



“It is because the treatment of this lady is a cascade”: Accumulation of delays and the occurrence of obstetric emergencies in an urban maternity unit in Tanzania

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ABSTRACT

Objective: To explore healthcare workers' and women's experiences of providing and seeking childbirth care in a busy urban maternity facility in Tanzania.

Design: A qualitative study with observations, in-depth interviews, and informal conversations, using thematic network analysis.

Setting: This study was conducted in a busy urban maternity unit in Dar es Salaam, Tanzania which is a low-resource setting with a need to improve childbirth care.

Participants: Six frontline healthcare providers and four hospital managers from the facility, along with six postpartum women who gave birth at the facility.

Findings: Delays were observed throughout the childbirth care cascade, encompassing various stages. During antenatal care, timely provision of care was hindered by a high patient-to-provider ratio, resulting in inadequate monitoring of risk factors. At the onset of labor, women delayed seeking care, sometimes, attempting a trial of labor after a previous Caesarean section. Within the facility, delays in care decision-making and patient management were evident due to insufficient resources. The accumulation of these delays over time influenced the quality of care provided and challenged the management of obstetric emergencies at the study facility.

Key conclusions: The study findings show that delays are prevalent throughout the entire childbirth care cascade. The accumulation of these delays over time has influenced the quality of care provided at the facility and increased the vulnerability of women experiencing obstetric emergencies. To effectively address the imperative of reducing maternal mortality in low-resource settings, it is essential to develop appropriate interventions that span the entire spectrum of childbirth care. Additionally, further research is needed to delve into the complexities of care decision-making and the quality of care delivered within urban maternal facilities.

Implications for practice: Our findings stress the need for comprehensive childbirth interventions and context-specific guidelines to address challenges across the care cascade, particularly in low-resource settings. Urgent attention is required to prioritize care during patient triage and address systemic challenges within the health-care system to improve birth outcomes and ensure effective facility-based care provision.

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Introduction

Over the past few decades, women's utilization of facility-based healthcare during pregnancy and childbirth in lower-middle-income

countries (LMICs) has increased remarkably (Doctor et al., 2018). Yet, “getting there is not enough”; often resources allocated to health facilities are insufficient thus compromising the quality of care (Knight et al., 2013). This is particularly concerning in big cities in African countries

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with high fertility rates and a growing urban population. In Tanzania, the inability of health and social services to catch up with the rapidly growing urban population in recent years has led to an emerging urban disadvantage in health (Matthews et al., 2010; Norris et al., 2022). Tanzania has one of the world’s highest maternal and neonatal mortality rates (MMR and NMR) currently at 238 per 100,000 and 20 per 1000 respectively with recent data showing that urban areas exhibit higher rates than rural areas (Norris et al., 2022; World Health Organization 2023). Data suggest a trend toward this disproportion in several other African countries, and Tanzania might signal a shift in urban versus rural patterns of risk (Norris et al., 2022).

In Tanzania, many maternal and perinatal deaths in facilities are caused by direct obstetric emergencies, mainly hemorrhage, hypertensive disorders, obstructed labor, and sepsis (Khan et al., 2006). Until now, efforts to save lives have primarily focused on addressing direct biological causes through biomedical initiatives such as the introduction of emergency obstetric and newborn care (EmONC) in health facilities (Bintabara et al., 2019). However, addressing biomedical causes is insufficient to achieve national and global targets for reducing maternal deaths. The complex accumulation of delays along the childbirth care cascade is an important contributor to the context of obstetric emergencies in LMICs, and real improvements need in-depth understanding of this phenomenon. Historical evidence from high-income countries shows that death declined due to complex changes at multiple medical, social, and political levels (Loudon, 1986).

The three-delay model by Thaddeus and Maine, elaborated on barriers to adequate care that contribute to the context of maternal mortality in facilities in LMICs (Thaddeus and Maine, 1994). With a pre-understanding of how urban women had an urban advantage in health care due to closer proximity to health facilities, this model primarily focused on rural women. The model presents three types of delays: delays in seeking care in a facility (first delay), delays in identifying and reaching the facility (second delay), and delays in accessing adequate care in the facility (third delay) (Thaddeus and Maine, 1994).

This paper explores how care providers’ and women’s experiences account for a broader set of social factors contributing to delays during childbirth care in a busy maternity unit in the second fastest growing city in the world. We expand on Thaddeus and Maine’s model, elaborating on five delays in urban maternity care and illustrating how the accumulation of delays contributes to the context of obstetric emergencies (Fig. 1). We also argue, in support of others (Norris et al., 2022), that urban women in LMICs are increasingly disadvantaged.

