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Barriers and Facilitators to the Implementation of Midwifery Centers in Low- and Middle-Income Countries: A Scoping Study

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Highlights

Public health relevance—How does this work relate to a public health issue?

- Midwifery centers may expand access to respectful, person-centered, and high-quality maternity care in low- and middle-income countries.
- Their successful implementation depends on both strong internal structures and enabling health-system conditions.

Public health significance—Why is this work of significance to public health?

- Updated evidence highlights the importance of a competent and autonomous midwifery workforce, sustainable financing, quality standards, and community-responsive care.
- Supportive policies, effective referral systems, and strong interprofessional and community collaboration are essential for integrating midwifery centers into wider health systems.

Public health implications—What are the key implications or messages for practitioners, policy makers and/or researchers in public health?

- Midwifery centers should be implemented as part of wider health-system strengthening rather than as isolated facilities.
- Policy and investment should support midwifery education, professional autonomy, quality improvement, referral networks and sustainable integration of midwifery centers into maternity care systems.

Abstract

Facility-based birth is an important strategy for reducing maternal and neonatal mortality, yet institutionalization has also been associated with overmedicalized and disrespectful care. Midwifery centers (MCs) may offer an alternative, but evidence on their implementation in low- and middle-income countries (LMICs) remains limited. This study explored barriers and facilitators to MC implementation and functioning in LMICs. A scoping review conducted in 2020 identified 15 publications. Ten key informants were interviewed in 2020 to complement and contextualize the literature findings. Findings were analyzed thematically and organized within a SWOT framework. A literature update conducted in 2026 identified 13 additional publications, resulting in 28 included publications. Facilitators included enabling environments for midwives, internal standards, sustainable financing, community-centered care, and professional collaboration. Barriers included workforce and education gaps, insufficient professional and regulatory recognition, weak health-system integration, and inadequate maternity care infrastructure. Expert insights complemented the literature by highlighting practical implementation challenges. Successful MC implementation requires context-sensitive approaches supported by adequate health-system

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infrastructure, professional autonomy, and functional referral networks to enable safe and respectful maternity care.

Keywords: midwifery; birth center; midwife-led care; scoping study; LMICs; midwifery center

1. Introduction

The Sustainable Development Goals (SDGs) 3.1 and 3.2 call for a reduction in the global maternal mortality ratio to below 70 per 100,000 live births and for all countries to reduce neonatal mortality to at least as low as 12 per 1000 live births by 2030 [1,2]. However, progress towards this goal remains insufficient and uneven across countries and regions. In 2023, the global maternal mortality ratio remained at 197 per 100,000 live births, with approximately 260,000 maternal deaths worldwide and 92% occurring in low- and lower-middle-income countries [1]. The majority of these deaths are considered to be preventable through access to timely and adequate care before, during and after childbirth by skilled health professionals, including professional midwives [1].

Poor perinatal outcomes across the world are exacerbated by the phenomenon of "too little too late", where women do not receive timely and adequate care around childbirth, as well as by poor quality of facility-based care, staffing and supply shortages [3,4]. A variety of economic, social, and geographic barriers may compromise women's access to maternity care, with vulnerable populations carrying the highest burden of global maternal mortality and morbidity [4,5].

To address the public health problem of "too little too late", many LMICs have aimed to increase rates of facility-based birth attended by skilled health professionals and access to basic emergency obstetric and newborn care. However, this shift has brought its own challenges. In many settings, facility-based maternity care is characterized by increasing medicalization, while women and newborns may also experience fragmented, disrespectful or insufficiently person-centered care [6]. As a result, many countries are simultaneously experiencing maternity care that has been described as "too much too soon". This refers to care that is unnecessary, excessive and potentially harmful, reflected, for example, in rising rates of childbirth interventions without corresponding improvements in outcomes [4]. Overmedicalized maternity care may also coexist with abusive, disrespectful and culturally insensitive care [3,7]. Fear of discrimination, unnecessary intervention and mistreatment may further discourage women from seeking facility-based maternity care [8]. As a result of persistent inequalities within countries, many LMICs face a double burden: the coexistence of maternity care that is "too little too late" for some women and "too much too soon" for others [4].

In response, countries are looking for alternative pathways to maternity care that is safe, accessible, evidence-based, and respectful [4]. Such a pathway includes the expansion of services and facilities based on a midwifery model of care. The World Health Organization (WHO) defines midwifery models of care as models in which midwives, working autonomously within their full scope of practice and as part of interdisciplinary teams, are the main care providers for women and newborns across the continuum of care [6]. These models are grounded in the midwifery philosophy of care, which views pregnancy, labor, birth and the postnatal period as physiological processes for the majority of women and newborns, promotes person-centered and rights-based care, and supports the appropriate use of interventions when indicated [6].

Midwifery can have a pivotal effect on maternal and perinatal health outcomes when midwives are well educated, appropriately regulated, and enabled to practice to their full

scope in accordance with international standards. More recent evidence estimates that universal coverage of midwife-delivered interventions by 2035 could avert approximately two-thirds of maternal and newborn deaths and stillbirths, saving an estimated 4.3 million lives annually. Midwives can also meet approximately 90% of the need for essential sexual, reproductive, maternal, newborn, and adolescent health interventions [9]. Midwifery models of care are furthermore recognized as a cost-effective approach to improving outcomes and experiences of care while reducing unnecessary interventions [6].

Midwives can therefore make an important contribution towards achieving SDGs 3.1 and 3.2 and advancing universal health coverage. However, their potential remains constrained by insufficient investment in midwifery education and workforce development, as well as persistent regulatory, professional and health-system barriers. The State of the World's Midwifery 2021 estimated a global shortage of approximately 900,000 midwives, while highlighting the need for greater investment in midwifery education, workforce planning, leadership and governance [9]. More recent WHO guidance similarly emphasizes that transitioning to midwifery models of care requires supportive policy and regulation, workforce development, governance, sustainable financing, community engagement and integration within wider health systems [10].

Along with the expansion of midwifery services, alternative birth settings and facilities based on midwifery models of care have gained increasing attention. One example is the implementation of midwifery centers (MCs). MCs are defined as "health care facilities that provide birth and sexual and reproductive health care using the midwifery model of care. They provide safe, satisfying, women-centered care, and reduce interventions. While the services offered, and their integration within the health system can vary greatly, midwifery centers offer a strong alternative for respectful, facility-based birth, in a woman's community" [11]. MCs have been identified in more than 56 countries globally, and more recent mapping identified MCs in at least 24 LMICs, although many are not represented in the peer-reviewed literature [12,13]. MCs can be alongside or near an obstetric facility or freestanding, allowing the model to be implemented in different geographical and health-system contexts.

The concept of an MC encompasses different terms, such as midwife-led birthing centre, midwifery-led unit, birth center, and midwifery-led health center [11]. In this study, the term "midwifery center" (MC) is used as an overarching term for facilities corresponding to the definition proposed by Stevens and Alonso [11], regardless of the terminology used in individual publications. An important distinction must be made between MCs and midwife-led care more broadly. While midwife-led care refers to care in which midwives assume primary professional responsibility for providing and coordinating maternity care across different healthcare settings [6], an MC is a defined healthcare facility organized around the midwifery model of care [11]. MCs are distinguished from conventional obstetric facilities by their theoretical underpinning in the midwifery model of care and their focus on physiological pregnancy and birth. MCs commonly provide a home-like environment and may require fewer infrastructural resources than conventional obstetric facilities. Consequently, they may be established within community settings and provide locally accessible maternity care [14]. By reducing cultural and geographic barriers to facility-based care, they may contribute to improving access to respectful and culturally appropriate care for underserved populations [5,15]. MCs can also provide an enabling environment for midwives to practise autonomously within their professional scope, thereby supporting the provision of quality midwifery care [16]. More recent evidence from LMICs supports the importance of this model while demonstrating substantial variation in how MCs are organized, staffed, and integrated within health systems [13]. A multicountry study of MCs in Bangladesh, Pakistan, South Africa and Uganda further identified quality

midwifery care, sustainable financing, community recognition, functional referral systems, interdisciplinary collaboration and supportive leadership and governance as important conditions for successful MC functioning [17].

Several larger-scale birth center models have been implemented in LMICs, including Nepal and Bangladesh [5,18]. More recent evidence demonstrates that MCs are more widespread across LMICs than previously documented. Nove et al. [13] identified evidence of MCs in 57 LMICs, although the evidence was considered robust across different sources for only 24 countries and only 14 were represented in the peer-reviewed literature. Despite their wider presence, MCs vary considerably in their organization and characteristics, and important evidence gaps remain regarding their implementation, impact and costs [13]. A recent scoping review further emphasized the importance of effective networks of care for MC implementation, including integration with surrounding health services, functional referral pathways, and collaboration across different levels of the health system [19].

