REVIEW ARTICLE

Improving obstetric fistula care in Africa: A scoping review of key components of repair programs

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Abstract

Obstetric fistula is a preventable childbirth injury caused by prolonged labor without timely care, primarily affecting women in sub-Saharan Africa, resulting in incontinence, stigma, and social and economic consequences. While surgical repair is essential, post-repair support and community reintegration are critical for recovery. The purpose of this scoping review was to assess key elements of obstetric fistula repair programs in Africa, including outreach and program delivery. A search of four databases and relevant websites was conducted to identify primary research published between 2014 and 2024. Articles were screened using defined criteria and thematic analysis identified key themes. Eight studies met inclusion criteria, revealing five themes: (1) Enhancing awareness and reducing stigma; (2) barriers and facilitators to care; (3) training and capacity building of healthcare providers; (4) integrating complementary therapies; and (5) surgical outcomes and reintegration strategies. We conclude that standardized, integrated programs are needed to improve access, reduce stigma, and support recovery. *(Afr J Reprod Health 2026; 30 [5]: 131-148).*

Keywords: Global health, Maternal health, Women's health

Résumé

La fistule obstétricale est une blessure obstétricale évitable, causée par un travail prolongé sans soins appropriés, qui touche principalement les femmes d'Afrique subsaharienne et entraîne une incontinence, de la stigmatisation ainsi que des conséquences sociales et économiques. Bien que la réparation chirurgicale soit essentielle, le soutien post-réparation et la réintégration communautaire sont tout aussi importants pour le rétablissement. L'objectif de cette revue de portée était d'examiner les éléments clés des programmes de réparation de la fistule obstétricale en Afrique, y compris les activités de sensibilisation et les modalités de prestation des services. Une recherche dans quatre bases de données et sur des sites Web pertinents a été effectuée pour identifier les études primaires publiées entre 2014 et 2024. Les articles ont été sélectionnés selon des critères définis, et une analyse thématique a permis d'identifier les thèmes clés. Huit études ont été retenues, faisant ressortir cinq thèmes : (1) améliorer la sensibilisation et réduire la stigmatisation; (2) obstacles et facteurs facilitants à l'accès aux soins; (3) formation et renforcement des capacités des prestataires de soins; (4) intégration des thérapies complémentaires; et (5) résultats chirurgicaux et stratégies de réintégration. Nous concluons que des programmes standardisés et intégrés sont nécessaires pour améliorer l'accès, réduire la stigmatisation et soutenir le rétablissement *(Afr J Reprod Health 2026; 30 [5]: 131-148).*

Mots-clés: Santé mondiale, Santé maternelle, Santé des femmes

Introduction

Although significant progress in maternal healthcare access has contributed to a reduction in global maternal mortality rates over the past 20 years, the situation remains alarming, with 800 women dying each day from complications related to pregnancy or childbirth.[1] Disparities also persist, particularly in low- and middle-income countries, which account for almost 95% of maternal deaths worldwide.[2] Prolonged labour is a leading cause of maternal death and also contributes to maternal morbidity, particularly in marginalized communities.[3] In Africa, more than 30 million women give birth outside of healthcare facilities, and 45 million lack proper antenatal care.[4] This lack of access contributes to preventable maternal health complications. One of these complications is obstetric fistula. When women experience prolonged labour, without access to healthcare,

excessive pressure on the birth canal causes tissue ischemia and necrosis.[5] This results in the formation of an obstetric fistula, which is an opening between the vagina and bladder (vesicovaginal fistula), the vagina and rectum (rectovaginal fistula), the vagina and urethra (urethrovaginal fistula), the vagina and ureters (ureterovaginal fistula), or the bladder and uterus (vesicouterine fistula), causing continuous leakage of urine and/or feces.[6]

The global prevalence of obstetric fistula is estimated at two to three million women, with the majority of cases occurring in sub-Saharan Africa.[7] In this region, between 30,000 and 130,000 women develop obstetric fistulas annually.[8] Poverty is a significant risk factor because it is closely linked to early marriage and malnutrition.[6] The most vulnerable group consists of young women who marry early and give birth before their pelvis has fully developed.[6,9] Limited access to contraception and cultural and gender inequities, leave women without the means to prevent pregnancy.[10] Additional contributing factors include malnutrition, small stature, and overall poor health.[6]

Women with obstetric fistulas often live in low socioeconomic areas with limited access to healthcare, skilled medical professionals, and essential resources such as transportation.[11] These challenges are compounded by gender inequality, cultural barriers, and low literacy rates.[11] The lack of financial and logistical support prevents many women from receiving the necessary treatment, leaving them to endure pain, social isolation, and a significantly reduced quality of life.[5]

Living with an obstetric fistula often results in profound social consequences for affected women, who are frequently ostracized by their communities and subjected to intense stigma and isolation.[12] The economic impact of this condition is particularly severe, as many women are unable to work due to the fistula itself or post-surgical complications, resulting in financial instability and increased dependence on others for support.[13] This loss of independence exacerbates feelings of social marginalization and intensifies struggles with maintaining self-worth and dignity. Additionally, psychological well-being is significantly impacted by relationship status, as many women experience abandonment or rejection by their partners due to the misconceptions and stigma associated with fistulas.[14]

Given the complex dynamics of physical, social, financial, and psychological factors, obstetric fistulas have emerged as a prominent global health issue. In 2022, building on the framework of the Sustainable Development Goals,[15] the United Nations General Assembly formally committed to ending obstetric fistulas by 2030, underscoring the urgency and global importance of addressing this issue.[16] Additionally, the United Nations Population Fund (UNFPA) leads the "Global Campaign to End Fistula" which has partnered with hundreds of non-governmental organizations to provide fistula care in more than 55 countries across Africa, Asia, Latin America, and the Arab states over the past two decades.[17] To date, this campaign has helped more than 100,000 women worldwide through surgical repair.[18] Furthermore, the International Federation of Gynecology and Obstetrics has initiated a training program for fistula care providers in underserved communities,[19] and The Global Fistula Hub serves as a platform for sharing knowledge and resources related to the prevention and repair of obstetric fistulas.[20]

