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Navigating recommendations for elective cesarean birth following genital fistula repair among Ugandan women: a qualitative study

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Declarations

- ***Ethics approval and consent to participate.*** *This study was conducted in accordance with the Declaration of Helsinki. Study procedures were reviewed and approved by the Mulago Hospital Research and Ethics Committee (MHREC# 1674), the Uganda National Council for Science and Technology (HS #2706), and the University of California, San Francisco Institutional Review Board (IRB# 19-27901). All participants provided written informed consent prior to participation.*
- ***Consent for publication.*** *Not applicable.*
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Abstract

Background: Elective cesarean birth is recommended following obstetric fistula repair to reduce the risk of fistula recurrence and adverse maternal and perinatal outcomes. However, substantial variation exists between recommended and achieved mode of birth, and little is known about how women interpret and navigate these recommendations. We examined Ugandan women's experiences with elective cesarean birth recommendations following genital fistula repair and the factors shaping whether recommended care was achieved.

Methods: We conducted in-depth interviews with 30 Ugandan women who had experienced at least one pregnancy following genital fistula repair. Participants were purposively selected from a larger mixed-methods study to maximize variation in post-repair pregnancy outcomes and mode of birth. Interviews explored post-repair counseling, perspectives on cesarean and vaginal birth, and experiences seeking and obtaining pregnancy and childbirth care. Data were analyzed thematically using deductive and inductive coding, with the Capability, Opportunity, Motivation–Behavior (COM-B) model used as an analytic lens.

Results: Nearly all women recalled being advised to avoid vaginal birth and deliver subsequent pregnancies by elective cesarean. Women's prior experiences of fistula and childbirth shaped how they evaluated childbirth risks; fear of recurrence could outweigh fear of surgery, although prior experiences could also make cesarean birth a source of concern. Women negotiated the acceptability of cesarean and vaginal birth in relation to clinical guidance, their own experiences, information from others, and anticipated consequences of surgery and recovery. Achieving elective cesarean birth required navigating an interdependent care pathway involving preparation, disclosure, financial and transportation resources, social support, timely facility access, and provider response. Vaginal birth following a recommendation for elective cesarean occurred through distinct pathways: unintended when circumstances overtook plans for cesarean, clinically mediated through provider management, or preferred or actively pursued by the woman. COM-B highlighted how capability, opportunity, and motivation interacted across this care trajectory.

Conclusions: Achieving elective cesarean birth following fistula repair depends on a care trajectory rather than a single decision to follow or not follow a recommendation. Supporting recommended post-repair birth care requires woman-centered counseling that engages women's experiences and concerns, prospective birth planning, and stronger continuity and support mechanisms linking fistula and maternity services.

Keywords: obstetric fistula; cesarean section; childbirth; post-repair pregnancy; maternal health; qualitative research; Uganda; birth planning; continuity of care; COM-B

Introduction

Female genital fistula remains an important obstetrical and gynecological morbidity in Uganda, despite substantial and sustained national investment in its prevention and treatment. Over the past two decades, the Uganda Ministry of Health and partners have expanded prevention, identification and referral, surgical repair, and post-repair services, contributing to important progress in fistula care.[1] Nevertheless, fistula continues to occur and a substantial number of women require treatment and ongoing care following repair. Most female genital fistula in Uganda occur within the context of childbirth, primarily due to prolonged obstructed labor,[1] although iatrogenic injury from cesarean section or other pelvic surgery represents an increasingly recognized proportion of cases.[2,3] Because fistula commonly occurs during women's reproductive years, women may desire additional children following repair.[4-6] Subsequent pregnancy and childbirth are important components of women's post-repair reproductive lives. Ensuring safe childbirth following fistula repair is critical both to protecting the health gains achieved through fistula treatment and to supporting women in safely pursuing their reproductive goals.[7]

Pregnancy and childbirth following fistula repair carry risks of fistula recurrence and adverse maternal and perinatal outcomes. A 2016 scoping review documented recurrent fistula, pregnancy loss, stillbirth, and neonatal death across the available literature, while also highlighting important limitations in the evidence base and the lack of precise estimates of post-repair risks.[8] Subsequent longitudinal research has continued to document fistula recurrence and adverse pregnancy and childbirth outcomes following repair, including recent evidence from Uganda.[9,10] Together, these findings underscore the importance of high-quality care throughout pregnancy and childbirth for sustaining women's health and well-being following fistula repair.

Current guidance from the International Federation of Gynecology and Obstetrics (FIGO) and Uganda's Ministry of Health recommends advising women with a history of obstetric fistula to undergo elective cesarean birth (CS) in all subsequent pregnancies, with delivery planned before the onset of labor to prevent fistula recurrence and promote maternal and newborn health.[11,12] For women with a history of iatrogenic fistula or perineal tear, FIGO notes that vaginal birth may be considered when delivery occurs in a facility equipped to provide comprehensive emergency obstetric care.[11] Other clinical literature similarly emphasizes careful antenatal planning and facility-based delivery following fistula repair.[13-15] Observational evidence supports the importance of such planning but remains limited, although available

studies document variation in post-repair birth mode and associations between vaginal or emergency cesarean birth, recurrent fistula, and other adverse perinatal outcomes. [8-10,16,17]

Women receiving fistula care may be counseled about planned cesarean birth following repair, and prior research indicates that strong motivation among women to avoid fistula recurrence and adverse pregnancy outcomes.[5,6,18,19] Yet substantial variation remains between recommended and achieved mode of birth. In the 2016 scoping review, fewer than half of reported post-repair births were by elective cesarean section, with the remainder occurring by emergency cesarean or vaginally.[8] Evidence explaining this gap remains limited. In particular, little is known about how women receive and interpret recommendations regarding birth mode, their perspectives on elective cesarean section, or the individual, interpersonal, sociocultural and health-system conditions influencing whether recommended care is ultimately achieved.