2. Materials and Methods

A scoping review was conducted to (i) broadly map barriers and facilitators to MC implementation and functioning in LMICs identified in the available scholarly and grey literature and (ii) identify knowledge gaps. A barrier was defined as "a circumstance or obstacle that [...] prevents progress" and a facilitator as "a [...] thing that makes an action or process easy or easier" [20]. Additionally, stakeholders in the field were consulted to enhance and contextualize the findings and complement gaps in the available literature [21,22]. Given the limited evidence on MC implementation in LMICs available at the time of the original study, this methodology was considered suitable for addressing the research aim by combining evidence from the literature with expert knowledge from the field.

The scoping review followed the framework developed by Arksey and O'Malley [21], extended by the recommendations proposed by Levac et al. [22], and was reported in accordance with the PRISMA Extension for Scoping Reviews (PRISMA-ScR) [23]. The review protocol was not registered. Ethical clearance for the study was granted by Maastricht University's Faculty of Health, Medicine and Life Sciences in May 2020 (reference number FHML/GH_2020.028). Adapting Arksey and O'Malley's framework [21], six stages of research were followed, as outlined below. The completed PRISMA-ScR checklist is provided in the Supplementary Materials (Figure S1).

2.1. Identification of Research Questions

The review aimed to address the following research questions:

(1) What barriers and facilitators to the implementation and functioning of midwifery centers in LMICs are described in the literature?
(2) What gaps exist in the literature regarding barriers and facilitators to the implementation and functioning of midwifery centers in LMICs?
(3) What barriers and facilitators to the implementation and functioning of midwifery centers in LMICs are described by key informants working in the field?

2.2. Identification of Relevant Studies

For the identification of relevant research, this scoping study focused on scholarly and grey literature on midwifery centers in LMICs. Inclusion and exclusion criteria were developed prior to and adjusted iteratively during the search (see Table 1). The PCC framework (Participants, Concept, Context) was used to develop a search strategy for each database [24]. The PCC framework and complete database-specific search strategies for the original review are provided in Supplementary S1 (Tables S1–S3). Using a combination of

keywords and medical subject headings, the databases MEDLINE/PubMed and Maastricht University LibSearch (searching BioMed Central, Cochrane Library, Directory of Open Access Journals, and WorldCat.org) were searched on 15 April 2020 for English-language peer-reviewed scholarly publications published between 2005 and 2020. Furthermore, Google Scholar, key organization websites, and reference lists of included research papers were searched for additional published and grey literature.

Table 1. Selection criteria for study inclusion and exclusion.

Inclusion Criteria	Exclusion Criteria
1. Papers focused on midwifery centers according to the definition of Stevens and Alonso [11].	1. Papers focusing exclusively on midwifery centers in high-income countries.
2. Midwifery centers located in LMICs according to the World Bank classification (2020).	2. Papers exclusively examining midwifery center outcomes without addressing implementation or functioning.
3. Scholarly peer-reviewed papers, media reports, book publications, and government reports.	3. Papers focusing on physician-led birth centers.
4. English-language publications published between 2005 and 2020.	

2.3. Selection of Relevant Studies

Following the database search, records were screened by title and abstract to determine whether they met the selection criteria. Screening was based on the inclusion and exclusion criteria listed in Table 1. Full-text screening of selected records subsequently determined whether publications were eligible for inclusion in the scoping review. Publications containing relevant information on MCs in specific sections were included even if their overall aims did not directly match those of this study.

2.4. Charting Data

All relevant publications were charted in a spreadsheet, including information on authors, study title, publication year, country of study, disciplinary focus, publication type, research aim, and results. Characteristics of the publications included in the original review and the 2026 literature update are provided in Supplementary S2 (Table S8). Publications were screened based on how the authors described facilitators and barriers to MC implementation and functioning. Facilitators and barriers identified in the publications were charted in a separate spreadsheet for subsequent thematic analysis following Braun and Clarke [25]. In accordance with the scoping purpose of the review, no formal critical appraisal or risk-of-bias assessment of the included sources was undertaken.

2.5. Collating, Reporting, and Summarizing the Results

The results of the scoping review and consultation are described in Section 3. Extracted barriers and facilitators from the literature were analyzed thematically following Braun and Clarke [25]. The extracted data were read and reread, initial codes were generated, and related codes were grouped into overarching themes. Themes were subsequently reviewed and refined to ensure that they adequately represented the identified barriers and facilitators. The results were organized into a description of the sample and the themes identified through the analysis.

Themes related to facilitators and barriers were subsequently categorized into internal (strengths and weaknesses) and external (opportunities and threats) factors using a SWOT framework (see Figure 1). Internal factors were defined as factors within the control of an MC's management, such as internal standards, whereas external factors were defined as those beyond the direct control of an MC, such as government regulations. A SWOT

framework is a commonly used tool for strategic planning and was therefore considered a suitable format to contextualize and organize the findings [26]. It has also been used in numerous studies within the healthcare sector to evaluate ongoing processes and inform future research and practice [27,28].

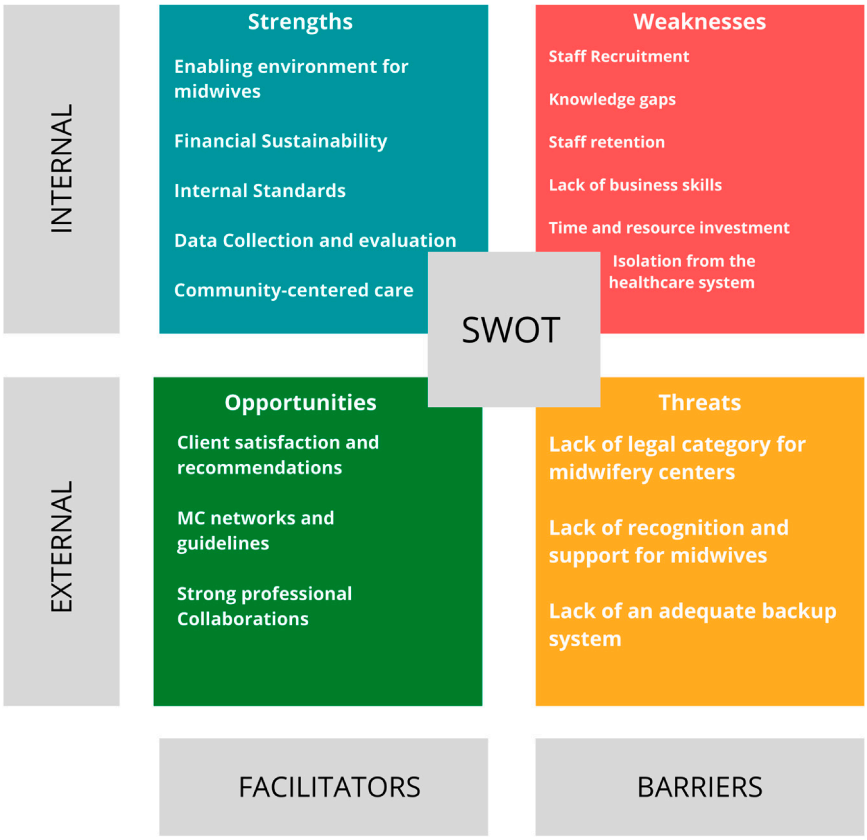


Figure 1. SWOT analysis of barriers and facilitators to the implementation and functioning of midwifery centers in LMICs.

2.6. Consultation

According to Arksey and O'Malley's framework [21], consultation with experts is considered an optional step in a scoping study. However, consultation can help to address identified gaps in the literature and to contextualize and expand upon findings emerging from the literature, enabling valuable knowledge exchange with experts in the field [22]. Qualitative semi-structured interviews with key informants were chosen as the consultation method to include their professional experiences of barriers and facilitators to MC implementation and functioning in LMICs, address knowledge gaps identified through the literature review, and explore their perspectives on the study's preliminary findings.

Professional stakeholders were purposively sampled according to their specific knowledge and expertise through relevant organizations, scientific publications and MC networks [29], complemented by snowball sampling. Two categories of key informants were identified prior to the study: (1) professionals with experience in implementing, managing or working in MCs in LMICs; and (2) midwifery scholars who had conducted research on the implementation of MCs in LMICs. Participants were contacted by email and invited to participate. Country income classification was not formally verified against World Bank data at the point of recruitment; one participant (ID5) was subsequently identified as based in a country currently classified as high-income (see Section 4.5). Informed by the findings of the scoping review, a semi-structured interview guide was developed (Supplementary S3, Table S9).

Ten interviews with key informants were conducted via video call between May and July 2020. Interviews were conducted by a midwife with a good understanding of the topic area, enabling dialogue with interviewees on key themes that arose during the interviews. Data were audio-recorded using an external recording device and transcribed verbatim using the transcription software Otter.ai (Otter.ai, Inc., Mountain View, CA, USA; web-based version, accessed between May and July 2020). To protect participants' identities and reference collected data in the findings, participants were assigned an Interviewee Identification Number (ID), which is used in the Results section (see Table 2).