Evidence indicates that while successful fistula repair is critical, it does not alone significantly improve the quality of life for affected women due to the numerous socio-cultural barriers that hinder reintegration into the community following surgery.[12,14] Consequently, programs like the "Global Campaign to End Fistula" adopt a multisectoral, gender-sensitive, human rights-based approach, incorporating reintegration, rehabilitation, evidence-based advocacy, and resource mobilization as essential components of the care plan to enhance the overall quality of life for affected women.[15,18] These efforts are critical in facilitating the successful return of women to their communities after surgical repair, while also empowering them to reclaim their previous roles and status. Reintegration is vital, as it not only addresses the practical aspects of life post-repair but also ensures that women receive the emotional and social support necessary to restore their dignity.[21] Therefore, a holistic, multidisciplinary approach, including counseling, income-generating skill training, reintegration, education, physiotherapy,

and advocacy, has been implemented to promote a comprehensive recovery, which is an essential component of successful fistula programming in several African nations.[18]

Despite widespread efforts to enhance the provision of fistula care globally, the effectiveness of these initiatives remains inadequately assessed through rigorous, empirical research. This gap in evaluation impedes the refinement and optimization of future fistula repair programs and reintegration strategies. While some research has explored barriers to effective community outreach and comprehensive fistula care, there is a significant need for a synthesized resource that critically examines specific interventions, including outreach strategies and program delivery components. Therefore, the purpose of this scoping review was to assess the current evidence on key elements of obstetric fistula repair programs in Africa, including outreach strategies and program delivery mechanisms. The review identifies gaps in the existing research and offers a more comprehensive understanding of effective strategies for addressing obstetric fistula care. Gaining insight into the status of empirical evidence is crucial for developing and implementing targeted interventions, identifying best practices, guiding policy decisions, and allocating resources to improve comprehensive fistula care and reintegration efforts in Africa

Methods

This research employed a scoping review methodology to thoroughly and systematically summarize the current body of literature.[22] According to Grimshaw[24] and Peters et al.,[24] a scoping review is a structured approach to mapping the existing literature on a specific topic, which involves examining relevant concepts, theories, and sources, and recognizing areas where further research is needed. This approach is especially useful for gathering comprehensive literature when the research purpose is broad and the evidence base is not yet clearly established.[25] Due to the limited empirical evidence on obstetric fistula repair programs in Africa and the lack of a comprehensive, synthesized resource addressing the topic, the researchers aimed to conduct this scoping review. This review seeks to assess the current status of evidence and systematically map the existing empirical knowledge related to obstetric fistula repair programs in Africa, including outreach strategies and program delivery mechanisms.

Arksey and O'Malley's scoping review framework was used to guide this study.[26] One of the key strengths of this framework is its capacity to map the scope, nature, and characteristics of research, thereby identifying gaps in the existing literature and facilitating the dissemination and practical application of findings.[26] By presenting the results in a clear and precise manner, the framework enhances the research's relevance and usefulness, making it more applicable for practice. The authors intend for practitioners, researchers, and policymakers to use the findings of this research to further develop and strengthen global obstetric fistula repair programs, ensuring they are grounded in empirical evidence and ultimately contribute to improving health outcomes for women affected by this condition.

The scoping review framework described by Arksey and O'Malley, uses a five-step process, with an optional sixth step.[26] The steps are as follows: defining the research question to guide the search strategy; identifying relevant studies through an established search strategy; selecting studies based on predefined inclusion and exclusion criteria; charting the data by extracting key information from the selected studies and organizing it into themes; summarizing and reporting the findings to offer a narrative overview of the existing literature; and consulting with experts to validate the findings, if resources and time permit. This sixth step was not completed in this scoping review because the review was conducted prior to an environmental scan of an established obstetric fistula repair program. The environmental scan included expert consultation and will be reported elsewhere.

Protocol and team members

To ensure transparency, rigor, reproducibility, and consistency, a detailed protocol was developed before the study began. This protocol defined the inclusion and exclusion criteria, as well as the search strategy, thereby strengthening the rigor of the process and minimizing potential bias throughout the search.[26] The scoping review was

conducted by a team of four nurse researchers with expertise in conducting scoping reviews and two research assistants. The first three authors acted as the primary reviewers of the articles, while the fourth, fifth, and sixth authors assisted with reviewing, summarizing, and reporting the findings.

Search strategy

A search strategy was developed prior to any articles being retrieved to ensure the identification of relevant and appropriate publications. Arksey and O'Malley recommend searching electronic databases and reviewing the reference lists of selected articles to find additional relevant sources. Both strategies were used in this scoping review to identify pertinent articles.[26]

In June 2024, the following four databases, available through the University of Saskatchewan library, were searched: CINAHL, Embase, Medline, and PubMed. To ensure the inclusion of relevant and recent literature, the search was restricted to articles published in academic journals between 2014 and 2024. Only primary research published in English was considered. The search strategy was pretested in Embase and Medline to evaluate the relevance of the selected search terms to the research purpose. These databases were chosen by the first two authors for their comprehensive coverage of journals that could provide a broad range of relevant results.

The search terms were developed based on the research purpose and through discussions between the first three authors, two of whom had expertise in the topic area and experience with scoping reviews. The university librarian also provided guidance during this process. Following the initial test searches in Embase and Medline, the search terms were refined by reviewing the articles for relevant definitions, keywords, and index terms, which served as relevant synonyms for the original search terms. These additional terms were added to the master list to guide the final search strategy. A summary of the search terms is presented in Table 1. In addition to searching the databases, a thorough examination of relevant websites was conducted to search for research articles that may not have been located through the database search. This involved manually reviewing five selected websites that provide information on obstetric fistula repair programs, as listed in Table 1. The goal of this search was to identify relevant research articles that were aligned with the research purpose and met the established inclusion and exclusion criteria.

