ORIGINAL ARTICLE

Knowledge and Perceptions of Post-Operative Physiotherapy Management among Women with Obstetric Fistula: Experience at Mansa General Hospital, Zambia

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ABSTRACT

Background: Obstetric fistula, resulting from neglected obstructed labour or childbirth injuries, can benefit from post-repair physiotherapy to optimize post-operative recovery outcomes. However, it is uncertain whether women in Mansa District are aware of the importance of physiotherapy in improving post-operative recovery.

Objective: To explore knowledge and perceptions of post-operative physiotherapy management among women with obstetric fistula at Mansa General Hospital in Luapula Province, Zambia.

Methods: This study used a qualitative phenomenological design and involved 12 women selected purposively, seeking obstetric fistula repair and rehabilitation at Mansa General Hospital in Luapula Province, Zambia. In-depth interviews guided by a structured interview guide were conducted, and thematic analysis was used to analyse the data, ensuring ethical standards were maintained.

Results: The study found that participants had limited knowledge about obstetric fistula and the role of physiotherapy in its treatment. However, those who underwent at least two weeks of post-operative pelvic floor muscle training experienced significant improvements, especially in bladder control. Challenges in accessing physiotherapy included logistical issues, transportation difficulties, insufficient funds, lack of awareness about physiotherapy services, unavailability of trained physiotherapists in local facilities, and issues with remembering and understanding exercises taught during sessions.

Conclusion: The study concluded that most women at Mansa General Hospital were unaware of physiotherapy's role in managing obstetric fistula, due to limited information and lack of local physiotherapy services. To enhance awareness and utilization of physiotherapy, the study recommends

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improving literacy and increasing the availability and accessibility of essential healthcare services, including rehabilitation, in the region. This would help better support women with obstetric fistula in the area.

INTRODUCTION

Obstetric fistula is a maternal morbidity condition which occurs in some low-income countries, caused by prolonged obstructed labour that results in a hole between the vagina and the bladder or rectum through which urine or faeces leak. This occurs when the presenting foetal part continually compresses the birth canal tissues, bladder base, urethra, or sometimes rectum, causing ischemia and necrosis of the tissues, resulting in a fistula. Obstetric fistula, while largely eliminated in developed countries, continues to be a significant public health issue in many developing nations. An estimated 2 million women worldwide, particularly in Africa and Asia, are living with obstetric fistula. In sub-Saharan Africa and South Asia, where access to appropriate obstetric and surgical care is limited, millions of cases persist.[2,] Women living with obstetric fistula experience high morbidity and often suffer adverse economic and psychosocial consequences, including loss of income or employment, low self-esteem, depression, lowered community status, divorce, social isolation or expulsion from communities, or physical co-morbidities such as foot drop, joint contractures and pain.

While there have been improvements in access to surgical repair in sub-Saharan Africa, many women still face ongoing physical and psychological challenges as they attempt to regain their previous roles or adapt to new ones. Physiotherapy plays a crucial role in optimizing general health and addressing rehabilitation needs, both before and after obstetric fistula repair, and should be an integral part of fistula care. Studies show that physiotherapy treatment following fistula repair can improve outcomes related to urinary and faecal incontinence, pelvic floor dysfunction, and overall recovery.[8] Brook and The ICS Physiotherapy Committee state that physiotherapy should include specific advice on bladder and bowel care in addition to pelvic floor muscle training to optimize outcome. However, women's understanding and perceptions of physiotherapy and rehabilitation care are key to the recovery of pelvic floor functions of women post-fistula repair as they considerably influence their choice of and adherence to treatment and care.

