Systematic review of barriers to, and facilitators of, the provision of high-quality midwifery services in India

McFadden, Alison; Gupta, Sunanda ; Marshall, Joyce L.; Shinwell , Shona ; Sharma, Bharati ; McConville, Frances

Published in:
Birth

DOI:
10.1111/birt.12498

Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
McFadden, A., Gupta, S., Marshall, J. L., Shinwell , S., Sharma, B., McConville, F., & MacGillivray, S. (2020). Systematic review of barriers to, and facilitators of, the provision of high-quality midwifery services in India. *Birth*, *47*(4), 304-321. https://doi.org/10.1111/birt.12498

Received: 18 February 2020 | Revised: 6 July 2020 | Accepted: 6 July 2020

DOI: 10.1111/birt.12498

SYSTEMATIC REVIEWS

BIRTH ISSUES IN PERINATAL CARE WILEY

Systematic review of barriers to, and facilitators of, the provision of high-quality midwifery services in India

Alison McFadden RM, PhD[1] | Sunanda Gupta MBBS, MS, MPH[2] | Joyce L. Marshall RM, MPH, PhD[3] | Shona Shinwell RM, MSc[4] | Bharati Sharma PhD[5] | Fran McConville SRN, SCM, MA[6] | Steve MacGillivray PhD[4]

[1]School of Health Sciences, University of Dundee, Dundee, UK

[2]World Health Organization, New Delhi, India

[3]University of Huddersfield, Huddersfield, UK

[4]University of Dundee, Dundee, UK

[5]Indian Institute of Public Health Gandhinagar, Gandhinagar, India

[6]World Health Organization, Geneva, Switzerland

Correspondence
Alison McFadden, School of Health Sciences, University of Dundee, 11 Airlie Place, Dundee, DD1 4HJ, UK.
Email: a.m.mcfadden@dundee.ac.uk

Funding information
This review was supported by a grant from Bill & Melinda Gates Foundation, India to WHO India, for strengthening midwifery in India (OPP1180906).

Abstract

Background: The Indian government has committed to implementing high-quality midwifery care to achieve universal health coverage and reduce the burden of maternal and perinatal mortality and morbidity. There are multiple challenges, including introducing a new cadre of midwives educated to international standards and integrating midwifery into the health system with a defined scope of practice. The objective of this review was to examine the facilitators and barriers to providing high-quality midwifery care in India.

Methods: We searched 15 databases for studies relevant to the provision of midwifery care in India. The findings were mapped to two global quality frameworks to identify barriers and facilitators to providing high-quality midwifery care in India.

Results: Thirty-two studies were included. Key barriers were lack of competence of maternity care providers, lack of legislation recognizing midwives as autonomous professionals and limited scope of practice, social and economic barriers to women accessing services, and lack of basic health system infrastructure. Facilitators included providing more hands-on experience during training, monitoring and supervision of staff, utilizing midwives to their full scope of practice with good referral systems, improving women's experiences of maternity care, and improving health system infrastructure.

Conclusions: The findings can be used to inform policy and practice. Overcoming the identified barriers will be critical to achieving the Government of India's plans to reduce maternal and neonatal mortality through the introduction of a new cadre of midwives. This is unlikely to be effective until the facilitators described are in place.

KEYWORDS

barriers, facilitators, India, midwifery care, midwives, systematic review

1 | BACKGROUND

By 2030, maternity services in India will need to respond to approximately 35 million births per year, nearly 75% of them in rural settings.[1] India has maintained a steadily declining maternal mortality ratio (MMR) from 212 in 2009 to 130 per 100 000 live births in 2014.[2] This is high compared with global standards, and the number of maternal deaths—32 000 in 2018[3]—is large, as India accounts for one fifth of global births. This rapidly declining trend in MMR is not reflected in perinatal and neonatal mortality rates (PMR and NMR). The PMR declined from 26.2/1000 in 2001 to 23/1000 in 2016, and NMR from 40.2/1000 in 2001 to 24/1000 in 2014. These more limited declines may be due to issues around quality of care at the time of childbirth, especially for newborns. The overall MMR and PMR for India mask large variations between and within states; there are large inequities in access to quality maternal and newborn care. Action is needed to achieve the Sustainable Development Goal (SDG) 3 targets of reduction of global average MMR to less than 70 per 100 000 births and NMR to less than 12 per 1000 live births by 2030.

India is one of several countries in the WHO Global Quality of Care Network,[4] which aims to halve the rates of maternal and newborn deaths and stillbirths in targeted health care facilities within five years by improving quality of care around childbirth. This vision is underpinned by the core values of "quality," "equity" and "dignity" (QED)[5] that actively strengthen quality improvement initiatives that are critical steps toward ending preventable maternal, newborn and child deaths and achieving universal health coverage (UHC). Quality maternal and newborn services require a well-functioning health system, including investment in a strong organizational and management structure, infrastructure, a robust health management information system, water and sanitation in all facilities, and a health workforce educated and supported to have the necessary competencies, including the provision of respectful care.

To improve access to care at birth, the Indian government has promoted institutional births. The national Janani Suraksha Yojana (JSY) conditional cash transfer program, which supports institutional deliveries, and the Janani Shishu Suraksha Karyakram program, which provides free antenatal, birth, postnatal care, and care for sick neonates through 30 days after birth, as well as free medications and transport, significantly improved the proportion of institutional births, but did not result in the envisaged decline in MMR or NMR.[6] For many attending a maternity facility, there are concerns about "unsafe" birthing rooms and poor quality of care[7] which discourages use of public health facilities. Such apprehensions reflect long-standing historical, as well as more recent, concerns in India[8,9] about the skill levels of birth attendants.[10,11]

One strategy to reduce maternal and neonatal mortality is the provision of midwifery care from preconception to the end of the six-week postpartum period. Evidence suggests that maternal deaths, stillbirths, and neonatal deaths could be reduced by as much as 83% if the full package of midwifery care, including family planning and maternal and neonatal health interventions, were implemented.[12] Renfrew et al[13] reported that midwifery care is most cost-effective when provided by midwives educated to international standards who are embedded in the health system with effective teamwork, functioning referral systems, and sufficient resources. However, there are multiple barriers that prevent this full package of care from being realized, especially in low-income and middle-income countries (LMICs). Filby et al[14] report how social, economic, and professional barriers combine to prevent high-quality midwifery care from being provided in LMICs.