Inclusion and exclusion criteria

The inclusion and exclusion criteria were developed based on the purpose of the research. Following the criteria developed by Peters *et al*.,[24] the inclusion criteria were structured around three key components: participants, concept, and context. These components were utilized to systematically define the inclusion and exclusion criteria.

The inclusion criteria focused on primary research articles involving participants and programs specifically related to obstetric fistulas. Non-research articles were excluded, as were studies examining healthcare provider (HCP) training programs, specific surgical procedures, or those addressing fistulas other than obstetric fistulas. Exceptions were made for research that included obstetric fistulas alongside other types of fistulas. The concept was defined broadly to capture a wide range of care components including outreach strategies, program delivery mechanisms, and key care elements for women with obstetric fistulas. Given the limited research on the topic, the context was intentionally broad, provided it included an obstetric fistula program, thereby allowing for the inclusion of diverse studies. Only research conducted in Africa was included, with programs from other continents excluded.

First screen

The initial review process was carried out in stages to ensure the relevance of selected studies to the research purpose, as well as their adherence to the inclusion and exclusion criteria. The first step involved removing duplicate articles, which was initially facilitated using Zotero™ reference management software. The third author subsequently verified and removed any remaining duplicates.

Table 1: Search terms and websites

Global Fistula Repair Programs Search Terms searched with OR	**"AND"**	**Outreach Strategies Search Terms searched with OR**	**"AND"**	**Delivery Mechanisms Search Terms searched with OR**	**Websites**
Global fistula repair programs		Outreach strategies		Delivery mechanisms	https://www.globalfistulahub.g/
Obstetric fistula		Initiatives		Program evaluation	https://www.unfpa.org/obstetric-fistula https://www.who.int/news-room/facts-in-pictures/detail/10-facts-on-obstetric-fistula#:~:text=Obstetric%20fistula%20is%20preventable%3B%20it,timely%20access%20to%20obstetric%20care.
Vaginal fistula		Support		Program development	https://www.figo.org/what-we-do/figo-programmes/fistula-surgery-training-initiative
Vesico-vaginal fistula					https://isofs-global.org/

She then conducted an initial screening by reviewing the titles and/or abstracts of the articles to assess their alignment with the inclusion and exclusion criteria. Articles that did not meet the inclusion criteria based on their titles and/or abstracts were excluded from further consideration, with the first author confirming these exclusions. Any disagreements regarding exclusions were resolved through discussions between the first and third authors, with the second author consulted when necessary. Consensus was reached on all decisions before finalizing inclusion or exclusion. Articles that could not be excluded based solely on title and abstract were retained for further review. This initial screening was intentionally broad to ensure a comprehensive inclusion of relevant articles, with the understanding that further limitations would be applied during the second screening.

Second screen

The articles remaining after the initial screening were subjected to a second review, where the inclusion and exclusion criteria were applied to the full text of each article. During this stage, the first and third authors gained a deeper understanding of how key concepts were presented, which helped inform decisions regarding further inclusion or exclusion. The same consensus process used in the initial screening was also applied here. Articles that did not meet the inclusion criteria were excluded.

Website search

A similar approach to the database article screening was used to assess the five selected websites for relevant research. After reviewing the selected websites, no research articles, relevant to the research purpose, that met the inclusion criteria were identified.

Charting, summarizing, and reporting

According to Arksey and O'Malley, data must be charted, which involves extracting key details from the selected studies.[26] To ensure systematic organization and accurate reporting, each article

included in the review was summarized in an extraction table. This process aimed to align each article with the research purpose by methodically identifying relevant data for extraction.[23,24,26] The process was iterative and exploratory, with the tables being regularly updated to ensure completeness and accuracy.[24] The data extracted from the articles by the first and third authors included the study's publication date, country of origin, objectives, methods, key findings (including participant demographics), and information relevant to obstetric fistula repair programs including components, outreach, and method of delivery.

The final step in Arksey and O'Malley's framework involves summarizing and reporting the results.[26] This was accomplished by analyzing data from the extraction tables to identify key themes for the scoping review. Thematic analysis served as the primary method for this stage. Braun and Clarke describe six stages in thematic analysis: familiarizing oneself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report.[27] The first and third authors were already familiar with the data due to their work on the extraction tables. Following Braun and Clarke's framework, initial codes were applied to the extraction tables and organized into potential themes by the first, second, and third authors, with confirmation from the fourth, fifth, and sixth authors. The analysis was iterative, with ongoing verification to ensure that the themes accurately reflected the codes. Continuous collaboration among the authors ensured the consistency and validity of the emerging themes. Ultimately, a narrative summary was created to report the themes in a way that addressed the research purpose.

Results

The initial literature search yielded 905 non-duplicate citations from the initial 1249. Figure 1 presents the PRISMA flowchart that outlines the selection process. After applying the inclusion and exclusion criteria, 8 full-text articles were chosen for analysis.

Study characteristics

The 8 studies utilized a range of diverse methodologies in their designs. Qualitative methods were used in five of the studies with appreciative inquiry, descriptive case study, and ethnography, being the predominant approaches. [28-32] Data collection methods in these studies included interviews, focus groups, participant observation, field notes, and document review. The remaining three studies applied quantitative methods, specifically, retrospective cohort designs, which involved reviewing health data.[33-35] The qualitative studies included 185 participants including women, family members, HCPs, and key stakeholders with experience related to obstetric fistulas. The quantitative studies analyzed health records for a total of 3838 women who had received care for an obstetric fistula. All 10 studies were conducted in African countries, including the Democratic Republic of Congo, Ghana, Guinea, Nigeria, Tanzania, Uganda.

Demographics

All studies except one[31] reported demographic information of participants. The average age of the women across the studies was about 32 years. However, in two studies [29,30] age data were either estimated or not reported, as it was considered culturally inappropriate to ask this question because birth dates are often unrecorded or not viewed as important. The majority of women presented with vesicovaginal fistulas with a smaller number diagnosed with rectovaginal fistulas or a combination of both. In studies where this information was reported, approximately half of the women developed their fistula during their first pregnancy. On average, participants lived with the condition for three to five years before seeking treatment. One study found that 93% of women had experienced stillbirths[33] while another reported that all but one participant had a stillbirth in the pregnancy that resulted in the development of the fistula.[28]The majority of participants across the studies were married, had little or no formal education, and resided in rural areas. Most were either Muslim or Christian.