Table 2. Characteristics of key informants and corresponding midwifery centers.

Interviewee ID	Country of Midwifery Center	Profession
ID1	Haiti	Medical doctor
ID2	Mexico	Midwife
ID3	India	Midwife
ID4	Bangladesh	Midwife
ID5	Trinidad and Tobago	Midwife
ID6	India	Midwife
ID7	The Philippines	Midwife
ID8	South Africa	Midwife
ID9	Peru	Medical doctor
ID10	Uganda	Midwife

Data analysis of the interview transcripts was conducted using thematic analysis following Braun and Clarke [25]. The transcripts were read and reread, initial codes were generated, and related codes were grouped into overarching themes. Themes were regularly reviewed, refined, and renamed during the process of further data analysis [29]. Recruitment and data collection ended after ten interviews, when the analysis was considered to provide sufficient thematic depth and no substantially new themes were being identified. NVivo 12 was used to organize and manage data during analysis.

2.7. Literature Update

To account for the time elapsed between the original review and publication, an updated literature search was conducted in August 2026 to identify relevant evidence published since the original search. The update covered publications from 2020 to 2026 and retained the original conceptual focus on barriers and facilitators to MC implementation and functioning in LMICs. Searches were conducted in CINAHL, Scopus, Web of Science and PubMed using database-specific search strategies adapted from the concepts and terminology of the original review and expanded to capture terminology used in more recent literature on MCs and comparable midwife-led facilities. The complete database-specific search strategies, including search dates, limits, and numbers of records retrieved, are provided in Supplementary S1 (Tables S4–S7).

The database searches identified 639 records (CINAHL, n = 421; Scopus, n = 89; Web of Science, n = 69; PubMed, n = 60). In CINAHL, 99 duplicates were identified internally by EBSCO, resulting in 322 exported records. Across all four databases, 540 records were exported. Following removal of 234 cross-database duplicates, 306 unique records remained for title and abstract screening. Of these, 44 were retained for full-text assessment. Following full-text assessment against the eligibility criteria, 32 publications were excluded and 12 were included. One additional eligible publication was identified subsequently, resulting in a final sample of 13 publications included in the literature update.

Publications were screened against the original eligibility criteria, with particular attention to whether the facility corresponded to the definition of an MC applied in the original

review and whether the publication contained information relevant to MC implementation or functioning. Publications focusing exclusively on outcomes without addressing implementation or functioning were excluded. Literature addressing midwife-led care more broadly without reference to a defined MC or comparable facility was not included as direct evidence but was retained as contextual evidence where relevant.

Findings from the 13 newly included publications were extracted and analyzed in relation to the themes developed through the original thematic analysis. Relevant findings were mapped onto the existing SWOT framework and used to confirm, extend, challenge, or add new aspects to the original findings. Where recent literature provided evidence for topics that had previously emerged primarily from the expert consultation, this was explicitly reflected in the updated synthesis. The expert consultation was not repeated as part of the literature update.

3. Results

In the following section, the study's results are presented. Sections 3.1 and 3.2 describe the literature review and consultation samples, while Sections 3.3–3.6 present the findings of the SWOT analysis. Each SWOT section presents internal or external facilitators and barriers identified in the original literature review, the subsequent literature update, and the expert consultation. Where applicable, findings from different sources are presented separately to distinguish between evidence from the literature and insights from key informants. Additional illustrative quotes from the expert consultation that complement the findings presented in the SWOT analysis are provided in Supplementary S3 (Tables S10–S13), organized according to strengths, weaknesses, opportunities, and threats.

3.1. Selected Articles

The original search identified 2064 records, including 2057 through database searching and seven grey literature sources identified through other sources. After removing duplicates, 1628 records were screened by title and abstract, resulting in 83 full-text articles that were assessed for eligibility. Eleven publications were included following full-text screening, and four additional publications were identified through bibliography screening, resulting in a final sample of 15 publications included in the original literature review. The search strategies for the original review are provided in Supplementary S1 (Tables S1–S3), and characteristics of all publications included in the final evidence synthesis are presented in Supplementary S2 (Table S8).

After charting the data from each publication, thematic analysis was performed as described in Section 2.5. Emerging themes related to barriers and facilitators were subsequently categorized into internal and external factors using the SWOT framework and are presented in Sections 3.3–3.6 and Figure 1.

A subsequent literature update was conducted in 2026 to identify relevant evidence published since the original search. The updated search identified 13 additional publications meeting the inclusion criteria. These publications were analyzed in relation to the themes identified in the original review and used to confirm, extend, challenge or add new aspects to the original findings. Together, the original review and literature update comprised 28 included publications. The study selection processes for both searches are presented in Figure 2.

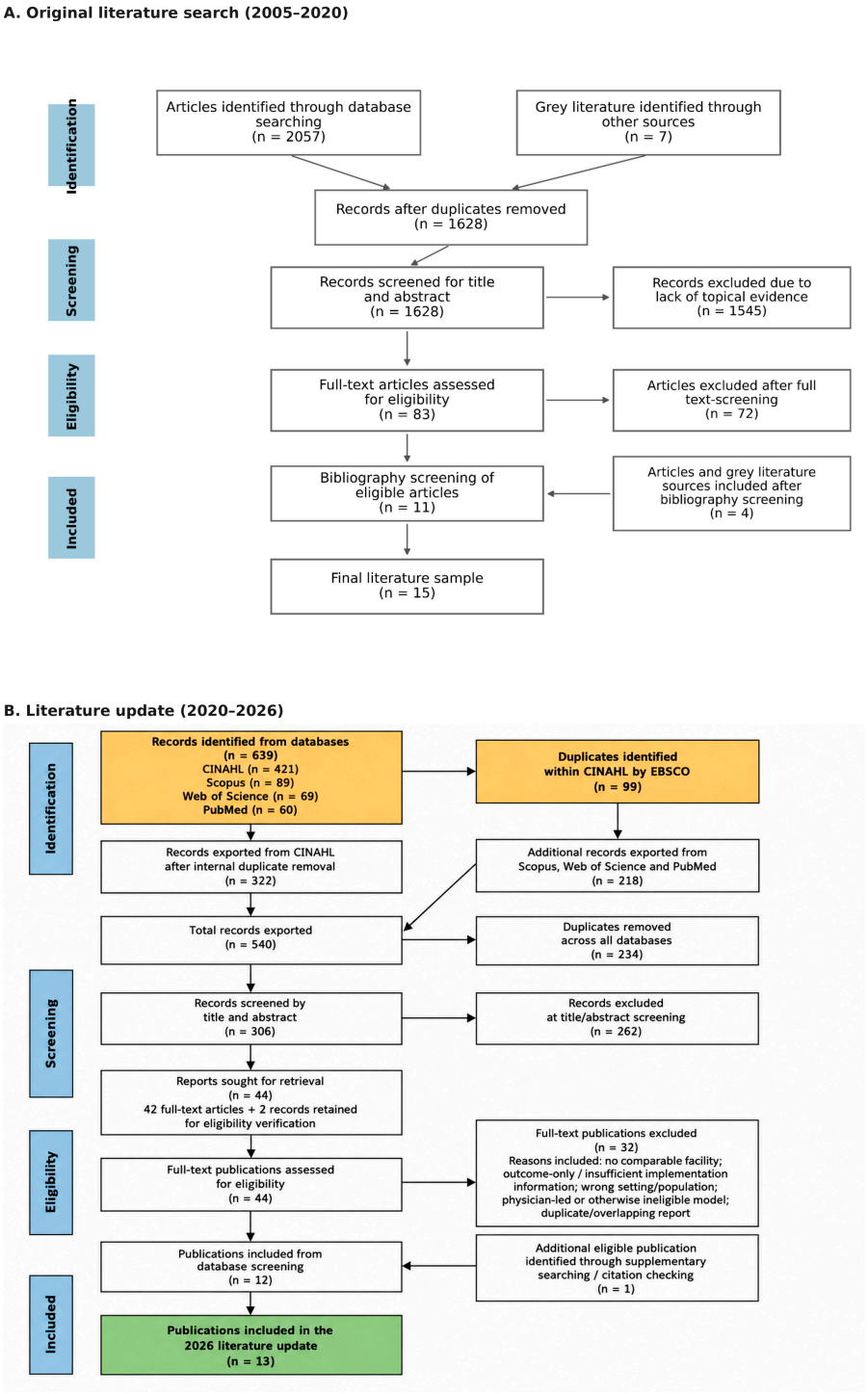


Figure 2. PRISMA flow diagrams of the original literature search (Panel (**A**), 2005–2020) and the literature update (Panel (**B**), 2020–2026). Together, both searches yielded 28 included publications.

3.2. Consultation with Key Informants

For the final step of consultation, 10 key informants with experiences in midwifery center implementation in LMICs were interviewed for stakeholder consultation. The characteristics of participating key informants and the countries of their corresponding midwifery centers are presented in Table 2. Nine participants described their experiences with freestanding midwifery centers, while one center was alongside an obstetric unit.

