

Tracing pathways to adverse pregnancy outcomes in eastern Uganda: A retrospective analysis of contributing factors

Doris Kwesiga Kambugyiro

dkambugyiro@aphrc.org

African Population and Health Research Center

Faith Chesire

African Population and Health Research Center

Martin Kasendwa

Babies and Mothers Alive

Bonnie Wandera

African Population and Health Research Center

Phillip Wanduru

Makerere University

Vincent Were

African Population and Health Research Center

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Abstract

Background

Adverse pregnancy outcomes (APOs) remain high in Sub-Saharan Africa. These include miscarriages, stillbirths and newborn deaths. Uganda's neonatal mortality rate is approximately 21.3 per 1,000 live births, with a stillbirth rate of 24.4 per 1,000 total births. This is despite global and national guidelines, plus targeted programs to reduce mortality. This study identified pathways to occurrence of APOs and contributing factors amongst mothers and fathers who experienced them in eastern Uganda.

Methods

A secondary analysis of qualitative data was conducted between 2025 and 2026. The primary study in 2021 involved narratives with 51 purposively selected respondents. This secondary data analysis applied a thematic analysis approach. Contributing factors were later mapped against the WHO Quality of Care Standards for Maternal, Newborn and Child Health.

Results

Care seeking pathways were rarely straightforward. While some families never sought formal health care, others attended one facility. Frequently, there were multiple transitions between public and private facilities or facility levels, amidst deterioration of the mother or baby's condition. Challenges identified included missed opportunities during antenatal care and poorly monitored labour. Newborn care and preterm care were inadequate, with no kangaroo mother care done. Delayed or absent referrals were common, amidst lack of emergency transport and shortages of supplies. Diagnostic and health worker competency gaps were evident, alongside disrespectful care. When mapped against WHO Quality of Care standards, evidence-based practices and competent, motivated human resources were the most common contributors to APOs, followed by functioning referral systems. Social-cultural and environmental barriers, including community births and poor danger sign recognition were key.

Conclusion

Reducing APOs requires integrated health system strengthening, prioritizing evidence-based clinical practice and a competent, motivated workforce. This should be paired with functional referral and transport systems, consistent supplies and respectful maternity care, especially in rural, lower-level and private facilities. Many outcomes are rooted in factors manageable earlier, during antenatal care, making this a critical entry point. Enhancing community health literacy and behavioral change will improve danger sign recognition. Bridging the gap between guidelines and frontline care is essential to improving outcomes for mothers, babies and families, and receiving care is a human right.

Plain English Summary

In Uganda and elsewhere, many pregnancies end with miscarriage, stillbirth or death of the newborn baby. This is common, although there are programs to help mothers and babies stay safe and healthy.

This study looked at interviews done in 2021 with mothers and fathers in eastern Uganda, who had lost a pregnancy or newborn. We wanted to understand their journeys, where they sought help and what happened.

We found that families did not usually have a simple, clear path. Some never reached a health facility at all. Others visited one clinic or hospital. However, most moved between many different places, while the mother or baby got worse. Some of these were public facilities, others were private.

Several problems kept coming up. For example, warning signs were sometimes missed during pregnancy checkups. Care for small or premature babies was often lacking. Referrals to better equipped hospitals were delayed or did not happen, while finding emergency transport was hard. Sometimes, hospitals did not have necessary supplies. Some families also described poor treatment. Cultural beliefs and lack of money also sometimes contributed to the losses.

Our findings suggest that improving care from the start of pregnancy, not only during labour, could reduce some deaths. This means better training and support for health workers, stronger referral and transport systems, reliable supplies, and care that treats mothers and families with dignity. Communities also need better information, to recognize danger signs early. Every mother and baby deserves safe care as a basic right.

Background

Pregnancy and childbirth are normal physiological processes. The expected outcome is a healthy mother and newborn. However, adverse pregnancy outcomes (miscarriages, stillbirths and newborn deaths) remain a problem, also causing profound psychological harm to parents and communities. In 2024, approximately 2.3 million newborn deaths happened globally, many due to prematurity, birth asphyxia or trauma, and lower respiratory infections (1). Most were in Sub Saharan Africa (SSA). About 2,000,000 stillbirths were estimated in 2023, almost half of which were in SSA (2). About 15% of pregnancies end in miscarriage (3). Uganda's neonatal mortality rate (NMR) is estimated at 21.3 per 1,000 live births (1), with a stillbirth rate of 24.4 per 1,000 total births.

Global health programs and national governments have prioritized reducing maternal and newborn deaths through interventions across the continuum of care. Timely, evidence based antenatal, intrapartum and postpartum care provides preventive, promotive, screening, diagnostic and curative services. Uganda has adopted several such guidelines. These include Uganda's Essential Maternal and Newborn Clinical Care Guidelines 2022 (4); Quality of Care Implementation Guide for Reproductive, Maternal, Neonatal, Child, Adolescent Health, and Nutrition (5); The National Strategy for Male

Involvement/Participation in Reproductive Health, Maternal, Child, Adolescent Health and Rights-Nutrition Including HIV/TB (6), amongst others.

Pathways to Adverse Pregnancy Outcomes (APOs) are often understood from a health system perspective. That includes where women seek care and what happens during that time. This is important but incomplete, because many APOs originate earlier. At least half of stillbirths occur antepartum (2). Miscarriages that happen at home may not enter the formal health system. Diseases like malaria and syphilis, both prevalent in pregnancy can negatively impact the mother and baby, increasing morbidity and mortality (7, 8) .

Behind each statistic is a family living with loss and its long term effects. Previous work has found that both women and men suffer negative psychosocial effects after APOs (9). Understanding the full pathway is therefore not just important to the health system, but also relevant to the wellbeing of those who experience loss. It's important to understand these APOs from the perspectives of those who lived through them. Both women's and men's accounts are valuable, because they can reveal pathways often absent from clinical records. These include events at home, delayed or alternative care seeking, including outside the formal health system, plus missed opportunities for prevention, recognition, treatment and referral.