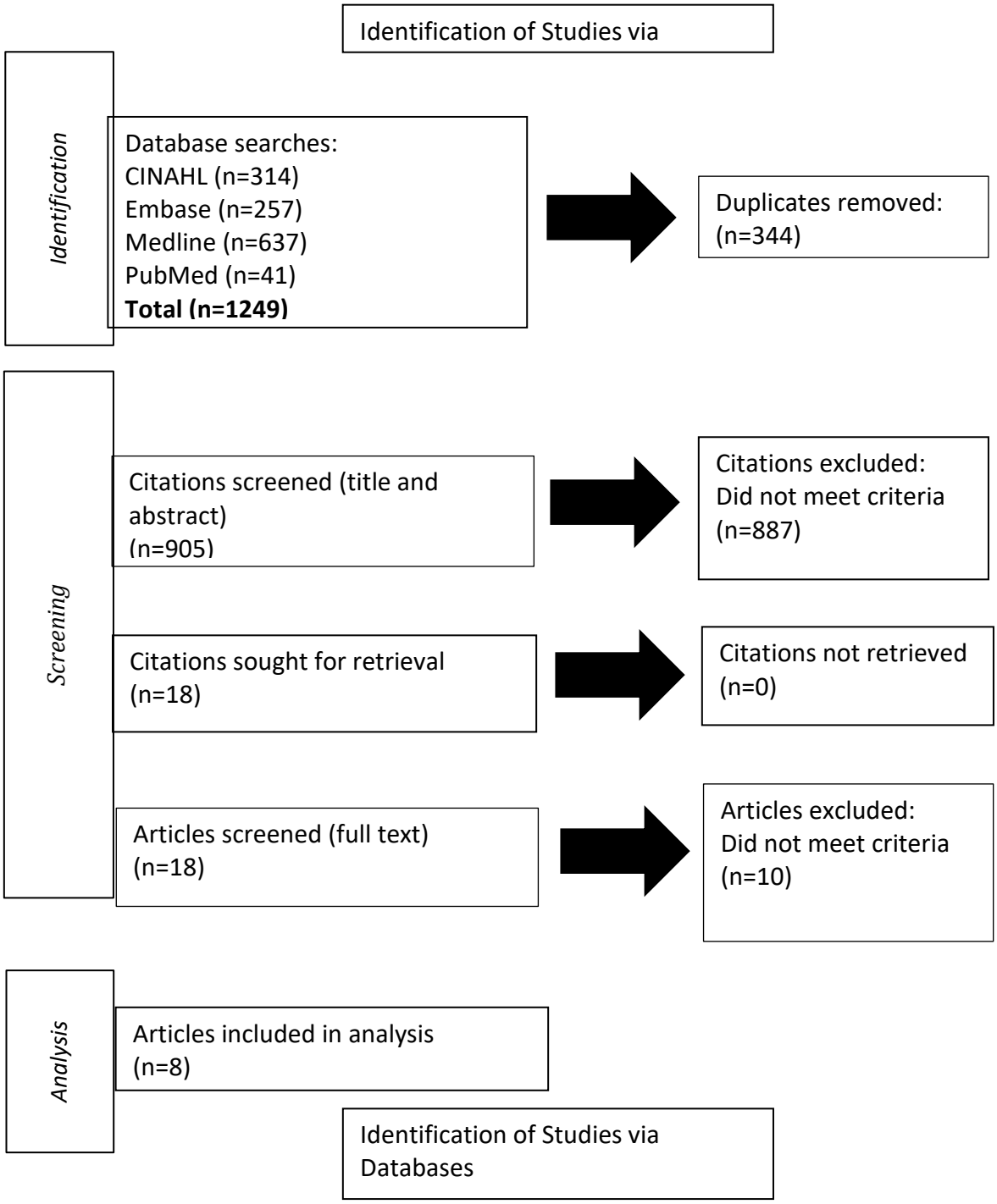

Figure 1: PRISMA

In studies that included family members, the majority of participants were male, primarily consisting of husbands, fathers, brothers, and male heads of households; however, mothers were also included as participants.[29,30] HCPs in the studies included physicians, medical residents, nurses, midwives, skilled birth attendants, community outreach workers and administrators.[29,30,32]

Program components

The obstetric fistula repair programs examined in the studies featured a range of diverse program components, though the inclusion of these components varied across studies. No single study comprehensively included all components. Components across the studies included: HCP training, awareness campaigns, interventions aimed at reducing barriers to care, identification and screening of potential patients, surgical repair, health education, mental health support, physiotherapy, and reintegration strategies.[28-35] A more detailed discussion of each of these components is provided within the relevant themes below.

Themes

The analysis of the eight studies resulted in the identification of five themes: Enhancing awareness and reducing stigma; barriers and facilitators to care; training and capacity building of HCPs; integrating complementary therapies; and surgical outcomes and reintegration strategies. Each of these four themes is explored in the following section of this paper.

Enhancing awareness and reducing stigma

A widespread lack of awareness regarding obstetric fistulas and their treatment was identified in six studies, with each associated program attempting to incorporate strategies aimed at improving awareness.[28-31,33,35] Enhancing awareness is critical not only for the prevention of obstetric fistulas and increasing knowledge about available care options, but also for destigmatizing the condition. Obstetric fistulas are often inaccurately perceived as incurable or as a result of sorcery or witchcraft, leading to the stigmatization of women who suffer from this condition.[29,31,35] (Jarvis et al.; Maroyi et al.; Tripathi et al.). The physical symptoms, such as persistent leakage and foul odor, result in long lasting social repercussions.[29,31,35] In the study by Jarvis et al., women reported feeling powerless and socially excluded due to the stigma surrounding their condition, often compounded by a lack of knowledge.[29] However, when they sought treatment for their obstetric fistula, their awareness increased, which empowered them and instilled a sense of control over their condition.[29] Knowledge was identified as a key factor in empowering women to regain control over their health and well-being.[29]