3.3. Strengths

Strengths were defined as internal facilitators. Findings revolved around factors within the MC's control. They included an enabling work environment, sustainable financing, internal standards, data collection and evaluation, and community-centered care.

3.3.1. Enabling Environment for Midwives

An enabling work environment for midwives was described as an important factor for midwifery center sustainability and functioning in the literature review. This entailed effective training in emergency skills, professional supervision and the potential for professional development in studies from freestanding MCs in Nepal [18] and an alongside MC in Brazil [30]. A high level of autonomy and working in an ideal environment to support physiological birth were named as other important factors that empowered midwives working in MCs and improved satisfaction [31–33]. In Bangladesh, MCs designed to enable midwives to practise according to the midwifery model of care were associated with higher levels of trust and respectful care compared with medical facilities in which midwives worked alongside nurses and physicians [34]. Further evidence from Bangladesh highlights the importance of professional commitment, education and broader recognition of the midwifery model for establishing MC care [35]. Similarly, research on the implementation of midwifery-led care units in India emphasizes the importance of creating a supportive environment in which midwives can practise according to their professional role and competencies [36].

Key informants confirmed this finding and added the need for an appropriate salary, enough off-time, regulated working hours (ID10), debriefing and professional reflection (ID7), giving each other support (ID5), and training in autonomous midwifery in an apprenticeship model (ID6,8,9) to create positive working conditions for midwives that would empower them, prevent burn-out and incentivize them to remain at the MC long term (ID10). Working autonomously, following the midwifery model and providing one-on-one care were mentioned as factors that were highly rewarding to midwives (ID2,8). Lastly, ID2 pointed out that MC care motivates midwives, as it excludes interventions that they perceive as harmful and abusive in the hospital system:

> *"The midwives are deeply committed, and they practice the [midwifery] model, they really do, you know, which is kind of the driver of why they go outside of the system and do it. [. . .]"* (ID2)

3.3.2. Financial Sustainability

A sustainable financing model for an MC was pointed out as an important facilitator for MC implementation by Alonso [31], as it enables a high standard of care, with adequate staffing, supplies and medications. A private non-for-profit model as a Non-Governmental Organization (NGO) was proposed as the most viable option, as it enables access to public and private resources [31]. Furthermore, it can exist independently from underfunded public health systems and offer free or affordable access for women [37]. An economic evaluation of 12 MC sites in Bangladesh, Pakistan and Uganda found substantial variation in operating costs across settings, while several MCs achieved better health outcomes at lower costs than standard care [38]. Recent evidence from Pakistan further demonstrates that financial sustainability remains a central consideration across different public, private and public–private MC models, particularly in balancing the costs of service provision with affordability for women [39]. Free or subsidized MC services, supported through mechanisms such as health insurance, incentives or donor funding, may increase service utilization, particularly among vulnerable populations. However, providing services free

of charge may present sustainability challenges and, in some contexts, may also affect the perceived value of MC care [19].

Expert consultation confirmed the importance of sustainable financing, with most centers following an NGO model (ID1,2,4,7,10):

> *"If we were set up purely as a business, we of course, we would not have access for funding, you know, so we set ourselves up as a nonprofit. And so because of that we have. . . we started out with one of our core philosophies being that anyone who wanted to access our care should be able to do it. And that money should not be a challenge."* (ID4)

Interviewees remarked that financial sustainability was improved if funding was sourced from different public and private sources (ID3,10). Some MCs were also operating as private for-profit institutions, with the option of reimbursement through health insurance plans (ID3,6,8). However, it was reported that foreign-funded NGO model MCs often possessed better funding, equipment, medications and staffing than nearby local facilities (ID1,2,7,10). This was sometimes associated with jealousy among collaborating facilities (ID10), incentivized primary-level public facilities referring women to the MCs in the case of supply and staffing shortages (ID7) and caused delays in the decision to refer women, due to poor emergency care delivery in public facilities (ID1,10). Löwy [40] remarked that the small size of individual MCs subjects them to less economic pressure to be cost-effective compared to the hospital sector.

> *"So they [. . .] build a little midwifery Center, which is an oasis, it doesn't change the healthcare system, it threatens it. It provides an example of if you had fantastic funding, if you had empowered midwives, if you had the best-case scenario, you get great results. Because your results in your midwifery centers all over the world are fabulous. [. . .] The best place to have a birth is in a birth center because they have running water and electricity, which they don't have at the hospitals. Because an NGO is paying for it."* (ID2)

3.3.3. Internal Standards

The literature recommends the development of internal MC standards based on the midwifery model to support the provision of high-quality care [8,11]. Specific operational standards for MCs provide a framework for consistent and high-quality care across different settings [12], while accreditation based on these standards can support quality assurance and continuous quality improvement [41]. Standards have also been reported to facilitate the integration of MCs into the wider healthcare system [18]. Clearly defined referral and emergency protocols, including indications for transfer, mode and expected duration of transfer, corresponding facilities and professional collaboration partners, were emphasized as important facilitators of safe MC practice [18,42]. The availability of adequate emergency management supplies was also emphasized in the literature [18]. Three categories of standards were identified by Alonso [31]: parent-focused standards, provider-focused standards and administration-focused standards.

The expert consultation confirmed these three categories and provided further insights into their practical application:

1. Parent-focused standards were considered important to define respectful care for birthing people within the MC, as people-centred care had often not been included in midwives' previous education (ID2,4,7,10). It was recommended to develop these standards in accordance with the community and support them through regular community surveys (ID1).
2. Provider-focused standards were considered important to define the MC's scope of practice, midwives' competencies and ongoing training measures, normal birth support guidelines and emergency management procedures. Interviewees emphasized

the need for clearly defined professional boundaries and referral criteria to facilitate timely transfers and ensure safe MC practice (ID4,5,8):

"To be skilled enough to pick up who can and who can't be birthing in a birthing unit. And then also you have a good guideline to say, absolutely, we've got it in our practice who we will and won't touch in a birthing unit." (ID8)

As an additional practical measure to facilitate timely referrals, interviewees reported that the use of the MCs' own ambulance prevented transfer delays (ID3,7,10).

3. Administration-focused standards were considered important to define collaboration with the healthcare system and local communities, licensure and regulation, referrals, data collection mechanisms, and safety and hygiene systems. Standards on hygiene, safety and evidence-based care were named as an important facilitator for the dialogue with regulatory bodies in gaining recognition as a health facility (ID4).

3.3.4. Data Collection and Evaluation

Data collection was named as an important facilitator by Alonso [31], to monitor and evaluate outcome indicators, improve quality management and to present a midwifery center's outcomes when engaging the dialogue with policymakers and other health professionals. Data recording, regular monitoring, and benchmarking were also pointed out as important components of quality assurance and continuous improvement in MCs [19]. Multi-country evidence further highlighted the role of data collection in continuous learning and adaptation within MCs [17].

The expert consultation illustrated how data were used strategically to demonstrate the quality and outcomes of MC care:

"We keep excellent, excellent data, [. . .] because we know we have to support what we're doing and what our outcomes are, and that type of thing, because we don't have the support, generally, of the professionals. And so we know we have to be really, really careful and have solid data." (ID3)

Several interviewees also pointed out that data collection on their outcomes had enabled them to demonstrate their positive outcomes to legislators and donors (ID4,7,10):

"And maternal mortality is about 10 times less than the country. So if we're saving 10 times more mothers, you know, four times more babies, and we're not a hospital, we don't have doctors on staff. We're simple. We're not fancy, nothing's high tech. There's a key there if you do things right." (ID7)

3.3.5. Community-Centered Care

Community-centered care was reported as an important facilitator for MCs in the literature. Community acceptance and MC utilization were improved by building relationships and trust towards the MC [42] and by geographic and financial accessibility to the MC for disenfranchised communities [37]. In rural Guatemala, integrating traditional midwives and culturally familiar practices into local birthing centers contributed to greater community acceptance and utilization [43]. Similarly, women using MCs in Uganda valued care that was respectful, accessible, affordable and responsive to their individual needs [44]. More broadly, recent evidence emphasizes that responsive MC care requires meaningful engagement with women and communities and attention to individual, cultural and emotional needs [19].

The expert consultation provided further insights into how community-centered care was a key component during MC implementation (ID1,2,4,5,10). Interviews revealed that midwifery center implementation was strengthened through needs assessments in the surrounding communities:

> *"Because of the survey process, we had a huge amount of buy in from the community. They trusted us from the beginning. I remember one mother came to me, came and said: of course, I come to this house for my prenatal visits, because it's welcoming and I've had you in my home, and you're having me in your home."* (ID1)

Assessments allowed the MC to align and tailor their care and services to the cultural needs of communities that they served. Interviewees also confirmed that community outreach activities had strengthened relationships with communities (ID1,10) and aided in receiving support and funding by the government (ID3). Moreover, the provision of primary sexual and reproductive health services beyond pregnancy and birth was reported to increase MC care utilization and satisfaction within communities (ID2).