In Zambia, the government has made significant efforts to improve healthcare and education access, as demonstrated by ongoing initiatives to enhance infrastructure and service quality in these sectors. Despite the Zambian government's ongoing efforts to improve healthcare and education access, particularly in Luapula Province, many women remain unaware of the role physiotherapy can play in managing obstetric fistula. This lack of awareness leads to poor adherence to physiotherapy treatment, which could hinder their recovery. There is a clear gap in evidence regarding the knowledge and perceptions of physiotherapy among Zambian women with obstetric fistula, and addressing this gap is crucial to improving treatment outcomes and ensuring better care for these women. Therefore, this study set out to explore the knowledge and perceptions of post-operative physiotherapy among women with obstetric fistula at Mansa General Hospital in Luapula Province, Zambia.

METHODS

Study design:

This study adopted a phenomenological study design utilizing qualitative methods.

Study site:

Study was conducted at Mansa General Hospital in Mansa, Luapula Province, in Zambia. Mansa General Hospital provides Second Level health services to Mansa, Milenge, Samfya, Mwense, Kawambwa, Chiengi and Nchelenge Districts. This site was selected because it is the provincial fistula centre, where fistula repair surgeries are done.

Study population:

The study population included women in the reproductive age group diagnosed with obstetric fistula and were eligible for or had undergone surgical fistula repair. This age group is particularly important as it is the reproductive age and a period of heightened risk for obstetric fistula.

Sample selection:

Purposive sampling was used to select study participants. Reproductive women aged below 16 years were excluded as they were below the legal age of consent. Those who did not consent to participating were also excluded.

Sample size:

Twelve participants were successfully recruited and interviewed. By the time the 12th participant was interviewed, no new themes were identified, indicating saturation had been reached. This sample size is consistent with recommendations for sample size in qualitative studies.

Data collection:

Data were collected through in-depth interviews using a structured interview guide adapted from related studies. Responses were recorded using a voice recorder and notebook. For easy comprehension, questions were translated into Bemba, an indigenous local language in Luapula Province. To pre-test the data collection tool, a pilot study was conducted at Kapanda Mini Hospital on a sample of 3 women with obstetric fistula who were selected purposively. Following the pilot study, minor adjustments were made to the data collection tool including paraphrasing of some questions on knowledge of obstetric fistula. In the main study, participants were given adequate explanation regarding the study objectives and assured of their voluntary participation and right to withdraw from the study at any time. Participants who agreed to take part in the study were then asked to sign a consent form and interviewed. The interviews were done in a clinic cubicle to ensure privacy. Reponses from participants were recorded using an audio record and transcribed verbatim.

To reduce bias, particularly social desirability bias, the researcher ensured that participants' identities were not connected to their responses. Additionally, participants were clearly informed that there were no "right" or "wrong" answers, and that their responses would be accepted without judgment. These measures were designed to foster a comfortable environment that encouraged honest answers, helping to minimize social desirability bias, especially given the sensitive nature of obstetric fistula in the study context.

Data management and analysis:

Data analysis was conducted using thematic analysis, which involved several key steps. First, the researcher familiarized themselves with the data. The second step involved generating codes by organizing and systematizing the data into meaningful segments. In the third step, the researcher identified patterns among the codes and developed themes, with one theme potentially encompassing multiple codes. The fourth step was to review the generated themes to ensure they accurately represented the data. This involved reading through the data linked to each theme to verify that it supported the theme appropriately. In the fifth step, the researcher named and defined the themes, providing a clear description of each theme's meaning. This was crucial for understanding the data and interpreting what each theme represented. Lastly, the sixth step involved writing up the analysis in a report, presenting the results in a narrative format. This process ensured that the themes were not only logically organized but also accurately reflected the data, providing a comprehensive understanding of the research findings.

RESULTS

Twelve participants were successfully recruited and interviewed through in-depth interviews. The findings of this study have been presented in the form of narratives as follows:

Development of Themes

Based on the study's goals and the body of material that was at hand, the themes in the current study were predetermined. Women with Vesico-vaginal fistula and Recto-vaginal fistula provided some insightful first-hand information for the study about the post-operative physiotherapy management. The three major features of fistula treatment post-operatively were developed by the predetermined and emerging themes, listed in the table 1 below.