Increased awareness is essential, as many women reported feeling isolated in their suffering, often unaware of the cause of their condition, only to find relief upon arrival at a fistula centre and discovering they were not alone.[30] The mutual support they found with other women facing similar challenges was a significant source of comfort.[30] Maroyi et al. emphasize the importance of educating not only the women, but also their families about the condition and treatment process upon their arrival for fistula care.[35] In this program, family members were encouraged to participate in educational sessions at the treatment centre, helping to enhance their understanding of obstetric fistulas and the necessary care.[35]

Several strategies and opportunities to address the lack of awareness and stigma surrounding obstetric fistulas were identified. Media campaigns, including radio broadcasts and posters displayed on major roadways, were used in four studies to disseminate information about obstetric fistulas.[28,30,31,33] However, despite years of media outreach, this approach was not always effective.[30,31] Sullivan et al. noted that the information was often not presented in a culturally relevant manner or in a format accessible to women and their families.[30] For instance, many messages were broadcast in English, while local languages were more commonly spoken, and many women and their families had limited literacy in English. This highlights the need for culturally appropriate and linguistically accessible awareness campaigns.[30] Other awareness strategies implemented by Tripathi et al. include a fistula hotline that allows women to be screened for obstetric fistula.[31] The hotline is available in several

languages and is promoted through radio announcements and culturally appropriate graphic flyers designed for audiences with limited literacy.[31] Additionally, "community agents" offer in-person awareness in remote areas.[31]

Culturally appropriate awareness campaigns that enhance health messaging related to obstetric fistulas are essential.[29] Several strategies for increasing awareness have been suggested. Involving men, particularly husbands, in education and awareness campaigns is critical to reducing stigma, as men often act as "gatekeepers," hindering women's access to care and further isolating them.[28,29,31] Additionally, introducing education in schools could promote early awareness among children.[29] Engaging women who have received fistula care as advocates for others was identified as an effective strategy in three studies.[28,29,35] These women, having undergone fistula repair, often return to their communities to support others, helping to dispel myths about the condition.[29,35] This process of returning and sharing experiences plays a significant role in improving community awareness, which is crucial for the successful reintegration of women following obstetric fistula repair.[29] Several studies also emphasized the importance of community-level awareness and sensitization campaigns that engage key stakeholders.[28,29,33,35] Delamou et al. noted that while awareness of obstetric fistula is vital, campaigns should also focus on prevention, such as promoting births in health facilities and improving contraception use to reduce factors contributing to obstetric fistula.[28,33]

Barriers and facilitators to care

Barriers and facilitators to obstetric fistula treatment were identified in six studies.[28-31,33,35] Financial barriers were a significant concern in four studies.[28-31] While obstetric fistula treatment itself was provided free of charge, many women faced financial constraints associated with living with an obstetric fistula and seeking treatment, often spending their life savings on fistula repair.[28-30] During the period of having an obstetric fistula, women were unable to work due to symptoms, such as leaking and foul odor, which resulted in decreased income or forced family members to take on additional work.[29,30] This financial strain continued after surgery, as women were restricted from doing strenuous work and worried about the potential delay in having more children, further limiting their ability to provide for their families.[29] Before seeking medical care, women often turned to traditional or spiritual healers, incurring additional costs for these treatments.[29] Once the decision was made to seek medical treatment, there were hidden costs such transportation, meals, accommodation, and medical supplies, which often had to be covered by family members.[29,30] In some cases, partners withdrew their support, and women had to rely on their families for further assistance.[30] On occasion, women reported having no support and were forced to rely on their own limited resources or go without necessities such as food.[29,30] Travelling to a fistula centre posed a significant barrier for women in four studies.[28-31] Although the geographical distances were sometimes not large, poor road conditions meant that the journey could take several hours or even days.[30] Securing reliable transportation added another financial burden, with families often having to pool their resources to cover the cost of travel.[29,30] In cases where the family was unable to afford transportation, community members sometimes provided assistance.[30]

Health systems barriers were identified as problems in two studies.[30,31] Sullivan et al. described the logistical challenges women faced in accessing care.[30] Many women would visit multiple hospitals seeking fistula treatment, only to be informed that nothing could be done for them. It was often only after several visits that they were eventually directed to a fistula treatment centre where appropriate care could be provided.[30] Even when women successfully reached a fistula centre, there were communication issues, with women frequently arriving for surgery only to find out that the surgeon was unavailable that day.[30] Additionally, in some cases, necessary pre-operative care was not provided, resulting in further delays in treatment.[30]

Given the numerous barriers to accessing obstetric fistula care, programs have been developed to address these challenges.[31,35] To reduce barriers to fistula treatment, Tripathi et al.,

implemented an intervention that includes a fistula screening hotline, allowing women to call and have their treatment arranged.[31] Once women are identified as needing fistula repair, a care pathway is implemented, ensuring they are referred to an appropriate treatment centre that can provide their care. As part of this process, transportation vouchers are provided to cover the travel expenses for both the woman and a support person of their choosing.[31] Additionally, a program discussed by Mayori et al., includes mobile healthcare teams that travel to remote areas once or twice a year to provide obstetric fistula repair services.[35] These teams provide "skilled surgical care, including consultation, surgical supplies, medications, and a 3-month postoperative follow-up visit"[35] (p. 28). Transportation and hygiene kits are also provided to each patient.[35] These initiatives highlight novel approaches that contribute to overcoming care barriers for women suffering from obstetric fistulas.

Training and capacity building of health care providers

A need for skilled HCPs in obstetric fistula care was identified in five studies.[29-31,33,35] However, local HCPs seemed disinterested in learning obstetric fistula care, a trend often attributed to the low socioeconomic status of those affected by the condition.[29,30] As a result, recruiting qualified HCPs proved challenging, leading to a shortage of local obstetric fistula care providers. This shortage caused prolonged wait times for women, as they were dependent on foreign volunteer surgeons to travel to the treatment centres.[30]

Obstetric fistula care requires specialized training.[30,31,33] However, some HCPs providing this care had little to no formal training.[30,31] Sullivan et al. found that staff at the obstetric fistula centre often lacked specialized training in fistula care, with some individuals working in roles without formal qualifications.[30] For example, one HCP shared that she had no formal nursing training; however, she was working in the role of a nurse.