Prior evidence from Uganda and other lower-resource settings suggests that access to maternity care is shaped by factors operating at multiple levels. Despite high antenatal care coverage, geographic, transportation constraints, sociocultural, and health-system conditions can constrain access to facilities capable of providing cesarean birth.[20] Uganda has a maternity-care fee exemption policy intended to reduce financial barriers to facility-based childbirth;[21] yet women and households may continue to incur both direct and indirect costs associated with obtaining maternity care.[21,22] Women's care-seeking occurs within interpersonal and social contexts shaped by family relationships and the well-documented stigma associated with fistula.[23-28] These intersecting influences provide important context for examining achievement of recommended post-repair birth care within women's social, material, and health-system environments.

This study examined Ugandan women's experiences navigating provider recommendations for elective cesarean section following fistula repair, with the aim of identifying potentially modifiable factors that could support women in achieving recommended care and informing implementation strategies to support safe post-repair childbirth and improve maternal and neonatal outcomes in post-repair pregnancies. We used the Capability, Opportunity, Motivation–Behavior (COM-B) model as an analytic lens to consider the multilevel influences shaping women's experiences of post-repair birth care. [29,30]

Methods

Study design and setting

We conducted a qualitative study using in-depth interviews (IDIs) with women who had undergone genital fistula repair and subsequently experienced at least one pregnancy. The study was nested within a larger explanatory sequential mixed-methods study investigating pregnancy experiences and outcomes following fistula repair.[10] Data collection took place from September 2020 through March 2021 at six fistula repair sites in Uganda: Mulago National Referral Hospital (Kampala), Kamuli Mission Hospital, Kitovu Mission Hospital, Hoima Regional Referral Hospital, Jinja Regional Referral Hospital, and Mubende Regional Referral Hospital.

Study participants

Potential participants were identified using surgical registry data based on the following criteria: women aged 18–49 years (or emancipated minors) who underwent female genital fistula repair for obstetric, iatrogenic, or traumatic etiologies in the previous 10 years, had the potential for pregnancy (i.e., no history of hysterectomy or tubal ligation), and had a telephone contact number recorded. Women were screened by telephone to confirm that they had experienced at least one post-repair pregnancy, regardless of outcome. Interested eligible women completed informed consent and were enrolled in the quantitative component of the study. We then purposively sampled qualitative participants from among the quantitative participants to maximize observed variation in post-repair pregnancy outcome (live birth, stillbirth, spontaneous or induced abortion) and mode of birth (planned cesarean, emergency cesarean, or vaginal). The final sample included 30 women, confirmed iteratively during data collection as thematic saturation was achieved.[31]

Data collection

Purposively selected individuals were invited to complete an in-depth interview with a trained qualitative researcher (HN) to explore their experiences of pregnancy and childbirth following fistula repair, including related care-seeking experiences and influences on care. Interviews were conducted in Luganda or English, lasted approximately 1–2 hours, and were audio-recorded with participant permission. Participants received refreshments and reimbursement for their time and transportation costs.

Measures

The semi-structured in-depth interview guide explored participants' experiences, attitudes, and perspectives regarding pregnancy and childbirth following fistula repair, with particular attention to their first post-repair pregnancy (see supplementary materials). The guide was developed specifically for our study, and was informed by the socioecological model and the COM-B model (described below) to facilitate exploration of individual, interpersonal, and broader contextual influences on pregnancy and childbirth experiences and care.[29,30] Interview topics relevant to the present analysis included counseling regarding recommended post-repair mode of birth; women's understanding of and reactions to these recommendations; perceptions and experiences of cesarean and vaginal birth; and experiences seeking and obtaining childbirth care. Sociodemographic, obstetric, and fistula characteristics were obtained from the parent quantitative survey and surgical record and used to describe the qualitative sample.

Data analysis

Interviews were transcribed, translated into English, and analyzed using a combination of deductive and inductive coding. A six-person multidisciplinary analytic team, including a Ugandan qualitative researcher (HN), two American qualitative researchers (AE, MG) and three American medical or public health trainees (MT, SA, MC), collaboratively developed and iteratively refined the initial coding framework. The analytic team combined Ugandan contextual knowledge with multidisciplinary qualitative, clinical, and public health expertise to support culturally and contextually grounded interpretation of participants' accounts. Team members initially coded transcripts jointly to refine code definitions and establish a shared coding approach, after which transcripts were coded individually using Dedoose (Los Angeles, CA, USA). Analysis proceeded iteratively within and across participants, examining both common patterns and variation in women's accounts. We compared experiences across participants with different pregnancy outcomes and modes of birth and attended to contrasting accounts in which similar birth outcomes occurred under different circumstances. This comparative approach supported development and refinement of themes capturing how women understood recommended birth care, how they evaluated different modes of birth, and the circumstances shaping subsequent care and delivery.

The COM-B model was used as an analytic lens to support interpretation of these themes rather than as the organizing structure for the findings. [29,30] We considered how capability, opportunity, and motivation operated within and across women's accounts and how these influences interacted in shaping post-repair birth care. Themes were iteratively refined to preserve variation in women's experiences and avoiding reduction of participants' individual accounts to discrete barriers and facilitators. Representative

quotations were selected to illustrate common patterns and important variation and are contextualized using broad age category, number of post-repair pregnancies, pregnancy outcome and mode of birth for the first post-repair pregnancy.

Ethical approval

The study was reviewed and approved by the Mulago Hospital Research and Ethics Committee (reference number MHREC# 1674), the Uganda National Council for Science and Technology (reference number HS 2706), and the University of California San Francisco Institutional Review Board (reference number IRB# 19-27901). All participants provided written confirmation of informed consent prior to participation.

Results

Participant characteristics and post-repair pregnancy outcomes

The study included 30 women with prior genital fistula repair who had experienced at least one post-repair pregnancy. Participants varied in age, educational attainment, relationship status, employment, and family size (**Table 1**). Two-thirds (67%) were aged 25–34 years; 40% had completed primary education, 30% had some primary education, and 23% had some secondary education. Two-thirds (67%) were currently in a relationship, and 40% reported being employed. Most (93%) had at least one living child, and 53% had three or more.

