



Quality of maternal and newborn care services in Uganda: a scoping review

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ABSTRACT

Despite significant advancements over the past two decades, mothers and newborns continue to experience preventable deaths, even when they give birth at healthcare facilities both globally and in Uganda. Evidence indicates that the quality of facility-based care may be a major factor contributing to this issue. This review aimed to identify, map, and synthesize all published studies on the quality of maternal and newborn care in Uganda. Following the Arksey and O'Malley five-stage framework for scoping reviews, a search strategy was employed to retrieve articles published over 20 years, from 2004 to 2024, in PubMed, EMBASE, and Web of Science. Two independent reviewers screened the extracted articles, first by title and abstract, and subsequently by full text, utilizing Covidence. Data were mapped according to the World Health Organization (WHO) Quality of Maternal and Newborn Care (QMNC) framework. Of the 2482 studies identified, 36 were included in this review. The majority of the studies focused on human resources and infrastructure, with few addressing the experience of care. Overall, the standards of care were inadequate across the studies, with particularly poor conditions noted in lower-tier government health facilities. Despite the critical importance of quality care in reducing maternal and newborn mortality, levels have remained persistently low in Uganda over the past 20 years, especially in public facilities. There is an urgent need to rethink the health system approach and deliberately enhance the quality of care if Uganda is to meet the 2030 global targets.

Protocol registration: This protocol has been registered in the Open Science Framework (OSF); <https://osf.io/yvm23>

Introduction

Maternal and newborn health constitutes a significant component of public health programs worldwide. Consequently, numerous global initiatives have been directed towards enhancing maternal and newborn care over the past two decades, resulting in a nearly 40 % reduction in the maternal mortality ratio (MMR) [1]. Despite these advancements, more than 700 mothers and 6500 newborns continue to die each day from preventable causes during the perinatal period. In 2020 alone, approximately 287,000 women died following childbirth due to complications of pregnancy that could have been avoided [2]. These deaths are disproportionately distributed, with over 90 % of maternal and newborn deaths occurring in sub-Saharan Africa [2].

In Uganda, several strategies have been implemented to enhance maternal and newborn health by improving access to and utilization of these services. For example, in 2013, the government, through the Uganda Ministry of Health (MOH), introduced the Reproductive,

Maternal, Newborn, Child, and Adolescent Health (RMNCAH) Sharp-ened Plan to accelerate progress in reducing maternal and child mortality [3]. The RMNCAH plan aimed to increase skilled birth attendance, strengthen emergency obstetric and newborn care (EmONC) in health facilities, and institutionalize Maternal and Perinatal Death Surveillance and Response (MPDSR) [3,4]. As a result, there has been an increase in health facility deliveries and skilled birth attendance over the past decade [5]. For instance, the percentage of women delivering at a health facility rose from 76 % in 2011 to 87 % in 2022, according to the recent nationwide demographic health survey [6]. However, this progress has not corresponded to a proportional reduction in maternal and newborn mortality rates. Uganda's current maternal mortality ratio (MMR) stands at 189 deaths per 100,000 live births, which remains significantly above the global Sustainable Development Goals (SDGs) target of 70 deaths per 100,000 live births and the national target of 140 deaths per 100,000 live births by 2030, with only a few years remaining [5,6].

This asserts the phenomenon that increasing access to health

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facilities for maternal and newborn care services does not necessarily lead to improved outcomes [7]. Uganda, like many other countries worldwide, has expanded access to institutional care and skilled birth attendance; however, it continues to face challenges with both maternal and newborn mortality [8]. Therefore, mere availability and access are not enough; they must be complemented by enhanced quality of care (QoC) within the health facilities and the broader health system that delivers this care [9,10]. Although numerous approaches have been proposed for measuring QoC, there is no universally accepted definition of quality in maternal and newborn health care. In 2015, the World Health Organization (WHO) developed a framework for measuring the Quality of Maternal and Newborn Care (QMNC) and defined quality of care as “the extent to which health care services provided to individuals and patient populations improve desired health outcomes.” Health care must be safe, effective, timely, efficient, equitable, and people-centred [11].” This framework also emphasizes two components of QoC: the quality of the care experience from the users’ perspective and the provision of care, which shape the overall quality of care. Within this framework, key QoC indicators include using evidence-based practices in patient management, using health information systems, the availability of a functional referral system, a competent and motivated health workforce, available physical resources, effective communication, emotional support, respect, and dignity [12].

Many isolated studies have been conducted in Uganda on the indicators and determinants of quality of care, but none have comprehensively mapped and systematically summarized literature on the QMNC for childbirth in Uganda using this widely adopted framework. This scoping review aimed to document existing literature on the Quality of maternal and newborn care for facility births in Uganda using the WHO QMNC framework. Findings from this review will inform future scientific works in this area and will also guide efforts by stakeholders and policymakers on improving QoC.

Methodology

Protocol design and registration

We used a scoping review design to map and summarize studies published over the last 20 years (from 2004 and 2024) as we believe the 20-year period gave us a sufficient time frame to establish our findings, as this covered the period of the first and 2nd Uganda National Health policies that prioritised maternal and newborn care [13]. Also, to note that Uganda’s health care system has had numerous maternal and newborn reforms since the abolition of user fees and the launch of the Millennium Development Goals(MDGs) both in 2001 to make MNC services accessible to all women, and it would be important to look at the quality of care through these policy changes over the 20 years [14,15]

The review was designed, conducted, and results reported based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)Checklist [16] (see supplemental table 1). The review protocol was registered in the Open Science Framework database.

We utilized the Arksey and O’Malley framework to conduct this study. This framework suggests 5 the steps as follows: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarizing, and reporting the results [17].

Step 1: Identifying the research question

Our study was guided by 2 research questions (RQs).

RQ1: What is the quality of MNC for facility births using the WHO framework in Uganda?

RQ2: What are the main determinants of the quality of MNC for facility births in Uganda?

Step 2: Identifying relevant studies

Search strategy

We searched PubMed, EMBASE, and Web of Science electronic databases for eligible studies using selected search terms as determined by the research team. The terms used were developed based on reviewed literature of similar studies, the Institute of Medicine (IOM), and the QMNC framework [18,19]. The final search strategy was agreed upon by the research team before executing the search process. The search keywords included: “Maternal health services”, “Newborn care services”, “Quality of maternal and newborn services”, “Uganda”. To capture research articles that were related to the keywords, we used Boolean operators "OR" and "AND" (Table 1).

Inclusion and exclusion criteria

We utilized the Population-Concept-Context (PCC) framework by the Joanna Briggs Institute to guide our eligibility criteria [20] (Table 2).

Inclusion criteria

Table 1
Search strategy for the quality of maternal and newborn care in Uganda.