Currently, India does not have a cadre of midwives educated to international standards. Sharma et al[8] note that India, "does not have national standards for midwifery education and lacks accreditation systems to monitor the quality of education." Instead, there are a range of practitioners providing some midwifery care: auxiliary nurse-midwives (ANMs) who have completed a two-year training program; general nurse-midwives (GNMs) with a three-year program; and Bachelor's in Nursing (BSc) practitioners who have completed a four-year program, as well as a one-year Nurse-Practitioner in Midwifery (NPM) course. Maternity services are provided by obstetricians, general physicians, and staff nurses in hospitals in India. The obstetricians are the legally recognized service providers for normal, as well as complicated, childbirth. The GNM and BSc graduates work as "staff nurses" in hospitals with dual registration of Registered Nurse (RN) and Registered Midwife (RM). The standard of education and training for these cadres is variable, and the midwifery scope of practice of staff nurses is not clearly defined but "circumstance driven," depending on several factors; one of these factors is the availability of doctors.[15] Such issues work against the provision of quality maternity care and indicate that there is an urgent need to evaluate those factors that facilitate or hinder the effective delivery of maternity services.

The Ministry of Health and Family Welfare (MoHFW) in India recognized that institutionalizing professional midwifery care, as recommended globally by WHO and the International Confederation of Midwives (ICM), could serve as a cost-effective and efficient model to provide quality care for mothers and newborns and to help achieve the SDG 2030 goals. The MoHFW, therefore, unveiled a national Midwifery Initiative in December 2018 by launching the first "Guidelines on Midwifery Care in India"[3] with the aim "to create a cadre of midwifery professionals who are skilled

in accordance with ICM competencies, knowledgeable and capable of providing compassionate, women-centred, reproductive, maternal and newborn health care services and also develop an enabling environment for integration of this cadre into the public health system, in order to achieve the SDGs for maternal and newborn health."[3] This new cadre will also be termed Nurse Practitioners in Midwifery (NPMs). It is expected that providing skilled midwifery care will enable increased access to quality care for underserved populations, decongest overcrowded facilities, and effectively reduce the burden of maternal, neonatal, and perinatal mortality and morbidity.

The purpose of this systematic review was to examine facilitators of, and barriers to, providing high-quality midwifery care in India. The review aimed to identify current gaps in the competencies of care providers, factors that hinder efficient service provision, and socio-cultural factors that prevent the provision of optimal care to women and newborn infants.

2 | METHOD

We searched for primary studies of barriers to, and facilitators of, the provision of midwifery services in India. We also included the WHO South-East Asia Region (SEAR) to locate multiple country studies that included India.

2.1 | Search strategy

We searched the following online research databases during November 2018: MIDIRS; MEDLINE and MEDLINE In Process (via OVID); CINAHL (via EBSCO); CDSR (via the Cochrane Library); DARE (via the Cochrane Library); HTA database (via the Cochrane Library); Social Science Citation Index (via Web of Knowledge); PsycINFO (via OVID); HMIC (via OVID); ASSIA (via ProQuest); Social Policy and Practice (via OVID); British Nursing Index (via ProQuest); Research Councils UK—Gateway to research (via http://gtr.rcuk.ac.uk/); OAIster (via http://oaister.worldcat.org/); and OpenGrey (via http://www.opengrey.eu/).

Search terms adopting the following search architecture were mapped to existing subject headings in each database.

1. *provider terms:* eg, "midwife" OR "midwives"
2. *barriers and facilitators:* eg, "barrier" OR "challenge"
3. *location filter: eg, "India" OR "South East Asia"*

The final search strategy involved headings that were specific to each database, key words, and free text search terms; truncation and wild cards were used to increase sensitivity (see Table S1 for example search used).

2.2 | Screening process

Two reviewers independently screened the titles and abstracts and reviewed full texts that met the inclusion criteria. Studies were included if they focused on issues relevant to the provision of midwifery care and were published in the English language. We did not limit by year of publication. We examined reviews to identify primary studies that were set in India and met the inclusion criteria.

2.3 | Quality assessment

The methodological quality of studies was assessed by one reviewer, using domains appropriate to study research design. Quantitative studies (nearly all were surveys) were assessed as being: $\surd$ = low risk; X = high risk; ? = unsure treat as high risk for the following domains:

Selection bias: representativeness of sample to target population
Study design: appropriate method used to answer the study questions
Data collection method: valid and reliable method of data collection
Confounding: possible sources of confounding explored statistically

For qualitative studies, we performed global assessment of study quality, dichotomized according to whether they appeared to be "strong" or "weak." Strong studies included clear exposition of methods of data generation and analysis, triangulation of data, respondent validation, and reflexivity. We assessed the nature of the evidence reported in the qualitative studies in terms of the "typologies" of their findings classified on a continuum of data transformation, from findings that are not qualitative (no finding, topical survey), to ones that are exploratory (thematic survey), descriptive (conceptual/thematic description), or explanatory (interpretive explanation).[16]

2.4 | Evidence synthesis process

To gather data pertinent to high-quality midwifery care, we mapped the findings of the included studies to two global frameworks: (a) the Framework for Quality Maternal and Newborn Care (QMNC), as detailed in The Lancet Series on Midwifery,[13] and (b) the WHO standards for improving quality of maternal and newborn care in health facilities.[17] The QMNC framework[13] considers Practice Categories; Organisation of Care; Values; Philosophy and Care Providers. The WHO standards for improving quality of maternal and

newborn care in health facilities[17] comprise eight standards of care. The barriers and facilitators in the included studies were mapped to the QMNC framework and to the WHO standards to provide a comprehensive analysis of the provision of high-quality midwifery care and to identify gaps in the evidence.

3 | RESULTS

The search strategy generated 2450 citations to be screened (see Figure 1). Of 78 full texts assessed, 13 were excluded, mainly due to an insufficient focus on the provision of quality midwifery care. A further seven studies, which were India-based, were found in systematic reviews. Overall, 32 India-based studies were included in this review.

3.1 | Characteristics of included studies

There were 25 quantitative studies,[8,9,18-40] six qualitative studies,[15,41-45] and one study which used a mix of qualitative and quantitative methods.[46] The vast majority of the studies providing quantitative data were surveys (n = 22) of which two[32,39] were prospective, and the remainder were retrospective and cross-sectional in nature. Of the 20 cross-sectional surveys, one[21] was international; eight were large-scale national surveys[26,27,30,31,35-38]; and 11 were surveys of various Indian locales or regions.[8,9,20,22,24,25,28,29,33,34,40] The remaining four studies were service evaluations of which two[18,19] were retrospective preintervention and postintervention evaluations without controls and two[23,46] were prospective evaluations.