Table 1: Summary of themes and sub-themes

Themes	Sub-themes
Knowledge of obstetric fistula	Knowledge of the condition obstetric fistula
Comprehension of post physiotherapy management	Participants' awareness of physiotherapy Interdisciplinary team awareness of physiotherapy Understanding of physiotherapy management
Perceptions of post physiotherapy management	Effectiveness of post-operative physiotherapy exercises Perceived results of post-operative physiotherapy exercises
Challenges faced by women with obstetric fistula	Psychosocial challenges Economic challenges Unavailability of physiotherapy services Poor compliance to home exercise program

The thematic schema below shows the relationships among the themes and subthemes:

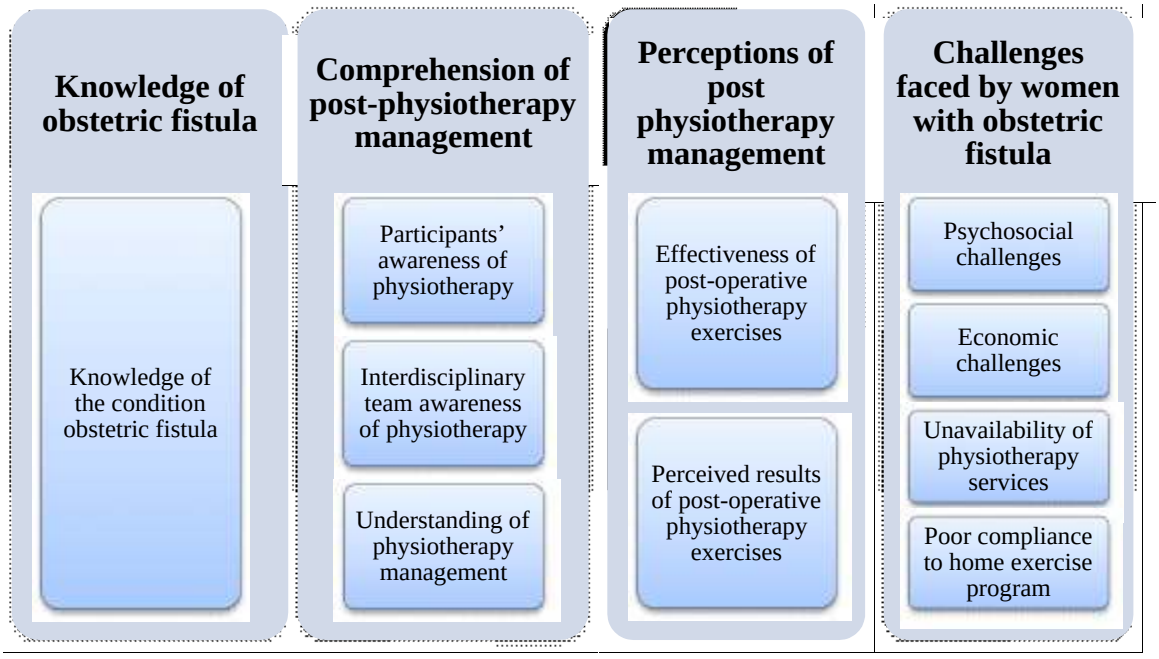

Figure 1: Thematic schema showing the relationships among the themes and subthemes

Participants' characteristics

Study participants were aged between 20 and 48 years; majority were married housewives; and resided in the rural communities of Chiengi District. Furthermore, most of them had vesico-vaginal fistula while the rest had recto-vaginal fistula. One participant, however, had both. The most common type of obstetric fistula surgery performed on this group of participants was vesico-vaginoplasty. Table 2 below summarize participants' characteristics:

Table 2: Participants' characteristics

Participant code	Age	Marital status	Occupation	Fistula type	Obstetric surgery
Participant 01	22	Married	Housewife	Vesico-vaginal fistula	Vesico-vaginal fistula plasty
Participant 02	40	Married	Housewife	Recto-vaginal fistula & Vesico-vaginal fistula	Vesico-vaginal fistula plasty & Colpoperineorrhaphy
Participant 03	25	Married	Housewife	Recto-vaginal fistula	Colpoperineorrhaphy
Participant 04	23	Married	Housewife	Vesico-vaginal fistula	Vesico-vaginal fistula plasty
Participant 05	48	Divorced	Farmer	Recto-vaginal fistula	Colpoperineorrhaphy
Participant 06	28	Married	Teacher	Vesico-vaginal fistula	Vesico-vaginal fistula plasty
Participant 07	42	Married	Housewife	Recto-vaginal fistula	Vesico-vaginal fistula plasty
Participant 08	28	Married	Farmer	Recto-vaginal fistula	Colpoperineorrhaphy
Participant 09	48	Widowed	Farmer	Vesico-vaginal fistula	Vesico-vaginal fistula plasty
Participant 10	25	Married	Housewife	Vesico-vaginal fistula	Vesico-vaginal fistula plasty
Participant 11	20	Singlet	Grade 10 Pupil	Vesico-vaginal fistula	Vesico-vaginal fistula plasty
Participant 12	28	Married	Housewife	Recto-vaginal fistula	None

Knowledge of obstetric fistula

Asked what they knew about obstetric fistula, participants were unable to define the term but could describe the characteristics. Some participants described the condition as being characterized by incontinence, as follows:

"…obstetric fistula happens when a pregnant woman is in labour and you are kept at home and you have prolonged labour this can cause an opening in the bladder and vagina" (Participant 08).

Knowledge of post-operative physiotherapy

Overall, participants were initially unaware of physiotherapy or its significance in the management of obstetric fistula, instead most only knew about surgical management. In fact, for some participants, this was their first time attending physiotherapy. Some of the responses included:

"…It is the first time I've heard that doctors may treat patients using exercises. In all the hospitals I've visited, I've never encountered a physiotherapist treating obstetric fistula I only know physiotherapy treatment of bones and fractures" (Participant 06)

Another participant added that:

"…I believe physiotherapists to be people who treat people with bone problems like fractures. I don't know how it can heal obstetric fistula! However, I am only learning about it being helpful in my condition now. If I attend numerous sessions, I will understand how it helps my condition." (Participant 03)

In terms of referral for rehabilitation, some participants reported that they were not referred at all during their last discharge from hospital:

"…I was not given any rehabilitation or exercise recommendations after the operation [episiotomy]. In my opinion, only here at this camp, and not elsewhere, is physiotherapy used to treat my condition." (Participant 04)

"The doctor did not refer me for physiotherapy in my condition" (Participant 07)

Perceptions of post-operative physiotherapy

Several participants reported experiencing change in their bladder control after attending physiotherapy sessions, even if the sessions were only few. One participant stated that:

"…ukubomfya ama exercises kulalenga kunshi kwakakwa imisu taishiiponena sheka [Using physiotherapy exercises helps tighten the pelvic muscles. From the little time I have done the exercises, I have seen a change in bladder control, so I will continue doing it] …" (Participant 02)

Another participant added that:

"…Exercises will heal me from this condition. That's what I think. And I would recommend it to another woman with the same condition." (Participant 04)

Challenges faced by women with obstetric fistula

Three categories were identified under this theme: psycho-social challenges, economic challenges, and unavailability of physiotherapy services:

Some participants reported that owing to their condition, they were compelled to immediately restrict their participation in social events. This one participant had this to say:

"…I'm not able to attend church and funerals because of the urine leakage, because when I sit for a long time a lot of urine comes out when getting up and it's very embarrassing. My community think I just don't like attending funerals." (*Participant 04)*

Other women reported having transport challenges when seeking healthcare. According to one participant:

"…I might be required to travel to Mansa General Hospital in order to participate in supervised

sessions, which might not be feasible for me. I don't have the money, and this location is far from home, it would be expensive to pay for my transportation because I need to use a boat from Chilubi [island] then get on a bus to Mansa." (Participant 02)