Male partner's involvement in maternal health looks a lot at antenatal care attendance (6). There is less on men's experiences after APOs, with studies drawing on mothers' narratives mostly. This study uniquely set out to reconstruct the pathway to APOs by using both females' and males' perspectives.

In this study, the pathway was traced, from pregnancy, through to birth and after. Study findings are important in understanding where barriers exist and pointing to where program interventions could be designed to address avoidable APOs.

Methods

Study design

This study applied a secondary data analysis approach to existing qualitative data, with analysis done between 2025 and 2026. It analysed data from rich narratives, adopting a qualitative descriptive phenomenological approach to explore the lived experiences around APOs and the meanings participants attach to these experiences. A phenomenological approach is appropriate because it seeks to understand and describe the essence of individuals' lived experiences from their own perspectives, enabling an in-depth exploration of the individual, community, and health system factors perceived to have contributed to pregnancy loss (10).

Unlike much of the literature on adverse pregnancy outcomes, which tends to focus on a single point of contact, mostly intrapartum, this analysis was designed to trace the entire care seeking pathway, from pregnancy to the outcome. It looked across multiple points of contact and care. This "whole pathway"

lens allows contributing factors to be located not only where the outcome occurred but earlier in the pathway where they may have first emerged or gone unaddressed.

Primary data source

Study setting: The primary study from which this data came was conducted in the Iganga Mayuge Health and Demographic Surveillance System site in east central Uganda, which is run by which is run by Makerere University Center for Health and Population Research.

Data collection: In 2021, narratives were conducted with purposively selected women who had suffered APOs, specifically miscarriages, stillbirths or newborn deaths, and men whose spouses / partners had experienced the same. Using narratives, the parent study documented participants' accounts of their experiences across the continuum of pregnancy, childbirth, and newborn care, noting events leading to various APOs. Further details about the study methods are available in an earlier published article (9).

Data extraction for the secondary analysis

Firstly, all transcripts were read, for the analysts to familiarize themselves with the data. The next step was the development of a data extraction matrix (*additional file 1*), with the following categories for each event: the case number; type of outcome and stage of care; outcome statement (event description); potential contributing factors (traced retrospectively); and the last category mapping each APO to the corresponding WHO Maternal, Newborn and Child Health (MNCH) quality of care domain. This structure was deliberately designed to capture the sequence of care seeking, that is, where, when and through how many points of contact a woman or family moved, enabling the pathway analysis approach. Further analysis of the transcripts was done to populate the matrix, develop the outcome statements and identify contributing factors.

Data analysis

A thematic analysis approach was then applied, using NVivo version 12 software. This involved six steps as recommended: familiarization; coding; generating initial themes; reviewing and developing themes; refining, defining and naming themes; and writing up (11). This analysis identified the negative outcome pathways and the related causes, differentiating which applied to Antenatal Care (ANC), intrapartum or newborn care where possible.

Analysis also involved comparison of the WHO MNCH standards and the data, categorizing each outcome according to the WHO standard identified, where applicable, plus identification of contextual factors beyond the health system. Finally, thematic analysis was done of the entire matrix, generating key themes.

Trustworthiness of the study

To strengthen study rigor, coding and theme development were done iteratively by study authors. Themes were refined through group discussion and cross-checked across the data extraction matrix. This helped with maintaining an audit trail between the raw narrative data and final themes. Mapping against the WHO MNCH quality of care standards provided an external, trusted framework against which themes were checked.

Results

Demographics

Table One summarizes respondent demographics. In the primary study, 51 respondents were interviewed. Of these, 86.2% were females, with most respondents aged between 20–29 years. Only one had tertiary education, with most having gone up to upper primary level, followed by those who attended Ordinary (O) level, which is the first part of high school in Uganda. The table also shows the place of delivery for the most recent adverse pregnancy outcome. 67% of deliveries occurred in health facilities, 23% happened at home, and 6.3% with traditional birth attendants.

Table 1
Demographics of respondents in primary study

Characteristic	Number (%)
Sex	
• Females	44 (86.2)
• Males	7 (13.7)
Age	
• 15–19	4 (7.8)
• 20–24	17 (33.3)
• 25–29	9 (17.6)
• 30–34	9 (17.6)
• 35–39	8 (15.6)
• 40–44	3 (5.8)
• 45–49	0 (0)
• 50–55	1 (1.9)
Education level	
• None	1 (1.9)
• Lower primary (P.1-P.3)	5 (9.8)
• Upper primary (P.4-P.7)	24 (47)
• O-level	17 (33.3)
• A level	2 (3.9)
• University	1 (1.9)
• <i>Missing</i>	1 (1.9)
Most recent adverse pregnancy outcome	
• Miscarriage	6 (11.7)
• Neonatal death	31 (60.7)
• Stillbirth	14 (27.4)
Place of delivery	1 (2.08)
• Regional referral hospital	9 (18.75)
• Main district hospital	4 (8.33)
• Government health facility	2 (4.17)

Characteristic	Number (%)
• Health center II	10 (20.83)
• Health facility (unspecified level/type)	6 (12.5)
• Private health facility	11 (22.92)
• Home	1 (2.08)
• Home of Village Health Team member (Community health worker)	1 (2.08)
• Roadside	1 (2.08)
• Traditional Birth Attendant's home /facility	3 (6.25)
Total	51

Mapping the care-seeking pathways

Rarely did care seeking follow a straight path to one health facility. Most women's journeys involved moving between different types of health facilities, in terms of levels and ownership. There are some overlaps in the categories described, for example some aspects of the mixed public-private pathway can also fall under the tiered referral pathway.

Insert Fig. 1 here

Legend:

- *Figure developed by the study team*
- *Outcomes counted individually per baby, including twin pregnancies. This therefore gives a higher count than Table 1.*

The following pathways shown in Fig. 1 were identified in this study.