Statement of significance

Problem or issue	What is already known	What this paper adds
Childbirth care in urban areas in LMICs is challenging due to the mismatch between health services and the growing population. Addressing biomedical causes alone cannot achieve maternal mortality reduction goals; comprehending the complex delays in the care cascade is crucial.	Delays in seeking care, reaching the facility, and receiving adequate care at facilities have been associated with poor childbirth care and the onset of obstetric emergencies among laboring women.	Delays during antenatal care and delays within the referral system also contribute to the onset of obstetric emergencies among laboring women. More importantly, the accumulation of delays across the care cascade affects timeliness and quality of care and could increase the likelihood of obstetric emergencies.

Methods

This qualitative study forms part of a larger mixed-methods study (the ‘PartoMa project’), which aims to improve childbirth care in Tanzania through co-creation of context-specific intrapartum clinical guidelines with low dose, high frequency training (Sørensen et al., 2022; Maaløe et al., 2022). PartoMa is a clinical trial (reg. number NCT04685668) being implemented in five large maternity hospitals in Dar es Salaam, Tanzania. The main outcome of interest for this trial is intrahospital stillbirths.

The material presented in this article originates from PartoMa’s situational analysis, exploring the context of childbirth care in the study facilities to inform guideline adaptation (Sørensen et al., 2022; Maaløe et al., 2022). The aim of the situational analysis was to investigate the daily practices of childbirth care, structures enabling or hindering care, and possible engagement with the adapted PartoMa guidelines in one of the study facilities. The qualitative component of the situation analysis employed an ethnographic approach that was considered most appropriate for exploring how childbirth care is practiced in its natural setting, factors influencing care practices, and the social interactions between women and healthcare providers (Long et al., 2008). Ethnography allowed observation of care conditions and interactions between healthcare workers, managers, and women, and exploration of personal experiences of providing and receiving care within the facility.

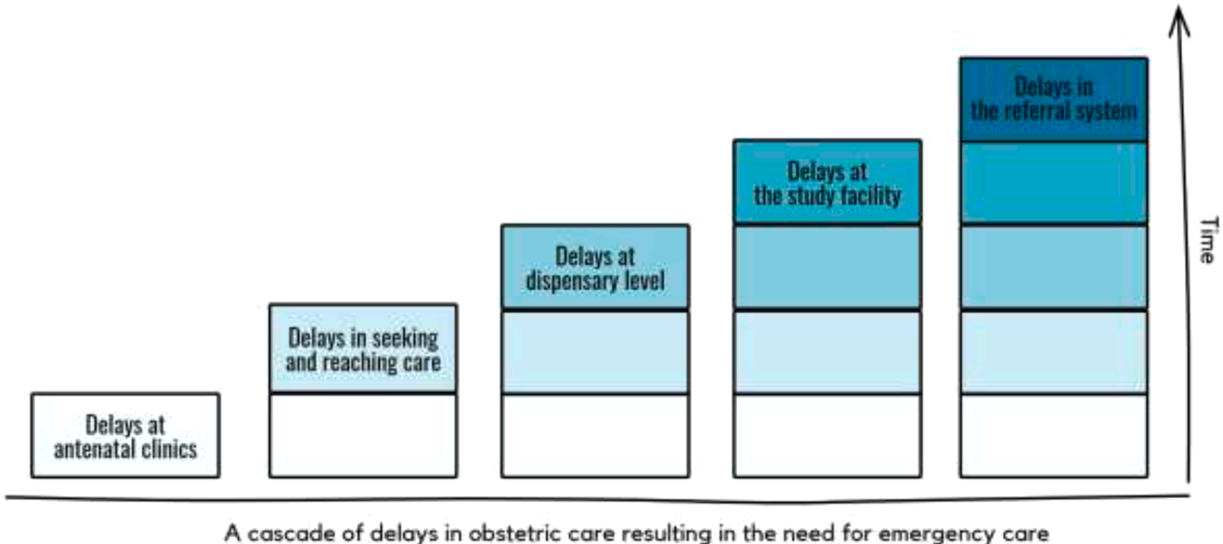


Fig. 1. Accumulation of delays across the care cascade.