Other participants attributed living with obstetric fistula without seeking medical attention to scarcity of funds:

"I've been in this situation for 23 years because I lacked money. My husband actually left me because of this same condition. How else would I have had the resources to pay for treatment and surgery? I only came because transport was provided by the Fistula Foundation." (Participant 07)

Some participants bemoaned the unavailability of physiotherapy. In some cases, some participants mentioned that the hospitals where they had prior caesarean sections did not recommend post-operative physiotherapy:

"If there are physiotherapists at Chilubi hospital, I was never referred to them. It's just here at this camp that I'm doing these exercises for the first time..." (Participant 02)

Another participant added that:

"It is my first time being treated with exercise. But once I leave this camp, I will make sure I get to know more about physiotherapy treatment in obstetric fistula and make recommendations to friends with this condition, and also look for a hospital near my place in Chingola that offers physiotherapy services..." (Participants 06)

In terms of improving adherence to physiotherapy post obstetric fistula surgery, one participant suggested as follows:

"…Exercises are challenging, painful, but helpful. If at all feasible, let's design pictures that can serve as a reminder of the exercises described here in case someone forgets, because there is no physiotherapist who could do follow-ups with these exercises because they do not exist in the rural hospitals like in rural Mununga area, where I stay." (Participant 05)

DISCUSSION

Obstetric fistulas, caused by prolonged obstructed labour, are severe injuries, especially when timely medical care is unavailable. While post-operative physiotherapy's effectiveness is well-documented, its role in managing obstetric fistula is not well understood by affected women. Understanding their knowledge and perceptions of physiotherapy is crucial for improving rehabilitation outcomes after surgical repair. The narratives from participants in this study provide valuable insights into the awareness and attitudes towards post-operative physiotherapy among women with obstetric fistula at Mansa General Hospital in Luapula Province, Zambia.

Participants' characteristics

The participants' age range of 20-48 years is consistent with the demographic profile of women affected by obstetric fistula in other settings. Several studies have consistently demonstrated that obstetric fistula primarily affecting young women.[2,] This highlights the importance of public education and interventions that address the full reproductive life-cycle of girls and women.

Most participants in our study were housewives, farmers, and a high school student. This aligns with the findings of Nalubwama and colleagues,[14] who also observed that most of their participants were housewives reliant on their husbands for financial support. The high school student expressed concerns about being teased by her peers, which made it challenging for her to attend classes.

At the time of the interviews, all participants were actively seeking fistula repair, with most having already undergone procedures such as vesico-vaginoplasty and colpoperineorrhaphy. One participant reported that, while the condition caused no pain, it led to unpleasant symptoms like urine,

faeces, or wind passing through the vagina, resulting in incontinence. Tebeu *et al*. highlight that both vesicovaginal and rectovaginal fistulas often produce a persistent offensive odour, which can lead to social stigma and ostracization. Continuous leakage can also cause infections or soreness. A recent study by Nkhata *et al*. stresses that obstetric fistulas, particularly vesico-vaginal and recto-vaginal, significantly affect women's health and rights, especially among young women in low-resource settings who often face limited education and economic disadvantages. Hareru *et al*. further emphasize that this creates a cycle of poverty and social vulnerability. Empowering these young women is crucial, as it can lead to economic independence and broader societal benefits. To address these challenges, programs aimed at reducing illiteracy and empowering women should be promoted in Luapula Province and beyond to improve their overall well-being and opportunities for the future.

After surgery, participants in the study received post-operative physiotherapy before discharge. Deribe *et al*. advocate for the availability and accessibility of high-quality fistula repair services for all women, regardless of their location or financial background. This underscores the need for primary care services that follow the fundamental principles of ensuring healthcare is available, affordable, and accessible to everyone in need.