- **Community births:** Here, delivery and APOs happened outside the formal health system.
- **Single facility only:** Both the birth of the baby and the APO happened in the same health facility, without movement to others. In some instances, families returned to the same health facility for the issue to be resolved. For example, one mother returned to the hospital twice at 7 and 8 months with complaints and was sent home, only to return later and have a stillbirth during labor.
- **Multi-facility hopping:** Multiple transitions between facilities were common, mostly for newborn care, but also during labour. Some patients moved between three or more different facilities seeking care. Mostly, movements were between one or two facilities, including returning to the original. While many cases were referred by health workers, there was also self-referral.

- Moving to both public and private facilities: There were a few families that moved between the two sectors. One outlier moved from a health center II to a private clinic, then to the main district hospital (government), followed by a private facility and back to the main hospital.
- Antenatal care pathway: Furthermore, there was also movement from government health facilities to private facilities to do ultrasound scans, then back to the government one for birth.

Factors contributing to adverse pregnancy outcomes

The analysis found multiple factors that contributed to adverse pregnancy outcomes in this mostly rural area. While many are clinical and health system factors, there were also contextual issues playing a role, and so the themes are presented in those two broad categories.

AREA ONE: CLINICAL AND HEALTH SYSTEMS

Theme One: Quality of care in health facilities

Problems not recognized or managed during ANC

Respondents' narratives showed complications that mothers had during ANC, which health workers either did not recognize or manage well. For instance, mothers experienced bleeding, plus conditions such as "*omusuja*" (fever) during pregnancy, malaria, high blood pressure, commonly referred to as "pressure," and syphilis, locally referred to as "*kabotongo*." One mother whose newborn died had both syphilis and high blood pressure during pregnancy, conditions seemingly unmanaged despite ANC. Another challenge was around the baby's position during pregnancy. Some mothers were told by health workers during ANC that the baby was in the wrong position. Nonetheless, no guidance was offered on what to do. Consequently, they sought traditional solutions to reposition the baby. There was also failure to conduct necessary scans during pregnancy where mothers had stomach pains or reduced fetal movements, but no scan was done or recommended during ANC.

When I bled the health worker did not examine the pregnancy. She just continued treating me so that I stop bleeding. When treatment stopped, I continued bleeding. In one week, I stopped feeling the baby moving inside (Mother who had a stillbirth)

Other individual level health issues were also ignored. For instance, many mother's maternal health histories included previous adverse pregnancy outcomes. At least four had previously experienced stillbirths, two suffered miscarriages and at least one a newborn death. These were the reported cases in the interviews. However, these seem not to have been considered as high-risk cases that required close monitoring. It is also unclear if the health workers were informed or not during ANC.

However, some mothers initially ignored symptoms and did not seek care until they worsened, for instance one who suffered a stillbirth reported experiencing malaria during pregnancy but ignored it until she required what she described as "strong" treatment.

Gaps in care during labor and delivery

Often the care given to mothers during labour and delivery was described negatively. For instance, some shared that they had very long labor but were not given any treatment or a caesarean section as expected. One mother had a stillbirth after two days in hospital in labor, despite being told she would have an operation that did not happen. She eventually delivered normally but explained that the baby was tired and died in the process. Other women were told they were not yet due or not in labor, yet they came to the facility with contractions, expecting to deliver.

A few shared how they were not checked on during labour, or it was infrequent. This resulted in them delivering alone or unattended. One mother who had a stillbirth had a rapid birth alone shortly after arrival. However, she arrived from another health facility where she received little attention for her “stomachache”, not knowing she was in labour.

The stomach was hurting a bit but we knew that the delivery date wasn't due. I took her to the health centre. The midwife checked her and gave her coartem and told us to come back home, that the labor pains had just started. That if they progress, you come back. Now it was at night at around 1a.m. then the pains became worse...we got somebody to take us to the health centre. When we had just reached, immediately she gave birth but the baby was eight months. But there was no one to help her, the midwife delayed to come and I believe the baby got cold because it was panting a lot. It reached morning when the baby was still alive but around 10 a.m. the baby died. They discharged us and we came back home. And instead of referring us, she was just moving around, at least she would have referred us early and we do something to save our baby (Father, after neonatal death)

Inadequate newborn care: Although some mothers gave birth in the health facility, they explained that the babies did not recover despite treatment. For instance, one baby born in a health center lived for one day only despite oxygen, while another in the district hospital was put on oxygen twice but died. Parents described seeking treatment for sick babies, who instead got worse. One example is where parents sought care from three different health facilities: when baby was born in a health center II, alive but weak, the health worker gave an injection and syrup and discharged them. In the second week, the baby was hot and in pain when touched and the same health worker gave panadol and piritex. Over a week later, they went to a private clinic where the baby was treated without any tests done, and after worsening they eventually went to main district hospital (public), where baby died in the process of being put on oxygen. In two other cases, parents were simply told that the babies swallowed “dirty stuff”, and that was the cause of their illness.

While many babies were born prematurely, during the narratives there was no mention of important practices like kangaroo mother care being done or at least recommended in any facility. Only one respondent explained that the babies were covered before referral to the main hospital. Other gaps pointed out were difficulties getting some babies to feed plus early discharge of a preterm with a vague recommendation to go to a higher-level facility for incubation.

I delivered from a health center II. The “musawo” (health worker) gave baby a syrup and we spent a full week at home on that syrup treatment. In the second week she started becoming hot to touch. I was like my baby has developed fever yet we sleep under a mosquito net. Then I went back to that very “musawo” and she gave me panadol syrup and she told me that since you are having pritex, you add on this one also. When the baby reached like 1 week and 4 days, I started seeing her not changing and I decided to take her in a private clinic...when we reached, he treated the baby well but without doing some tests, that one I noticed it later on that it was bad. (Mother after neonatal death)

Overall, analysis of respondents’ narratives indicates situations in which newborn care within health facilities was often inadequate, incorrect or absent, contributing to the multiple newborn deaths. Failure to recognize and treat neonatal infections, alongside lack of specialized newborn care skills were evident. However, management of newborns was sometimes negatively influenced by late arrival of the baby or mother from the community or another health facility where they had been poorly managed.