Given the limited number of locally skilled HCPs providing obstetric fistula care, it is essential for programs to incorporate capacity building initiatives.[31,33,35] Delamou et al. emphasized the importance of ongoing training for local physicians, nursing staff, and counsellors with foreign experts travelling to provide support and instruction locally.[33] In their mobile care program for remote communities, Maroyi et al. facilitated training for local staff at each site over two separate three month intervals, targeting physicians, laboratory technicians, nurses, midwives, and nurse anesthetists.[35] Similarly, Tripathi et al. implemented an intervention that included training for local physicians, midwives, nurses, and community health workers at primary healthcare facilities to identify and screen for obstetric fistulas, ensuring appropriate referrals to centres offering specialized care.[31] This training was critical, as HCPs at primary healthcare facilities are often the first point of contact for women with obstetric fistulas. Additionally, two studies highlighted the need for training of specialized HCPs such as physiotherapists and mental health professionals.[32,34] These studies highlight the critical role of capacity-building initiatives, emphasizing ongoing training for local HCPs to improve the identification, treatment, and referral of women with obstetric fistulas.

Integrating complementary therapies

Although the primary focus of fistula repair programs was surgical repair and care, complementary therapies were also discussed to support recovery. These therapies included mental health support and physiotherapy. Four studies incorporated mental health support as a component of their program.[31,32,34,35] Three studies[31,34,35] briefly mentioned this support, while Watt et al.[32] provided detailed information on the mental health treatment used as part of the complementary care for obstetric fistula repair.

Watt et al. highlight that comprehensive treatment for obstetric fistulas should include mental health support.[32] They note that the period women spend in the hospital for fistula repair, typically several weeks, presents an optimal opportunity to address the psychological symptoms that develop as a result of living with an obstetric fistula. Mental health support should encompass interventions "to address physical health concerns, trauma history, stigma, and internalized shame . . . [and] reflect the context of gender inequalities in which women develop and live with a fistula"[32] (p. 3). The intervention developed by Watt et al.

includes individual support both before and after surgery.[32] This support utilizes cognitive behavioral therapy to help patients reframe their thoughts and emotions, identify coping skills, and learn relaxation techniques to manage stress, all while considering the impact of social relationships. Participants in this study expressed high satisfaction with the mental health support they received, rating it positively for its usefulness. They reported that the support helped them address fears related to their obstetric fistula, gain a better understanding of their condition, learn self-care strategies for home, and develop coping mechanisms.[32]Two studies identified physiotherapy as an important component of obstetric fistula repair programs.[33,34] Delamou et al.[33] suggest that including physiotherapy in fistula care could enhance outcomes, while Keyser et al.[34] provide more detailed information about its implementation in their program. The physiotherapy intervention in Keyser et al.'s study involved staff training on pelvic floor anatomy and physiology, particularly in relation to obstetric fistulas.[34] It also included patient education, lifestyle modifications, exercises, and the appropriate progression of functional activities. This education was delivered through a manual and lectures for all staff involved in obstetric fistula care. Physiotherapists received more specialized training in pelvic floor examination, exercise prescription, and functional activities. Women received both pre-operative and post-operative physical therapy, as well as a group education session led by nurses and physiotherapists that focused on anatomy and physiology, physiotherapy exercises, and family planning. Both staff and patients reported valuing the physiotherapy program, and a positive trend in pelvic muscle strength and function was observed among the women. Incontinence measures improved with the introduction of physiotherapy. The study highlighted the need for long-term follow-up to more accurately assess outcomes and continue physiotherapy interventions and education.[34]

Surgical outcomes and reintegration strategies

The surgical outcomes for the women were not consistently reported across the studies. Two studies mentioned the success rates of previous obstetric fistula repairs in their participants: 14% of the women in the Sullivan et al.[30] study reported a previous unsuccessful repair, while more than 20% of the women in the Keyser et al.[34] study reported an unsuccessful repair. Keyser et al. further reported that over 60% of women in their study were continent upon discharge.[34] In contrast, Maroyi et al.[35] and Delamou et al.[33] reported somewhat better outcomes, with 90% and 85% of women respectively, having a closed fistula at discharge. Regardless of fistula repair status at discharge, women require support in reintegrating into their communities. Women who continued to experience incontinence faced greater challenges in acceptance into their community.[28,29]

Two studies specifically explored reintegration strategies following obstetric fistula repair.[28,29] In the Jarvis et al. study, women identified community acceptance as critical to their reintegration.[29] This study emphasized the importance of providing women with skills training to enable economic self-sufficiency and increase self-esteem. The ability to earn an income ensured basic livelihood and contributed to gender equality. By increasing their income, women reported improvements in their own health and well-being, as well as that of their families. Skills taught during obstetric fistula repair programs included soap making, confectionary, and batik tie-dying, with more than half of the women reporting that these skills were beneficial. However, women who did not find these skills helpful cited the high cost of supplies and the mismatch between the skills taught and the current economic climate, noting that there was little market demand for these products. While learning skills was valued, it was clear that the skills needed to be practical and applicable within the community.[29]

Delamou *et al*. describe a more specific intervention aimed at community reintegration through a "social house" program.[28] The program offers transitional support in which volunteer host families take women in following obstetric fistula repair, helping them gradually reintegrate into the community through social immersion. While staying with the host family, the women are involved in various family activities including cooking, eating meals together, washing, shopping,

and participating in social events. This approach is particularly helpful for women who have previously lost support from their families due to their obstetric fistula.[28]