Participants' knowledge of obstetric fistula

The knowledge of obstetric fistula in this study was fair. Similarly, the average prevalence of obstetric fistula awareness in sub-Saharan Africa has been reported at 37.9% while in Zambia, it stands at 36%. Although most of the participants did not understand the term obstetric fistula, they were able to describe it characteristics in the local language of Bemba as being *"ubulwele bwakusuma imisu"* to mean a disease of urine leakage. Comparable findings have been reported in Uganda where Kasamba concluded that most participants were aware of a condition characterised by leakage of urine, a persistent smell of urine following a difficult delivery, or women who constantly used cloth to prevent urine leakage. In Kenya, obstetric fistula is referred to as *"Okudhabada"* or *"Kayisameinhe"*. There is need for initiatives aimed at preventing fistula by prioritising health education with emphasis on advocacy for postponed marriage and childbirth, as effective measures in reducing risks.

Knowledge of post-operative physiotherapy in obstetric fistula

Participants in the study were largely unaware of physiotherapy and its role in managing obstetric fistula, with most only familiar with surgical treatment. Many had incorrect beliefs about the benefits of exercise for their condition. Other studies have reported similar results. For example, Umoiyoho identified a lack of awareness as a key barrier to seeking post-operative physiotherapy, while Muia and Kingau[13] found that many participants did not know that physiotherapy could be an effective treatment for their condition. The lack of knowledge in this study could be due to limited education, scarce physiotherapy services in rural areas, and social stigma surrounding women's health issues, which hinder open discussions about health even with healthcare providers. Laycock recommends that post-operative physiotherapy should include supervised pelvic floor muscle exercises to aid recovery. This highlights the need for better education and access to physiotherapy services for women recovering from obstetric fistula.

Perception of physiotherapy in obstetric fistula

In this study, several participants reported improvements in bladder control after attending physiotherapy sessions. This aligns with the findings reported by Castille *et al*.[6], who found that patients receiving early, supervised physiotherapy interventions, including neurostimulation, home exercise programs, follow-ups, and health education, experienced a 49 – 60% recovery in urinary incontinence compared to those who did not

receive intensive post-operative physiotherapy. Moen *et al*. highlight that physiotherapy techniques can effectively address obstetric fistulas, both in hospital and outpatient settings, by improving pelvic floor support, functional mobility, and reducing urinary incontinence. Healthcare providers should prioritize the early initiation of rehabilitation following obstetric fistula surgery. Tailoring rehabilitation techniques like pelvic floor exercises, biofeedback therapy, and bladder training to meet the individual needs of each woman can enhance their recovery and facilitate reintegration into society.

Challenges faced by women with obstetric fistula

This study identified several challenges faced by women with obstetric fistula. These challenges extend beyond the medical procedure itself, encompassing financial burdens, logistical obstacles, and the necessity for emotional resilience. Recognizing and addressing these challenges is paramount to ensuring equitable access to quality healthcare for all women affected by obstetric fistula.

Some participants reported that because of the obstetric fistula, they had to immediately limit their attendance at social gatherings like funerals and church services. They felt confined in their situation because of the leakage and the smell of urine. In line with our findings, Mselle[7] found that residual incontinence affects the women's social and personal interactions, which leads to social exclusion and a reduced quality of life. This is also in agreement with the study by Faisal that stated that the urine incontinence makes it difficult to participate in community life events which are important in social networks. The emotional and social impacts of obstetric fistula on women and their families are enormous. Efforts must be intensified to reduce the stigma and discrimination associated with the condition in the community.

Transport and treatment costs, as well as lengthy distances travelled, were cited as challenges faced by some participants. A similar situation was reported by Baker *et al*.[1], who reported that transportation and its costs were repeatedly cited as a challenge to care. Most women living with fistula are from remote, rural areas, and most fistula services are in urban centres. Poverty was mentioned as one of the major obstacles to postponing obstetric fistula surgery and continuing physiotherapy services after discharge.