All participants reported that their fistula developed in association with prolonged labor, with (37%) or without (63%) surgical intervention during the fistula-associated birth. Most participants had vesicovaginal fistula (63%). Sixty percent experienced their first post-repair pregnancy 18 months or more after repair. Three participants (10%) reported ongoing urinary incontinence at data collection. Participants represented a range of pregnancy and birth experiences following fistula repair. In the first post-repair pregnancy, four women experienced a spontaneous abortion,[a] four a stillbirth, and 22 a live birth. Among the 26 pregnancies ending in stillbirth or live birth, nine were delivered vaginally, 14 by elective cesarean section, and three by emergency cesarean section.

[a] Although the four participants who experienced spontaneous abortion did not ultimately have the opportunity to achieve elective cesarean birth, their narratives were included within this analysis because they experienced fistula repair, post-repair pregnancy counselling, post-repair pregnancy, and associated pregnancy care planning. These individuals therefore contributed relevant perspectives on considering and navigating recommended post-repair perinatal care through the time at which they experienced the loss.

Counseling received on birth mode for post-repair pregnancies

Nearly all participants reported being advised to avoid vaginal birth and deliver subsequent pregnancies by elective cesarean section after fistula repair to reduce the risk of fistula recurrence and other complications. Counseling often extended beyond recommended birth mode; women described being instructed to attend antenatal care, disclose their fistula history, seek care at a hospital capable of providing surgery, and present before labor began. Some also received guidance about delivering at a specific hospital, what documentation to bring, and anticipated costs. Post-repair counseling therefore established not simply a recommended birth mode but an anticipated pathway through pregnancy and delivery:

> *"They stopped us from having normal deliveries and also told us to go to the hospital when we are due. […] They told us not to push. Maybe there are people who forced themselves to, but I didn't." - Interviewee aged 30-39, 2 post-repair pregnancies, elective Cesarean section (CS)*

Timing was central to this pathway because waiting for labor could leave insufficient time to reach surgical care, particularly for women living farther from appropriate facilities. One participant recalled being told:

> "*[We were told] to go to the hospital, "the moment you notice that the pregnancy is mature enough. . ." and … not to wait for contractions from home because they could come and before you run to the hospital, the baby is ready to come out. So we have to go to the hospital before getting those contractions" - Interviewee aged 40-49, 1 post-repair pregnancy, spontaneous abortion*

Participants also recalled being instructed to disclose their fistula history during antenatal care so that providers could plan appropriately. These instructions effectively made women responsible for carrying information about their fistula history across facilities and clinical encounters, particularly when subsequent antenatal and delivery care occurred outside the facility where their fistula repair had been performed. Women generally understood the protective rationale for this guidance, linking "pushing" (vaginal birth) with damage to repaired tissue and fistula recurrence.

Women's accounts varied in how categorical they understood the recommendation against vaginal birth to be, with some women recalling advice that vaginal birth might be possible under certain circumstances. One participant shared her understanding that cesarean was not necessarily required for every woman following fistula repair; rather, providers at the delivery facility would assess women and determine the appropriate mode of birth. Her account illustrates how counseling about elective cesarean could coexist

with visible examples of successful post-repair vaginal birth, reinforcing an understanding that cesarean section might not be required in every case:

> *"I had planned to go because they had told us that if they examine and realize that you need to have the c-section, they will do it and if you are to have a normal delivery, they let you have it.... Because not every woman that goes to [hospital name] gets a c-section [….] You can get lucky and push your baby. There are women at the ward [that have]; you know they take pictures of mothers who gave birth after fistula repairs holding their babies and pin them on the walls." — Interviewee aged <25, 1 post-repair pregnancy, vaginal birth*

Another participant did not recall receiving post-repair counseling about elective cesarean after her fistula repair, instead noting that it had been recommended to her due to having had two prior cesareans. Thus, knowledge about recommended birth mode could accumulate across different clinical encounters.

Overall, most women recalled a broadly understood protective strategy to avoid vaginal birth, disclose their fistula history, seek appropriate antenatal and delivery care, and reach a facility capable of cesarean section before labor progressed. The themes that follow examine how women interpreted this guidance alongside their own experiences and other sources of knowledge, and how their intentions and circumstances shaped what followed.

Fistula changed the reference point for evaluating childbirth risks

Women did not encounter the recommendation for elective cesarean as an abstract choice between delivery modes. Their assessments of subsequent childbirth risk were grounded in the birth during which their fistula developed and their experiences of living with fistula before repair. For many, these experiences shifted the relevant comparison from the anticipated disadvantages of surgery to the possibility of recurrent fistula, another difficult birth, or another adverse outcome. Women could therefore remain afraid of cesarean surgery while considering it the less threatening option:

> "*I wouldn't have any option because I cannot risk getting myself in another vulnerable state of getting fistula again. [Interviewer: did you get scared?] I got scared of [the need for cesarean] but then I fear more getting operated on the bladder (for a recurrent fistula) than having a cesarean birth." - Interviewee, aged<25, 1 post-repair pregnancy, spontaneous abortion*

For many women, fear of recurrence reflected not only concern about another fistula, but also the prospect of again experiencing the physical and social consequences that had accompanied it. One woman who subsequently underwent elective cesarean explained this perspective:

> *"[I had no concerns] at all [because of] the disease that happened to me. I had never seen a disease where someone is smelling. I can't push (give birth vaginally) … even if you give me drugs telling me that the child will come out through my mouth, I wouldn't take it."— Interviewee aged 30–39, 3 post-repair pregnancies, elective CS*

Women's experiences during the birth associated with fistula also shaped their willingness to experience labor again. Participants described prolonged labor, severe pain, fetal loss, and significant physical injury; one woman recalled being left *"in pain and nursing wounds, but with no child."* For women with such experiences, cesarean surgery represented both protection of the fistula repair and a way to avoid repeating a prior childbirth experience.