Data Base	Search query	Results
PUBMED	(("mothers"[MeSH Terms] OR "maternal"[Title/Abstract] OR "mother"[Title/Abstract] OR "infant, newborn"[MeSH Terms] OR "newborn"[Title/Abstract] OR "neonat*"[Title/Abstract] OR "childbirth"[Title/Abstract] OR "obstetric"[Title/Abstract] OR "obstetric care"[Title/Abstract]) AND ("quality of care"[Title/Abstract] OR "quality"[Title/Abstract] OR "coverage"[Title/Abstract] OR "adequate care"[Title/Abstract] OR "evidence based care"[Title/Abstract] OR "evidence-based care"[Title/Abstract] OR "patient-centered care"[Title/Abstract] OR "patient centred care"[Title/Abstract] OR "patient centered care"[Title/Abstract] OR "efficient care"[Title/Abstract] OR "timely care"[Title/Abstract] OR "effective care"[Title/Abstract] OR "equitable care"[Title/Abstract] OR "provision"[Title/Abstract] OR "experience"[Title/Abstract] OR "readiness"[Title/Abstract] OR "prepared*"[Title/Abstract]) AND "Uganda"[Title/Abstract] AND 2004/01/01:2024/12/31[Date - Publication]) NOT ("animals"[MeSH Terms] NOT "humans"[MeSH Terms])	781
Embase	('maternal'/exp OR maternal) AND ('mothers':ab,ti OR 'maternal':ab,ti OR 'mother':ab,ti OR 'infant, newborn':ab,ti OR 'newborn':ab,ti OR 'neonat*':ab,ti OR 'childbirth':ab,ti OR 'obstetric':ab,ti OR 'obstetric care':ab,ti) AND ('quality of care':ab,ti OR 'quality':ab,ti OR 'coverage':ab,ti OR 'adequate care':ab,ti OR 'evidence based care':ab,ti OR 'evidence-based practices':ab,ti OR 'patient-centered care':ab,ti OR 'patient centred care':ab,ti OR 'patient centered care':ab,ti OR 'efficient care':ab,ti OR 'timely care':ab,ti OR 'effective care':ab,ti OR 'effective:ab,ti OR 'equitable care':ab,ti OR 'provision':ab,ti OR 'experience':ab,ti OR 'readiness':ab,ti OR 'prepared*':ab,ti) AND uganda:ab,ti AND [2004–2024]/py	684
Web of science	("mothers" OR "maternal" OR "mother" OR "infant, newborn" OR "newborn" OR "neonat*" OR "childbirth" OR "obstetric" OR "obstetric care") (Topic) AND ("quality of care" OR "quality" OR "coverage" OR "adequate care" OR "evidence based care" OR "evidence-based practices" OR "patient-centered care" OR "patient centred care" OR "patient centered care" OR "efficient care" OR "timely care" OR "effective care" OR "effective" OR "equitable care" OR "provision" OR "experience" OR "readiness" OR "prepared*") (Topic) and 2024 or 2023 or 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 2010 or 2009 or 2008 or 2007 or 2006 or 2005 or 2004 (Publication Years) and UGANDA (Countries/Regions) and Article or Review Article (Document Types)	1017

Table 2

Population, concept, and context for the quality of maternal and newborn care in Uganda.

Population	<ul style="list-style-type: none"> Women of reproductive age who need Maternal and Neonatal Care services <p><i>For this study, we defined maternal and new-born care as care of women and newborns during childbirth and immediate postpartum. Our focus was on quality of childbirth care [21].</i></p>
Concept	All studies that measured any of the concepts/indicators of quality of maternal and newborn care for facility births according to the WHO QMNC framework.
Context	<ul style="list-style-type: none"> Uganda Health facilities that provide Maternal and newborn care

- Peer-reviewed scientific papers that used either or both quantitative and qualitative methods were considered.
- Studies that assessed any of the concepts or indicators of the WHO QMNC framework
- Studies carried out in Uganda and published in English, a language the reviewers understand.
- Studies published between 2004 and 2024.
- Exclusion criteria
- We excluded studies without detailed methods and findings, such as conference abstracts and proceedings.
- Articles that measured quality of care outside of a health facility (e. g., Traditional Birth attendants)
- Studies that assessed the quality of care outside the childbirth period

Stage 3; Study selection

The process of screening and selecting studies was done according to the PRISMA guidelines. The results from the search process were downloaded from the databases and imported into Covidence, an online software developed for screening and data extraction [22]. Some duplicates were automatically removed by the software, and others were removed in the process of screening. The principal investigator (BT) and a co-investigator (JK) independently screened the searched articles initially by title and abstract, then followed by full-text assessment to ensure they met the eligibility criteria. Disagreements on inclusion were discussed among reviewers, and conflicts were resolved with a third reviewer (JN). A PRISMA flowchart was extracted to summarize our selection process and table of excluded studies with reasons presented.

Stage 4: Charting the data

A data extraction form was designed, and the process was executed in Covidence. This was first piloted using the first 10 articles, downloaded and reviewed for suitability, before proceeding with the rest of the articles. The process was done by BT and double-checked by JK. Characteristics in the data extraction form included mainly 3 areas;

- Publication (title, author, year, study objective/aim);
- Study (design, sample size, location, methods/source of data);
- Quality of care indicators(Findings)

Quality of care indicators were categorized and mapped according to 3 the WHO quality of MNC framework domains; 1) provision of care; (2) experience of care; (3) availability of human and physical resources; Under each of these, we further mapped study findings into the 8 quality measure indicators; (1) evidence-based practices for routine care and management of complications;(2) actionable information systems;(3) functioning referral systems; (4) effective communication; (5) respect and preservation of dignity; (6) emotional support; (7) competent, motivated personnel; and (8) availability of essential physical resources.

Step 5: Collating, summarizing, and reporting the results

We presented our data using descriptive numerical and tabular summaries as the total number of included articles, frequency by year of publication, type of study design and data collection method used, and location. We utilized the thematic analysis technique to analyse the findings. This involved synthesizing, analysing, and interpreting data from both quantitative and qualitative studies. Findings were summarized according to the WHO QMNC framework.

Results

The search conducted on January 18, 2025, yielded a total of 2482 records. 928 duplicates were then removed (921 by Covidence and 7 manually). Of the remaining 1554 records, 1360 articles were excluded on title and abstract screening because they did not meet the inclusion criteria. 194 records were sought for full text review and assessed for eligibility, where more than 158 articles were excluded, the majority because they did not evaluate the quality of maternal and newborn care; wrong outcome (99). 36 articles were included in this review, as summarized in the PRISMA flow chart below (Fig. 1)

Study characteristics

Most of the studies were done nationwide, 11 (30.6 %), followed by the central region, 9 (25.0 %), and the Eastern region, 7 (19.4 %). The regions with the fewest studies were Western and Northern, with 6 (16.7 %) and 3 (8.3 %), respectively. Most studies were cross-sectional 28 (77.8 %) and used quantitative methods 19, 52.8 %.

25 (69.4 %) of the studies were health facility-based, 19 (52.8 %) relied on health workers, and 17 (47.2 %) on mothers as their source of data. Few studies, 8 (22.2 %) and 9 (25.7 %), used observation and records, respectively review as their data source. 16 (44.4 %) of the studies were within the last four years (2021–2024), and only 4 (11.1 %) were published between 2004 and 2010.

Table 3 presents summary statistics, while Table 4 highlights a descriptive summary of the included studies.

Categorization of interventions according to the WHO QMNC framework

Findings from each extracted article were categorized and mapped according to the three WHO quality of MNC framework domains and then further subcategorized into the 8 quality measure parameters shown in Table 5. The majority of the studies were broad and assessed the wider view of the framework, assessing more than one parameter. Most articles (n = 19) had a component of the cross-cutting standards, while very few addressed the actionable information systems(n = 5) and emotional support(n = 5) parameters.

Generally, across all domains, quality of care was found to be better in higher-level facilities, Private for-profit and Private not-for-profit, and worse in lower public facilities [40,43,56,58].