The program was particularly effective for women who had successful obstetric fistula repair, while women with ongoing incontinence continued to struggle with social immersion.[28] Those who were discharged continent from the fistula repair program reported a positive experience, while those who remained incontinent expressed feelings of hopelessness. Three months after discharge from the social house program, women who had successful repairs reported resuming social activities within their home communities. In contrast, women who were incontinent reported being unable to resume social activities due to leakage and odor. To further improve reintegration, suggestions were made to include career training, such as teaching small trades and providing support for small businesses, so that women could better financially support themselves upon returning home.[28]

Discussion

Gaps in obstetric fistula repair programs

The eight studies included in this scoping review used a range of diverse methodologies to examine obstetric fistula repair programs and highlighted the complexity and varied nature of the initiatives. Despite the diverse methodologies used, the overall body of research remains limited, with only eight studies directly investigating the various components of these programs. Additionally, while a wide range of program components was identified across the studies, there was no consistency in the specific components implemented. The UNFPA, a leading voice in obstetric fistula advocacy, has outlined key components that should be included in these programs such as awareness, prevention, surgical repair, social reintegration, physiotherapy, counseling, and follow-up.[18,36] However, despite the development of a guideline,[18] no research has comprehensively explored a fully integrated obstetric fistula repair program. Furthermore, there is no standardized care pathway, or universally accepted model of care that defines the essential components of these programs. The variation in program components across studies suggests a lack of consensus on what constitutes an effective and comprehensive obstetric fistula repair program, emphasizing the need for more structured research and clear standardized care pathways and models of care to enhance the consistency and quality of care provided for women affected by obstetric fistula.

Raising awareness through sensitization campaigns and ambassadors

Despite the United Nations General Assembly's formal commitment to ending obstetric fistulas by 2030[16] and the introduction of the UNFPA's "Global Campaign to End Fistula" more than 20 years ago,[17] this scoping review found a significant lack of awareness and persistent stigma associated with obstetric fistula. Similar findings were reported by Hareru et al. in their systematic review and meta-analysis, which investigated obstetric fistula awareness among women of reproductive age in sub-Saharan Africa.[7] Their results revealed low awareness of obstetric fistula within this population.[7] Furthermore, Budu et al. analyzed health survey data from 14 countries in sub-Saharan Africa, identifying an average obstetric fistula awareness prevalence of 37.9%.[37] The lowest prevalence was found in Gambia (12.8%) while the highest was in Uganda (63.9%). These findings align with the current scoping review, indicating the need for awareness raising initiatives, including country specific efforts.Although there is an identified need for obstetric fistula awareness campaigns, there is little evidence in the literature that such campaigns are currently in place. This is understandable, considering the overall lack of awareness surrounding obstetric fistula. One study exploring an obstetric fistula awareness campaign aimed at reducing stigma found that, despite the campaign's implementation, 27% of participants noted that community awareness about obstetric fistula was still insufficient.[38] The authors emphasize the importance of effective community-level campaigns that engage local decision makers, religious leaders, traditional healers, midwives, and other HCPs.[38] Sensitization campaigns have been identified as an effective means to increasing awareness and reducing stigma, though their implementation has been limited in the context of

obstetric fistula. These campaigns have, however, proven successful in raising awareness and reducing stigma associated with other conditions.[39-41] Sensitization campaigns are broad in scope but should involve collaboration with influential community members, such as traditional chiefs, religious leaders, and school administrators, and should encourage the participation of all community members.[39] Such initiatives should include key messages, educational sessions, and media outreach like posters and radio broadcasts to deliver culturally relevant content to wide audiences.[39] Given the limited number of sensitization campaigns implemented in Africa,[39] any new obstetric fistula campaigns should be thoroughly evaluated, with feedback collected and impact measured. It is also critical to recognize that while sensitization campaigns are vital, they must also focus on the prevention of obstetric fistula, which includes promoting births in health facilities and improving contraception use.[28,33]

A second strategy for increasing awareness is the use of fistula survivors. This study found that many women reported feeling isolated and unaware of the cause of their condition. It was not until they arrived at a fistula centre, that they found support from other women in similar situations. Other women serve as a major source of support for those with fistulas. In their study exploring the implementation of a fistula awareness campaign, Mgaya and Mwila found that 54% of women learned about fistula and its repair from "fistula ambassadors."[38] The Freedom from Fistula Foundation describes fistula ambassadors as former patients who are trained to identify individuals with obstetric fistulas and refer them for treatment.[42] These ambassadors have been implemented in Malawi, Sierra Leone, and Madagascar.[42] However, to maximize their impact, there is a need to expand the role of these ambassadors, especially in regions where awareness of fistula is still limited. Additionally, research is needed to evaluate the effectiveness of fistula ambassadors in improving awareness, reducing stigma, and increasing access to treatment. This evaluation could help refine the strategies and ensure that the ambassadors' efforts lead to meaningful, long-term change in affected communities.

Accessibility of care

The findings of this scoping review identified both barriers to obstetric fistula treatment and facilitators that help women overcome some of the challenges. Baker et al. highlighted several barriers in their systematic review of obstetric fistula treatment in low-income countries, many of which were consistent with those identified in this review.[11] These barriers include social challenges related to stigma and embarrassment, shortages of healthcare facilities and trained personnel, financial obstacles such as the high cost of treatment, lack of awareness about fistula and available treatment options, transportation difficulties due to poor access, concerns about the quality of care and perceived treatment failure, cultural barriers such as male dominance limiting women's access to care, psychosocial factors including depression that deter women from seeking help, and political barriers like inadequate funding for fistula repair programs.[11] While barriers to treatment are well documented, there is limited evidence on the facilitators. In one study, Nalubwama et al., found that women who sought care were more likely to access treatment earlier if they were aware of obstetric fistula programs and received support from their families.[43] Further research is needed to better understand these facilitators, identify additional facilitators, and leverage them to develop more accessible obstetric fistula treatment programs.