3.4. Weaknesses

Weaknesses were characterized as barriers within the MC's control. Problems in recruiting, retraining and retaining staff were mentioned as the most common weakness in both the literature and interviews. Other weaknesses included a lack of business and management skills, substantial time and resource requirements, and isolation from the healthcare system.

3.4.1. Staff Recruitment

The literature identified a lack of midwifery staff who were adequately prepared and willing to work in an MC model [17,45]. Even if staff could be recruited, midwives had often only been trained in hospitals in a medical model of care, which did not prepare them to provide autonomous care in an MC [30]. Evidence from India further highlights ongoing competency and workforce-development needs as professional midwifery is being integrated into the health system [46].

The expert consultation provided additional insights into staff recruitment. Some countries had several pathways of midwifery training, resulting in different competency levels across midwifery cadres, which sometimes led to friction and rivalry between midwives (ID1,2,4,6,7). This jeopardized the MC's functioning, as midwives often needed to be retrained to meet the MC's standards, as confirmed by ID10:

> *"I mean I think on some level, the biggest barrier was finding local staff who could buy into the model and be willing to be trained in the model enough to sustain it."* (ID10)

3.4.2. Knowledge Gaps

Three skill and knowledge gap areas in midwives' previous education were identified in the literature. Firstly, the lack of training on physiological birth resulted in a tendency for overintervention [30,47]. The second knowledge gap included insufficient skills for emergency management [18]. Thirdly, some midwives were lacking knowledge on people-centered care and were inclined towards disrespectful practices [8]. Evidence from South African Midwife Obstetric Units further demonstrates that respectful and people-centered care cannot be assumed solely on the basis of a midwife-led setting, with women reporting experiences of verbal abuse, neglect and denial of companionship [48]. Turkmani et al. [19] emphasized that midwives working in MCs require competencies not only in supporting physiological birth and avoiding unnecessary intervention, but also in risk assessment and emergency management, particularly where referral infrastructure is limited or facilities serve rural and remote populations. Continuous professional development, supportive supervision and mentoring were identified as important mechanisms for maintaining these competencies.

The expert consultation provided further insights into how limited exposure to physiological birth affected midwives' preparedness for MC practice (ID7,9):

> *"The midwives, they don't know how to do normal birth, a lot of them never saw a normal birth. [. . .] Some of them literally don't know that babies can come out without episiotomy and someone shoving on the mother's stomach as hard as they can. And they've never seen a baby just emerge ever."* (ID7)

According to the interviews, insufficient skills for emergency management resulted from midwives' limited scope of practice within the hospital system, where physicians were in charge of emergency management (ID1,7):

> *"What they got was their midwives being trained by doctors in hospitals almost entirely. There's no separation of the medical model from the midwifery model. There's not a great deal of respect for physiological birth. And so, when you have that coupled with midwives having their hands tied because they're not given emergency skills, you almost have the most dangerous situation of all. You're doing too much when birth is normal, you're not doing enough when birth has complications. [. . .] So we have a long ways to go to empower them, to be able to save lives when something goes wrong. But on the other end, they also are not it all empowered to know that birth is physiological."* (ID7)

Regarding people-centered care, interviewees related existing knowledge gaps to midwives' previous training and clinical exposure (ID4,7,10):

> *"And then they see birth modeled to them that's extremely abusive, dangerously abusive, with obstetric violence, and so it takes a long time to train people out of that."* (ID7)

As a result, in order to operate an MC aligned with a midwifery model of care, interviewees elaborated on the need to reform midwifery training (ID2,4,6,7,9,10):

> *"It really needs to have the midwifery model of care. And that might be hard in countries where midwives aren't taught the midwifery model of care, because one thing doesn't mean the other, they are two different things."* (ID2)

Interviewees suggested that MCs might serve as valuable placement options to train midwifery students in individualized and woman-centered care in addition to clinical placements in the formal healthcare sector (ID3,6,8).

3.4.3. Staff Retention

In addition to weaknesses in staff recruitment, the literature also described problems in retaining midwifery staff in MCs. Alonso [31] pointed out that midwives may be particularly prone to burnout due to emotional and physical exhaustion and external backlash and criticism within healthcare systems. Excessive workloads, workforce shortages and insufficient professional support continue to challenge the retention and sustainability of the midwifery workforce [19].

The expert consultation provided additional insights into factors affecting staff retention. Interviewees reported that midwives preferred shift work to being on call (ID3,5,6,10), that there was a lack of off-time due to staffing shortages (ID2), exposure to safety hazards while travelling to the MC (ID8), and that midwives sought better work opportunities abroad (ID8). Some midwives were also reluctant to collaborate with traditional birth attendants (TBAs) (ID10). In response, some MCs were staffed with foreign-educated midwives. However, this strategy was found to be unsustainable, since foreign midwives lacked understanding of the local context and language skills and often stayed only short-term (ID1,3,5,10).

3.4.4. Lack of Business Skills

A lack of entrepreneurial knowledge in MC leadership may inhibit MC functioning, since strong skills in business leadership, management and planning are crucial to imple-

ment, fund, and sustain an MC [31]. More broadly, supportive leadership and governance at all levels have been identified as important conditions for successful MC implementation [17].

The expert consultation provided more specific insights into the business and management skills required to sustain an MC. ID2 pointed out that the business aspect of running an MC may not culturally fit in with midwifery in many LMICs:

> *"You know, birth centers are a Western model. It's a capitalist approach. It's a business approach. So, it doesn't fit with a traditional midwife model."* (ID2)

It was highlighted that the required business skills to run an MC are often lacking in midwifery training (ID1,6):

> *"One thing I found with a lot of my interactions with midwives everywhere is we don't have enough focus on business leadership. [. . .] You know, so we are all taught to be extremely good compassionate caregivers. [. . .]. But to sustain, to keep it a viable model with adversities, it requires a lot of pushing."* (ID6)

3.4.5. Time and Resource Investment

Time and resource investment was initially identified as a weakness through the expert consultation. This finding is also supported by the literature, which indicates that insufficient financial, human and infrastructural resources can pose barriers to the establishment and sustainable functioning of MCs [19].

The expert consultation illustrated the extent and range of resources required to establish and sustain an MC, as ID7 pointed out:

> *"Invest the time, be willing to invest way more than you thought it was going to take: time and energy, money, emotions."* (ID7)

Time needed to be invested to train midwives (ID7,10); to gain the trust of the surrounding communities (ID1,7,10); to find and train skilled midwifery and administrative staff (ID2); and to establish partnerships with health professionals, facilities, insurance companies and government bodies (ID6,7,8). Financial barriers were also exacerbated by large liability insurance payments (ID8) and financial pressure to sustain free care in not-for-profit MCs:

> *"The struggle to be financially viable in low resource areas for the midwifery centers is huge, to still have access, you know, to the poor."* (ID3)

3.4.6. Isolation from the Healthcare System

Isolation from the wider healthcare system has been identified as a major barrier to MC functioning, highlighting integration into functional networks of care as a prerequisite for sustainable MC implementation [19]. Evidence from Pakistan similarly demonstrates that limited integration into the wider healthcare system can challenge MC functioning and emphasizes the importance of stronger integration into national health services [39].

The expert consultation provided further insights into the consequences of isolation from the healthcare system, particularly in settings where MCs existed only in small numbers. Isolation was reported in several ways: Firstly, MCs were disadvantaged in healthcare policymaking if they were not on the government's radar (ID1). Secondly, the isolation of MCs subjected them to scrutiny of other health professionals and the government if an MC was not practicing safely and produced poor outcomes (ID3,5,8):

> *"And so if you have one case like that in a small group of people who are really being closely watched and you know, there's not a lot of centers [. . .] and so the reaction, politically is huge."* (ID3)

3.5. Opportunities

Opportunities were defined as facilitators beyond the MC's control. The main identified opportunities revolved around the MC's connection to their environment. They included client satisfaction, MC networks and guidelines, and strong professional collaborations.

3.5.1. Client Satisfaction

Client satisfaction and recommendations were identified as important facilitators of MC functioning [40]. Evidence from Uganda confirmed that women's preference for MC care was associated with respectful and dignified care, individualized support, autonomy and accessibility [44]. The integration of TBAs as doulas was also reported to improve service utilization in an MC in Bangladesh [5].

The expert consultation provided further insights into how positive care experiences and recommendations contributed to MC utilization and community acceptance (ID1,3,5,6,8,9,10):

> *"The women and the positive births that they had is what brings us to the next one."* (ID6)

Clients valued the MC for positive birth experiences, respectful and culturally sensitive care, the option to have their partners or TBAs present during birth (ID3,5,10), greater affordability, and the opportunity to avoid disrespectful and overmedicalized care (ID8). Positive birth testimonies and recommendations increased the number of people seeking care, motivated midwives to pursue their vision, and furthered acceptance and integration of the MC within local communities (ID1,5,6,9,10).