Provision of care

12 articles assessed the use of evidence-based practices in routine care and management of complications. Some studies approached this parameter using signal functions as a tracer, evidence-based practices [32,37,43,48]. However, only one study comprehensively evaluated these signal functions to incorporate newborn care [37]. While findings varied across studies, the most missing were the EmOC signal functions of Blood transfusion and Caesarean section [32,37,48]. Among the BEmOC signal functions, Assisted Vaginal Delivery and removal of retained products of conception were the most missing, while parenteral oxytocic and parenteral antibiotics were the most available [32,37,48]. The other studies determined the coverage of the standard evidence-based practices intrapartum and immediate postpartum. Among those assessed was the monitoring of mothers using a partograph

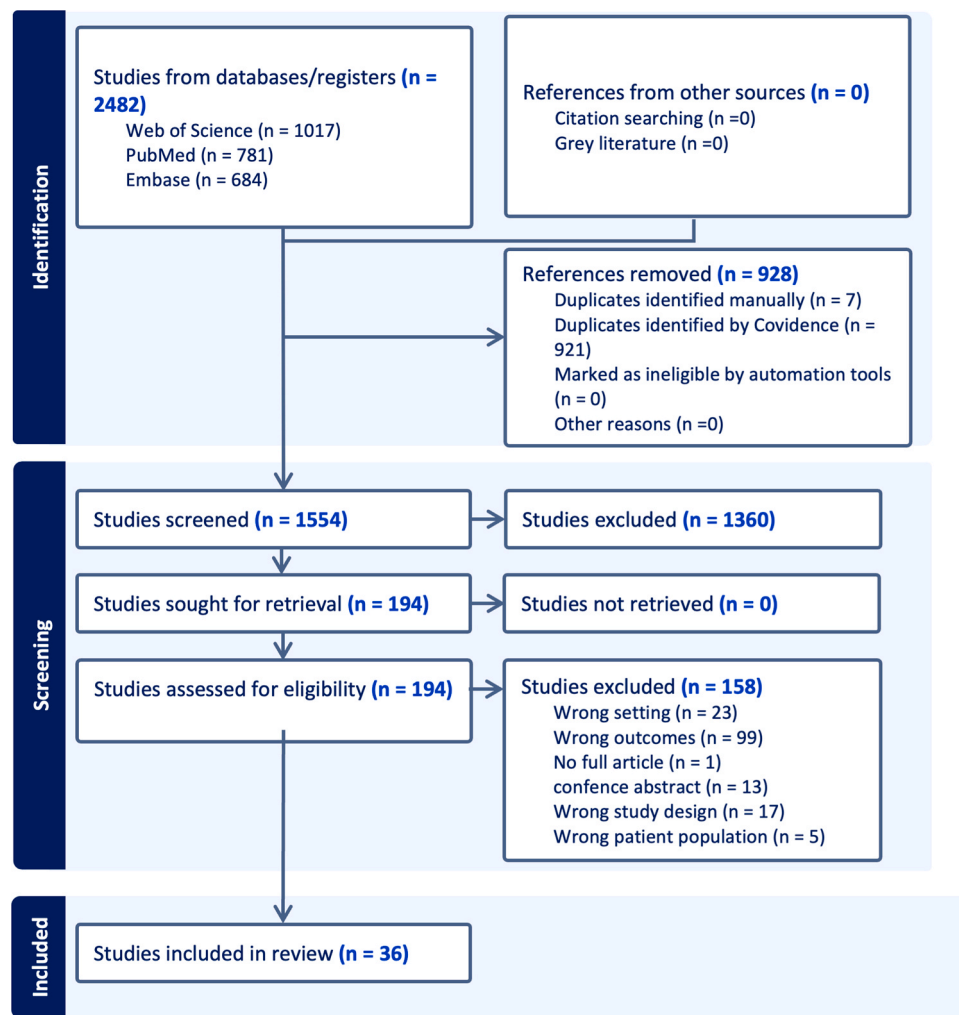


Fig. 1. A Flow chart showing included studies based on PRISMA guidelines.

[31,37,41,52]. Partographs were found to be available but incomplete, or plotted poorly (poor quality), and not used in real time to make clinical decisions [31,41]. The immediate post-partum practices assessed were skin to skin, early initiation of breastfeeding, cord-care, and timing of post-natal checks [35,43,50].

5 articles evaluated the standard of actionable information systems; 2 of these [38,44] were the only ones focused on assessing this parameter. Both studies used routine facility DHIS2 data and found overall low quality of data, characterised by incompleteness and inconsistencies [38,44]. The other studies only studied information systems as a part of routine care by using patient files and partographs to document patient information. These were also generally found to be available but of poor quality [31,41,52].

11 articles evaluated the standards of the referral system. While some studies determined this while assessing the general context of other parameters [27,28,33,53,58], some others focused on the referral system itself [26,30,42,46,49,54]. All studies found the referral system in Uganda to be nonfunctional, characterized by a poor transport system/road network [42,46,54] and a poor communication network [30]. Even when facilities had ambulances, there was no proper communication to referral units or accompaniment, or follow-up; referring facilities were just sending mothers forward [49,60]. There were delays in reaching referral facilities, with mothers or newborns often reaching in critical conditions, and some bypassing intermediate units [26,49].

Experience of care

Most of the articles assessed all the experience of care as part of the larger QMNC framework. 4 articles were specifically focused on only assessing the experience of care [25,30,51,55]. Generally, studies indicated unsatisfactory experience of care by mothers that often breeds mistrust in the health care system, which sometimes leads to continued use of Traditional Birth attendants [25,30,42,54]. All of the articles assessed all three 3 components of experience of care. The most commonly assessed standard was respect and preservation of dignity, which was found to be generally poor, with poor attitudes of health workers, verbal abuses, and rudeness [25,27,30,42]. Mothers described health workers as not respectful and responsive to their needs. There was a lack of privacy, often characterised by overcrowding of facilities and poor hygiene [23,25,30,54]. Discrimination and mistreatment were also identified, especially in marginalised populations like refugees [27]. However, a few studies found mothers' experience of care to be respectful and dignified.

Communication was the most assessed in this domain and was generally found to be improper, disrespectful, unsatisfactory, and limited between patients and healthcare workers in many of the studies [23–25,27,30,34,42,54]. This was attributed to work overload, with health workers having insufficient time and often feeling frustrated [47, 55].

Most studies indicated that mothers described their emotional needs as not met. They described care as non-responsive to mothers' needs and devoid of empathy from health workers who don't respond when called

Table 3
Characteristics of included studies.

Characteristic	Frequency N = 36	
	n	%
Region#		
Nationwide	11	(30.6 %)
Central	9	(25.0 %)
Western	6	(16.7 %)
Eastern	7	(19.4 %)
Northern	3	(8.3 %)
Study design		
Cross sectional	28	(77.8 %)
Other designs	8	(22.2 %)
Methods		
Mixed methods	3	(8.3 %)
Qualitative only	14	(38.9 %)
Quantitative only	19	(52.8 %)
Data sources*		
Combined/multiple sources	9	(25.0 %)
Facility surveys	25	(69.4 %)
mothers	17	(47.2 %)
health workers	19	(52.8 %)
Observation	8	(22.2 %)
Records/chart reviews	9	(25.7 %)
Year of publication		
2004–2010	4	(11.1 %)
2011–2015	5	(13.9 %)
2016–2020	11	(30.6 %)
2021–2024	16	(44.4 %)

*We meticulously sorted our **data sources**, emphasizing the study's diverse origins. If a study gathered information from more than one source (e.g., both health workers and mothers), we categorized it under multiple sources. When the setting was a health facility, it became a facility survey. If mothers were a source of the data, they were identified as such. Likewise, health workers were highlighted when they were the source. Studies that focused on direct observation fell into the observation category. Those that delved into health facility or individual records were classified as record reviews.

#**Regions:** We used the five geographical regions of Uganda

upon or do so negatively [24,30,46,51]. Some studies, however, described care as emotionally supportive, especially in times of pain [47, 55].

Cross-cutting domains

This domain was the most evaluated among the three and influenced the other two, standing out as a cross-cutting domain. None of the 21 articles found the tracer items in these parameters up to standard. Drug supplies, equipment, basic amenities, and human resources were generally found to be inadequate [24,26–28,32,33,36,40,42,43,45,47, 49,51,54,56,58]. The most missing drugs varied across studies, but most were mainly analgesics, antibiotics, and antihypertensives. In basic amenities, a lack of enough space, hygiene issues such as lack of toilets, lack of theatres, and communication equipment were identified. Staffing was generally found to be inadequate both in numbers and technical skills. The studies described facilities as grossly understaffed, which affected the quality of care that the limited staff could offer with the overwhelming numbers/work overload [23,25,29,33,45]. With these findings, staff were described as working under difficult conditions and faced pressure, blame, and abuse from mothers [53]. One study specifically focused on health workers' human resource challenges in delivering quality maternity care. The study found job security with government jobs and proximity to their homes as main motivators, and then lack of accommodation, poor pay, and lack of incentives as the main challenges [53]. Absenteeism and inadequate support supervision were also identified as human resource gaps [28,46,54]. One study, on the other did not find any correlation between the availability of drugs, equipment, amenities, and trained staff with quality of care [57].