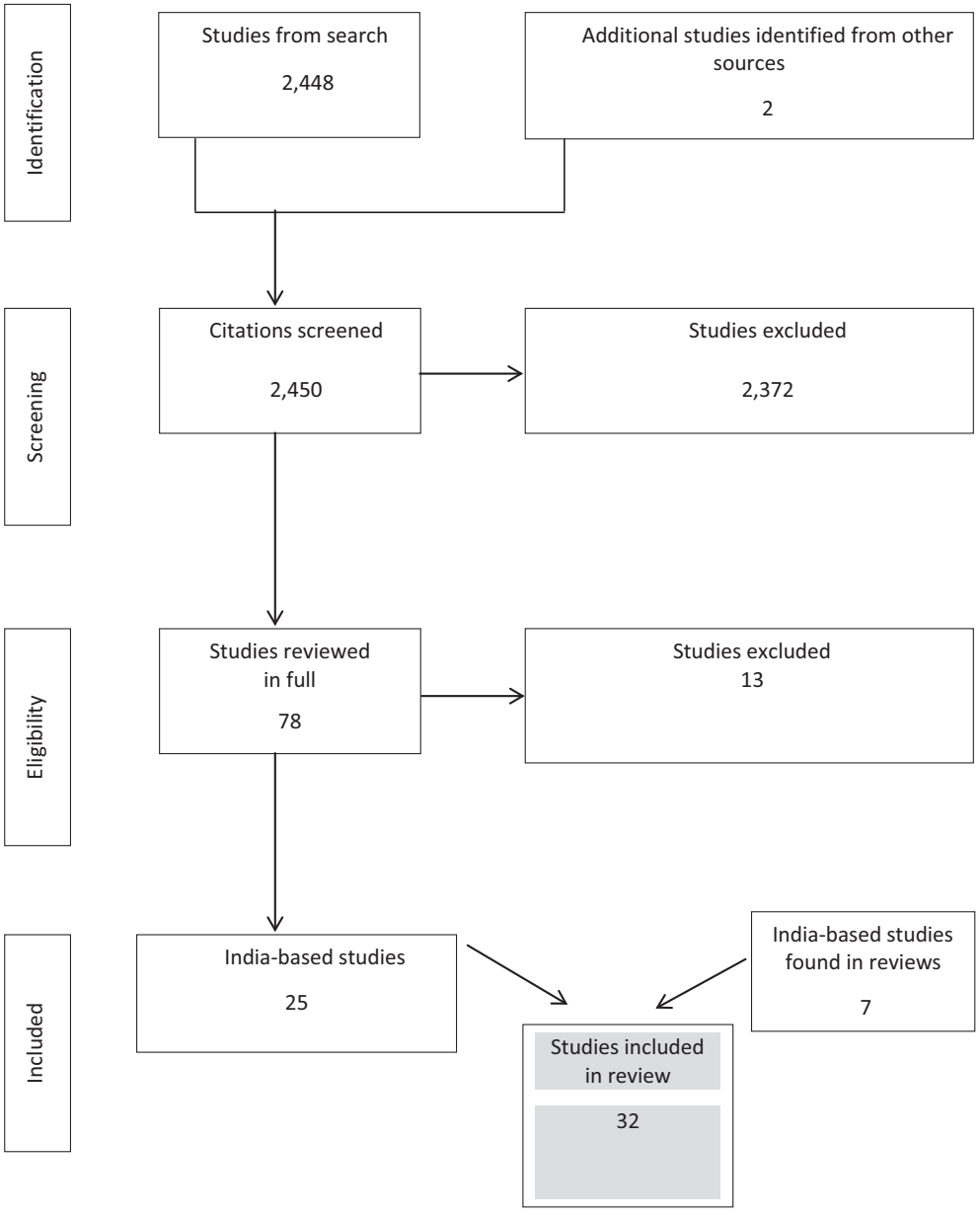

FIGURE 1 Flow diagram of study selection, exclusion, and inclusion

Table 1 shows methodological quality of the quantitative studies. Twelve studies were assessed as low risk of bias across all four domains. For each domain assessed, 14/26 studies were assessed as low risk of selection bias; 26/26 for study design; 17/26 for data collection method; and 20/26 for confounding.

Of the studies providing qualitative data, five were interview studies[15,41-44] and two[45,46] were interview studies with the addition of focus groups. Table 2 presents the methodological quality of the qualitative studies. Two studies received a global assessment of "strong" and the remaining five "weak." Of the transformation of findings, two studies were assessed as topical surveys, three as thematic surveys, one as conceptual/thematic description, and one as interpretive explanation.

The included studies were published between 2001 and 2018 with over half (n = 18) published since 2014 (see Table 3). Participants in 15 studies were either pregnant women or postnatal mothers, or women of childbearing age. In 13 studies, participants were health service providers. Four studies[38,43–45] included both women and health service providers. The most frequently included cadre of health workers was ANMs (n = 7 studies). Five studies included general nurse-midwives/staff nurses, one study included graduate nurse-midwives,[15] and one study included students on diploma-level and degree-level nurse-midwife programs.[8] Chaturvedi et al[22] described their participants as birth attendants without further specification. Four studies included community health workers described as Anganwadi workers,[18] lady health visitors,[9,46] and social health activists.[45] Six studies[28,42-46] included a range of other health workers such as doctors, administrators, laboratory staff, and pharmacists.

TABLE 1 Methodological quality of quantitative studies

Study	Study methods	Selection bias	Study design	Data collection method	Confounding
Number of studies with low risk of bias		14/26	26/26	17/26	20/26
Agrawal 2011[18]	Preintervention and postintervention design without a control group	√	√	√	√
Agrawal 2016[19]	Same study as above	√	√	√	√
Bali 2018[9]	Cross-sectional survey	?	√	√	X
Bloom 2001[20]	Cross-sectional survey	X	√	X	√
Bogren 2012[21]	Cross-sectional survey	X	√	X	X
Chaturvedi 2014[22]	Cross-sectional testing using clinical vignettes	X	√	√	√
Hagopian 2012[46]	Case study of health staffing levels	√	√	√	√
Iyengar 2009[23]	Service evaluation	X	√	X	X
Jha 2017[24]	Cross-sectional survey	X	√	√	√
Joshi 2016[25]	Cross-sectional survey	X	√	?	√
Kavitha 2015[26]	Cross-sectional survey	√	√	√	√
Kesterton 2010[27]	Cross-sectional survey	√	√	√	√
Kumar 2014[28]	Cross-sectional survey	X	√	?	√
Kumar 2016[29]	Same study above	X	√	?	√
Lim 2010[30]	Cross-sectional survey	√	√	√	√
Matthews 2005[39]	Longitudinal survey	X	√	?	X
Pallikadavath 2004[31]	Cross-sectional survey	√	√	√	√
Pricilla 2017[32]	Prospective cohort study	X	√	√	X
Purohit 2017[33]	Cross-sectional survey	X	√	√	X
Raj 2017[40]	Cross-sectional survey	√	√	√	√
Sharma 2015[8]	Cross-sectional survey	√	√	X	√
Sharma 2018[34]	Same study above	√	√	X	√
Singh 2012[35]	Cross-sectional survey	√	√	√	√
Singh 2012[36]	Cross-sectional survey	√	√	√	√
Singh 2014[37]	Cross-sectional survey	√	√	√	√
Singh 2016[38]	Cross-sectional survey	√	√	√	√