Integrated care models

To effectively expand access to care, successful programs should be scaled up, particularly those identified in this review that have proven effective in promoting access such as mobile healthcare teams and transportation support. These efforts should target areas with high obstetric fistula prevalence. Integrated care models, which have been successful in other areas of healthcare, particularly mental health and substance use may offer an effective approach to improving access to obstetric fistula care.[44-47] Integrated care refers to "a coherent set of methods and models on the funding, administrative, organizational service delivery and clinical levels designed to create connectivity,

alignment and collaboration within and between the cure and care sectors"[48] (p.3). This approach aims to enhance the quality of care, improve quality of life, and promote patient satisfaction and system efficiency by using multiple services and providers.[48] Collaboration with local communities, HCPs, and policymakers is essential to identify the most effective strategies for addressing barriers and implementing integrated care approaches.

According to the findings of this scoping review and supported by the UNFPA, obstetric fistula integrated care programs should begin with improving awareness and access to care, extend through surgical repair (including comprehensive physiotherapy and mental health support), and continue with follow-up and reintegration into the community.[18] Reintegration strategies were found to be particularly critical in this review. Despite their importance, research has shown that current reintegration strategies are inadequate and further political commitment and outreach programs are needed.[49,50] However, when women successfully reintegrate into their communities, their self-efficacy increases.[49] Studies also show that when women are trained in skills that enable them to generate an income, they are better able to reintegrate.[49] This finding aligns with the results of this scoping review, which emphasizes the need for women to be taught practical, applicable skills they can implement upon returning to their communities. Additionally, the concept of "social houses" emerged from this review as an innovative strategy that could be further integrated into these programs. To our knowledge, similar research on this concept does not exist and further evaluation is needed. The overall long-term effectiveness of integrated programs must be assessed on an ongoing basis to ensure they meet the evolving needs of women affected by obstetric fistula.

Addressing the shortage of trained HCPs

This scoping review also identified a significant shortage of trained HCPs capable of providing obstetric fistula care. Other research has highlighted inadequate human resources as the leading challenge in delivering healthcare in Africa[51] while the World Health Organization has identified both a shortage and an inequitable distribution of HCPs across the continent.[52] To address this gap, integrated care programs must prioritize capacity building by recruiting and adequately training HCPs who are specifically equipped to manage obstetric fistula cases. This training should not only focus on surgical repair techniques but also comprehensive care, including screening, pre- and post-operative support, patient education, mental health services, physiotherapy, and community reintegration. Furthermore, it is essential to establish ongoing professional development opportunities to ensure HCPs remain updated on the latest treatment protocols and best practices. By investing in the education and training of HCPs, these programs can help build a sustainable workforce that delivers high-quality care to women with obstetric fistula.

Strengths and limitations

This scoping review offers several strengths. First, it provides a comprehensive synthesis of evidence from diverse methodological approaches and research conducted across multiple African countries. Second, it identifies and consolidates a wide range of program components, including awareness strategies, training initiatives, complementary therapies, and reintegration supports, highlighting the multifaceted nature of effective obstetric fistula care. Third, by organizing the findings into themes, the review demonstrates how program components cover multiple areas, offering a clear, evidence-informed framework that can guide the development of more integrated and comprehensive models of care. Finally, the review draws attention to program innovations such as mobile surgical teams, transportation support, mental health and physiotherapy interventions, and community-based reintegration models, thereby expanding understanding of promising strategies that have not yet been widely documented in the literature.These strengths provide an evidence base from which to consider improvements in policy and practice. The findings of this review highlight the need for policymakers and program developers to adopt integrated, patient-centered models of obstetric fistula care that encompass prevention, surgical repair, rehabilitation, and reintegration. Strengthening national and regional strategies will

require investment in culturally appropriate awareness campaigns, targeted efforts to reduce financial and geographic barriers, and expansion of community-based outreach mechanisms such as fistula ambassadors and mobile surgical teams. The documented shortage of trained HCPs highlights the urgency of sustainable workforce development, including specialty training, ongoing professional development, and more equitable distribution of skilled providers. Incorporating standardized mental health and physiotherapy services into programs may further enhance surgical outcomes and long-term recovery.

This research highlights important opportunities to advance obstetric fistula care; however, the findings must be interpreted in light of several limitations. The existing research on key elements of obstetric fistula repair programs is limited, likely due to the focus of Africa's overly strained healthcare workforce on delivering care rather than conducting research. Despite the limited research, this scoping review provides valuable insights, highlighting opportunities for further work to improve the care provided for women living with obstetric fistula. While this review aimed to capture the key elements of obstetric fistula repair programs in Africa, its findings may not be universally applicable to other regions, as the context for fistula care can vary. Additionally, there are limitations inherent in the scoping review methodology. Only primary research was included, which meant secondary research, literature reviews, and grey literature were excluded. While the intent was to explore empirical evidence on fistula repair programs, valuable anecdotal evidence from leaders in the field may have been overlooked, potentially limiting the findings. This highlights the need for a more comprehensive systematic review in the future. Furthermore, although the search strategy included four databases, the authors acknowledge the possibility of selection bias and recognize that other relevant research may not have been captured in this search

Conclusion

This scoping review has identified several opportunities to improve obstetric fistula repair programs. Key areas for future work include developing standardized care pathways and integrated models that combine awareness, prevention, surgical repair, and social reintegration. Raising awareness through sensitization campaigns and fistula ambassadors can help reduce stigma and improve access to care, particularly in regions with low awareness. Additionally, addressing barriers to care, such as financial constraints and transportation issues, along with expanding access through initiatives such as mobile healthcare teams, is critical. The shortage of trained HCPs is another significant challenge, highlighting the need for focused capacity building and ongoing professional development to ensure high-quality, sustainable care. While research on obstetric fistula repair programs remains limited, the findings of this scoping review underscore the need for more comprehensive, coordinated efforts to enhance care for women affected by obstetric fistula

Contribution of authors

JB and AM were the leads on the project and contributed to all aspects of the research including writing the manuscript; SO contributed to developing the search strategy, screening articles, extracting data from the articles to populate the extraction tables, coding data, and identifying themes; BSD contributed to writing of introduction and confirming themes; AN and PP contributed to confirming themes, summarizing and reporting the results, and providing overall mentorship to the team on the project. All authors have reviewed and approved this manuscript.

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