Discussion

This scoping review is aimed at giving a comprehensive review of maternal and newborn care in Uganda based on the WHO QMNC framework. Thirty-six papers were identified, and the majority of them described the cross-cutting domains on essential physical resources and human resources. Over half of the identified papers described the standards of human sources in maternal and newborn care. We generally found that inadequate staffing, inadequate training, and skills were major gaps in the quality of care, with no study reporting these as up to standard. These gaps were worsened by overcrowded facilities, lack of equipment and supplies to use, inadequate and low job satisfaction due to lack of incentives, accommodation, and poor pay. These findings are consistent with studies in relatable settings that have documented similar human resources gaps as major organisational challenges, yet they play a central role in providing maternal and newborn health care [61,62].

This review highlighted gaps in the use of evidence-based practices, national guidelines/protocols in routine monitoring and care, and management of complications. While Uganda has regularly provided updated guidelines for use, especially in lower-level health facilities, staff were found lacking in utilisation of standard practices, such use of a partograph. This is perhaps due to inadequate capacity building and dissemination of guidelines and protocols by the Ministry of Health to the frontline staff, which has been recently documented in Uganda [63]. Facility-level provision of signal functions was also found lacking, especially with the use of assisted vaginal delivery. One of the contributors to this, as highlighted in the findings, is influenced by staff's inadequacies in knowledge, skills, and a lack of enabling working environment.

While the timely identification of complications and referral is very crucial in averting maternal or newborn deaths, the referral system was found to be largely non-functional. This was characterised by a lack of ambulances, a lack of fuel, a lack of staff to accompany referrals, a lack of communication with referral facilities, poor documentation of referrals, and a lack of feedback mechanisms. These health system factors were aggravated by poor road networks and poverty, especially since mothers had to incur referral costs. These similar referral challenges and impediments have been widely reported in similar settings in low-income countries and immensely hinder the provision of quality care [62,64].

Experience of care was one of the least described domains. This study identified a generally poor experience of care from the mothers. Major issues identified were mistreatment, poor communication, verbal and physical abuses, poor attitudes of midwives, and discrimination. These health worker-related gaps were exacerbated by health facility factors like unfavourable environment with poor sanitation, overcrowding, hence lack of privacy, lack of medicines and equipment. This highlighted not only health workforce inadequacies but also broader health system-induced challenges in realising respectful maternity care, as highlighted in the Respectful Maternity Charter that Uganda needs to urgently address [65].

With no one standard measure of quality of care, the approaches used or adopted varied across these studies. Few studies focused on a specific standard of care, with most studies broadly assessing all the domains, and therefore most studies lacked an in-depth investigation of these standards. Very few studies used mixed methods or incorporated a qualitative lens into the quality-of-care measurement, with many findings conforming to an objective assessment and hence lacking deeper insights into the drivers of this quality. Evidence suggests that assessing quality care gives stronger and richer findings by combining qualitative and quantitative methods [66,67]. Studies on the experience of care have primarily focused on women's experience of care. There is a growing argument on incorporating the whole family (including mother, father, and broader family) in these measures, as the perspective of family social support is crucial in improving maternal and newborn care

Table 4
Descriptive summary of included studies.

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Determinants of hygiene practices among mothers seeking delivery services from healthcare facilities in the Kampala metropolitan area, Uganda	Denis Kayiwa, 2022 [23]	Assessing the determinants of hand hygiene and utilization of bathing facilities among mothers delivering in healthcare facilities (HCFs) in the greater Kampala metropolitan area, Uganda	cross-sectional study design	Kampala, Central Uganda	Exit interviews using a questionnaire	331 respondents from 63 HCFs	40 % of mothers reported difficulty in accessing inclusive Water, sanitation and hygiene (WASH) facilities such as inadequate and non-private bathing facilities, poor sanitary conditions and inadequate water and soap. There was inadequate information given to mothers on Infection, Prevention and Control and the role of hygiene. The lower the facility, the worse these conditions were. Work overload was often attributed as health workers did not have time to do provide this aspect of care.	Infrastructure Human resource Experience of care
Expectations and needs of Ugandan women for improved quality of childbirth care in health facilities: A qualitative study	David Kyaddondo, 2017 [24]	To describe the experiences, expectations, and needs of urban Ugandan women in relation to good-quality facility childbirth.	Cross sectional study	Kampala, Central Uganda	Qualitative methods; In-depth interviews (IDIs) and focus group discussions (FGDs) with women who lived within the study hospitals' 5 km radius of the catchment areas and had given birth in any health facility in the previous 12 months.	45 IDIs and 6 FGDs with 85 women	The women's needs and expectations were met when it came to delivering health babies. But found that they needed more than that and need were often not met mainly in areas of communication, responsiveness to their needs, privacy respect and dignity. They found that factors like poor infrastructure, low staffing and lack of drugs and supplies greatly affected the failure to meet mother's needs.	Experience of care Human resource physical infrastructure Supplies
What price a welcome? Understanding structure agency in the delivery of respectful midwifery care in Uganda	Louise Ackers, 2018 [25]	To understand what respectful care means to mothers and midwives in Uganda and what hinders them from providing it	Cross-sectional	Kabarole district, Western Uganda	Qualitative methods; Both In-depth interviews and Focus Group Discussions with mothers and midwives working in public health facilities in Kabarole District, Uganda.	64 mothers and midwives	The study found a high level of verbal abuse and improper communication that eventually bred mistrust in health care workers and fear of delivering in facilities. Both mothers and midwives indicated respect as a very vital value and yet it was grossly lacking. One of the factors identified was heavy workload of the	The study underlines all indicators on experience of care; Effective communication, Respect and preservation of dignity and Emotional support and partly highlights issues in human resource.

(continued on next page)

Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Emergency Obstetric Care Access Dynamics in Kampala City, Uganda: Analysis of Women's Self-Reported Care-Seeking Pathways	Catherine Birabwa, 2024 [26]	To examine self-reported care-seeking pathways among women with obstetric complications in Kampala City, Uganda	Cross-sectional study	Kampala City, Central Uganda	Data were collected using an interviewer administered questionnaire	433 women who had experienced obstetric complications in 9 EmOC facilities across all the 5 divisions of Kampala city.	midwives that hinders proper communication. The mother's health seeking pathways reflected ineffectiveness of the referral system with for example 65 % of the referrals directly to the national referral hospital bypassing intermediate units and 60 % returning home before reaching the final care facility.	This study assesses the QMNC component of the referral system.
A Multi-Methods Qualitative Study of the Delivery Care Experiences of Congolese Refugees in Uganda	Ruth Nara, 2020 [27]	To explore the sexual and reproductive health (SRH) experiences of Congolese refugees living in Uganda and ways that services could be improved	Cross-sectional; qualitative study	Nakivale refugee settlement (rural) and Kampala (urban); Western and Central Uganda	Key informant Interviews, Focus Group discussions, In-depth interviews	11 key informants with health providers and leaders purposively selected, 4 focus group discussions with 36 women (stratified by marital status and geography) and 21 in depth interviews with women recruited with help of local NGOs.	There were inadequate trained staff both in rural and urban refugee camps, constant drug stock outs and lack of appropriate equipment, mistreatment and discrimination of refugees, bribery/corruption among health workers, and non-functional referral.	Experience of care human resource, drugs, equipment, referral
Translating lessons to reinforce national stillbirth response; multi-stakeholder perspectives regarding priorities and opportunities to deliver quality evidence-based interventions within a limited-resource context in Uganda	Eric Ssegujja, 2024 [28]	To determine key priorities and opportunities to deliver quality evidence-based interventions in Uganda	Cross sectional, exploratory qualitative	Nationwide	Key informant interviews	Conducted among national level key informants purposively sampled from the existing maternal and child health policy networks (policy makers, academia, civil society representatives, donor community, researchers)	Need to strengthen the referral systems that's not yet fully functional. There were gaps in equipment especially diagnostics e.g. sonographs. There is need to strengthen support systems such supervision and governance.	Human resource referral equipment
Balancing the cost of leaving with the cost of living: drivers of long-term retention of health workers: an explorative study in three rural districts in Eastern Uganda	Suzanne Namusoke Kiwanuka, 2017 [29]	To explore the drivers of long-term retention and describe health worker coping mechanisms in rural Uganda	Descriptive cross-sectional	Kamuli, Pallisa, and Kibuku; Eastern Uganda	Qualitative methods; In-depth interviews conducted among health workers who have been retained for at least 10 years (obtained from district health office) using telephone interviews	21 health workers	Reported some barriers of retention/work as lack of accommodation, low/stagnated pay/inadequate remuneration, and work overload. Enablers included proximity to family, and job security (government permanent job)	Human resource
The pathway of obstructed labor as perceived by communities in south-western Uganda: a	Jerome K. Kabakyenga, 2011 [30]	To explore community members' understanding of and actions taken in response to obstructed labor in south-western Uganda	Cross sectional study	Mbarara, Western Uganda	Qualitative study using grounded theory conducted through focus group discussions	8 villages (8 rural and 2 urban) used to purposely select 8 key informants in each for 24 FGDs.	There was lack of trust in the health care system among community members especially due to the attitude of health care workers who were rude. There was also lack of	Experience of care referral system

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
grounded theory study							trust on the methods/ practices of delivery within the facilities such as unnecessary for cesarean sections and use of mothers for study purposes. The referral system within rural areas was nonfunctional. While phones had made it easier, the network coverage in rural areas was still unreliable	
Assessment of portogram use during labour in Rujumbura Health Sub District, Rukungiri District, Uganda	Simon Ogwang, 2009 [31]	To establish extent of use of a portogram, health facility and health workers' factors that affected its use during labor plus the relationship between foetal Apgar score and its use.	Cross-sectional	Rukungiri, Western Uganda	Observations, record and partograph reviews, key informant interviews with staff	All facilities in Rujumbura county and 7 Health center IIIs and 1 hospital	While the usage of photographs was moderate. (69.9 %); only 2 % of the paragraphs were up to WHO standard. One key limitation was inadequate human resources to allow quality monitoring and recording; lack of training and guideline on photograph use.	Evidence based practices Human resource
A sector-wide approach to emergency obstetric care in Uganda	V. Orinda, 2005 [32]	To establish a baseline for the availability, utilization, and quality of EmOC, and to help develop an operational strategy based on the findings	Cross sectional survey	Nationwide	Health facility questionnaire	197 health facilities in 19 out of 56 districts in Uganda. 5 districts were purposefully selected from each of the 4 regions (Central, Eastern, Western, and Northern)	Out of 19 districts surveyed, only 8 (42 %) had some facilities with EmOC readiness. C-section, Blood transfusion and Assisted vaginal delivery were the most missing signal functions while use of oxytocics was the most available.	Evidence based practices
Why women die after reaching the hospital: a qualitative critical incident analysis of the 'third delay' in post conflict northern Uganda	Gasthony Aloba, 2021 [33]	To critically explore and describe the pathways that women who require emergency obstetrics and newborn care (EmONC) go through and to understand the delays in accessing EmONC after reaching a health facility in a conflict-affected setting	Embedded-Cross sectional	Northern Uganda	Embedded design using qualitative methods. Used Critical incident analysis of maternal deaths and maternal near misses and Key informant interviews with health workers or those with experience in maternal health care in the region	8 Maternal deaths and 15 maternal near misses Purposive sampling at 3 referral hospitals and further identification of key informants by snowballing hence 49 respondents.	The most common challenges at health facilities were lack of drugs and supplies, dysfunctional infrastructure like theaters, shortage of staff also worsened by gaps in skills, and nonfunctional referral system.	Highlights provision of care and cross cutting indicators
Gaps in continuity of care: patients' perceptions of the quality of care during labor ward handover in Mulago hospital, Uganda	Dan K Kaye, 2015 [34]	To assess women's perceptions of the structure, process and outcome of intrapartum care in Mulago hospital, specifically, labor ward duty shifts handovers.	Cross sectional study	Mulago National Referral hospital, Central Uganda	Qualitative methods using In depth interviews,	40 in-depth interviews women selected to have equal representation of those with; severe acute maternal morbidity, non-life-threatening complications, uncomplicated deliveries	The handovers affected continuity in care characterized by delayed decisions in management plans and poor uncoordinated communication.	Experience of care Human resource

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Immediate postnatal care following childbirth in Ugandan health facilities: an analysis of Demographic and Health Surveys between 2001 and 2016	Teesta Dey, 2021 [35]	To describe the coverage and timing of immediate postnatal care for mothers following childbirth in healthcare facilities in Uganda using three Ugandan Demographic Health Surveys (2006, 2011, 2016).	Retrospective review of Demographic and Health surveys (DHS data)	Nationwide	Review of DHS data	with good maternal and newborn outcomes. 26 were exit interviews conducted immediately after discharge while 14 were follow-up interviews conducted 4–6 months after childbirth 12,872 eligible mothers, who delivered in a health facility	There has been overall general increase in proportion of women receiving immediate postpartum care from 35.7 % in 2006 to 65 % in 2016. There are however still gaps coverage of many of these practices especially monitoring of mothers with 1st checks happening between 1 and 4 h postpartum. Cesarean section mothers were more likely to receive immediate postpartum care.	This fits into use of evidence-based practices in the QMNC framework.
Key bottlenecks to the provision of safe obstetric anesthesia in low- income countries; a cross-sectional survey of 64 hospitals in Uganda	Isabella Epiu, 2017 [36]	To estimate the proportion of high-level hospitals in Uganda that meet the World Federation of Societies of Anesthesiologists (WFSA) international standards, specifically among those that provide obstetric anesthesia	A cross-sectional survey conducted in Uganda from September 2014 to August 2015	All the 5 regions Nationwide	3 survey tools; an interviewer administered questionnaire to the anesthetist, the other an observation checklist to objectively assess theaters and the other an interviewer administered questionnaire to the hospital directors	64 hospitals across Uganda were selected based on the criteria that they provided obstetric anesthesia. At least 15 hospitals from each region; East, West, North and Central were included for representativeness	84 of the facilities did not have a trained physician anesthetist, 8 % did not have any trained provider of anesthesia. There were deficiencies in anesthetic equipment, drugs and supplies throughout the country with opioids and spinal anesthetic drugs as most lacking.	study findings fit into physical infrastructure and motivated human resource
Availability, utilization and quality of maternal and neonatal health care services in Karamoja region, Uganda: a health facility-based survey	Calistus Wilunda, 2015 [37]	To establish the availability of maternal and neonatal healthcare services at different levels of health units; to assess their utilization; and to determine the quality of services provided.	cross sectional study	Napak and Moroto, Northern Uganda	A cross-sectional study of all health facilities in Napak and Moroto districts; Data collected by reviewing clinical records and registers, interviewing staff and women attending antenatal and postnatal clinics, and by observation.	13 facilities; average 5 midwives per facility, systematic sampling of mothers for exit interviews and records (n = 347)	Gaps in intrapartum care; such monitoring, partograph use, Problematic referral network and system and shortage of staff (midwives) and physical infrastructure. None of the facilities met minimum requirements for BEmONC with Assisted vaginal delivery and removal of retained products as the most missing signal functions.	evidence based practices Human resource infrastructure
The quality of routine data for measuring facility-based	Catherine Birabwa, 2024 [38]	To assess the quality of routine data on deliveries, livebirths and	Retrospective review of health facility data	Kampala, Central Uganda	Review of routine monthly and annual aggregated health facility data over a	255 health facilities, i.e. all health facilities that provided childbirth	The overall data completeness was 53 %- 55 % for deliveries/	This study assessed the aspect of functional Health