TABLE 2 Methodological quality of qualitative studies

Qualitative studies		Global assessment	Typology
Ager 2005[41]	Interview study	Weak	Thematic survey
Bhate-Deosthali 2011[42]	Interview and observation study	Weak	Topical survey
Hagopian 2012[46]	Case study of health staffing levels	Weak	Thematic survey
Jolivet 2018[43]	Interview study	Weak	Thematic survey
Nagarajan 2016[44]	Interview study	Weak	Topical survey
Sharma 2013[15]	Interview study, Grounded theory	Strong	Interpretive explanation
Vidler 2016[45]	Interview and focus group study	Strong	Conceptual/thematic description

3.2 | Barriers and facilitators to provision of high-quality maternity care

Mapping study findings to the QMNC framework[13] and the WHO standards[17] highlighted a range of barriers and facilitators to the provision of high-quality midwifery care in India (see Tables 4 and 5; Table S2). A summary of barriers and facilitators is presented in Table 6.

The most frequent barrier related to the availability of a competent and motivated workforce able to provide quality midwifery care and manage complications. Two key related barriers were apparent. The first was the nonavailability of sufficient human resource to deliver high-quality services. For example, Hagopian et al[46] suggested that, in Ganjam, a district of Orissa state, the health workforce needed to be enhanced by 80 nurse-midwives. The authors commented that this was probably an underestimate as geographical barriers (which may increase travel times and require more midwives to ensure adequate coverage) were not considered. A lack of qualified midwives in Maharashtra state was also reported by Bhate-Deosthali et al[42] where, of 146 hospitals providing maternity services, 137 did not have a qualified nurse-midwife. The second barrier related to the lack of knowledge, skills, and behavior of skilled birth attendants,[9,22] as a result of the inadequacy of diploma and bachelor nurse-midwife preservice training programs.[8,34] Improving quality of training and education of midwives was reported to require more hands-on clinical practice.[21,34] Agrawal et al[19] suggested that virtual classroom training could contribute to improving knowledge and key maternal and newborn health skills. There was also a need for ongoing supervision and monitoring of staff.[32,38] Bogren et al[21] reported from a stakeholder survey that India did not recognize the ICM definition of a midwife and lacks legislation that recognizes midwifery as an autonomous profession. The survey also highlighted that the qualification required to function as a midwifery teacher in India was a bachelor's degree in nursing.

Apart from having sufficient number of knowledgeable and skilled staff, a key characteristic for quality maternal and newborn care is that the division of roles and responsibilities is based on competence and available resources.[13] Our review found some positive examples; for example, Iyengar and Iyengar[23] suggested that trained nurse-midwives (ANMs and GNMs) can significantly improve access to skilled maternal and newborn care in rural areas and can manage maternal complications both with and without need for referral. Similarly, Pricilla et al[32] reported that trained nurse-midwives when regularly monitored, and with good referral systems, can provide high-quality antenatal care. However, there were also examples where nurse-midwives' skills were not utilized to their full potential. Pallikadavath et al[31] found that doctors were often lead professionals in antenatal care, and consequently, there was significant under-utilization of nurse-midwives. Similarly, Sharma et al[15] suggested that compared with international standards, midwifery practice of staff nurses was limited in scope resulting in loss of some skills. In a study by Purohit and Vasava,[33] ANMs felt that there were unrealistic expectations for their role, with a high workload and limited opportunity for development.

The next most frequently cited category of barriers related to lack of available, accessible, acceptable and high quality care,[13] preventing every woman and newborn from receiving evidence-based care. Studies included both coverage[18,22,31] and utilization of services.[25-27,35-37,39,41,45] Chaturvedi et al[22] reported that to achieve large gains in coverage of institutional births, there was an urgent need for better skilled birth attendants, whereas Agrawal et al[18] found that coverage of antenatal home visits was positively associated with the knowledge level of community health workers. Women's use of services was influenced by perceptions of quality of care[39,45] and reputation of the provider.[41] Some studies highlighted specific aspects of care where there was poor utilization such as family planning services,[25] or poor quality, for example, of health education, including family planning and breastfeeding.[32]

TABLE 3 Characteristics of included studies

Study	Study methods	Participants	Setting	Main findings
Quantitative studies				
Agrawal 2011[18]	Quasi-experimental preintervention and postintervention design *Integrated Nutrition and Health Program	Community health workers: 302 Anganwadi workers (AWW) and 86 auxiliary nurse-midwives (ANM)	2 districts of rural Uttar Pradesh	Coverage of antenatal home visits and newborn care practices were positively correlated with the knowledge level of community health workers (CHWs). Overall, less than one third of women were visited during the antenatal period. More than 42% received an antenatal visit from an AWW with better knowledge compared with 16% by AWWs with poorer knowledge. Difference between ANMS was smaller (27.5% vs 25%, respectively).
Agrawal 2016[19]	Preintervention and postintervention * design without a control group * training package	83 general nurse-midwife students	2 general nurse-midwives schools in Bihar	Students in postintervention scored 52.3 (95% CI, 49.4%–55.3%) percentage points higher than preintervention on maternal and newborn practices, and this was statistically significant. Virtual classroom training was found to be effective in improving knowledge and key MNH skills.
Bali 2018[9]	Cross-sectional survey	335 trained skilled birth attendants (140 auxiliary nurse-midwives 160 staff nurses, 35 lady health visitors)	Madhya Pradesh	Appropriate training had not resulted in an acceptable level of knowledge, and test scores varied across the topics tested and by cadre. The test result for the three groups across all topics was 75.4%. Skill scores demonstrated in a practical situation were found not to be significantly different between groups but varied depending on the skill being demonstrated, for example, 88.1% for infection preventions compared with 66.9% for determining fetal presentation. There is a critical need to improve the training system of skilled birth attendants, to provide technically competent birth attendants.
Bloom 2001[20]	Cross-sectional household survey	Probability sample of 300 poor to middle-income households.	Urban Varanasi, Uttar Pradesh	Women's autonomy, as measured by the extent of a woman's freedom of movement, appears to be a major determinant of maternal health care utilization among poor to middle-income women in a large urban area of Uttar Pradesh. This effect is largely independent of socio-demographic factors.
Bogren 2012[21]	Cross-sectional survey	One educator, one regulator, and one representative of the midwifery association from each of the six countries	Afghanistan, Bangladesh, Bhutan, India, Nepal, and Pakistan	In all countries, except Bhutan, the ICM definition of midwife was not officially recognized. Main recommendations for improving formal midwifery education across the countries were development of legislation, strengthened formal midwifery education, strengthened professional value, and an improved learning environment.