Unexplained sicknesses and unclear treatment

For both the pregnant women and newborns, there were instances where families sought care for sickness with many explained as malaria or fever. One mother mentioned that she got a strong headache, followed by shivering, numb legs and contractions. At the health facility she was told she had malaria and was referred to the main hospital. Hours later is when she delivered a “tired” baby that died shortly after. At least two babies were said to have malaria, with one treated twice. The parents elaborated that this baby was born prematurely. Additionally, respondents reported treatment given without any tests done, for both pregnant women and babies.

Mistrust of the healthcare providers’ skills

A few parents outrightly mentioned that the health workers did not seem to know what they were doing. For instance, a couple said the health worker did not know how to fix the oxygen for the baby and blamed her for the newborn death. One mother who lost newborn twins complained about the poor care during ANC from a student nurse that blamed her stomachache on dirty toilets. She complained that she was not seen by an older midwife as expected and stated that the APO must have been due to this care. In other cases, while not explicitly mentioned, respondents mentioned things like being switched from one medication to another without improvement. More so, some parents eventually self-referred to other providers, possibly indicating loss of trust in the health facility or health worker.

Theme two: Referral and transport challenges

At various steps of pregnancy, delivery and newborn care journeys, these repeatedly came up.

Delayed or no referral

Respondents described situations where the mother or baby was sent to another facility for care, but after a long time and / or unsuccessful treatment. In other instances, the patient was not referred,

despite for instance being born with complications. example, various medicines were given and in one case surgery done, before the parents were told to take their baby to another hospital. The common outcome here was that the baby or mother worsened before they were redirected, or before the parents decided to seek care elsewhere. Further analysis shows that this mostly happened in lower level health centers (including public ones), and private clinics

Baby was okay in the first and even second week. Then in the third week she became very hot and still I took her back to [a private] facility. She was there for 2 days, then on the 3rd day she had difficult breathing, very hot when you touched. They were treating her but even touching her here like this in the neck it was showing as if there was a tumor and that tumor pained the baby for two days and the third day it was ready for cutting. The doctor cut the tumor and the baby cried and cried, he squeezed the tumor but the baby was not getting back to normal and he induced drips of fluids, while treating the tumor but no change. I told the doctor to allow me to go back home with this baby. It was like five days and he discharged us and I came back home with the baby (Father after neonatal death)

Emergency transport problems

Even when the referral was done, getting to the next facility was a frequent challenge. Many respondents shared they had to find their own transport, thus delays. Additionally, a few mothers and babies were sent to another district to seek better care. For instance, a baby sent to the regional referral hospital died while the family was preparing to move, including getting transport. Another born with many complications was referred to the national referral hospital, in another district, where they had to keep returning for treatment. These processes required a lot of travel.

Theme three: Health services resource limitations

Equipment and supply shortages

These were key contributing factors, especially for the newborn deaths. Respondents' experiences included examples of things that were lacking in the health facilities, like oxygen in two cases, that contributed to why their babies died. This necessitated them being sent to another facility for care. In one case, while the baby was sent to the main district hospital and put on oxygen, this also run out and they had to go to a private facility, where the baby died. There was also lack of important medicines mainly in public facilities, with parents needing to purchase them elsewhere so babies could be treated. Unfortunately, the narratives revealed that sometimes the baby worsened while the drugs were being bought.

It is a government health facility but for them they charged us money...When they charged us much money they did not give us any medicine that maybe it will treat me. We just bought the medicine (Mother after stillbirth)

Inability to do tests and scans

Respondents pointed out that some health facilities could not do the needed tests, requiring families to move to another for tests, more so for sick babies. There was a similar problem with ultrasound scans during pregnancy especially in public facilities, with women paying for scans at external facilities. Worse still, some did not have the money to pay for the ultrasound and thus did not do it. Therefore, problems that could have been identified and treated were not.

Service delivery gaps

There were shortcomings in the kind of services that health facilities could provide. For instance, there were health facilities that said they could not manage sick newborns and emergencies. This was not only in terms of treatment but also having special space for these babies. More so, one health center II (lower-level facility) conducted a delivery, a service beyond their mandate.

Theme four: Healthcare providers' attitudes and behavior

Abuse and neglect

Many health workers were described as rude and abusive. Respondents explicitly described this, emphasizing that some did not pay attention to mothers in labor. One mother who miscarried explained that she left a facility in pain due to being ignored by the healthcare providers and sought treatment in another place. She shared that it was this search for another facility that made her worse. Narratives also show a few providers ignoring critically babies. There were reports of not responding to mothers or babies, with caretakers having to beg staff for attention. Extreme cases (two) reported physical violence from the health care provider-one towards the mother and another towards the baby. These were not probed though by interviewers in the primary study and could not be verified.

There is giving birth to a baby and the doctor comes and looks at him, that maybe is the baby crying? But this doctor did not even check on the baby. He just told us to go back home and we came back (Mother after newborn death)

Unclear communication by the health workers was seen in different narratives. For example, a few mothers recounted being told during ANC that their “babies were in too much water”, or their babies were in a wrong position. One was told during labor there was “too much warmth in the womb”. These were confusing explanations that left families not knowing what to do next. Some consequently applied herbal solutions e.g. to help turn the baby to the right position. Analysis shows indications of poor counselling about danger signs. For instance, some mothers shared that they had bleeding, vaginal discharge and other pregnancy complications. However, they did not appear to take this as something critical, sometimes staying home for days before seeking care, despite attending ANC, implying limited knowledge. Relatedly, several of those who had community births tended to stay home and not take the newborn to hospital until they were ill.

Inadequate explanations after the loss

It was evident in the narratives that when an APO occurred, explanation of what happened was limited or absent. Parents were simply informed and left to bury their child. Data showed that many did not know why the baby died, and sometimes their accounts conflicted with the health providers. A case in point is where a mother said she went into labor still feeling the baby's movements, but the health providers said the baby died before labour.