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
maternal mortality in public and private health facilities in Kampala City, Uganda.		maternal deaths in Kampala City, Uganda			six-year period (2016–2021)	services between 2016 and 2021 in Kampala city.	childbirth and very low (<2 %) for maternal deaths. Completeness was higher in EmOC at 80 % for deliveries/childbirth and < 6 % for maternal deaths as compared to overall. Inconsistencies over time were mostly observed for maternal deaths.	information systems in the QMNC framework
Ugandan health workers' and mothers' views and experiences of the quality of maternity care and the use of informal solutions: A qualitative study	Susan Munabi-Babigumira, 2019 [39]	To describe the meaning and determinants of maternity care quality from the perspective of health workers and mothers in Uganda, the informal solutions used by health workers to manage their daily challenges, and we suggest ways in which maternal care quality can be improved.	Cross-sectional	Mpigi and Rukungiri, Central and western Uganda	Individual interviews with managers and health workers', Focus group discussions with mothers who had recently delivered from selected facilities.	Selected 1 or 2 facilities to represent each of the three levels of health centers (HCII, HCIII, and HCIV) from both districts making 11 facilities. 28 Health workers and 36 mothers purposively selected	Factors that were determined to be impeding provision and experience of quality of care; included technical skills and knowledge of health workers, lack of interpersonal skills (these due to inadequate staffing and lack of continuous professional training; resource and infrastructural factors (such as availability of medicines and supplies)	Human resourceMedicines and suppliesExperience of care
Linking data sources for measurement of effective coverage in maternal and newborn health: what do we learn from individual- vs ecological-linking methods?	Barbara Willey, 2018 [40]	We explored methods for linking access to skilled birth attendance (SBA) from household surveys to data on provision of care from facility surveys with the aim of estimating population level effective coverage reflecting access to quality care.	Cross sectional, facility census	Mayuge district, Eastern Uganda	carried out facility surveys on BEmONC readiness using a questionnaire on 6 components; Infrastructure, Infection prevention, Monitoring labor, Essential drugs, Neonatal resuscitation, Clean cord care equipment	35 health facilities	Large differences in readiness to provide BEmONC between different readiness indicators and across level of facility. Only 9 % of the facilities had all the components; Only %8 of these Health Centre IIs had essential medicines 19 % had newborn bag and masks.	Provision indicators Actionable information systems
Beneath the Surface: A Comparison of Methods for Assessment of Quality of Care for Maternal and Neonatal Health Care in Rural Uganda	Joseph R. Egger, 2020 [41]	To measure both inputs and processes related to quality of maternal and neonatal health care using data from six health clinics in Uganda	Cross sectional study design	Greater Masaka area, Central Uganda	Data was collected through direct observation of clinical encounters and facility checklists. All deliveries irrespective of time of the day were observe during the study period. The tools were developed from the USAID's Maternal and Child Health Integrated Program (MCHIP) Maternal and Newborn Quality of Care Survey and facility Inventory Quality of Care Tool.	6 Public health facilities in greater Masaka area were included and 264 deliveries observed	The facilities had good infrastructure and most supplies available and this didn't vary much between health facilities. A few exceptions like frequent power shortages were however noted. Most of the evidence-based practices were performed but the timing of these practices was usually not as recommended. For example, hand washing was only done after delivery. While	This looks at availability of physical infrastructure, and use of Evidence based practices Actionable information systems

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Persisting demand and supply gap for maternal and newborn care in eastern Uganda: a mixed-method cross-sectional study	Ronald Muhumuza Kananura, 2017 [42]	To assess the changes in maternal and newborn services in health facilities as well as demand for maternal and newborn health services in Eastern Uganda	Mixed-methods study cross-sectional study	Kamuli, Pallisa, and Kibuku in Eastern Uganda .	Analyzed health assessment surveys' data that were previously purposively collected from 40 health facilities that provide maternal and newborn services. 18 key informant interviews in September 2015 with the health workers in charge of maternity from 18 health facilities. To assess the demand side factors, conducted 12 Focus Group Discussions (FGDs) with women who had delivered that year and 12 FGDs with men whose wives had delivered in that year.	N/A	photographs were available, they were complete in only 20 % of the deliveries in used in real time in only 10 % Persistent lack of commodities in most of both lower-level health facilities and referral health facilities. Most lacking drugs were parenteral antibiotics drugs; uterotonic drugs such as oxytocin and parenteral anti-convulsants. Most missing essential equipment s manual vacuum Aspiration sets, dilation and curettage set, Vacuum extraction and forceps neonatal resuscitation equipment. The referral system was non-functional worsened by poor transport systems and long distances to facilities. The services at facilities were poor, unsatisfactory, and crowded hence mothers preferred TBAs	Referral systems Drug supplies and equipment Experience of care
Differences in essential newborn care at birth between private and public health facilities in eastern Uganda	Peter Waiswa, 2015 [43]	To describe the characteristics of care-seekers and assess newborn care practices and services received at public and private facilities in rural eastern Uganda.	Cross sectional survey but Part of larger study; that was an RCT.	Eastern Uganda	Community based; Collected data from mothers with infants at using a structured questionnaire.	All women of childbearing age who had had a live birth in the 12 months preceding the study (n1761)	Private health care was not found to be have better capacity and quality. The private health facilities in the study setting had less capacity in terms of infrastructure, staffing, equipment, and medicines. Babies born in public health facilities were more likely to receive more individual newborn care practices compared to those in private facilities.	evidence based practices Provision of care parameters
Can routine health facility data be used to monitor subnational coverage of maternal, newborn	Geraldine Agiraembabazi, 2021 [44]	To systematically assess data quality and examine different methods to obtain plausible subnational estimates of coverage for maternal,	Secondary data review	All the 5 sub regions Nationwide	Analyzed DHIS 2 data form 2015–2019 at the national, sub national and district levels. The data was assessed for quality of reporting in terms of completeness, presence of	135 districts	Study indicated very good data completeness of 98 % with very few extreme outliers. There were however major annual fluctuations in reported events and many	Addresses the area of information systems