(Continues)

TABLE 3 (Continued)

Study	Study methods	Participants	Setting	Main findings
Chaturvedi 2014[22]	Cross-sectional testing using clinical vignettes	233 birth attendant nurses at 73 facilities, with a birth rate of 10 or more deliveries a month.	Madhya Pradesh	Urgent efforts are required to effectively increase the competence of birth attendants at managing obstetric complications in order to translate into large gains due to increased coverage of institutional delivery services. The mean emergency obstetric care (EmOC) competence score was 5.4 (median = 5) on a total score of 20, and 75% of participants scored below 35% of the maximum score. The overall score, although poor, was marginally higher in respondents with Skilled Birth Attendant (SBA) training, those with general nursing and midwifery qualifications, those at higher facility levels, and those conducting > 30 deliveries a month. In all, 14% of respondents were competent at assessment, 58% were competent at making a correct clinical diagnosis, and 20% were competent at providing first-line care.
Iyengar 2009[23]	Service evaluation based on data from two midwife-led (both ANM and GNM) health centers over nine years from January 2000 to December 2008.	2771 women in labor and 20 maternal emergencies who were not in labor attended by nurse-midwives.	Rajasthan	Trained nurse-midwives can significantly improve access to skilled maternal and neonatal care in rural areas and manage maternal complications with and without the need for referral. Protocols must acknowledge that some families might not comply with referral advice.
Jha 2017[24]	Cross-sectional survey	1004 women with uncomplicated birth	Chhattisgarh	Among women having vaginal birth (VB), interacting with care providers, being able to maintain privacy, and being free from fear of childbirth had a positive influence on overall satisfaction with the childbirth. Among women having cesarean birth (CB), earning their own salary and having a positive perception of self-health had associations with overall birth satisfaction. Improving interpersonal interaction with nurse-midwives and ensuring privacy during childbirth and hospital stay are recommended first steps to improve women's childbirth satisfaction.
Joshi 2016[25]	Cross-sectional survey	196 postnatal mothers	Uttarakhand	52.93% of mothers utilized MCH services. Out of these services, the most highly utilized MCH service was JSY, that is, cost benefits (82.7%) and institutional delivery (81.6%). The low utilized services by mothers were family planning services (18.36%). Utilization of maternal health services is inadequate in hilly areas in general.

(Continues)

TABLE 3 (Continued)

Study	Study methods	Participants	Setting	Main findings
Kavitha 2015[26]	Data from National Family Health Survey (NFHS)-3, India, the large-scale survey conducted in 2005-2006	109 041 households and 124 385 ever-married women in the age group 15-49	Country as a whole	Young maternal age has adverse effect on the utilization of maternal health care services in India in both urban and rural areas. Indicators of use of maternal health care services were as follows: three or more antenatal checkups; two or more tetanus toxoid injections and taking 100 iron and folic acid tablets during pregnancy; institutional delivery; qualified personnel at delivery; and utilization of postnatal care services.
Kesterton 2010[27]	Data from two national representative sample National Family Health Surveys	Sample of ever-married women aged 15-49 years in 1992-3 (NFHS-1: n = 98 777) and repeated in 1998-9 (NFHS-2: n = 90 303).	Country as a whole	Economic status emerges as a more crucial determinant than access. Economic status is also the strongest influence on the choice between a private-for-profit or public facility among institutional births. Thus, greater availability of obstetric services will not alone solve the problem of low institutional delivery rates.
Kumar 2014[28]	Cross-sectional survey	333 health care providers (of which 114 were auxiliary nurses and midwives)	Delhi	Overall job satisfaction level was relatively low in both regular and contract staff. The factors contributing to satisfaction level were privileges, interpersonal relations, working environment, patient relationship, the organization's facilities, career development, and the scarcity of human resources.
Kumar 2016[29]	Same study above	Same study above	Same study above	Appropriate changes are required in the predictors of organizational commitment and factors responsible for satisfaction in the organization to keep the contractual human resource motivated and committed to the organization.
Lim 2010[30]	Data from the National Family Health Surveys (2002-04 and 2007-09)	620 107 households (about 1000 in each of 593 districts) from 2002-04 survey. 720 320 households (1000-1500 from each of 611 districts from 2007-09 survey.	Country as a whole	Implementation of JSY conditional cash transfer program in 2007-08 was highly variable by state—from less than 5% to 44% of women giving birth receiving cash payments from JSY. The poorest and least educated women did not always have the highest odds of receiving JSY payments. JSY had a significant effect on increasing antenatal care and in-facility births. Although the findings are encouraging, they also indicate the need for improved targeting of the poorest women and attention to quality of obstetric care in health facilities.
Matthews 2005[39]	Longitudinal survey	388 women followed through delivery and traditional postpartum period	Karnataka, southern India	Perceived quality of care was found to be an important factor in health seeking behavior, as was wealth, caste, education, and experience of previous problems in pregnancy. Those women who experienced inadequate progression of labor pains during a home birth were most likely to proceed unexpectedly to a hospital delivery at a government-run primary health center or hospital. Actual care given by a range of practitioners was found to contain both beneficial and undesirable elements.