However, fistula history did not create a strict hierarchy in which vaginal birth was understood to be dangerous and cesarean section as safe. For some women, prior experiences with surgery contributed to concerns about cesarean birth. One participant attributed her fistula to the cesarean surgery performed during the birth in which it developed, sharing: *"They operated on me and caused the fistula."* Others described fearing cesarean-associated bladder injury, pain, anesthesia, or maternal and infant death. One participant explained this perspective:

> *"I was scared of being operated upon; I thought that I might get some complications with my bladder again." —Interviewee aged 25–29, 2 post-repair pregnancies, vaginal birth*

The comparison being made was therefore not simply between a high-risk vaginal birth and a risk-free cesarean section, but between two alternatives with different perceived risks grounded in women's prior experiences. Women's perceptions of these risks could also change with subsequent birth experiences. For example, among women who subsequently delivered vaginally without adverse outcome, that experience provided new evidence for reformulation of relative risk in future pregnancies, even when it differed from their post-repair counseling.

Women's histories of fistula and childbirth therefore shaped how they interpreted provider recommendations. Counseling provided one explanation of recurrence or adverse outcome risk, but women understood that risk in relation to what they already experienced. For women who associated fistula with traumatic labor, leakage, social consequences, or loss, avoiding recurrence could outweigh fears of surgery. For women who associated their fistula with an operation, however, a recommendation for cesarean birth could reinforce rather than reduce concerns about risk.

Women negotiated competing understandings of safe and acceptable birth

Women's responses to elective cesarean recommendations were not characterized by a simple distinction between acceptance and refusal. Many accepted its protective rationale while remaining afraid of surgery; others became more comfortable with the possibility of cesarean through experience; and some continued to value vaginal birth despite understanding that providers considered it risky for them. What women considered acceptable reflected how they weighed protection from fistula recurrence and other adverse outcomes against concerns about surgery, what they heard from others about their experiences with different birth modes, and what cesarean birth and recovery would mean in their own lives.

Women's assessments of cesarean surgery drew on multiple sources of information and experience. Previous surgical experiences and accounts from family and community members contributed to fears of pain, death during surgery, anesthesia, and longer-term physical effects, while positive cesarean experiences among friends or relatives could provide reassurance. These concerns did not necessarily lead women to rejection of cesarean birth. Some continued to view surgery as frightening or dangerous while accepting it as the safer option compared with fistula recurrence or other adverse maternal and infant outcomes, as voiced by the following participant:

> *"I was worried because if one has a c-section, it is really scary […] sometimes when you have a c-section, either you do not survive or the baby doesn't. […] I did not have any alternative. It is my life I would be saving." —Interviewee aged 30–39, 1 post-repair pregnancy, vaginal birth*

Family members and peers also shaped women's perspectives on mode of birth. Some women were encouraged to avoid cesarean section or told that vaginal birth remained possible after fistula repair. One participant recalled being advised to use herbs to facilitate vaginal birth: "*They told me not to have the C-section, saying I should look for herbs to make me push. If you listen to them, you will find yourself dying in the process*." Women therefore encountered advice about birth mode from multiple sources, which did not always align with guidance from fistula care providers.

Acceptability also depended on what women expected cesarean recovery to require in their everyday lives. Concerns about limitations on lifting, household work, and caregiving were particularly important when these responsibilities could not readily be transferred to someone else:

> *"I knew [having a cesarean birth] would affect me since I have a lot of responsibilities. […] For example the chores at home are all done by myself and I had no one to help me. […] I*

> *wouldn't allow [being operated on when I got pregnant]."—Interviewee aged 25–29, 1 post-repair pregnancy, vaginal birth*

Her reluctance reflected not only her concerns about undergoing the surgery itself, but also the anticipated consequences of recovery without practical support. Participants also described community beliefs that cesarean surgery reduced women's physical strength, limited their ability to do heavy work, shortened their lives, or signaled an inability to push (give birth vaginally). Women's own experiences were seen to modify these expectations, with uncomplicated cesarean births making surgery and recovery seem less difficult than they had anticipated.

Understanding the protective rationale for cesarean did not eliminate the value some women placed on vaginal birth. For some, vaginal birth was valued not simply because it avoided surgery but because labor and "pushing" were themselves socially meaningful:

> *"Every woman should get a chance to have a normal delivery although there are some who ask for the c-sections. Personally, I prefer pushing to having the c-section.... It is a good thing to push your child [...] because I will know that I have struggled to have the baby."—Interviewee aged 40–49, 2 post-repair pregnancies, vaginal birth*

For some women, vaginal birth therefore represented an embodied accomplishment rather than simply the avoidance of surgery. What women observed and experienced after repair could also affect how they understood the risks of vaginal birth. For example, some had seen other women deliver vaginally following fistula repair without apparent recurrence, while others had themselves done so. Conversely, uncomplicated cesarean experiences could reduce fears of surgical birth. Clinical guidance, what women heard from others, and what they had experienced themselves could therefore point them toward different conclusions about what constituted a safe and acceptable birth.

What women considered a safe and acceptable mode of birth was therefore dynamic rather than fixed. Their perspectives could change with new birth experiences and reflected how they weighed clinical recommendations against their own experiences, what they heard and observed around them, and the anticipated consequences of each mode of birth.

Achieving planned cesarean birth required navigating a complex and uncertain care pathway

Women's accounts demonstrated an important gap between accepting or intending elective cesarean and ultimately achieving it. Obtaining an elective cesarean required a series of actions across pregnancy and

childbirth: engaging with antenatal care, disclosing fistula history, identifying a facility capable of surgery, anticipating when birth might occur, mobilizing money and transportation, arranging support, and reaching care before labor progressed. Whether this pathway resulted in elective cesarean also depended on the timing of labor and how providers responded once women reached care. Elective cesarean was therefore not a single behavior but the endpoint of an interdependent care pathway that women had to anticipate and navigate. When elective cesarean was not achieved, vaginal birth occurred through three distinct pathways: unintended, clinically mediated, or preferred and actively pursued.