The health worker said that the mother had “nabugumu” [a local term implying heat in her womb] and that also the baby had a lot of malaria. So that is what we were told (Father after newborn death)

However, these health services barriers were not always similar across different levels of facilities. For instance, higher level facilities like public hospitals had challenges like health provider attitudes and unsupervised, inexperienced nurses. Health centers (lower-level facilities) had multiple gaps across the continuum, including management of ANC, labor and newborn care. There were also some differences in challenges depending on ownership, that is whether the facility was public (government) or private. For instance, while using public facilities, mothers dealt more with drugs and supply challenges and health providers attitudes. In private facilities they encountered more substandard newborn care. However, some problems like technical competence were cross cutting across levels and ownership of health facilities.

AREA TWO: CONTEXTUAL FACTORS

Beyond the health system, several other issues influenced occurrence of negative outcomes.

Theme five: Socio-cultural and community factors

Community births and delayed newborn care

A few women gave birth from traditional birth attendants homes. While this was sometimes intentional, in other cases it was due to mother's going into labor suddenly, sometimes without transport to get to the health facility on time. There were also instances where mothers unexpectedly gave birth or had stillbirths and miscarriages at home. Regardless of whether these births occurred by choice or circumstance, the more dangerous practice identified was delayed newborn care seeking. Rarely were these newborns taken to the health facility immediately after birth. Instead, mothers went home and it is when the baby got sick that they went to health facilities. A few died at home, and in only one instance did a mother who had a delivery by the roadside rush the babies rapidly to hospital.

For the baby who died, the stomach started hurting in the morning and it hurt throughout the entire day and I gave birth at 9 in the night. I gave birth to the baby from inside the house. They cut the cord and we woke up in the morning without any problem. But he spent one day and started crying as he vomited. Whatever milk you gave, he would vomit yellow things which wouldn't get off the cloth even when you washed and his skin would fold when you touch him, like an old person's skin. So we went to hospital (Mother after newborn death)

Traditional medicines and practices

The use of traditional medicine and practices was fairly common, with mothers reporting use of herbs during pregnancy. Self-medication plus buying drugs from pharmacies and smaller health facilities without testing also occurred during pregnancy and for newborns. Mostly, mothers were treated for “malaria” or fever, though a few babies were also said to have malaria sometimes treated with syrups from the nearest facility or drug shop.

Gender and household dynamics

There were a few cases of intimate partner violence from the spouse or father of the baby. One mother blamed her pregnancy loss on the violence she faced from her spouse during pregnancy, plus the subsequent lack of treatment and psychosocial stress. Another issue was where spouses refused to provide money for scans or to seek care. At times, they actually did not have the money, indicating the levels of household poverty.

Theme 6: Limited health knowledge

Limited health literacy was evident during pregnancy, labour, postnatal and for newborn care. From the narratives, many parents did not recognize certain danger signs as urgent, thus delaying to seek care. For instance, one mother who had a stillbirth supported by a TBA had earlier felt reduced fetal movements but not paid much attention to that. Another who had a stillbirth at 7 months shared that she had spent about 2 months without feeling baby movements but did not seek care. There was also a gap in understanding the importance of immediate care for preterm babies.

I was not feeling bad. I would even move and go for ANC but whenever the health providers could examine me they could tell me that the fetus is fine. But me I felt reduced baby movement and I asked myself how can something be growing when there's no movement? But I never put much attention on it. (Mother after stillbirth)

Discussion

Factors contributing to adverse pregnancy outcomes were at the clinical, health services and contextual levels. These include quality of clinical care; referral system failures; health system resource constraints; healthcare providers attitudes and behavior; and socio-cultural and community factors. Often, the APO resulted from numerous factors working together. The study also identified the various pathways to care. It is significant that several people did not access any care at all from a health facility. This study shows various missed opportunities on the health facility side, and on the community or individual mothers' side.

This discussion maps the results against the WHO quality of care standards for MNCH. These standards specify eight important domains for the provision and experience of care (12, 13). The domains most identified in this study were evidence-based practices, followed by competent, motivated human resources. Next was the functioning referral systems; then effective communication; respect and dignity;

and availability of essential physical resources. The top two domains were evident across ANC, intrapartum and newborn care, while others differed across the levels of care, not always consistent. Worse experience of emotional support and poor communication was more common in public facilities. In a qualitative systematic review of women's birth experiences in SSA, all studies except two reported negative experiences in one or more of the WHO domains (14).

Evidence-based practices (standard 1)

This recommends that every woman and newborn receive routine, evidence-based care and management of complications during labour, childbirth and the early postnatal period. It recommends consistent assessment of women during and after labour; appropriate attention to eclampsia and pre-eclampsia and those with delayed or obstructed labour; appropriate care for preterm and small babies and resuscitation within the first minute of birth.

In this study, challenges identified with evidence-based practices include poor management of labor and delivery. It also found gaps in essential newborn care, for example preterm care, resuscitation failures and symptomatic treatment of sick newborns. In Western Uganda, a study amongst 872 postpartum women found that only 6.1% had blood tests for HIV, Syphilis and hemoglobin levels, while only 30% had an ultrasound (15). This was in three public district hospitals. However, during labour most women were monitored at least once for key conditions.

The Quality, Equity and Dignity Network (QED) shared experiences from Ethiopia (16). A key finding was that while performance could be improved by incentives, changing behavior was more difficult. In Kenya, poor ANC was significantly associated with stillbirths in a case control study in four urban tertiary hospitals (17). Additionally, abuse of clinical practice guidelines was observed in Guinea Bissau, with no birth monitored with partograms, and under use of skin-to-skin contact, despite a health systems strengthening program (18).

A retrospective chart review in 2024 of deliveries in rural public health facilities in two Ugandan districts found that despite partograph use in 73.1% of deliveries, blood pressure was only monitored in 23.1% of cases, with only 15.6% of newborns discharge examination recorded (19). There was variation across health facilities though, and the current study differed in methodological approach.

Competent, motivated human resources (standard 7)

This specifies the need for motivated, competent, skilled birth attendants in adequate numbers handling labor and childbirth, always available, for both routine care and complications, alongside good leadership. More so, human resources should be in tandem with the workload. The current study identified various human resource gaps. Examples include having young, seemingly inexperienced nurses without clear supervisors. The lack of evidence-based practices imply gaps in technical skills and knowledge, including specialized care for small and sick babies.