(Continues)

TABLE 3 (Continued)

Study	Study methods	Participants	Setting	Main findings
Pallikadavath 2004[31]	Cross-sectional survey. Data from the 1998-1999 National Family Health Survey	90 303 ever-married women aged 15-49	26 states comprising 99% of India's population	Pregnant women from poor and uneducated backgrounds with at least one child were the least likely to receive antenatal checkups and services in the four large north Indian states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) with high MMR. There was significant under-utilization of nurse/midwives in the provision of antenatal services, and doctors were often the lead providers.
Pricilla 2017[32]	Prospective cohort study	200 pregnant women who had antenatal care by nurse-midwives	Urban Health Centres in India	Trained nurse-midwives when regularly monitored, audited, and linked with reliable referral facilities can deliver good quality antenatal care. We report that the quality of antenatal care for all domains was above 90% except for the health education domain, which was poor with regard to breastfeeding and family planning.
Purohit 2017[32]	Cross-sectional survey	84 auxiliary nurse-midwives	Gujarat	Results suggest that ANMs frequently feel that they do not have adequate amount of resources, facilities, and financial support from the high-level authorities; people have too many expectations from their roles, and as a result, they are overloaded with work and have very limited opportunities for future growth.
Raj 2017[40]	Cross-sectional survey	2639 women who delivered at 68 public health facilities	Uttar Pradesh	Efforts to improve quality of maternal care should include greater training and monitoring of providers to ensure respectful treatment of patients.
Sharma 2015[8]	Cross-sectional survey	633 final-year students (Diploma in General Nursing and Midwifery (GNM) and B.Sc. Nursing programs) from 25 educational institutions	Gujarat	The preservice education offered in the diploma and bachelor's programs does not prepare confident SBAs, as measured on selected midwifery competencies of the ICM. One of the underlying reasons was less clinical experience during their education. The duration, content, and pedagogy of midwifery education within the integrated programs need to be reviewed. Overall, 25%-40% of students scored above the 75th percentile and 38%-50% below the 50th percentile of confidence in all subscales for antepartum, intrapartum, postpartum, and newborn care. The majority had not attended the required number of births prescribed by the Indian Nursing Council.
Sharma 2018[34]	Same study above	Same study above	Same study above	Students of the general nursing and midwifery (GNM) program have higher confidence in skills for antepartum, intrapartum, newborn, and postpartum care. One important reason is more hands-on clinical practice for the diploma compared with the BSc students.

(Continues)

TABLE 3 (Continued)

Study	Study methods	Participants	Setting	Main findings
Singh 2012[35]	Data from the National Family Health Survey (2005-06)	23 955 women were in the age group 15-19 years.	Country as a whole	The present study documents several socioeconomic and cultural factors affecting the utilization of maternal health care services among rural adolescent women in India. Muslim women, and women belonged to Scheduled Castes, Scheduled Tribes, and other groups of lower social status are less likely to use safe delivery services. Additionally, adolescent women from the southern region utilize more maternal health care services than the other regions. The ongoing health care programs should start targeting households with married adolescent women belonging to poor and specific sub-groups of the population in rural areas to address the unmet need for maternal health care service utilization.
Singh 2012[36]	Data from the National Family Health Survey (2005-06)	Representative sample of about 124 385 ever-married women in the age group 15-49, who were captured in two phases from 29 states of India.	Country as a whole	Findings suggest that the utilization of maternal and child health care services among adolescent women is far from satisfactory in India. A little over 10% of adolescent women utilized antenatal care, about 50% utilized safe delivery services, and about 41% of the children of adolescent women received full immunization. Large differences by urban-rural residence, educational attainment, religion, economic status, and region were evident.
Singh 2014[37]	Data from the third wave of District-Level Household Survey (2007-08)	3315 adolescent women living in urban areas	Country as a whole	About 22.9% of mothers have received full antenatal care; 65.1% of mothers have had at least one postnatal checkup within 42 days of pregnancy. The proportion of mothers having a safe delivery, that is, assisted by skilled personnel, is about 70.5%. Findings indicate that there is considerable amount of variation in use of maternity care by educational attainment, household wealth, religion, parity, and region of residence. Receiving full antenatal care, and a safe delivery are both significantly associated with mother's education, religion, caste, household wealth, parity, exposure to health care messages, and region of residence. The use of postnatal care is associated with household wealth, woman's education, full antenatal care, safe delivery care, and region of residence.
Singh 2016[38]	Cross-sectional survey. Data from the 2007-2008 District-Level Household Survey	18 068 health sub-centers (HSC)	Rural India	To improve maternal health care utilization at HSCs, the government should ensure the availability of basic infrastructure, drugs, and equipment at all locations. Monitoring of the ANMs' work by Village Health and Sanitation Committees (VHSCs) could play an important role in improving health care utilization at the HSCs; therefore, it is important to establish VHSCs in each sub-center in villages.
Qualitative studies				

(Continues)

TABLE 3 (Continued)

Study	Study methods	Participants	Setting	Main findings
Ager 2005[41]	Interview study	219 available householders (men or women) across 66 villages	Orissa	Key factors guiding patterns of utilization were reputation of the provider, cost, and physical accessibility. Local health provision through auxiliary nurse-midwives and male health workers was generally perceived of poor quality, with the lowest rates of resolution of health problems of all service providers. The location of a sub-center base for assistant nurse-midwives within a village had no demonstrable impact on access to services.
Bhate-Deosthali 2011[42]	Interview and observation study	261 owners or senior staff of small private hospitals	Maharashtra	Of 261 hospitals, 146 provided maternity services yet 137 did not have a qualified midwife, and though most claimed they provided emergency care, including cesarean, only three had a blood bank and eight had an ambulance. There is a need to enforce existing regulations and collect information on health outcomes and quality of care before the state involves these hospitals further in provision of maternity care.
Jolivet 2018[43]	Interview study	Thirteen care providers (physicians, auxiliary nurse-midwives, administrators), 29 pregnant women, and 9 support people (eg, mother, mother-in-law, husband)	Vadodara city, Gujarat	Introducing group ANC would be feasible and acceptable to stakeholders from various care delivery settings, including an urban primary health clinic, a community-based mother and child health center, and a private hospital, in urban India.
Nagarajan 2016[44]	Interview study	Health care providers (auxiliary nurse-midwives, data entry operators) and clients in 12 sub-centers and two primary health centers	Shahzadpur block of Ambala district, Haryana	Lack of appropriate training, overburdened data entry operator and auxiliary nurse-midwife, poor Internet connectivity, slow server speed, and frequent power failures were revealed as major limitations for the effective implementation of a Mother and Child Tracking System.
Sharma 2013[15]	Interview study, Grounded theory	Twenty-eight service providers (obstetricians, physicians, staff nurses—diploma-level nurse-midwives—from the maternity sections of public health facilities.	Gujarat	The midwifery practice of staff nurses was limited in scope compared with international standards of midwifery. Their practice was circumstance driven, not legally defined, but they were not specifically prohibited from practice. They faced loss of skills, and deskilling when their practice was restricted. Their practice was perceived as risky, when the scope of practice was extended because it was not rightfully endorsed.
Vidler 2016[45]	Interview and focus group study	23 focus groups with 48 auxiliary nurse-midwives/staff nurses; 53 Accredited social health activists; 27 community leaders; 12 medical officers; and 132 women of reproductive age. 12 interviews with medical officers; private consultants; senior health administrator; district health officers; and obstetricians.	Karnataka	Factors that influenced women's care-seeking included their limited autonomy, poor access to and funding for transport for nonemergent conditions, perceived poor quality of health care facilities, and the costs of care.