The study also found that some individuals had lived with the obstetric fistula for a long time without seeking treatment because of lack of funds. Bala also found that social challenges may also contribute to financial barriers; women who are abandoned by their husbands and families may find it more difficult to acquire funds for financing the procedure or transportation costs. The substantial sacrifices made by women and their families to access treatment underscore the urgent need for strategies to alleviate the economic burden faced by affected individuals and their families through targeted interventions, advocacy and subsidization of services in provincial centres.

Some participants mentioned facing challenges due to the lack of physiotherapy services in their local areas. Nchimunya highlights that shortages of facilities, equipment, supplies, and medical professionals are significant issues in resource-limited settings. Nkhata *et al*.[17] also note that limited access to emergency obstetric care worsens the condition, preventing women from working or engaging in their communities. Healthcare providers must work together to offer comprehensive care, addressing the complex needs of women with fistula, including surgical repair, post-operative physiotherapy, emotional support, and social reintegration. Policymakers need to focus on improving access to essential healthcare services, particularly in rural areas, by recruiting more healthcare professionals. Additionally, physiotherapists should collaborate with community members to provide basic knowledge and skills to enhance recovery outcomes for women after obstetric fistula surgery.

CONCLUSION

The study concludes that women at Mansa General Hospital have limited knowledge of physiotherapy in obstetric fistula management. This lack of awareness can be attributed to low literacy levels and the absence of services in their communities. However, those who received post-operative physiotherapy reported positive perceptions due to noticeable improvements in their condition. Key challenges identified include social stigma, financial difficulties, logistical barriers, and the lack of physiotherapy services. The study emphasizes the need for timely, multidisciplinary, and comprehensive interventions to improve the outcomes of obstetric fistula management.

What is already known on this topic:

The prevalence of obstetric fistula and challenges faced by affected individuals.

What this study adds:

This study provides insight into the knowledge and perceptions of post-operative physiotherapy among women with obstetric fistula at Mansa General Hospital in Luapula Province, Zambia.

Study limitations

The low levels of literacy in this part of the country presented difficulties in the comprehension of interview among participants, despite interviews being conducted in Bemba. This was mitigated against by allowing participants to seek clarity where they did not understand.

Moreover, conducting the study at a single site may have restricted the broader applicability of the results, while interviewer involvement may have inadvertently introduced bias in participants' responses. However, this was mitigated using a standardized interview guide to ensure consistency and minimize leading questions.

Recommendations

The study makes the following recommendations:

1. Various sectors must collaborate to improve health literacy in these communities through community awareness campaigns, school health programmes, and comprehensive antenatal care packages.
2. Policy makers are called upon to help reduce the ratio of healthcare providers to women seeking services for obstetric fistula by recruiting more providers.
3. Capacity building for healthcare providers by participating in ongoing medical education programs, management education programs in women's reproductive health, and supporting research
4. Establishing robust policies, guidelines and Standard Operating Procedures (SOPs) to provide easy access to easy-to-use pelvic floor muscle training information at public hospitals
5. Further research be done in order to determine the prevalence of obstetric fistula in other parts of Zambia.

DECLARATIONS

Ethics approval

Ethics approval for the study was granted by the Lusaka Apex Medical University Bio-medical Research Ethics Committee (FWA 00029892, IRB 00001131, Ref 00467-22).

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Conflicts of interest

Authors declare no conflicts of interest

Competing interests

Authors declare no competing interests

Funding statement

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Authors' contributions

Constance Mwila Mwenge – principal investigator, overall editing of manuscript

Roster Chihwaka Malimba – research supervisor, discussion of manuscript

Lweendo Mapani – research co-supervisor, data analysis

Fair Banji Mwiinga – conceptualization of manuscript

Faith Banda Malambo – drafting results section of manuscript

Mutinta Mirriam Nzima – drafting introduction section of manuscript

Caroline Keenga – proofreading of manuscript

Rebecca Majorie Mwansa – drafting manuscript abstract

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