Similarly, a study on ANC quality and risk detection in four African countries found major challenges in ANC delivery, including high-risk pregnancies receiving incomplete care, and poor adherence to ANC standards. However, there were variations in-country (20). The QED network in Ethiopia noted that health workers improved their competence through on-the-job training, plus material and technical support (16). Health workers appreciated the benefit of doing routine things like filling partographs, despite a busy schedule. In Eastern Ethiopia, some providers in lower health facilities did not know which cases they should refer or not, thus unnecessary or inappropriate referrals (21). Although these were in Ethiopia, lessons can apply to Uganda. A scoping review of midwives' implementation of maternal care guidelines in South Africa also found several barriers, following the same WHO standards (22). These comprised insufficient training in critical competencies, including in newborn care, plus lack of motivation. Poor supervision was identified, with recognition of the need to improve midwifery education and clinical evaluation.

Functioning referral systems (standard 3)

WHO emphasizes timely referral of all women and newborns with conditions the facility cannot effectively handle. Assessment should be made on arrival and during labour, to decide on referral. WHO further emphasizes prior communication with the receiving facility, and feedback on the patient's condition sought by the referring facility.

The current study found multiple challenges, including late or no referral, sometimes after failed interventions, plus self-referrals for care. In the same region in 2023, a study analyzed immediate adverse neonatal outcomes of obstetric referrals to the regional referral hospital among 265 women (23). Contributing factors included potential gaps in quality of care at receiving sites, among others. Among their recommendations is enhancing referral systems, facility preparedness and educating communities. The current study differed because it was not hospital based or prospective, relying on patient recall. Another study in eastern Uganda found the major referral challenge among referred mothers was financial constraints, long distances and multiple referrals (24). Enablers were providers calling the receiving facility first, while others escorted mothers. Similar challenges were found in western Uganda, amidst multiple referrals for the same mother (25).

In Ethiopia, barriers to maternal referral included incomplete referral information, poor communication (both pre-referral and feedback), transport and infrastructural challenges (21). Self-referral was also mentioned, though most respondents were health providers. A mixed methods study in Malawi suggested a multi-pronged approach to improve obstetric referrals, including additional training for providers in referring and receiving facilities, increased government transportation and consistent supply availability (26). A systematic review on interventions to improve emergency obstetric referral in SSA noted training health workers, plus having triage checklists were frequent interventions that enhanced referral processes and possibly outcomes (27).

Effective communication (standard 4)

This emphasizes the need for women and their families to get information on care received and decisions made. Nonetheless, in the current study, communication gaps between health providers and women / families were evident. Parents sometimes did not know what treatment was given to their baby and why, with many not told why the APO occurred.

In Nigeria and the Democratic Republic of Congo, a study to assess intrapartum care quality in public hospitals in conflict settings, used indepth interviews to understand 15 women's lived experience of stillbirth (28). Positive aspects included clear information about care. However, there was lack of clarity on why certain clinical decisions were made amidst the loss. Similarly, in rural Guinea Bissau, poor communication during ANC was reported, with limited explanations and women not given the opportunity to ask questions (18). While some women reported good communication in one systematic review, most had negative experiences (14).

Respect and preservation of dignity (standard 5)

This standard underscores the requirement for privacy and confidentiality of both mothers and newborns. It specifies avoidance of mistreatment, including physical, sexual, verbal, neglect and extortion. In the current study, mistreatment by health providers was reported, including mothers ignored during labor and rude health care providers.

Disrespect was also reported in eastern Uganda, mostly among women in lower-level health facilities. This included verbal abuse and abandonment, with those who could not buy medicines and supplies left unattended. Receiving facilities were mostly different, with warm, respectful and responsive providers (24). That study was different, with its focus on only referred mothers, despite similarities in exploring lived experiences using a qualitative approach. In western Uganda, mothers and attendants mentioned inhumane health providers and authors recommended training in respectful maternity care (25). A systematic review on women's childbirth experiences in SSA found this standard was the most negatively reported, including verbal and physical abuse (14), as did another scoping review that found it rampant in maternal health services in SSA (29).

Essential physical resources available (standard 8)

WHO emphasizes that facilities should have essential medicines and supplies, equipment required for routine care, labour, postnatal and newborn care plus handling complications. While facilities differ according to level and services they are expected to deliver, common gaps in this area were identified. In some cases, families were asked to buy medicines externally, while women were redirected for scans elsewhere.

In Ethiopia, a study assessing quality of maternal newborn care in 32 health facilities showed that 15.6%, 9.3% and 10.7% of facilities met input, process and output standards for MNH respectively (30). Additionally, in Guinea Bissau, a study exploring timeliness and quality of peripartum care found shortage of essential equipment and supplies, including medicines and consumables (18). Supply and

human resource shortages have been identified elsewhere, alongside poor quality of care, as well as in Malawi (24, 26). The current study is unique because the primary data includes experiences of male respondents.

Actionable information systems (standard 2)

Among the relevant quality statements under this standard is the need for accurate, complete medical records for every mother and newborn. While not explicitly stated by respondents, one gap was the fact that high risk mothers, for example with previous APOs, did not appear to have records available to show they were high risk, or databases where they could be flagged for specific care.

Overall, the current study shows shortcomings across the various standards, with cases often facing more than one challenge at a time, for instance delayed labour, combined with mistreatment and lack of emergency transport for referral. This has also been found elsewhere. For instance, even where midwives did not know guidelines and lacked competency, it was often amidst limited resources, equipment shortages, limited support and empowerment (22). There are also variations across health center levels within and across countries. For instance, lower-level health centers performed better than hospitals in partograph use in one study, probably due to higher hospital workload (19). In a systematic scoping review of intrapartum care in SSA quality varied by health facility levels and countries, but was predominantly poor, especially in health centers and peripheral facilities (31).

However, there were multiple contextual factors beyond quality of care. A systematic review in East Africa found contextual barriers to maternal health care, including lack of individual knowledge on maternal health, financial constraints and lack of decision-making autonomy (32). It suggested community mobilization and awareness around maternal health, alongside positive social influence.