(Continues)

TABLE 3 (Continued)

Study	Study methods	Participants	Setting	Main findings
Mixed-methods studies				
Hagopian 2012[46]	Case study of health staffing levels	6 of 22 blocks and 18 facilities within the blocks: 24 interviews with physicians, staff nurses, lady health visitors, and laboratory technicians	Ganjam (southern coastal) Orissa state	To properly serve the study population, the health workforce supply should be enhanced by 43 additional physicians, 15 nurses, and 80 nurse-midwives. Authors state "These numbers probably underestimate the need, as they are added across all 18 service areas, which is unrealistic in that it assumes no geographic barriers. The only over-staffed category is lady health visitors, who number about 2.4 times more than needed across the 18 areas."

Difficulties in physical accessibility, excessive cost of services, lack of transport, and low women's autonomy were all associated with constraints to women's use of services.[20,45] Two studies highlighted the importance of respectful care and interpersonal skills[24,40] in improving women's satisfaction. Socio-demographic characteristics associated with maternity service utilization included maternal age, mother's education, religion, caste, household wealth, parity, and exposure to health care messages.[35,36] Kesterton et al[27] reported that economic status is a stronger determinant of service use than access and concluded that availability of maternity services alone without addressing quality and financial barriers would not tackle low institutional delivery rates. Lim et al[30] analyzed the JSY program and found increased uptake of antenatal care and facility births; they emphasized the need for improved targeting of the poorest and least educated women and attention to quality of obstetric care in health facilities to increase its success.

A significant component of quality maternal and newborn care is the availability of adequate resources,[13] including competent human resources and the physical work infrastructure. Five studies highlighted this aspect.[28,29,33,38,42] Singh[38] identified the lack of availability of basic infrastructure, drugs, and equipment in 18 068 health sub-centers in rural areas, whereas Bhate-Deosthali[42] reported that of 146 hospitals in Maharashtra state providing emergency services, including cesarean, only three had a blood bank and eight had an ambulance. Poor facilities and resources were found to impact staff job satisfaction, stress, morale, and motivation.[28,29,33] Lack of data and obstacles to data collection on health outcomes and quality of care were further barriers.[42,44]

4 | DISCUSSION

Major barriers found in this review were poor quality of education, including preservice and in-service training, lack of supervision, constraints to deployment of a cadre of professional midwives, lack of recognition of midwives as an autonomous profession, and lack of appropriate roles to enable them to work to their full scope of practice. Regarding service provision, barriers included lack of access and quality of some services, poor work environments, lack of motivation and confidence due to uncertain employment, and lack of equipment and supplies. Other issues concerned barriers to uptake of services, including lack of autonomy of women, lack of access to transportation, and cost.

This review provides evidence of the existing gaps in quality competency-based midwifery education, training, and service provision and serves as a baseline on which to build a strong, newly formed cadre of midwives in India. Findings from this review suggest that in order to realize the significant potential of implementing professional midwifery

TABLE 4 Studies mapped to the Lancet Series QMNC Framework

Practice categories	Education Information Health Promotion	Assessment screening care planning	Promoting normal processes, preventing complications	First-line management of complications	Management of serious complications
	Agrawal[18] Kavitha[26] Matthews[39] Pallikadavath[31] Pricilla[32] Singh[37] Bhate-Deosthali[42]	Matthews[39] Iyengar[23]	Agrawal[18] Kavitha[26]	Chaturvedi[22] Iyengar[23]	No studies
Organisation of care					
Available, accessible good quality services – adequate resources, competent workforce. Continuity, services integrated across community and facilities					
Agrawal [18] Bloom[20] Bogren[21] Chaturvedi[22] Iyengar [23] Joshi[25] Kavitha[26] Kesterton[27] Kumar[28] Kumar[29] Lim[30] Matthews[39] Pallikadavath[31] Pricilla[32] Purohit[33] Sharma[8] Sharma[34] Singh[36] Singh[35] Singh[37] Singh[38] Ager[41] Bhate-Deosthali[42] Jolivet[43] Nagarajan[44] Vidler[45]					
Values					
Respect, communication, community knowledge and understanding. Care tailored to women's needs and circumstances					
Jha[24] Kavitha[26] Lim[30] Raj[40]					
Philosophy					
Optimising biological, psychological, social and cultural processes; strengthening women's capabilities. Expectant management, using interventions only when indicated.					
Matthews[39] Jolivet[43]					
Workforce					
Practitioners who combine clinical knowledge and skills with interpersonal and cultural competence.					
Agrawal[18] Agrawal[19] Bali[9] Bogren[21] Chaturvedi[22] Iyengar[23] Jha[24] Kumar[28] Kumar[29] Pallikadavath[31] Pricilla[32] Purohit[33] Raj[40] Sharma[8] Sharma[34] Singh[38] Sharma[15] Hagopian[46]					

services in India, action needs to be taken on several fronts. There is an urgent need for midwives educated to international standards, licensed, and regulated accordingly. In India, with a projected 35 million births per annum by 2030,[1] this is an urgent and critical undertaking. Current nurse-midwifery education courses lack adequate midwifery training, and there is a need for hands-on clinical experience, without which midwives will lack the competence and confidence to function as autonomous practitioners. The quality of midwifery education programs needs to be enhanced to meet international standards.[47] This is likely to depend on nurse and medical educators and/or on midwifery educators trained in other countries until there are sufficient numbers of nationally qualified midwifery faculty. A more feasible approach could be to strengthen the midwifery component in BSc and GNM courses currently taught, paired with continuing, on-the-job mentoring to ensure a steady supply of well-trained nurse-midwives flowing into the health system. A stepwise approach to reach international standards would require that midwifery program leads be qualified midwifery teachers and that midwifery faculty are legally recognized as self-governing and responsible for developing and leading the curriculum.[47] Consideration could also be given to providing opportunities for interprofessional learning which has been suggested to increase efficient and collaborative teamwork, especially in remote and rural areas.[48] Interprofessional involvement and effective referral to higher level facilities for women and newborns experiencing emergency complications are critical to provide a continuum of care that covers emergencies beyond the scope of midwifery care, and which ensures optimal maternal and neonatal outcomes.