Study setting

This study was conducted in one of the busiest maternity units in Dar es Salaam, located in Temeke district. The facility provides antenatal, intrapartum, and postpartum care, of which we focused on intrapartum and immediate postpartum care provided. The facility assists around 10,000 births annually, the highest in Dar es Salaam since 2020. Births increased significantly during the COVID-19 pandemic after another high-volume public maternity unit, Amana Regional Referral Hospital, was converted into a COVID-19 treatment center in April 2020 (Centers for Disease Control and Prevention, 2022).

The study facility was planned as a health center but was declared a hospital by the President in 2013 mainly due to its high patient volume. Care providers included nurse-midwives and doctors. Nurse-midwives were two cadres: enrolled nurses (EN) and registered nurses (RN). Doctors included medical doctors (MDs), assistant medical officers, and two obstetrician-gynecologists. The maternity ward receives women who come for walk-in births and referrals from 24 dispensaries. In 2020, the ward admitted approximately 28 women per day and assisted approximately 25 births daily. One nurse-midwife simultaneously took care of up to five women during the first stage of labor, some needing close monitoring. In the labor room, one nurse-midwife usually assisted two women pushing simultaneously. The physical space in the ward is modest (see Appendix 1). The ward was divided into five sections: the admission area, a room for women in the first stage of labor, the labor room, a small post-vaginal birth recovery area, and one theatre for Caesarean section (C-section). The labor room accommodated two women simultaneously. When the labor room was full, births were assisted in the room for first stage of labor, where sometimes, two to three women shared beds. There were three small postnatal wards; one for vaginal births, one for C-section recovery, and one for C-section post-recovery. At the ward entrance was a small waiting area and a nurse's station.

Sampling and recruitment

To select the study site, all five study sites were visited to gain an overview of the setting and the staff. The study facility was selected purposively based on the staff's interest in the study topic and willingness to share their experiences of providing care. This facility was smaller, simplifying observation of various care points compared to other study sites.

Purposive sampling was also used to select participants for in-depth interviews. Participants included nurse-midwives, medical doctors, and obstetric gynecologists at the facility providing childbirth care during the study period. Health managers working closely with the maternity ward were also eligible. For participant variation, HO took note of potential participants based on age, gender, clinical training, and clinical experience during ward observations. HO consulted the doctor in charge to learn about staff clinical experience, and leadership roles allowing a wider range of participants. Potential participants were approached and those willing to participate were invited for an interview at their convenience.

For postpartum women, the inclusion criteria were women who had recently given birth in the facility, were recovering well and had not yet been discharged. Before approaching women, HO was first introduced by the nurse in charge. Afterward, she briefly introduced the study and asked if any women were interested in participating. Women who expressed interest were approached, provided with further information, and read the consent form alongside the researcher. If they agreed to participate, an interview was scheduled.

Data collection

Data were collected between April 6th and July 2nd, 2021, with 30 periods of observation. Participant observations were conducted first to

understand daily activities in the ward. Observations were 4 to 8 h a day with hourly breaks. An observation guide was used to help structure what, who, and when to observe (Appendix 2). Observations were conducted during morning, afternoon, and night shifts to explore how care differed over time. Observations were of how women were received upon arrival, the admission process, care before, during, and after labor, how staff cared for and interacted with women, and how each group interacted with one another. Observations were also conducted in the recovery and postnatal wards. Informal conversations were conducted with staff to build rapport and inquire about observations. Notes were taken during observations and expanded afterwards. Daily notes averaged 2.5 pages (single-spaced) totaling 88 pages.

Five care providers and four hospital managers were interviewed. Interviews were conducted after shifts to prevent interference with care responsibilities. A private room in the hospital was used and interviews were 50 to 90 min. Six postpartum women were interviewed. Interviews with women took 15 to 25 min and took place in the postnatal waiting area where there was enough privacy and space. Semi-structured interview guides were used for each group (Appendices 3,4,5). All interviews were conducted by HO, a native Kiswahili speaker with training in qualitative methods. Tables 1–3 show participant demographics. Table 4

Data processing and analysis

All interviews were audio recorded upon participant consent. Two native speakers transcribed audio recordings verbatim into Kiswahili. Transcripts and notes were uploaded and coded on Nvivo 12 (QSR International Pty Ltd, 2019). Throughout data collection and analysis, the authors discussed the findings and core emerging themes. Data were coded using the thematic network analysis approach (Attride-Stirling, 2001). First, all transcripts and notes were read multiple times to gain familiarity with the data. Codes were then developed according to prominent themes in the data which focused on delays in the care cascade and provision of emergency obstetric care in the facility. Codes were reviewed for patterns and grouped into basic themes grasping the important concepts regarding care provision at the facility. Basic themes were then clustered into overarching themes, forming organizing themes. Five main organizing themes were developed; delays during antenatal care (ANC), delays in seeking and reaching the facility, delays at dispensary level, delays in the referral system, and delays in women's management in the study facility. Collectively, these organizing themes formed the global theme of barriers to care provision at the study facility. The Standards for Reporting Qualitative Research tool (SRQR) was used to report methodology and findings (O'Brien et al., 2014).