To reduce neonatal mortality to less than 15/100 or 12/1,000, a study using multi-country data recommended scaling access to maternal newborn facility care, including small and sick newborn care, infrastructure investment, skilled health workers and safe oxygen use (33) 2023). Others recommend government leading standardization of care for women in SSA, plus optimal working conditions (14); improvement of health infrastructure, especially in rural areas, strengthening referral systems, community engagement and regular outcomes audits.

Some studies differed from the current one in terms of geographical location, or being part of actual quality improvement processes. Others had health workers and managers as respondents or conducted primary data collection. However, there are many applicable lessons. While the current study may be limited by use of secondary data, its strength comes from the focus on detailed narratives generated exclusively by women and men who have suffered APOs.

This study also offers recommendations for health care providers, management, programs and policy makers to contribute to reduction of avoidable APOs, specified below.

Deliberate attention to quality of maternal health care

Health workers need training and practical skilling in evidence-based maternal healthcare. They should be knowledgeable and competent about danger signs right from ANC, including managing malpresentation. Danger sign and labour assessment checklists should be mandatory in facilities, with a documented record of the decision made before turning away a mother. Facilities handling deliveries should be open 24 hours. Alongside this is the need for stronger supervision, mentorship and support by seniors, facility leadership, district and ministry of health officials. Rural and lower-level health facilities should be focused on, cause many mothers seek care first there, as well as private facilities. Equipping facilities, especially public ones with the required drugs, supplies and equipment is critical, specifically oxygen, scans and point of care testing capacity.

Strengthening care for small and sick newborns

A large gap was identified here, despite its importance. Kangaroo Mother Care knowledge and skills are critical, plus other critical care. Private facilities need to be singled out for training on newborn care, with strict guidelines on which levels of private facilities are allowed to provide newborn care, ensuring that those that are not equipped to do so refer. This should be followed up with supervision and enforcement of compliance, for instance during licensing renewals. Ensuring availability of the required supplies and equipment is key. Moreso, strengthening oversight of drug shops and pharmacies selling treatment for pregnant women and newborns without diagnosis is needed.

Improving referral processes

Firstly, lower-level facility staff need to know when to refer mothers and babies. This should be supported by checklists for quick decision making. Secondly, referral with complete documentation is helpful, plus alerting the receiving facility where possible. Thirdly, the receiving facilities, often public hospitals or higher-level health centers should be prepared to receive mothers and babies, sometimes in critical condition. This requires having required supplies, equipment and human resources, plus functional newborn care units. Emergency transportation and such infrastructural responsibilities fall to the Government, but other stakeholders like civil society organizations or private philanthropists may play a role as well. Community transport schemes can be considered, for example transport vouchers, contracted motorcycle ambulance partnerships, amongst others. Importantly, private facilities should be required to have referral linkage agreements with the nearest capable public emergency obstetric or newborn care unit.

Respectful maternity care

Health workers should be humane, empathetic and stop abuse of mothers and families. This is closely linked to supervision of the client-provider interactions and accountability. Clear communication with mothers and families on care decisions is important, allowing them to ask questions. Providers need to learn bereavement care, including how to break the news of a baby's death to parents. It's important to communicate and document an explanation of the likely cause of death to the family in a compassionate, non-technical conversation. Additionally, psychosocial support is a part of care after

pregnancy loss and needs to be available. The disrespectful care may be partially due to a stressful work environment, so supervisors and Ministries could find ways to improve workplace wellbeing, thus improving comfort and motivation of health workers.

Data and audits

While many contributing factors in this study are common elsewhere, it is important to have context specific data. Having good data and utilizing it is necessary. This includes routine data already collected within facilities and districts. Analyzing it will be helpful in identifying context relevant contributors and solutions. Furthermore, having data on whether a woman previously had an APO would be beneficial in noting her as a high-risk case. Establishing a culture of accountability is crucial, through maternal perinatal death surveillance and response, that are factual but non-judgmental.

Community education and health literacy

Improving health literacy in communities, not just among mothers is urgent. This is especially on danger sign recognition, which people should be taught to recognize and appreciate the need to seek proper care from health facilities immediately. This includes taking babies born in communities to the health facility right after birth, discontinuing home births where possible, and mothers getting assessed by skilled providers even after a pregnancy loss at home. Community education should also emphasize that self-medication for sick newborns or a pregnancy complication is not a substitute for facility assessment. Additionally, more deliberate engagement of men is needed. Approaches to health literacy can be innovative, for instance by giving mothers cards with visuals and information on danger signs.

Future implementation research to evaluate interventions focusing on reduction of adverse pregnancy outcomes will be needed, to assess what works, for whom, and how, preferably co-created with the beneficiary communities.

Conclusion

This study highlights the complex, multi-level pathways that led to adverse pregnancy outcomes in east central Uganda. Care seeking rarely followed a simple, straightforward path. Families moved between multiple facilities, sectors and levels of care. Importantly, several mothers did not access any formal care at all. Miscarriages, stillbirths and newborn deaths often result from interlinked breakdowns along the maternal newborn continuum of care. This was compounded by clinical failures, community delays and socio-cultural beliefs and practices. A gap remains between quality-of-care guidelines and families lived experiences in both public and private health facilities.

Ending preventable adverse pregnancy outcomes requires an integrated approach, with priority on the most evident gaps. Policy makers, health managers and providers should strengthen evidence-based clinical practice, and ensure a competent, motivated health workforce, which were the two most consistently identified shortcomings. This should be paired with functioning referral systems and

transport, effective communications, respectful and dignified care, and consistent availability of essential supplies and equipment. Particular attention should be paid to rural, lower level and private facilities. Community health literacy and engagement are equally critical, to improve recognition of danger signs and timely care seeking.

Importantly, many of these adverse outcomes are rooted in factors that could be identified and managed earlier, during antenatal care. Focusing mostly on intrapartum and postnatal care is not strategic, because a healthy pregnancy is foundational. Avoiding complications begins with prevention and management of hypertensive disorders, malaria prevention, controlling infections, micronutrient supplementation, health education on danger sign recognition, and more. If those are neglected, babies are more vulnerable to intrapartum stress. Ultimately, delivering safe, dignified care for mothers and newborns in low resource settings is not only a health systems goal, but also a human right.

