups together, rather than separately by category. Thus, it is not possible to ensure saturation in subgroups with fewer interviews, particularly among relatives of deceased women, who were represented by only three individual interviews.

No field notes were taken, and the transcripts were not returned to participants for validation of the findings, which may limit the reliability and confirmability of the qualitative interpretation.

It was found that the sociocultural organization of the family constituted a limitation in the districts of Tsangano, Angónia, and Macanga; since these are matrilineal families, in cases of widowhood the surviving spouse returns to their family of origin, making it difficult to locate them. The seasonal and cross-border mobility of traditional midwives, and community leaders, since the selected areas for the study are close to the borders, combined with geographical access challenges in the areas of study, also constituted a limitation for this study, given that the districts such as Doa and Mutarara, where the community depends on agriculture and livestock for subsistence, see residents moving to more remote areas during certain periods of droughts or shortages of natural resources are common.

In addition to climatic factors, there were other constraints: in the districts of Macanga and Tsangano, due to the degradation and erosion of access to roads during the rainy season, made it impossible to reach selected areas of study. Additionally, the temporary absence of Basic Multipurpose Health Agents, due to training and technical courses organized by the health services, lasting between three and six months, emerged as a limitation for this study.

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Authors' contribution

Monteiro MHP: led the implementation of the study, coordinated data collection, and participated in the analysis and drafting of the manuscript.

Ibrahim ZA: contributed to the implementation, data analysis, and drafting of the manuscript.

Osman ND: provided technical support and contributed to the data analysis and revision of the manuscript.

Mugaua NJE: provided technical and scientific support, supervised data collection, and contributed to the analysis and drafting of the manuscript.

All authors approved the final version of the article and declare no conflict of interest.

Data availability

The data used and analyzed in this study are available upon request to the authors, in accordance with ethical standards and ensuring the confidentiality of the participants. During the storage process, the data did not contain any identifying information that would allow for the identification of participants. Each transcribed interview was coded so that it could not be linked to the individual's name, except by the research team. The information entered into the database was treated confidentially, and access was limited to authorized individuals.

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