Rigor

The researcher enhanced the rigor of the data by engaging reflexively with her own position (as a woman who has experienced hospital birth, and as a researcher) during data generation and how she influenced data collection and analysis. Early on, it was evident that observations could influence care practices, however, the researcher's presence was likely of little significance in the face of the more pressing issues caused by the lack of resources needed for care. To enrich the data, observations, casual conversations, and interviews were triangulated to understand the

Table 1
Participant demographics for healthcare workers.

ID	Position	Age	Gender	Duration of employment (yrs)
1	Doctor	30	F	1
2	Nurse-midwife	56	F	11
3	Nurse-midwife	29	F	2
4	Nurse-midwife	26	M	1.5
5	Nurse-midwife	28	M	2

Table 2

Participant demographics for hospital managers.

ID	Position	Age	Gender	Duration of employment (yrs)
1	Head of Department	41	F	4
2	Doctor in charge	30	M	3
3	Matron	49	F	8
4	Nurse in charge	35	F	3

Table 3

Participant demographics for postpartum women.

ID	Occupation	Age	Birth	No. of children
1	Homemaker	21	VD	1
2	Entrepreneur	20	VD	1
3	Hairstylist	21	C-Section	1
4	Entrepreneur	28	C-Section	3
5	Entrepreneur	30	VD	3
6	Tailor	28	VD	2

overall narrative of care in the facility. To crosscheck the analysis and interpretation, member checks were conducted via phone with four of the six interview participants to share the generated themes. No additional revisions were suggested.

Ethical approval

We obtained ethical clearance from the National Institute for Medical Research in Tanzania (reference number: NIMR/HQ/R.8a/Vol. IX/3324, NIMR/HQ/R.8c/Vol. I/1679, NIMR/HQ/R.8c/Vol. I/926) and a research permit from the Tanzanian Commission of Science and Technology (COSTECH). Permissions to conduct the study were obtained from the regional medical officer and facility leadership. The hospital leadership and maternity ward staff were notified about the study. All interview participants provided verbal and written informed consent.

Results

‘The challenge we have is like what I said, it is because the treatment of this lady is a cascade.’ (Hospital manager, female)

Intrapartum care and the risk of obstetric emergencies were influenced by delays throughout the care cascade, from ANC to postpartum. This layering of delays resulted from numerous underlying social and organizational factors persisting throughout the care cascade. We discuss five delays occurring across the care cascade and how they were perceived by different actors. Our data and analyses did not aim to measure the length of delays. Instead, we focus on how healthcare workers, managers, and postpartum women experienced delays and how they believed delays impacted timely and quality care.

Delays in antenatal clinics

Care providers shared that ANC was not provided timely and adequately for pregnant women. ANC clinics had an overwhelming number of women seeking care from one provider with the expectation of one-on-one interaction with the provider. This forced women to wait in long queues, have limited time with providers, and often be too tired and stressed to grasp important health information:

‘They [antenatal clinics] also have a lot of patients. They [patients] are many, they reach up to 80 [women] a day, they are many. Even when women sit there and wait, they get tired, so when they go to the nurse-midwife and are told the ABCs, I do not think if they keep them in mind...’ (Nurse-midwife, female)

Failing to grasp information during care meant that women missed out on knowledge of danger signs and risk factors for obstetric

Table 4

Thematic network (from codes to global theme).