3.5.2. MC Networks and Guidelines

The literature highlighted the need for evidence-based, globally applicable standards for MC quality and safety [33]. Global operational standards for MCs have been developed and piloted in eight countries, comprising 43 standards across three domains: dignity standards for women, quality standards for care providers, and community standards for administration [12]. Operational standards have also been situated within wider Networks of Care, linking quality and safety standards to referral systems, monitoring and health-system integration [19]. A global accreditation process piloted in six MCs in Haiti, Uganda and South Africa suggested that accreditation may support continuous quality improvement, health system integration and sustainability [41]. Participants particularly valued accreditation as a process of guided self-evaluation, which helped centres identify strengths and gaps, formalize policies and responsibilities, and reinforce standards related to respectful care, referral pathways, emergency preparedness and accountability. Rather than functioning as a one-time assessment, accreditation was perceived as a tool for continuous organizational learning and for strengthening the midwifery model of care [41].

The expert consultation provided further insights into the role of national and international MC networks in supporting MC implementation and functioning. National and international MC networks aided MCs in developing standards and protocols (ID4), exchanging knowledge (ID3), and learning from best practice in other MCs (ID6,8). Moreover, accreditation through international MC networks was mentioned as an important facilitator for obtaining local government support and recognition (ID1,3). Interviewees also reported that international maternity care frameworks provided a foundation for developing internal MC standards and gaining local government support (ID4,7):

> *"It makes it bigger to have a huge international framework to come in with. It's much more received than just an individual organization coming in, so that's what I would say. [. . .] So that's what we've used to try to influence change. [. . .] That's what we use to talk to Department of Health officials and local doctors."* (ID7)

3.5.3. Strong Professional Collaborations

Strong professional collaborations with and support from other maternity care stakeholders were emphasized as important facilitators in the literature [18,32,49,50]. Evidence from Mexico further demonstrated the feasibility of integrating non-physician obstetric care providers within primary healthcare settings, highlighting the potential contribution of collaborative models of maternity care [49]. Collaborations with nearby hospitals were also reported to facilitate referrals from MCs [5,31]. Such collaborations have also been conceptualized within wider Networks of Care, emphasizing formalized relationships between MCs, referral facilities and other actors across different levels of the healthcare system [19].

The expert consultation provided further insights into the range of stakeholders and forms of collaboration supporting MC functioning. Collaborations with obstetricians and pediatricians provided clinical backup, either within the MC or following transfer to external hospitals (ID3,5,6,8):

> *"We have always, always worked with a backup system. So, I have a pediatrician, I have an obstetrician, I have a hospital. I'm very, very aware that you cannot work alone."* (ID8)

However, most supportive physicians were reported to work in the private sector (ID2,3,6,8). Collaborations with nearby hospitals were similarly considered essential, with birthing rights at collaborating hospitals allowing midwives in some settings to continue providing care following transfer (ID8).

Collaboration extended beyond clinical referral partners. Midwifery associations and educational institutions could support policy dialogue and introduce students to the MC model (ID5,8), while collaboration with government bodies facilitated health-system integration, accreditation and funding (ID2,3). Partnerships with health-system infrastructure providers, including insurance companies, laboratories and emergency services, further supported MC functioning (ID2,8).

The consultation additionally highlighted the potential role of TBAs in strengthening culturally responsive and community-based care. Interviewees described TBAs as trusted community actors whose knowledge and relationships could complement MC services, particularly in underserved communities (ID4,9,10). Some MCs involved TBAs by welcoming them as birth companions or employing them as doulas (ID9,10), thereby supporting outreach to women in remote areas, transport to the MC and culturally responsive support during and after birth (ID10).

Interviewees identified several strategies for strengthening collaboration and mutual trust, including inviting stakeholders to MC workshops and visits (ID1,2,4), developing shared referral protocols (ID3,8,10), offering clinical placements to expose midwifery and medical students to the midwifery model of care (ID4,8), and developing collaborative models of care within MCs (ID4,9,10). As ID10 summarized:

> *"Community centered care is about going into each community, finding the people who are implementing a midwifery model of care. Whether they be a group of traditional midwives or doulas or midwives and then finding a way for those different entities to work together collaboratively. That's the model that we can scale, community to community."* (ID10)

3.6. Threats

Threats were defined as barriers that were beyond the MC's control. Most prominently, they related to the absence of a midwifery profession and legal recognition of MCs. Furthermore, they included the absence of a strong backup infrastructure.

3.6.1. Lack of a Legal Category for Midwifery Centers

The lack of a legal category for MCs was identified as a threat to their implementation, as it may prevent them from operating to their full potential [50]. Unregistered MCs may consequently face legal sanctions, fines or prosecution [31]. A supportive policy environment is essential for integrating MCs into wider Networks of Care, while insufficient supportive policies and regulatory integration can restrict their ability to collaborate effectively with other parts of the health system [19]. In Mexico, the absence of a recognized legal category for MCs has restricted their formal operation, requiring some centers to register under other healthcare categories [51].

The expert consultation provided further insights into the practical consequences of the lack of a legal MC category:

> *"That's kind of like the biggest weakness is that there's this empty legal space, there's no official accreditation."* (ID2)

Interviewees pointed out several contributing factors. Because some countries only had a small number of MCs with few births, they were too small to be noticed by the ministry of health (ID1). Furthermore, after a long history of campaigning against home births in LMICs, governments were hesitant to recognize a facility offering "out-of-hospital" births, as these were perceived as unsafe and unsanitary (ID4). As a result, MCs were unable to obtain licensure and apply for funding within healthcare systems (ID3) and had to find legal loopholes to function within the healthcare system, such as registering the MC as a hospital (ID3,5,6) or a home birth facility (ID8). Pertaining to one of these categories was necessary to register births, order drugs and equipment, apply for insurance reimbursements and form collaborations with laboratories (ID3,5,6,8).

3.6.2. Lack of Recognition and Support for Midwives

A commonly described barrier to MC implementation in the literature was the lack of recognition of professional midwives. Misconceptions about MCs' scope of practice and stigma against MCs among clients, health professionals, hospitals and government bodies negatively affected their recognition and interprofessional collaboration. Physicians and government bodies were often unfamiliar with the midwifery model of care and did not trust the concept of midwives as autonomous providers [18,49]. Additionally, hierarchical relationships between physicians and midwives and a lack of trust in midwives' abilities negatively affected collaboration with MCs [30,40]. A lack of knowledge about the midwifery model and demand for medicalized birth among women and their families could also lead them to bypass MCs in favor of higher-level facilities providing physician-led care, which may be perceived as superior [18,40]. Professional recognition and acceptance of midwives' autonomous role remain important conditions for integrating both midwife-led models of care and MCs into existing healthcare systems [36].

The expert consultation provided further insights into the sources and consequences of the lack of recognition and support for midwives. ID3 pointed out that the scope of professional midwifery needed to be redefined when opening the MC:

> *"So our society needed a whole reorientation as to what a midwife is and what the role of a midwife is. . . there isn't a concept."* (ID3)

Stigma against MCs was associated with the assumption that birth outside of the hospital is dangerous (ID2), a lack of knowledge about professional midwives' scope of practice (ID1,3,5,6,7,10), confusion between professional midwives and TBAs (ID2,3), and malpractice examples involving other autonomous midwives and MCs (ID2,4,8). Interviewees reported that midwives and their clients were often treated disrespectfully by hospital staff when transferring from an MC (ID1,2,4–9). As a result of fearing mistreatment

for their clients, interviewees remarked that MC staff might be more hesitant to transfer women (ID2,4).

Interviewees also mentioned that MCs' emphasis on people-centered care was not always understood by hospital staff:

> *"They didn't know what midwifery care was. And it just... to them, it seemed very odd that we would be telling moms to advocate for themselves, and there would be a little bit of friction sometimes."* (ID3)

As an explanation for this friction, interviewees mentioned that the midwifery philosophy contradicts and challenges established hierarchical and patriarchal structures in many LMIC health and maternity systems, especially in those with a post-colonial history (ID2,3,4):

> *"Because that midwifery philosophy is completely antithesis to our medicalized model of healthcare. You know, it's about not pathologizing women, it's about engaging women in decision making. It's about following what the woman wants."* (ID4)

Some interviewees therefore perceived opposition to MCs as being partly rooted in systemic gender inequality, as MCs provide spaces for the empowerment of both women and midwives (ID1,2,4,6):

> *"And it had all to do with the empowerment of women in the local community and how their role was going to be a first-time example of how the woman is totally in charge of things and how this center is going to be a sanctuary for women."* (ID1)

3.6.3. Lack of an Adequate Backup System

MC functioning was threatened by the lack of an adequate backup system. Wallace [5] remarked that an MC cannot function effectively if higher-level care is underfunded and can only provide sub-standard care. Evidence from Mexico further demonstrates how the functioning of referral pathways may depend on the receiving facility: transfers to public hospitals often occurred without communication between the midwifery and medical teams, whereas transfers to private hospitals allowed greater collaboration and, in some cases, continued involvement of the midwife [52]. Long et al. [45] pointed out that poor road conditions or a lack of emergency services may delay referrals from MCs and recommended implementing onsite MCs in LMICs with a poor referral infrastructure. The existence of a referral system alone does not ensure effective backup, as remote locations, inadequate transport and equipment, and poor infrastructure can impede timely access to higher-level care. Consequently, midwives working in MCs require strong competencies in risk assessment and emergency management, particularly in settings where timely referral cannot be guaranteed [19]. Evidence from an MC in a Rohingya refugee camp in Bangladesh similarly identified difficulties with transportation, security and weak communication infrastructure as barriers to effective referral and follow-up [53].