Some women prepared well in advance by identifying facilities with surgical capacity, saving money, arranging transportation, and moving closer to care before their expected delivery. One participant described temporarily relocating to her mother's home so that she could reach the hospital quickly if labor began:

> *"One week to my delivery date, I went to my mother's home where we hired a car to take us to the hospital.... I went a week before because they told me that I could get into labor anytime."—Interviewee aged 25–29, 2 post-repair pregnancies, spontaneous abortion*

Women also described having to make sure that maternity providers knew about their fistula history and prior birth recommendation, sometimes requiring them to advocate for the care they had been advised to seek. Several participants described needing to push back against initial maternity provider instructions due to their fistula history:

> *"When they told me to push, I told them that I couldn't do it because I had a fistula repair. They were going to induce labor but I refused and asked them to operate on me. When I explained to them [my fistula history], they immediately operated on me." — Interviewee aged 25–29, 2 post-repair pregnancies, elective CS*

These accounts show how continuity between fistula and maternity care often depended on women carrying information across facilities and communicating or documenting their history to subsequent providers. In some cases, women also had to advocate for elective cesarean when the care initially proposed differed from what they had previously been advised.

Financial constraints could interrupt this pathway even when women understood and intended to follow the recommendation. Participants described costs associated with transportation, hospital care, medications, supplies, and food, as well as experiences of being asked for payment before receiving treatment or leaving care with outstanding balances. Free or subsidized cesearean at some fistula facilities

reduced part of this burden but did not eliminate the resources required to reach and remain in care. For example, one participant described saved for transportation but could not afford the operation itself:

> *"From my home, you have to spend UGX10,000 shillings to town. [Then, from town to the hospital], the fare is about UGX20,000.... I had the money to get me to the hospital, but I did not have the money to pay for the operation."—Interviewee aged 30–39, 1 post-repair pregnancy, vaginal birth*

She summarized the consequence directly: *"If I had money, I would have had a c-section."* Her vaginal birth therefore reflected financial inability to carry out her intended plan rather than unwillingness to undergo cesarean birth. In contrast, some women described providers helping them overcome financial constraints by arranging medications or financial assistance.

Practical support from partners and family members could also determine whether women were able to carry out plans for cesarean birth. Partners and relatives provided money for transportation, food, accompaniment, childcare, and assistance during hospitalization and recovery. This support provided resources and labor that could make cesarean birth practically achievable, rather than functioning only as emotional encouragement. Conversely, lack of support could undermine an intended plan. For example, one participant explained that she had not prepared for a cesarean birth because her husband told her, *"I will not step a foot there."* Other women described relying on mothers, siblings, aunts, friends, or providers when partners were unavailable or unwilling to help.

Knowledge of the recommended pathway did not always lead women toward elective cesarean. For women who preferred vaginal birth, knowing how providers might respond to their fistula history could also affect decisions about disclosure. One participant explained that labor pain contributed to her delayed disclosure, while also acknowledging that earlier disclosure would likely have resulted in cesarean birth, which she did not want:

> *"I told them [about my fistula history] later on.... I did not even recall about all that in the first place because of the pain that I was feeling. Had I told them in the first place, they wouldn't have allowed me to have a normal birth. They would have operated me, [which I did not want]."—Interviewee aged 25–29, 2 post-repair pregnancies, vaginal birth*

Her account demonstrates that greater knowledge did not necessarily increase the likelihood of elective cesarean. She understood both the recommendation and how disclosure of her fistula history could influence provider management, but she also preferred vaginal birth.

Even women who intended to have an elective cesarean could have their plans overtaken by unexpectedly early or rapid labor. For some, labor progressed too quickly to narrow or eliminate the time available to reach surgical care, as described by one study participant:

> *"I would do it but I didn't even know that the baby was about to come out.... I had very quick labor which couldn't let me come to the hospital early enough; I came so late.... I was going to tell them [about the fistula repair] but according to the amount of labor pain that I had by the time I reached the hospital, I forgot to tell them." —Interviewee aged 25–29, 1 post-repair pregnancy, vaginal birth*

Another woman began labor at night, and while her partner was attempting to obtain transportation money, she gave birth at home despite knowing she had been advised to reach the hospital before labor. These accounts show how the timing of labor can disrupt an intended cesarean even when women understood the recommendation and had planned to follow it.

Reaching a health facility did not necessarily mean that the previously recommended mode of birth would be implemented. Participants described providers permitting or instructing vaginal birth, delays in obtaining surgery, being asked to purchase supplies or make payments, and having to repeat their fistula history or present documentation before elective cesarean was provided. In one account, a woman understood that her husband's signature would be required before surgery, creating an additional requirement for obtaining time-sensitive care.

Taken together, these accounts revealed at least three qualitatively distinct pathways to vaginal birth following a recommendation for elective cesarean. For some women, vaginal birth was unintended, occurring when rapid labor, transportation difficulties, financial constraints, or other circumstances overtook plans for cesarean. For others, it was clinically mediated, occurring after providers permitted or directed vaginal delivery despite the woman's prior fistula history. For still others, vaginal birth was preferred or actively pursued, including instances in which women delayed disclosure or otherwise sought to preserve the possibility of vaginal delivery. The same observed birth mode could therefore result from very different intentions, clinical decisions, and material, social, temporal, and health-system circumstances.

These contrasting trajectories demonstrate why neither knowledge of the recommendation nor expressed intention to follow it was sufficient to explain achieved birth mode. Knowledge could help women prepare for and advocate for elective cesarean, but it could also shape disclosure when vaginal

birth was preferred; meanwhile, women who intended cesarean could still be unable to obtain it because of financial, logistical, social, clinical, or temporal circumstances. Achieving elective cesarean therefore emerged not as a single decision to “adhere” or “not adhere,” but as a care trajectory extending from counseling through antenatal care, preparation, facility access, labor, disclosure, and provider response.