Code	Basic theme	Organizing theme	Global theme
- Crowded ANC clinics	1. Women wait a long time to receive care at ANC, are too tired once they reach a provider and miss out on ANC education	Delays and poor care at antenatal care	Explaining delays: Health system
- Few care providers	2. ANC clinics do not adequately prepare women for labor		Barriers to the provision of timely and quality childbirth care at the study facility
- Women too tired during visits			
- Women miss out on important knowledge			
- Poor blood pressure monitoring			
- Lack of proper medication	1. Women think pregnancy is normal and no need to go to the facility	Delays in seeking and reaching the facility	
- Women think pregnancy is normal	2. Women purposely delay seeking care to avoid elective C-section		
- Women seek care but delay	3. Road construction led to transport delays causing late arrival at the facility		
- Women avoid elective Caesarean section			
- Family, peers encourage women to delay care seeking			
- Long-term road construction			
- Few care providers	1. Poor care at dispensaries	Delays and poor care at the dispensary level	
- Late detection of risk factors	2. Women at dispensaries are referred when they are in critical condition		
- Late referral for very sick women and babies	3. Referrals occur after women suffer complications		
- Poor documentation of women's history at arrival			
- Too many patients	1. High demand for care with few resources	Delays and poor care at the study facility	
- Too few staff	2. Late diagnosis of critical patients		
- Long time to assess patients	3. Misdiagnosis leading to the wrong management		
- Long time to decide on care	4. Delayed management of patients		
- Long time to manage patients			
- Poor interpretation of vitals			
- Incorrect indication for CS			
- Too few emergency vehicles	1. Lack of resources to support referral transfers	Referral delays	
- Long distance	2. Delays in making referrals for sick women		
- Too long to refer women	3. Long time spent during transfers due to distance and traffic		
- Rejected referrals due to congestion at next facility			
- Road construction			

complications. There was also poor monitoring to detect risk factors for potential complications, which delayed diagnosis and prevention of potential complications. ANC required routine check-ups of blood pressure (BP), weight, temperature and other physical inspections for mother and baby. However, care providers in the study facility mentioned poor BP monitoring as the most common oversight during ANC. Consequently, women who experienced severe hypertensive disorders of pregnancy often had no prior indication in their ANC records:

"It often happens here that a patient has high blood pressure but the [antenatal] clinic records show normal blood pressure throughout. You must put a question mark there...Why wasn't this thing seen from the [antenatal] clinic?" (Nurse-midwife, female).

Delays in seeking care and reaching the facility

Care providers believed women considered pregnancy as a "normal" process whereas they believed pregnancy has changed over the years and is associated with more risks:

"...other [women] might be told something and they ignore it...they take it as if giving birth is something [normal], like, 'my grandmother gave birth just fine'... [it is] something we are used to, it is something normal, so-and-so gave birth just fine...but life is changing." (Nurse-midwife, male)

Healthcare workers noted that generally, women were encouraged to seek care early when they went into labor however, women's perceptions about pregnancy as a normal process likely influenced care-seeking decisions. One woman who had an unforeseen complication during birth waited six hours before going to the facility:

My water broke at home, I woke up at 6 in the morning and I was just observing what was happening. I saw water coming out but did not feel contractions, so I continued to stay at home until 12pm. (Postpartum woman, C-section)

Yet, women's voices on causes for delays in admissions were more complex. For instance, women who previously gave birth by C-section purposely delayed seeking care at birth. If they had already progressed in labor when reaching the facility, they hoped to get an opportunity for a trial of labor after C-section (TOLAC) instead of another C-section. If not already far in labor, TOLAC was discouraged by care providers. Likewise, care providers shared that, sometimes, family or peers convinced women to delay seeking care so that they are allowed to try TOLAC:

'[Women with previous C-section] choose to wait at home until labor becomes more intense [because] they expect to deliver normally. [We say] when you see that you have a scar, don't wait for labor pains, if you wait for labor pains it could happen that you get a uterine rupture, and when you get a uterine rupture, you could die...' (Nurse-midwife, male).

Additionally, ongoing road constructions in the area also likely influenced transport delays, further delaying women's arrival at the facility.

Delays at dispensary level

The growth of dispensaries around the study area helped decongest crowded referral facilities. During ANC, women without underlying risk factors were encouraged to first seek care in dispensaries. However, dispensaries also faced challenges with care provision where detection of risk factors and care decision-making was often delayed:

'Women start care at the dispensary level, so you find that, when a woman is at the dispensary, she may have a risk factor that requires her to be attended to early, before she goes into labor.' (Hospital manager, female)

Consequently, women did not receive timely referrals and arrived in the study facility in critical condition, needing immediate action from already overwhelmed care providers. One nurse-midwife explained:

'Yes, we receive [women] here when their babies are already [in fetal distress]. I think it is a matter of speaking to nearby facilities [and tell them that] if they see a case that they cannot handle [they should act early] – because a good star is seen in the morning. You can tell when a case [is difficult], you have assessed a woman the first time she is 4 cm dilated, second time she is 4 cm dilated, then you should act right

there so that later it does not become a problem for us.' (Nurse-midwife, female)

A woman who sought childbirth care at a dispensary started bleeding around 10.30am. Despite the staff acknowledging this emergency, she was referred two hours later.