List of abbreviations

ANC Antenatal Care

APOs Adverse Pregnancy Outcomes

MNCH Maternal, Newborn and Child Health

QED Quality, Equity and Dignity Network

SSA Sub Saharan Africa

WHO World Health Organisation

Declarations

Ethics approval and consent to participate

This study involved secondary analysis of data collected during the lead author's doctoral research (*Title: Exploring The Under Reporting of Pregnancy and Adverse Pregnancy Outcomes in Population and Health Surveys: A Multi-country Qualitative Study*). That primary study was granted ethical approval by the research and ethics committee at Makerere University School of Public Health, MildMay, and Uganda National Council for Science and Technology. Being multi-country (it was nested within the EN-INDEPTH study), it also received ethical approval from similar committees in the various countries (*additional file 2*). All participants in the original study provided written informed consent. The data used in this secondary analysis were from a component of the study done in Uganda only, as part of DK's postdoctoral study. No additional ethical approval was required for this secondary data analysis

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests

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Author Contribution

DK and PW were involved in conceptualization of the study. Initial coding was done by DK, while theme development was done by DK, PW and FC. BW, MK and VW participated in subsequent discussions about themes. All authors also helped to further refine the themes after the first draft of the paper was written. Drafting of the manuscript was led by DK, supported by all the other authors. All authors reviewed and agreed to the final version of the manuscript.

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Not applicable

Data Availability

The original dataset (transcripts of narratives) analyzed during the current study are not publicly available due to the need to protect privacy of participants. Being detailed narratives, they have some potentially identifiable data. However, they are available from the corresponding author on reasonable request. However, the matrix showing each de-identified case and pathway taken, summarized from the transcripts as part of initial analysis is available as part of the additional files. This also is a dataset.

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Figures

Figure 1: Delivery and care pathways during and after birth

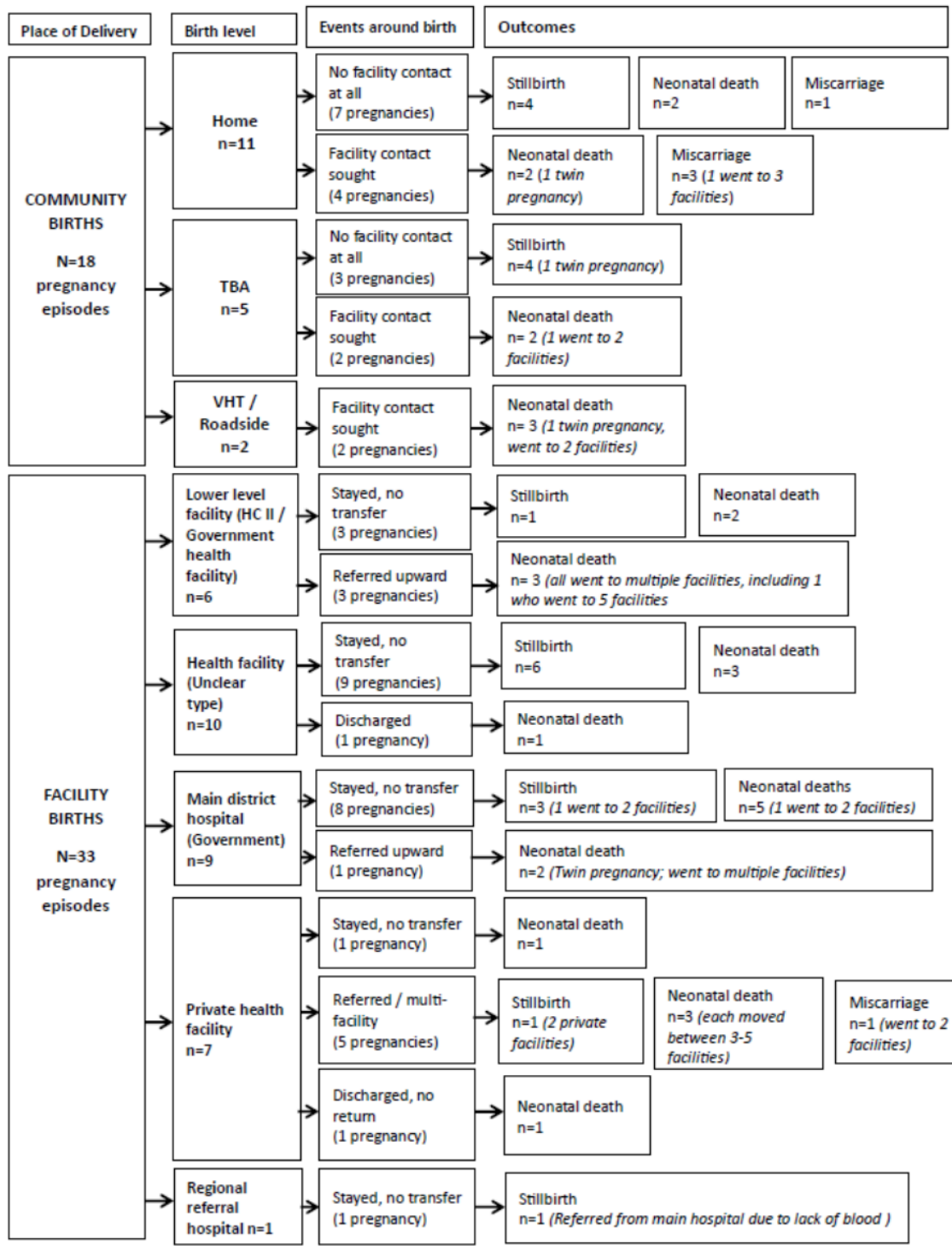


Figure 1

See image above for figure legend.

Supplementary Files

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- [Additionalfile1AnalysisMatrixKwesigaetal.pdf](#)
- [Additionalfile2EthicsapprovalsforprimarystudyKwesigaetal.pdf](#)