Integrative conceptual framework

Viewed through COM-B, elective cesarean birth can be understood as the outcome of a care trajectory extending from post-repair counseling and risk appraisal through birth-mode acceptability and navigation of pregnancy and childbirth care (**Figure 1**). Capability included women's understanding of the recommendation and knowledge of how to navigate care; motivation encompassed their appraisal of recurrence and cesarean-related risks, preferences, and prior experiences; and opportunity included the social, material, temporal, clinical, and health-system conditions that enabled or constrained women in acting on their intentions. Importantly, these domains operated across and interacted throughout the care trajectory rather than functioning as discrete determinants of a single delivery decision, helping to explain why similar birth outcomes could arise through different pathways.

Discussion

This study examined how Ugandan women understood and navigated recommendations for elective cesarean birth following genital fistula repair. Women's prior experiences of fistula and childbirth shaped how they evaluated the risks of subsequent birth; the acceptability of cesarean birth was negotiated through clinical guidance, women's own experiences, information from others, and the anticipated consequences of surgery and recovery. Achieving elective cesarean birth also required navigating an interdependent care pathway extending across pregnancy, preparation, facility access, labor, disclosure of fistula history, and provider response. Together, these findings demonstrate why achieved birth mode alone is an incomplete indicator of women's engagement with recommended post-repair care.

The limitations of using achieved birth mode alone were particularly apparent among women who delivered vaginally. Vaginal birth could be unintended when rapid labor or other circumstances overtook an intention for cesarean, clinically mediated when providers permitted or directed vaginal delivery, or preferred and actively pursued by the woman. These pathways are substantively different: a woman who intended to undergo cesarean but was unable to reach appropriate care in time had engaged with the recommendation differently from a woman who preferred vaginal birth, while provider-directed vaginal

birth reflected yet another pathway. The same observed birth mode could therefore reflect very different intentions, clinical decisions, and social, material, temporal, and health-system circumstances. Analyses that classify post-repair care solely by final mode of birth may obscure these differences, including women's efforts to follow clinical recommendations and the conditions that enabled or constrained them from doing so. Distinguishing the pathways leading to achieved birth mode is therefore important for identifying where post-repair care diverged from what was recommended or intended and what types of support may be needed.

Existing studies of pregnancy following fistula repair have primarily characterized outcomes according to achieved mode of birth, including elective cesarean, emergency cesarean, and vaginal birth.[8-10] These studies establish an important gap between recommended and observed care but provide limited insight into the processes leading to different birth outcomes. Our findings help explain some of this variation by distinguishing different pathways to the same observed birth mode. This distinction has important implications for intervention: additional counseling is unlikely to prevent a vaginal birth caused by rapid labor in a woman who already understands and intends to follow the recommendation, just as addressing transportation or financial constraints may not change the decision of a woman who understands the recommendation but prefers vaginal birth. Interventions therefore need to be responsive to the mechanism through which recommended or intended care diverges from achieved care. Treating all vaginal births following a recommendation for elective cesarean as equivalent risks obscuring women's agency in some cases while attributing outcomes produced by logistical, temporal, clinical, or health-system constraints to individual nonadherence in others. It may also direct interventions toward factors that did not produce the observed birth outcome.

Prior qualitative research has documented persistent fear of fistula recurrence and concern about pregnancy following fistula repair, alongside the profound physical, social, and emotional consequences of fistula.[32,33] Our findings extend this literature by showing how these experiences became a reference point for evaluating competing childbirth risks. For some women, experiences of prolonged labor, fetal loss, incontinence, and the social consequences of fistula made recurrence more threatening than cesarean birth, allowing women to accept surgery despite substantial fear. Yet prior fistula experience did not uniformly increase acceptance of cesarean birth. For women who associated their fistula with an operation, surgery itself could remain an important source of perceived risk. Women's responses to recommendations for elective cesarean therefore cannot be understood solely in terms of knowledge or

misinformation; their assessments of risk were also grounded in experiences of labor, surgery, injury, loss, and recovery, even when their interpretations differed from clinical explanations of risk.

Women's assessments also occurred within broader social meanings surrounding mode of birth. Qualitative studies in eastern Uganda have documented strong preferences for vaginal birth and associations of vaginal delivery with strength and accomplishment, while cesarean birth may be perceived as dangerous, expensive, physically limiting, or indicative of an inability to give birth vaginally.[34,35] Similar perspectives appeared in our participants' accounts, but women negotiated them in the context of their prior fistula experiences and post-repair counseling. Women could value pushing and vaginal birth while understanding why providers considered it risky, or fear and dislike cesarean birth while concluding that it offered greater protection from another fistula. Their own subsequent birth experiences could further alter these assessments: an uncomplicated cesarean could reduce fears of surgery, while vaginal birth without apparent fistula recurrence could reinforce women's perceptions that vaginal delivery remained possible. Clinical guidance therefore existed alongside what women heard from others and what they had experienced themselves, and these sources did not always point toward the same conclusion. Counseling may therefore need to engage explicitly with women's prior experiences and the information they have heard or observed, rather than assuming that provision of clinical information alone will determine how women understand their options. Emerging literature suggests that counseling around cesarean birth may be more effective when it addresses fears and inaccurate information while also recognizing the social and personal value women may place on vaginal birth.[36-38] Our findings reinforce the importance of this approach following fistula repair, where counseling must communicate the specific risks associated with mode of birth without dismissing the experiences and meanings women bring to these decisions.

Women's ability to act on their birth preferences and plans was also shaped by gendered and household relationships. Partners and family members could provide the money, transportation, childcare, and practical support needed to make cesarean birth feasible, while lack of support could leave women unable to prepare for or obtain surgical care. These findings are consistent with broader evidence from Uganda and the region showing that women's access to maternity care is shaped by household resources, decision-making relationships, and gendered control over financial and practical support.[20,39,40] Rather than functioning only as sources of encouragement or opposition, partners and family members affect the material conditions under which women attempted to carry out their birth plans.