Delays at the study facility

At the study facility, the disproportion between the volume of laboring women and resources for care led to delays in care decision-making. Aside from caring for women referred from 24 dispensaries in the area, the study facility's central location made it easily accessible by local transport. Although women were encouraged to first seek care in lower-level facilities, many chose to bypass dispensaries and go straight to the referral facility.

Due to the high demand for care and provider-to-woman ratio, admission, evaluation, and care decision-making were prolonged. An experienced nurse-midwife explained:

"The problem is...the number of patients, the truth is, this causes there to be a delay in making decisions..." (Nurse-midwife, female).

Depending on the woman's condition and the midwife's experience, care providers would often attempt to predict whether they thought a woman would have a natural birth or if she required a C-section. When these debates were unresolved, some nurse-midwives argued that doctors, who had the final say, left the woman waiting for too long while attending to others. By the time a decision was made, it would be too late, or when the woman had already suffered a complication.

"You keep observing the patient and see [there is] no improvement. You go to the doctor again either the previous one or another one and it is the same thing, the doctor says, she will deliver [normally], she will deliver. So, it could go on like that and in the end, the woman loses the baby..." (Nurse-midwife, female)

Besides late diagnoses, sometimes incorrect diagnoses were made which challenged care provision. While discussing management of complications, one hospital manager shared:

"So, we have taught [the staff] management of all labor ward complications but also, we have given them materials. Our biggest challenge is when there is a misdiagnosis. That is where there is a challenge..." (Hospital manager, female)

Incorrect diagnoses often occurred when care providers were unable to interpret vital signs. This could lead a woman to receive incorrect care and delayed management. On three separate occasions women were observed being returned to the ward from the theatre because the surgeon recognized an incorrect diagnosis or the wrong indication for C-section. After further investigation, all three cases were confirmed as incorrect diagnoses of varying conditions mainly due to poor patient examination, monitoring, or interpretation of vitals.

Delays in management also occurred when referral patients from dispensaries were received but could not obtain immediate care despite being in critical condition. This was common for women who needed an emergency C-section when the theatre was busy. One postpartum woman shared:

'I got here at around 1pm and around the same time, I was checked by different doctors. So, the last [doctor who assessed me] then said no, we cannot make her wait, we must operate because the baby is not descending, and she is bleeding a lot. So, I was taken for operation. They started operating on me at around 4pm.' (Post-partum woman, C-section)

The shortage of staff in the ward hindered timely care, particularly on days with numerous emergencies. It resulted in slow or no response from other staff during emergency calls for help. This made care

providers feel helpless during management of complications.

'For example, you know how the labor ward is, there is so much going on there if you do not get [any] cooperation you [could] get a complication. Maybe you say you have an emergency and you do not get any cooperation; you must feel sorry because you will feel that when you do not have any help, the possibility of saving a woman and her baby is small...' (Nurse-midwife and hospital manager, female)

Care providers shared that this occurred because other staff members were attending to other women or ongoing emergencies. Other times, staff members were available but did not respond because they were engaged in other tasks that did not involve direct care, for example, documentation. The provider needing assistance would then continue with solo management until help was available. Other delays in care provision were due to the absence of important materials such as blood, forcing staff to wait until the materials were available to proceed with care.

Delays in the referral system

Referrals between different levels of the health system were another source of delays. Women referred to the facility were those with pre-eclampsia, eclampsia, three previous scars, pre-term labor, antepartum hemorrhage (APH), intrauterine growth restriction (IGR), premature rupture of membranes (PROM), and asthma. Before referral, doctors called the next-level facility to confirm their ability to receive new women. Referrals were sometimes rejected due to congestion or absence of medical materials. Staff then had to either attempt to manage the woman within the facility or refer them elsewhere. Care provision challenges, therefore, did not end in the study facility but transcended to other facilities within the care cascade. Furthermore, there were too few vehicles, and often none were urgently available, which was further complicated by ongoing road constructions:

'The main issue with the referral system is the vehicles because sometimes there are few. You may get one vehicle here at this time which goes from here to Muhimbili. What time do you think it would be back? How many hours on the road, plus traffic?' (Hospital manager, female).

Sometimes, women had to wait up to two hours for transportation. During multiple referrals, women in critical condition were transferred first while others waited for the following vehicle – yet, due to suboptimal surveillance at the facilities, such priorities were not always sufficiently thought through.