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
and child health services in Uganda? Lived experiences of frontline healthcare providers offering maternal and newborn services amidst the novel corona virus disease 19 pandemic in Uganda: A qualitative study	Herbert Kayiga, 2021 [45]	newborn and child health interventions. To understand the experiences and perceptions of healthcare providers at the frontline during the first phase of the lockdown as they offered maternal and newborn health care services in both public and private health facilities in Uganda with the aim of streamlining patient care in face of the current COVID-19 pandemic and in future disaster.	A cross-sectional study; embedded in another study.	Kampala, Central Uganda	extreme outliers and consistency. Used phenomenological and inductive thematic approaches to explore the lived experiences and perspectives of healthcare providers as they offered maternal and newborn services in the eight selected facilities using in depth interviews.	Purposively selected 25 health care workers from 8 selected facilities	inconsistencies noted at all levels. There was no preparedness to provide quality maternal and newborn care amidst pandemics. Key issues were poor transport, lack of equipment and supplies (especially protective equipment), lack of staff accommodation, staff overload, lack of staff incentives.	Human resourceEquipment and supplies
The impact of delays on maternal and neonatal outcomes in Ugandan public health facilities: the role of absenteeism	Louise Ackers/2016 [46]	Understanding the role of absenteeism as a contributing factor to delays and its impact on maternal and newborn outcomes in Uganda	"Iterative multimethod approach"	10 referral facilities across all the 5 regions of Uganda Nationwide	Facility generated data from facility recordsFace to face interviews with health workersFocus group discussions with Ugandan Health workers, line managers and policy makersObservation and note taking	10 referral facilities	The study indicated overwhelming congestion at referral hospitals yet majority of mothers admitted in critical conditions. This was linked to poor transport and dysfunctional referral systems.At the facility, it described challenges of shortage of staff mainly due to supply because better job satisfaction in non-government jobs. This was also worsened by absenteeism. Lack of equipment especially space was also identified.	The study identifies challenges in the provision of care indicators; Actionable information system, functional referral system, and cross cutting indicators; Essential physical resources, Competent, motivated human resources.
Quality of intrapartum care at Mulago national referral hospital, Uganda: clients' perspective	Omar Kigenyi, 2013 [47]	To assess quality of intrapartum care services in the general labor ward of the Mulago national referral and teaching hospital in Uganda from clients' perspective	A cross-sectional study	Kampala, Central Uganda	face to face interviews with discharged mothers	384 Women who delivered from the hospital's maternity ward in good health condition and at discharge; excluded women with severe post-delivery complications. They were recruited using a systematic random sampling technique	Overall mean quality of care index score was suboptimal at 49.4 %. Major contributors were poor communication (flow of information), poor staffing vs the client load, lack of drugs and supplies, and long waiting time. Respect and dignity, relief of pain and support (emotional support) were better)	Experience of careDrugs and suppliesHuman resources
Emergency obstetric care as the priority intervention to reduce maternal	A.K. Mbonye, 2006 [48]	To determine availability of emergency obstetric care (EmOC) to provide baseline data for	Cross-sectional nationwide survey	Nationwide	Quantitative survey of health facilities for availability of EmOC signal functions using the	54 districts and 553 health facilities. 2 districts omitted for security reasons	Most of the health facilities (349 (97.2 %) expected to offer BEmOC, were not offering them.	Evidence based practices

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
mortality in Uganda		monitoring provision of obstetric care services in Uganda.			UN Guidelines for monitoring obstetric service		Removal of retained products, assisted vaginal delivery and blood transfusion were the most missing signal functions contributing to maternal deaths.	
Challenges in implementing emergency obstetric care (EmOC) policies: perspectives and behaviors of frontline health workers in Uganda	Moses Mukuru, 2021 [49]	To explore why upstream policy expectations were not achieved at the frontline during the MDG period by; exploring the barriers frontline implementers of EmOC policies faced, their coping behaviors and the consequences for maternal health.	A retrospective exploratory qualitative study	Luwero, Iganga and Masindi; Central, Eastern and Western Uganda	Qualitative methods; Key informant interviews	16 public health facilities that were in existence by 2000 when the MDGs started. 27 participants selected through purposive and snow balling sampling methods (doctors, midwives) 2 national programs leaders for Key informants' interviews	Health workers were expected to work and provide signal functions per standard but not given a proper working environment hence devised other actions within their means. Nonfunctional referral; "pushing mothers forward" without accompanying them (discontinuing care until next referral facility). Lack of supplies, equipment and personnel hence omitting key signal functions and interventions	Human resource evidence-based practices referral system drugs and supplies
Poor newborn care practices - a population-based survey in eastern Uganda	Peter Waiswa, 2010 [50]	To assess socioeconomic differences in use of newborn care practices in order to inform policy and programming in Uganda	Cross sectional household survey	Iganga-Mayuge; Eastern Uganda	All mothers with infants aged 1–4 months (n = 414) in Iganga-Mayuge demographic Surveillance Site were interviewed.	All mothers with infants aged 1–4 months (n = 414)	There was low-moderate coverage of key newborn practices intrapartum; 1st hour breastfeeding initiation (41 %), skin to skin (86 %), clean delivery place (66 %), good cord care (38 %)	Evidence based practices
Mothers' perceptions and experiences of caring for sick newborns in Newborn Care Units in public hospitals in Eastern Uganda: a qualitative study	Phillip Wanduru, 2023 [51]	To understand mothers' perceptions and experiences while participating in the care of their sick newborns in the NCUs to inform interventions promoting mothers' participation in public health facilities in Uganda.	Cross sectional, qualitative	Eastern Uganda	In-depth interviews with mothers caring for their newborns in two high volume newborn Care Units (Regional Referral and General hospital in Eastern Uganda)	8 in-depth interviews	Mothers' confidence in the care provided to their babies was based on their outcomes. There were concerns of physical infrastructure e.g. space characterized by overcrowding, shortages such as drugs and supplies making it expensive for caretakers to add this financial burden. There were concerns on unresponsiveness and negative responses (lack of empathy) from health care workers when called upon.	experience of care

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Quality of vital sign monitoring during obstetric hospitalizations at a regional referral and teaching hospital in Uganda: an opportunity for improvement	Godfrey Rwambuka Mugenyi, 2021 [52]		Retrospective review of obstetric records at a tertiary care facility	Mbarara, Western Uganda	Retrieved pre-determined vital signs variables from mothers' charts. High-quality monitoring was defined as the assessment of a minimum of fetal Heart Rate, maternal Heart Rate, Blood Pressure and Temperature.	384 charts, using a P = 0.5, and precision of 0.05; used random sample generator (Excel Version 16.29.1) to select charts of deliveries between 2013 and 2014.	Very few; i.e. only 8 % of pregnant women and 11 % of postpartum women had high-quality vital sign monitoring.	Evidence based practices Actionable information systems
Health care workers' experiences of managing foetal distress and birth asphyxia at health facilities in Northern Uganda	Elizabeth Ayebare, 2021 [53]	To explore the experiences of health care workers in managing fetal distress and birth asphyxia to gain an understanding of the challenges in a low-income setting.	Descriptive qualitative study; cross sectional	Northern Uganda	Key informant interviews	12 midwives and 4 doctors in 4 Public health facilities in Northern Uganda	The study found that health workers work under difficult conditions with inadequate resources and preparedness of facilities. This was coupled with a dysfunctional; referral system and gaps in knowledge and skills. The health workers face pressure, blame, abuses and mistrust from the mothers and family.	This study explores factors affecting provision of care in the QMNC framework and also looks at human resource
Experiences of referral with an obstetric emergency: voices of women admitted at Mbarara Regional Referral Hospital, South Western Uganda	Harriet Nabulo, 2023 [54]	To explore the experiences of women referred with obstetric emergencies to Mbarara Regional Referral Hospital (MRRH) in Uganda, in order to identify barriers and facilitating factors	Qualitative descriptive cross sectional	Mbarara, Western Uganda	In-depth interviews	Participants were purposively selected from the postnatal wards and excluded those in intensive care and high dependency units because they were too ill to be interviewed. In-depth interviews (IDIs) were conducted until saturation at 13 participants (11 women and 2 attendants (to a woman who got an emotional breakdown)	Women experienced challenges such as referral barriers (transport, long distances, and hospital delays) and Health providers inadequacies (inhumane treatment, poor attitudes, absenteeism) and facility barriers (drug stock outs, delays in care especially nonfunctional theaters).	Experience of care Human resource, drugs supplies, referral
Perceptions of quality of care in Midwife-led Birth Centers (MLBCs) in Uganda: Why do women choose MLBCs over other options?	Rose Chalo Nabirye, 2024 [55]	To explore the perceptions of women and midwives regarding the quality of care in four MLBCs in Uganda.	Descriptive qualitative study using an appreciative enquiry technique; Appreciative enquiry focuses on identification of positive successes, but also enables participants to suggest solutions to the	4 privately-owned MLBCs which were purposively selected from 3 regions (not mentioned) Nationwide	Focus group discussions and individual interviews	8 women (2 from each facility who had used MLBC services) purposively and 16 midwives conveniently.	Both Women and midwives perceived the overall quality of care across the four MLBCs as good. This was mostly due to respectful and dignified care. They described care as included dignified care, non-discriminatory, ensured privacy, and autonomous (sought consent). They recommended that scaling up MLBCs and empowering midwives could reduce mistreatment of women	Experience of care