Women's accounts complement our recent qualitative research with Ugandan fistula-care providers. Providers emphasized elective cesarean birth, early pregnancy planning, disclosure of fistula history, presentation before labor, and delivery at facilities capable of providing surgical care, while also identifying challenges in maintaining continuity between fistula and subsequent maternity services.[41] The present study shows how these challenges were experienced by women. Participants were effectively made responsible for carrying information about their fistula repair and recommended birth care across subsequent encounters, through disclosure, documentation, and, in some cases, advocacy when the care initially proposed differed from what they had previously been advised. Together, the provider and women's perspectives suggest that counseling alone is insufficient if the recommendation does not remain visible and actionable across subsequent maternity care. Stronger mechanisms for transferring information and coordinating care between fistula and maternity services may reduce reliance on women to maintain this continuity themselves.

Broader maternal-health research similarly shows that financial resources, transportation, geographic access, social support, and health-system conditions interact to shape women's access to maternity care in Uganda and across the region.[21,39,42] The post-repair context adds a particularly time-sensitive dimension to these challenges because women advised to undergo elective cesarean birth before labor must mobilize resources and reach an appropriately equipped facility within a window that cannot be fully predicted or controlled. Rapid labor may overtake substantial preparation, while reaching a facility does not itself ensure that prior recommendations will be implemented if the woman's fistula history is not recognized or providers make a different clinical assessment. Ugandan research similarly highlights that facility arrival alone does not ensure that women's needs for appropriate and responsive childbirth care are met. [42] For women who have undergone fistula repair, effective access therefore requires more than reaching a facility: women must reach appropriate care at the necessary time, with their clinically relevant history and birth recommendation available and acted upon. Financial, logistical, social, temporal, and health-system conditions are therefore better understood as interacting components of the care pathway than as independent barriers.

COM-B provides a useful lens for understanding how these influences interacted across the care trajectory. In our study, capability, opportunity, and motivation did not correspond to separate barriers or individual themes. Knowledge of the recommendation could support preparation, disclosure, and advocacy for elective cesarean birth, but it could also shape disclosure when vaginal birth was preferred.

Strong motivation to avoid fistula recurrence could make cesarean birth acceptable despite fear but could not overcome inadequate resources, unexpectedly rapid labor, or health-system constraints. Likewise, access to facility care did not necessarily result in elective cesarean birth when women preferred vaginal birth or providers made a different clinical assessment. COM-B therefore helps explain how the same capability, opportunity, or motivation may have different consequences depending on how it interacts with other influences and where it occurs along the care pathway. Women's experiences of one birth could also reshape subsequent risk perceptions, preferences, and knowledge, meaning that these influences could change across pregnancies. Figure 1 represents these interactions across the post-repair birth trajectory.

These findings point to several opportunities for strengthening post-repair maternity care. Counseling should provide clear information about the rationale and timing of elective cesarean birth while also engaging women's prior experiences of fistula and childbirth, concerns about surgery, information they have received from others, and expectations about recovery. Fistula survivors may also be an important source of peer information and support.[43] Women's accounts showed that the post-repair birth experiences of other survivors influenced their perceptions of what was possible, including whether they perceived vaginal birth as remaining possible. Counseling and peer-support approaches should therefore recognize the influence of survivor experience while clearly contextualizing individual experiences within current clinical recommendations and each woman's clinical history. Counseling should also translate into prospective birth planning that identifies an appropriate facility, transportation and financial arrangements, practical support, and contingency plans for unexpectedly early or rapid labor. Stronger continuity mechanisms between fistula and maternity services could further reduce reliance on women as the primary carriers of their clinical history and birth recommendation. Written documentation may help, but referral pathways, advance communication with intended delivery facilities, and other mechanisms for transferring clinical information could make recommended care less dependent on women's ability to disclose, explain, and advocate during time-sensitive encounters.

Interventions should recognize that different pathways leading to birth modes other than elective cesarean require different responses. A woman who prefers vaginal birth may benefit from counseling that engages her experiences, values, and understanding of comparative risk, while a woman who intends cesarean birth but faces financial or transportation constraints requires material and logistical support. Prospective planning may also involve partners, family members, or other members of a woman's support

network, where desired by the woman, particularly when transportation, financing, childcare, or assistance during recovery will be needed. A woman whose plan is overtaken by unexpectedly rapid labor requires contingency planning, while differences between prior counseling and management at the delivery facility raise questions about communication and continuity across providers. Treating all vaginal births following a recommendation for elective cesarean as equivalent risks obscuring women's agency in some cases while attributing outcomes produced by logistical, temporal, clinical, or health-system constraints to individual nonadherence in others. Rather than asking only whether women followed the recommendation, post-repair programs should identify where and why recommended or intended care pathways diverged and target modifiable conditions at those points.

Strengths and limitations

This study's purposive qualitative sample included women with varied post-repair pregnancy outcomes and modes of birth, enabling comparison of experiences and trajectories leading to elective cesarean, emergency cesarean, and vaginal birth. Attention to contrasting cases was particularly valuable in identifying different pathways leading to the same observed birth mode. The use of COM-B as an analytic lens supported consideration of individual, social, material, temporal, clinical, and health-system influences without requiring the findings to be organized into predetermined framework categories. Several limitations should be considered. Participants retrospectively described counseling, pregnancy, and childbirth experiences, introducing the potential for recall bias. We captured women's recollections and interpretations of counseling rather than directly observing counseling encounters; variation in recalled guidance therefore should not be interpreted as evidence of systematic inconsistency among providers. Similarly, reports of facility practices, including payment or consent requirements, reflect participants' experiences and perceptions and should not be generalized as formal facility policies. Circumstances surrounding fistula development were self-reported rather than independently clinically adjudicated. Although all participants reported that their fistula developed in association with prolonged labor, 37% also reported surgical intervention during the fistula-associated birth. We therefore cannot determine with certainty whether all participants' fistulas resulted from prolonged obstructed labor rather than possible iatrogenic injury during its management. This distinction is clinically important because current recommendations for subsequent mode of birth differ for obstetric and some iatrogenic fistula.[11] Because eligibility for the parent study required having experienced at least one post-repair pregnancy, our findings reflect the experiences of women who became pregnant following fistula repair and may not represent women who did not have a subsequent pregnancy. This distinction is important

because pregnancy desires following fistula repair vary and may change over time, and concerns about fistula recurrence and cesarean birth may themselves influence whether women desire or pursue another pregnancy.[6] The three pathways to vaginal birth identified in this analysis are qualitative distinctions rather than estimates of their prevalence, and vaginal births without apparent recurrence should not be interpreted as evidence that vaginal birth following obstetric fistula repair is clinically safe. Finally, participants were recruited from women connected to fistula-repair services in Uganda, and experiences may differ among women with less access to repair or post-repair follow-up care.