The expert consultation provided further insights into the limitations of existing referral infrastructure. Interviewees confirmed that public tertiary care facilities were sometimes hard to reach (ID10) and severely overcrowded and underfunded (ID1,2,4,8,9,10). As a result, public referral facilities were lacking obstetric staff, emergency medications and supplies, which were necessary to handle obstetric emergencies (ID2,4,7). Some referral facilities were reported to have fewer resources and less equipment than the MC itself, which prevented women from receiving appropriate treatment after being transferred (ID2,4,10) and incentivized MCs to prefer collaborations with private facilities that offered better services but were much less affordable to women (ID3,6,8):

"And so then you have like a smaller facility like ours that is a midwifery model of care. Where do we refer when our level of care is higher than a government funded health center?" (ID10)

4. Discussion

The literature review and subsequent literature update identified barriers and facilitators related to MC staff preparation, sustainability and health system integration. Ten key informant interviews enhanced these findings and complemented existing knowledge through several additional themes that were incorporated into the SWOT analysis. Overall, the SWOT analysis revealed barriers and facilitators at the individual, local, national and international levels. While most strengths were grouped within the MC's scope of influence (e.g., internal standards), findings also revealed that MCs crucially depend on external support from their environment, including collaborations with healthcare professionals, facilities, governments and MC networks. Across the literature and interviews, barriers such as lack of recognition and support for midwives, workforce challenges and inadequate backup systems were attributable to wider systemic issues, including the limited integration of the midwifery model within maternity systems and under-resourced healthcare systems. Taken together, the findings suggest that successful MC implementation cannot be achieved through strengthening individual centres alone but depends on their integration within wider healthcare systems, including supportive governance, professional collaboration, functioning referral systems and recognition of midwives as autonomous care providers.

Since the original review was conducted, a growing body of literature has examined the implementation and integration of MCs in LMICs [17,19]. The findings of the present study are largely consistent with this more recent evidence, particularly regarding the importance of an enabling environment for midwives, workforce preparation, community engagement, supportive leadership and governance, and integration within the wider healthcare system. These findings were also consistent with professional, economic and social barriers previously described for quality midwifery care in LMICs [54,55] and midwife-led care [56]. These similarities are unsurprising, as an MC is a facility dedicated to promoting quality midwife-led care [11]. Likewise, internal and external facilitators were found to be consistent with studies on midwife-led care [56] and birth centers staffed with obstetric nurses in LMICs [57]. In line with other studies, findings suggest that a well-functioning MC can provide an enabling environment for high-quality and autonomous midwifery practice, which may promote quality of care and staff retention [57] and prevent occupational burnout [58]. Although MCs are grounded in the midwifery model of care, findings concerning midwife-led care more broadly cannot automatically be generalized to MC implementation. Establishing and sustaining a dedicated facility involves additional organizational, financial, regulatory, and infrastructural requirements that may not apply to midwife-led care delivered in other settings.

When grouping identified themes into the SWOT format, it is important to acknowledge that internal and external factors may strongly influence each other and that their classification may depend on the specific context. Funding illustrates this interdependence: while an MC can influence its funding model, it also depends on external actors, including communities, governments and donors. Similarly, several findings may function as either barriers or facilitators depending on the context. Isolation and a lack of integration within the healthcare system were identified as barriers in this study. However, Laako [59] noted that some autonomous midwives perceive independence from the established medical system as a strength and may wish to maintain it. Likewise, while collaboration with TBAs was found to enhance MC functioning and coverage in our study, it may constitute a barrier

in some settings, as TBAs continue to be stigmatized by other healthcare professionals in many countries [59].

In theory, high-quality MCs hold the potential to improve maternal and newborn health across LMICs by addressing care that is "too little, too late" through accessible, high-quality services, while mitigating care that is "too much, too soon" through their focus on physiological birth and respectful care. Consequently, increasing the accessibility of MCs from a minority model towards a more widely available model has been proposed [16,60]. However, the findings of this study question a "one-size-fits-all" approach to scaling MCs across LMICs, as several facilitators, including financial sustainability and community-centered care, depended on context-specific and individualized approaches.

Growing each MC into a successful and sustainable facility required time, relationship-building and tailoring services to the needs of the surrounding community. Cultural appropriateness, financial accessibility and individualized attention for women were identified as important strengths of MCs. Rapid upscaling may conflict with these facilitators if expansion occurs without preserving the contextual responsiveness and quality of care on which successful MCs depend. Recent implementation research supports this context-sensitive perspective, demonstrating substantial variation in the conditions required for successful MC implementation across different LMIC settings and emphasizing the importance of adaptation to local health systems, communities and available resources [17,19]. The assumption that successful examples of individual MCs can be universally replicated may therefore be overly simplistic, as it risks overlooking the structural investments and health-system changes required to make the model people-centered, sustainable and safe at scale [60]. Rather than focusing solely on replicating individual MCs, scaling may therefore require creating the conditions that enable MCs to function within their specific contexts. To create a foundation for the implementation of MCs, whether individually or at scale, systemic change is needed across health systems. Four relevant areas in need of reform within LMIC health systems can be highlighted from the study findings.

4.1. Promotion of the Midwifery Model

Our findings highlight the importance of promoting the midwifery model of care within existing maternity care structures as an important step towards establishing MCs on a larger scale. As institutions dedicated to supporting midwifery and physiological birth, MCs can only thrive within health systems and cultures that recognize and support the midwifery model of care. More recent evidence reinforces this finding by identifying professional recognition of midwives, supportive leadership and governance, and the ability of midwives to practise autonomously as important conditions for the successful implementation and integration of MCs [17,19].

Many barriers affecting midwife-led care, including limited professional recognition and autonomy, are also relevant to MC implementation and have been linked to wider gender inequalities within health systems, as both midwives and the people they predominantly care for are women [54]. Furthermore, collaboration with the medical system may be challenged where midwifery's emphasis on woman-centered care, reproductive rights, autonomy and choice conflicts with established biomedical and hierarchical structures within maternity systems [59,61]. Promoting the midwifery model of care therefore requires more than increasing awareness of MCs; it also involves strengthening midwives' professional autonomy, participation in decision-making and recognition within maternity systems. Addressing gendered and professional hierarchies may consequently form an important part of creating an enabling environment for MC implementation.

4.2. Development of International MC Standards and Research

Findings of the original study revealed the need for global MC standards endorsed by major maternity healthcare stakeholders. Since then, important progress has been made: global operational standards for MCs have been developed and piloted across different country settings [12], followed more recently by the development and evaluation of a global accreditation process for MCs in LMICs [41]. These developments provide an increasingly structured framework for MC quality assessment, continuous quality improvement and accreditation. Nevertheless, further research is needed to evaluate the implementation and impact of these standards and accreditation mechanisms across diverse contexts and to determine whether and how they contribute to quality of care, sustainability and health system integration. Continued collection and publication of MC outcome and implementation data will also be important to support quality improvement, advocacy and policy dialogue. Importantly, the existence of an MC or a midwife-led model alone cannot ensure respectful care. Integrating explicit standards for respectful and people-centered care into quality assessment and accreditation may therefore provide an important mechanism for addressing harmful and disrespectful practices [48].

4.3. Investment in Health Systems

To enable an overall high standard of care, major investments in all levels of maternal healthcare facilities and infrastructure are required across LMICs. Investments should not only target accessibility to and uptake of facility-based birth, but also improvements in the quality of care within facilities [62]. Interviewees described how underfunding of public maternal healthcare infrastructure could compromise both MC functioning and the quality of available referral care. In some settings, NGO-funded or private facilities were perceived as better resourced than public facilities, while their services were not equally affordable or accessible to all women. More recent evidence reinforces the importance of considering MCs within the capacity of the wider health system, particularly the availability of functioning referral facilities, transport, infrastructure and adequately resourced services [19]. Timely access to higher-level care is crucial for safe referrals but may remain difficult to achieve in rural areas where geographical barriers and inadequate transport and hospital infrastructure persist. Investments in public health systems, maternity care infrastructure, and the provision of high-quality midwife-led care are therefore crucial for the successful implementation, integration, and equitable accessibility of MCs.