Discussion

Tanzania is the first African country where data indicates significantly higher neonatal mortality in urban versus rural areas (Norris et al., 2022). This may signal a shift in other African countries, and understanding its unique context is crucial. Yet, qualitative studies to assist in unfolding urban delays remain scarce. We hope this paper will contribute to understanding how delays accumulate and affect care to an extent where closer proximity to healthcare facilities is no longer an advantage. We share perspectives from care providers and postpartum women on delays and their effects on quality of childbirth care, particularly, during obstetric emergencies. During ANC, women did not receive timely care and had insufficient time with providers. Care seeking, care decision-making and management were delayed. Transfers were time-consuming and there was delayed identification and management of complications in the referral facilities. We expand on the three-delay model and discuss five delays within the childbirth care cascade as they were perceived to occur and affect timely and quality care within one referral facility.

We found that the onset of facility-based delays was traced back to ANC. Although the three delays model addresses shortcomings in facility-based care (delay 3), it does not discuss challenges during ANC

and implications for emergency obstetric care. Proper ANC facilitates use of emergency obstetric care among women however, resource deficiencies limit these benefits (Rööst et al., 2010). Studies from similar contexts report similar findings where women who attended ANC lacked knowledge of pregnancy danger signs and care providers reported poor blood pressure monitoring (Pembe et al., 2010; Urassa et al., 2003). ANC is an important entry point for women into facility-based care and needs better utilization for early detection and prevention of potential complications during childbirth.

Delays in deciding to seek and reach health facilities (first and second phase delays) have been widely researched in low-resource settings. However, less is known about facility-based delays particularly, causes of delays in care decision-making (Knight et al., 2013; Cavallaro and Marchant, 2013). We observed that resource shortages and limited skills among healthcare providers impacted the timeliness and appropriateness of care decisions, resulting in delayed diagnosis and management. Reviews of facility-based delays also associate delays with resource shortages and provider incompetence (Knight et al., 2013; Guna-wardena et al., 2018). In LMICs, care management is also challenged by unachievable clinical practice guidelines which do not recognize the realities of low-resource facilities which hinders care decision-making (Maaløe et al., 2021).

As women moved from one point of care to another, they migrated with the penalties of delays from previous points of care. Consequently, accumulation of delays was more complex in referral facilities. This is also not reflected in Thaddeus and Maine's delay model. Care providers in referral facilities carry the burden of multiple penalties from delays from previous points of care. Our finding of five delays within a single healthcare facility highlights how health system weaknesses in one stage of the care cascade can have a ripple effect on care delivery throughout the entire continuum. Furthermore, it illustrates how organizational obstacles within healthcare facilities go beyond individual health seeking behaviors among women. Facility-based delays in LMICs are significantly associated with severe maternal outcomes among women who suffer complications (Said et al., 2020). Delays also affect birth outcomes among babies. While sepsis and birth asphyxia are leading causes of neonatal deaths, evidence shows that delays in seeking care for sick newborns and receiving quality care at health facilities are significant contributors (Waiswa et al., 2010; Mbaruku et al., 2009). In numerous African countries, neonatal deaths in urban areas have increased and in Tanzania, rates are significantly higher compared to rural areas (Norris et al., 2022). This shift reflects poor quality of facility-based childbirth care and the challenging socio-economic and living conditions of urban residents (Matthews et al., 2010; Norris et al., 2022). Our findings illustrate how numerous delays from preceding points of care play part in creating conditions for poor maternal outcomes in urban referral facilities (Pacagnella et al., 2012). Aside from facility-based interventions, addressing inequalities and social determinants of health in urban areas in LMICs is urgently needed (Matthews et al., 2010).

Delays in care-seeking among women, both for ANC and childbirth, have been widely studied to determine strategies to increase facility care (Warri and George, 2020). Women's view of pregnancy as a normal process as opposed to a medical condition likely influences decision-making for care-seeking (Warri and George, 2020; Callaghan, 1993). Healthcare providers' opposing perspectives are likely informed by the increasing medicalization of childbirth in LMICs which has improved and emphasizes detection of maternal morbidity compared to the past (Chaves S da et al., 2015). In a country with a high rate of maternal death, the assumption that pregnancy is normal seems contradictory. However, high facility-based maternal deaths, disrespectful care, and poor facility-based care may contribute to women feeling powerless and fearful (Mselle et al., 2019; Bradley et al., 2015). These structural limitations in the healthcare system might give the impression that women's childbirth experiences and outcomes are not within their control leading to care-seeking delays (Lavender et al., 2020).