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Health facility readiness to care for high-risk newborn babies for early childhood development in eastern Uganda	Gertrude Namazzi, 2022 [56]	To assess health facility readiness to care for high-risk newborn babies in order to inform programming that fosters early childhood development in eastern Uganda.	existing problem. Cross-sectional	Busoga; Eastern Uganda	A questionnaire adapted from SARA was administered in 6 hospitals and 10 higher level health centers (HC IVs) in Busoga region in eastern Uganda. modifications to the SASA too included adding infrastructure for thermoregulation beyond KMC, and management of jaundice, use of a continuous positive airway pressure (CPAP) ventilation, and neurodevelopmental support. The experience of service provision of care was assessed through client exit interviews with mothers.	201 mothers with High-Risk Babies were included in the study. Proportionate to size sampling methods were used to distribute the sample size across the six hospitals. All the facilities were assessed with SARA.	during childbirth and improve care. There was inadequate human resource both in numbers and skills/ training especially the neonatal nurses. The least scores were in least in preterm and hypothermia care and highest in essential routine newborn care and neonatal resuscitation. The experience of care was better/higher in PNF's as compared to public hospitals.	Experience of care Human resource
Know-do gaps in obstetric and newborn care quality in Uganda: a cross-sectional study in rural health facilities	Slawa Rokicki, 2021 [57]	To investigate whether provider quality of care deviates from knowledge and the factors associated with these 'know-do gaps' in Ugandan maternity facilities	Cross-sectional	Central, Eastern and Western regions	1) direct observation of labour, delivery and postpartum care, (2) interviews with providers, and (3) facility assessments.	576 observed deliveries across 109 providers and 40 facilities.	Quality of care was on average low and varied widely both within and across providers. While provider training was highly correlated with knowledge, it was not correlated with quality of care. Quality of care increased only very weakly with knowledge. Know-do gaps were largest for the areas of infection control, taking of vitals/monitoring of patients, and actions to prevent postpartum hemorrhage's availability of essential supplies was not significantly correlated with quality, while a higher level of patient volume was negatively correlated interventions aimed at improving quality may need to look beyond training, infrastructure and supply chain interventions	Human resource evidence-based practices

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Table 4 (continued)

Title	Author, year of publication	Aim of study	Study design	*Location	Methods	sample	Study findings	Relationship with the WHO QMNC framework
Readiness of rural health facilities to provide immediate postpartum care in Uganda	Mariam Namutebi, 2023 [58]	To assess facility readiness for the provision of postpartum care within the immediate postpartum period	cross-sectional	Greater Mpigi, Central Uganda	A facility assessment questionnaire modelled from the result-based financing (RBF) assessment and the SARA facility assessment tools were administered.	40 health facilities calculate using Yamane formula. All the hospitals and three health center IVs in the three districts plus all the health center IIIs in Butambala and Gomba were purposively included in the study because they were few. Health center IIIs achieved.	Overall facility readiness was low and ranged from 9.3 % to 60 %. Majority of the facilities had access to transport, and a functional health education program. While majority lacked tracer commodities, trace drugs and equipment. PNFPs had a higher readiness than public.	Drugs and supplies Transport

*Location: We mapped the study location according to the five geographical regions of Uganda. Those done in more than three regions were considered nationwide.

Table 5

Categorisation of findings according to the WHO QMNC framework [59].

QMNC Framework domains	Quality measure category	Articles	Number
Provision of care standards	Evidence-based practice for routine care and management of complications	[31,32,35,37,40,41,43,48,50,52,56,57]	12
	Actionable information system	[38,40,41,44,52].	5
	Functional referral systems	[26–28,30,33,42,46,49,53,54,58]	11
Experience of care standards	Effective Communication	[23–25,34,47].	5
	Respect and preservation of dignity	[24,25,27,30,42,47,55,56].	8
Cross-cutting standards	Emotional support	[24,42,47,51,56].	5
	Competent motivated human resources	[23–25,27,28,29,33,34,36,37,39,45,46,49,53,56,57].	17
	Essential physical resources available	[23,24,27,28,33,36,37,39,40–42,45,46,47,49,51,53,57,58].	19

The majority of the studies assessed more than one indicator and therefore mapped on multiple domains.

outcomes [67].

Our findings suggest important implications for research, clinical practice, and policies for maternal and newborn care. First, for research, we recommend that future studies assessing the quality of care should incorporate mixed methods approaches, especially qualitative methods, to give a more contextual and in-depth understanding. There is also a need for studies that are more focused on a specific QMNC standard, especially in the experience of care, to give a deeper understanding of these areas. Well-designed implementation science-based studies are needed to investigate potential interventions to address documented service gaps, as well as studies examining why existing interventions are failing to achieve desired outcomes. For clinical practice, there is a need for continuous professional development in the use of evidence-based maternal and newborn care practices. There is a need to establish accountability systems that hold clinical teams responsible for adhering to standards of care. This can also be strengthened through improving staff support supervision. At the policy level, in addition to the ongoing efforts by Uganda’s Ministry of Health to improve skilled birth attendance and facility-based births, there is a need for increased attention to the preparedness of these facilities, especially in areas of human resources, functional referral systems, physical infrastructure, drugs, and supplies. It may also be necessary to pay greater attention to improving the working environment of obstetric care providers to foster workforce retention, rather than focusing primarily on advocating for the recruitment of additional staff. These efforts are even more urgent in rural lower-tier government health facilities. There is therefore a need to allocate more funding from the national health budget to strengthen the obstetrics care system by, for example, establishing more structures that promote evidence-based, respectful, and patient-centered maternity care.

We acknowledge that our review also had limitations. We decided to focus on peer-reviewed scientific articles for this review and did not search for grey literature, such as national reports, and other non-peer-reviewed articles that could have also provided additional insights. We cannot rule out publication bias, as most studies identified gaps in the quality of maternal and newborn care provided. More than three-quarters of the studies included in our synthesis were cross-sectional studies, which limited our ability to make causal conclusions about the factors influencing quality of care gaps or the effectiveness of any identified interventions.

Despite these limitations, to the best of our knowledge, this is the first review in Uganda to comprehensively document the quality of maternal and newborn care by analysing studies from multiple settings and levels in Uganda's health care system. Our review also provided a quality-of-care assessment based on WHO's QMNC framework, which is a globally recognised framework, thereby making our findings more comparable to similar studies from across the globe. Additionally, the review followed the standard PRISMA-ScR guidelines, authenticating the findings and quality of the review to a great extent.

Conclusion

This review highlights a growing body of evidence on the quality and maternal and newborn care in Uganda over the last 20 years. There have, however, been persistent deficiencies in all the standards of quality of care. Our review draws attention to both healthcare worker-related gaps and broader health system barriers that need to be urgently addressed if better maternal and newborn outcomes are to be realised in Uganda. There is a need for more research with deeper assessments focused on specific standards.

Ethics approval and consent to participate

This study reviewed publicly available articles and did not involve human participants. It therefore did not require research ethics approval.

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CRedit authorship contribution statement

BT conceptualized the study proposal under the supervision of JN and EMM. JN, EMM, and JK reviewed the protocol through the different stages to its final draft. All authors read and approved the final manuscript.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author(s) used Microsoft Word embedded Grammarly to proofread grammar and readability. After using this tool, the author(s) carefully reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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Consent for publication

Not Applicable

Availability of data and materials

All data generated or analysed during this study are included in this review article. No data sets outside publicly available articles were analyzed.

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