Conclusions

Achieving elective cesarean birth following genital fistula repair depends on a care trajectory extending from post-repair counseling through pregnancy planning, access to appropriate maternity care, labor, and provider response, rather than on a single decision to follow or not follow a recommendation. Women may understand the recommendation yet differ in how they interpret its risks and acceptability, whether they intend to follow it, and whether the social, material, temporal, clinical, and health-system conditions needed to carry out that intention come together. Vaginal birth following a recommendation for elective cesarean can therefore occur through distinct pathways and should not be interpreted uniformly as rejection of recommended care. Supporting safe post-repair childbirth requires both woman-centered communication and systems that make recommended care achievable. Counseling should engage women's experiences and the information they receive from others while providing clear clinical guidance; prospective birth planning should anticipate financial, logistical, social-support, and timing needs; and stronger continuity mechanisms should reduce reliance on women to carry clinical information between fistula and maternity services. Future research should evaluate approaches that combine these strategies and determine how best to support women in achieving elective cesarean birth when clinically recommended and intended.

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TABLES AND FIGURES

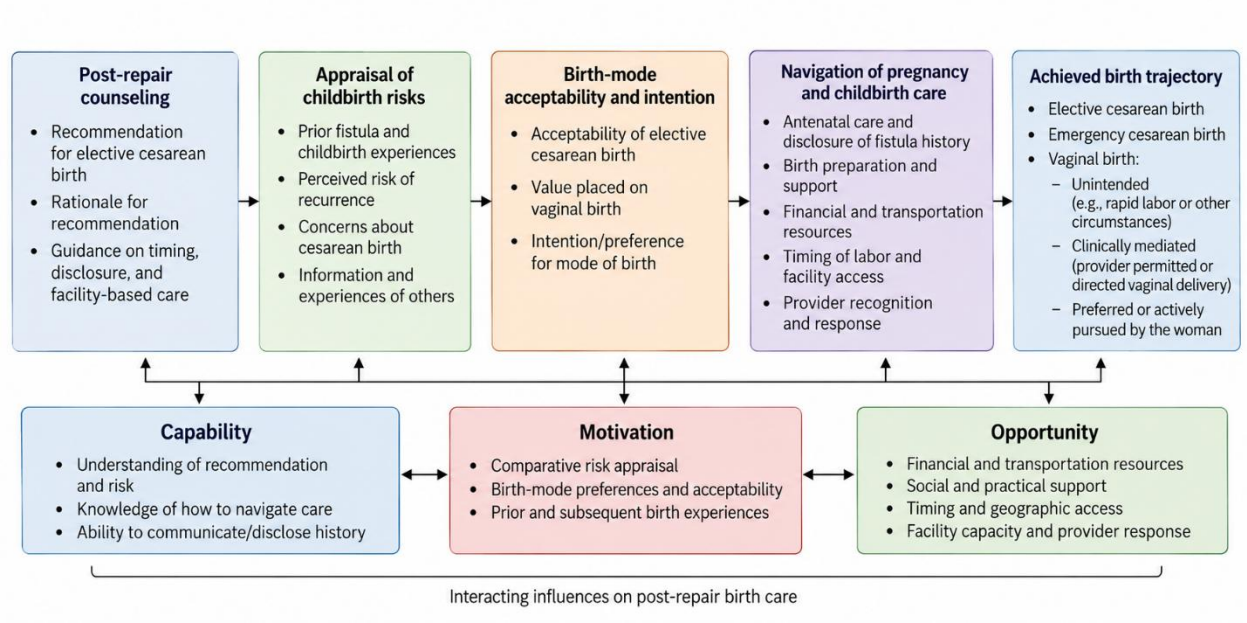
Table 1. Sociodemographic, fistula, and post-repair pregnancy characteristics of study participants

Characteristic	N=30	
	N	%
Sociodemographic characteristics		
Age		
Below 25 years	4	13
25-29 years	11	37
30-34 years	9	30
35-39 years	1	3
40 or more years	5	17
Educational attainment		
None	2	7
Some primary	9	30
Completed primary	12	40
Some secondary	7	23
Completed secondary or higher	-	-
Relationship Status		
Currently in a relationship	20	67
Not currently in a relationship	10	33
Employed	12	40
Number of children alive		
None	2	7
1-2	12	40
3 or more	16	53
Fistula and post-repair pregnancy characteristics		
Fistula type[a]		
VVF	19	63
RVF	8	27
VVF/RVF combined	1	3
Other	2	7
Fistula development		
Prolonged obstructed labor, with surgery	11	37
Prolonged obstructed labor, without surgery	19	63
Current incontinence		
Urinary	3	10
Fecal	0	0
Time to first pregnancy following fistula repair		
<6 months	1	3
6-12 months	4	13
12-18 months	7	23
18-24 months	3	10

2-4 years	11	37
4 yrs+	4	13
Fetal/infant outcome		
Spontaneous abortion	4	13
Stillbirth	4	13
Live birth	22	73
Birth mode	(n=26)	
Vaginal	9	35
Elective cesarean	14	54
Emergency cesarean	3	12

Notes: [a]abstracted from surgical record

Figure 1. Data-informed conceptual framework of post-repair care trajectories using COM-B.



Supplementary Files

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- PostRepairPregIDIGuideWomen.docx