Alternatively, delays in care-seeking can also result from economic constraints and women's limited decision-making power during childbirth (Shah et al., 2020). Our finding that some women delayed seeking care for a chance at TOLAC highlights how some women try to evade facility-based delays and possibly, risks associated with C-section birth (Sobhy et al., 2019). Although women's choice of TOLAC is attributed to various reasons, this finding demonstrates women's strategies to navigate the health system to reduce hospital stays, C-section recovery, and other socioeconomic costs (Sindiani et al., 2020; Litorp et al., 2015). Despite perceived benefits, these strategies can negatively impact care and childbirth outcomes.

Strengths, limitations, and future research

This study took place in one urban referral maternity facility which often handles emergency cases. We share findings that expand on the three delays model by highlighting delays occurring at ANC and within the referral system. More importantly, our findings illustrate the importance of the ripple effect of delays throughout the care continuum. A strength of the ethnographic approach is that it allowed an in-depth understanding of care within the facility and the triangulation of different data sources. However, findings from this study may not be representative of other facilities within Tanzania or other LMICs. Additionally, while we highlight delays in other points of care, delays occurring beyond the facility could not be explored further due to resource constraints. Only a few, brief interviews were conducted with postpartum women because they were still in recovery and at times, the hospital environment was uncondusive. Additional insights from postpartum women could offer richer information on perceptions of childbirth, risks, specific health needs and decision-making for care-seeking among urban women. To enhance urban policies and programs, there is a need to explore the capacity and quality of care in lower-level maternity facilities and better understand intersections between maternal and urban health. Lastly, understanding care decision-making during emergencies in urban settings and their impact on care and birth outcomes is crucial.

Implications for policy, practice, and guideline adaptation

Our findings highlight the importance of childbirth interventions throughout the care cascade to address the various unique systemic challenges. Lack of guidance on clinical decision-making during childbirth care in LMICs remains a challenge. Thoughtful consideration and tailoring of guidance to aid healthcare workers in prioritizing care during patient triage are urgently needed. Efforts to co-create achievable, context-specific clinical guidelines are necessary to ensure better birth outcomes. While PartoMa addresses childbirth care, these findings also emphasize the need for context-specific guidelines for antenatal, postpartum, and neonatal care. Additionally, systemic challenges that persist within the health system mainly, the quantity and quality of the healthcare workforce, supply of medical materials, and other resources for facility-based care provision must also be addressed.

Conclusions

Perspectives from care providers and postpartum women highlight consistent and accumulated delays in childbirth care. We found that the accumulation of delays over time was perceived to impact timeliness and quality of care, heightening the demand for obstetric emergencies in an urban low-resource setting. To reduce maternal morbidity and death, interventions for improving the quality of childbirth care must be implemented along the care cascade to address causes of delays. For Tanzania and beyond, this paper's insights into the accumulation of delays in urban maternity care is paramount in illuminating intersections between maternal and urban health and for tailoring effective interventions along the childbirth care cascade.

Research data for this article

The datasets generated and analyzed during the current study are not publicly available because study participants did not consent to share their information publicly. Data summaries are available from the corresponding author on reasonable request.

Ethical approval

This study obtained ethical clearance from the National Institute for Medical Research in Tanzania (reference number: NIMR/HQ/R.8a/Vol. IX/3324, NIMR/HQ/R.8c/Vol. I/1679, NIMR/HQ/R.8c/Vol. I/926) and a research permit from the Tanzanian Commission of Science and Technology (COSTECH). Permission to conduct the study was obtained from the office of the regional medical officer and facility leadership. The hospital leadership and maternity ward staff were notified about the study. All interview participants provided verbal and written informed consent.

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CRediT authorship contribution statement

Haika Osaki: Conceptualization, Data curation, Writing – original draft, Formal analysis. **Jane Brandt Sørensen:** Conceptualization, Data curation, Formal analysis, Writing – review & editing, Writing – original draft. **Nanna Maaløe:** Conceptualization, Data curation, Formal analysis. **Columba Mbekenga:** Conceptualization, Formal analysis, Data curation, Writing – review & editing, Writing – original draft. **Morten Skovdal:** Conceptualization, Data curation, Formal analysis, Writing – review & editing, Writing – original draft.

Declaration of competing interest

None declared.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.midw.2024.103926](https://doi.org/10.1016/j.midw.2024.103926).

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