4.4. Strengthening Midwifery

Lastly, the professional role and scope of midwives will have to be strengthened across LMICs. Consistent with previous authors, findings highlighted that large discrepancies and gaps among midwives' skills and knowledge within and between countries may limit their preparedness for autonomous practice [63]. The ICM Essential Competencies for Midwifery Practice provide an international framework for addressing these gaps by defining the minimum knowledge, skills and professional behaviours required for midwives to practise across their full scope at the point of entry into the profession [64].

To enable the provision of high-quality midwife-led care and support the successful implementation of MCs, countries must ensure that midwifery education prepares midwives with the full range of competencies required for autonomous practice, including clinical competencies as well as those related to respectful, rights-based, and people-centered care [16,64]. This is also reflected in the ICM Global Standards for Midwifery Education, which require curricula to prepare students as autonomous practitioners and incorporate the ICM Essential Competencies [65].

It has been proposed to offer midwifery students the opportunity to complete part of their practical training within MCs, allowing them to experience autonomous and full-scope midwifery care as an alternative to highly medicalized settings and preparing them to provide care in an MC after graduation, particularly in the context of many LMICs expanding their midwifery workforce [66,67]. Additionally, midwives' associations need to be developed and strengthened to represent the profession at the national level, advocate for regulatory frameworks that support autonomous midwifery practice, and contribute to an enabling policy environment for MCs [68,69].

4.5. Strengths and Limitations

The scoping study was characterized by several strengths. At the time of the original review, few studies had comprehensively assessed facilitators and barriers to the implementation and functioning of MCs in LMICs. Furthermore, the experts interviewed for consultation added value to the study's findings by representing MCs from a wide geographic range of LMICs and by providing practical implementation insights that complemented the literature. The findings were presented in a SWOT analysis format to support and inform midwives and policymakers in planning and implementation processes surrounding MCs, while acknowledging that these processes need to be adapted to local contexts and communities. The scoping study approach allowed for a broad mapping of the topic and highlighted several gaps and areas for future research. The subsequent literature update further strengthened the study by allowing the original findings to be considered in light of more recent developments in MC implementation, standards, accreditation and health system integration.

Findings may also complement existing professional frameworks. While the original study was informed by the ICM Midwifery Services Framework available at the time, the recommendations identified in this study remain broadly consistent with the current ICM Professional Framework for Midwifery, which emphasizes the interdependence of midwifery philosophy, competencies, education, regulation, professional associations, research, models of care, leadership, an enabling environment, and gender equality [69].

Several limitations to this study must be acknowledged. First, the original study was conducted by a European midwife and therefore reflects a predominantly Eurocentric perspective on MCs. It could be argued that MCs, according to the definition applied in this study, represent a model shaped by Western conceptualizations of maternity care that may not be equally applicable across all cultural contexts.

Furthermore, the sampling strategy for the expert consultation may have introduced selection bias towards midwives with higher levels of education and greater international or academic involvement, as several key informants were identified through academic publications and NGOs and all interviews were conducted in English. Many MCs in LMICs are run independently by local midwives who may have limited access to international networks or academic publishing. Consequently, both the literature and expert consultation may underrepresent the perspectives and experiences of locally embedded MCs and midwives who are less internationally connected. In addition, consistent with the scoping purpose of the review, no formal critical appraisal or risk-of-bias assessment of the included sources was undertaken. The findings therefore map the available evidence but should not be interpreted as an assessment of the strength or quality of that evidence.

A related limitation concerns one key informant (ID5), whose midwifery center was located in Trinidad and Tobago, a country classified as high-income by the World Bank rather than as an LMIC. This was not identified during recruitment, as informants were selected through purposive and snowball sampling based on professional expertise rather than formal verification against World Bank income classifications, representing a deviation

from the study's stated eligibility criteria. A post hoc sensitivity check confirmed that all themes to which this participant contributed were independently corroborated by at least three other key informants; their exclusion would therefore not alter the thematic structure or substance of the findings. The contribution was retained given the relevance of the participant's direct implementation experience.

Another limitation lies in grouping LMICs together, despite considerable variation in health systems, midwifery education and regulation, cultural contexts, resources and maternity care structures. The barriers and facilitators identified in this study should therefore not be assumed to apply uniformly across LMICs. Future research examining MC implementation within distinct countries and geographic regions is needed to better understand how contextual factors influence implementation and sustainability.

As the review applied the MC definition proposed by Stevens and Alonso [11], it could not always be determined whether all MCs described in the included literature operated fully in accordance with this definition. In addition, due to the limited number of available studies, alongside and freestanding MCs were considered together in the scoping study, although their implementation conditions, referral structures and integration within health systems may differ. Future research should therefore examine barriers and facilitators for these models separately.

A further limitation is the time elapsed between the original literature search and expert consultation and the publication of this study. During this period, the evidence base and international landscape surrounding MC implementation evolved considerably, including the development of global operational standards, monitoring and evaluation approaches, and accreditation processes. A literature update was therefore conducted prior to publication to incorporate relevant recent evidence and contextualize the original findings. However, the expert consultation was not repeated, and the qualitative findings consequently reflect the experiences and implementation contexts at the time of the original data collection.

Finally, as the original research was conducted as part of a master's thesis, the scope of the study was constrained by the time and resources available for data collection and analysis.

4.6. Future Research Directions

Future research should examine the implementation and functioning of MCs within specific country and health-system contexts rather than treating LMICs as a homogeneous group. Particular attention should be given to differences between freestanding and alongside MCs, the implementation and impact of emerging operational standards and accreditation mechanisms, and the conditions required for sustainable integration of MCs into wider Networks of Care. Further research should also include locally embedded midwives, women and communities to ensure that future models and implementation strategies reflect local priorities and perspectives.

5. Conclusions

In conclusion, this study identified various barriers and facilitators to the implementation and functioning of MCs in LMICs, both within and beyond their direct control, many of which are closely interrelated. On a larger scale, comprehensive cross-sectoral approaches are needed to create an enabling environment for their implementation and integration. These include promoting the midwifery model of care and addressing gender and professional inequalities within healthcare systems, strengthening and implementing international MC standards and accreditation mechanisms, investing in health systems and referral infrastructure, and strengthening midwifery education, professional autonomy and representation.

Despite the absence of such enabling conditions in some settings, individual MCs have emerged and sustained their services on a smaller scale, driven by a strong vision; considerable investments of time, resources and patience; relationship-building; and adaptation of care to the needs of their local communities. Their experiences demonstrate both the potential of the MC model and the importance of context-sensitive implementation. Rather than assuming that successful MCs can be universally replicated, scaling requires attention to the health-system, regulatory, professional and community conditions that enable them to function safely and sustainably.

If successfully implemented and integrated, MCs have the potential to contribute to bridging the gap between care that is "too little too late" and "too much too soon". Firstly, they can provide an enabling environment for midwives to practise autonomously and support physiological pregnancy and birth, thereby strengthening midwifery care and reducing unnecessary medicalization. Secondly, at the community level, MCs may improve equitable access to high-quality, culturally responsive and people-centered care, while their integration within functioning referral systems can support continuity across different levels of care. Lastly, they can provide a space to empower and support women in their birthing process through respectful, informed and dignified midwifery care. When MCs can function to their fullest potential, their care can leave a lasting positive effect on women, their babies and their communities.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/ijerph23101264/s1, Supplementary S1: Search Strategies and Study Selection (Table S1: Search Terms Based on the PCC Framework; Table S2: Original Search Strategy for MEDLINE/PubMed (2005–2020); Table S3: Original Search Strategy for Maastricht University LibSearch (2005–2020); Tables S4–S7: Database-Specific Search Strategies for the 2026 Literature Update); Supplementary S2: Characteristics of Included Publications (Table S8: Characteristics of Publications Included in the Original Scoping Review and the 2026 Literature Update [70,71]); Supplementary S3: Expert Consultation (Table S9: Semi-Structured Interview Guide Used for the Expert Consultation; Tables S10–S13: Additional Interview Quotes Related to Strengths, Weaknesses, Opportunities, and Threats, Respectively); Figure S1: Completed PRISMA-ScR Checklist.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The qualitative interview data generated and analyzed during this study are not publicly available due to ethical and confidentiality considerations and the potential risk of participant identification. Data supporting the findings of the scoping review and literature update are derived from publicly available sources cited in the article and its Supplementary Materials.

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Abbreviations

The following abbreviations are used in this manuscript:

ICM	International Confederation of Midwives
LMICs	Low- and Middle-Income Countries
MC	Midwifery Center
NGO	Non-Governmental Organization
SDGs	Sustainable Development Goals
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TBAs	Traditional Birth Attendants

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