Studies from Bangladesh support these findings.[49-54] In 2008, the government of Bangladesh made a commitment to educate and deploy 3000 midwives as a strategy to reduce maternal and neonatal mortality.[55] Many other countries in South Asia are looking to emulate this professional midwifery model to improve maternal and neonatal outcomes. Experience in Bangladesh suggests, however, that training sufficient midwives will not have the desired impact if consideration is not given to how they are deployed, including ongoing professional development.[21] Similar initiatives in India to introduce professional midwives have not been sustained due to a lack of recognition and job opportunities.[56] The creation of funded posts for professional midwives in the public sector is required, and other members of the multi-disciplinary team need to understand the role, expertise, and scope of practice of midwives.[14]

Advocacy is also needed to increase awareness in communities about the availability of skilled midwives and to promote their acceptance as caregivers throughout pregnancy, childbirth, and the postpartum period with reliable referral in case of complications. Without this, the scope of practice of the new cadre of professional midwives in India may be

TABLE 5 Studies mapped to WHO standards for improving quality of maternal and newborn care in health facilities

Standard 1 *Routine evidence-based care and management of complications during labour, childbirth and early postnatal period according to WHO guidelines.*	Agrawa[18] Chaturvedi[22] Iyengar[23] Joshi[25] Kavitha[26] Kesterton[27] Lim[30] Matthews[39] Pallikadavath[31] Pricilla[32] Singh[36] Singh[35] Singh[37] Ager[41] Bhate-Deosthali[42] Vidler[45]
Standard 2 *The health information system enables use of data to ensure early appropriate action to improve the care of every woman and newborn.*	Bhate-Deosthali[42] Nagarajan[44]
Standard 3 *Every woman and newborn with condition(s) that cannot be dealt with effectively with the available resources is appropriately referred.*	Iyengar[23] Matthews[39]
Standard 4 *Communication with women and their families is effective and responds to their needs and preferences.*	Jha[24]
Standard 5 *Women and newborns receive care with respect and preservation of their dignity.*	Jha[24] Raj[40]
Standard 6 Every woman and her family are provided with emotional support that is sensitive to her needs and strengthens the woman's capabilities	No studies
Standard 7 *Competent and motivated staff are consistently available to provide routine care and manage complications.*	Agrawal[18] Agrawal[19] Bali[9] Bloom[20] Bogren[21] Chaturvedi[22] Kumar[28] Kumar[29] Matthews[39] Pallikadavath[31] Purohit[33] Raj[40] Sharma[8] Sharma[34] Singh[38] Ager[41] Bhate-Deosthali[42] Sharma[15] Hagopian[46]
Standard 8 *Appropriate physical environment with adequate water, sanitation and energy supplies, medicines, supplies and equipment for routine maternal and newborn care and management of complications.*	Kumar[28] Kumar[29] Purohit[33] Singh[38] Bhate-Deosthali[42] Vidler[45]

limited or there may be unrealistic expectations leading to high levels of stress and burnout—both of which will impact recruitment, retention, and provision of quality care.[14] There are several actions that can mitigate these challenges: introduction of interprofessional learning at preservice and continuing professional development levels; continued mentoring and support of midwives after qualification; and embedding midwives in the health system with clear lines of responsibility and accountability.[13]

The findings of our review indicate challenges related to access, coverage, and quality of services. While there was a focus on labor and birth, other specific services mentioned in studies included family planning services, antenatal care, and health education. There was limited focus on postnatal care. Renfrew et al[13] highlighted the importance of midwifery care across the continuum of care from preconception to beyond the postnatal period, and Homer et al[12] found that the inclusion of family planning services significantly increased the potential of midwifery to reduce maternal and newborn mortality. Other issues in our review related to quality of care were as follows: lack of respectful care, poor quality of communication between service providers and service users, and lack of resources such as equipment and supplies. Therefore, considerable investment in the entire gamut of health services strengthening is indicated. Our findings suggest inequity in service use based on socio-demographic characteristics such as age, education, household income, and rurality. Kesterton et al[27] have suggested that economic status is a stronger determinant of service use than access to services. As such, measures that provide high-quality midwifery services must be accompanied by reductions in financial inequities.

One of the strengths of our review is that we mapped the findings of studies against two global evidence-informed frameworks. This enabled us not only to highlight the key barriers and enablers, but also to identify gaps in the literature. In terms of the Lancet Series' framework for quality maternal and newborn care,[13] there was little evidence from studies in India relating to optimizing biological, psychological, social, and cultural processes, strengthening women's capabilities, or on continuity of care, and respectful care or communication. An important gap in the review related to the WHO standards[17] was that there were no relevant findings regarding emotional support. There was also very little evidence related to functional referral systems and effective communication. Research is therefore needed in these areas to provide baseline information and to enable the monitoring of progress on respectful maternity care. As India moves toward implementing an exclusive program of midwifery care

TABLE 6 Summary of barriers and facilitators to implementing high-quality midwifery services in India

Barriers	Facilitators
Availability of a competent and motivated workforce available to provide routine care and manage complications	
• Lack of qualified midwives. • Inadequate training, lack of knowledge, skills, and competence of skilled birth attendants. • Qualification of midwifery teachers not specific to midwifery (ie, nurses).	• Availability of quality diploma and bachelor midwife preservice training programs with adequate supervised clinical training. • More hands-on clinical practice during in-service training programs (eg, virtual classroom skills training). • Supervision and monitoring of staff.
Provision of high-quality midwifery care	
• Lack of midwives trained to international standards (ICM) • Lack of legislation recognizing midwifery as an autonomous profession. • Midwives' skills not utilized to their full potential (eg, doctors as lead professional in antenatal care). • Limited scope of practice can lead to loss of skills. • Unrealistic expectations and high workload. • Limited opportunities for professional deployment, development, and promotion.	• Division of roles and responsibilities based on competence and available resources. • Good referral systems for continuum of care during pregnancy and childbirth • Interprofessional learning to increase team working. • Trained midwives to improve access to skilled maternal and newborn care in rural areas. • Telehealth and Internet-based initiatives for referral and to provide continuing professional development.
Availability, accessibility and acceptability and quality of care	
• High out-of-pocket expenses even with JSY and JSSK • Lack of 24-hour well-equipped and staffed facilities • Geographic barriers, for example, hilly or tribal areas • Lack of transport. • Women's low autonomy to seek care. • Women's lack of education. • Low economic status.	• Women's positive perceptions of quality of care and good reputation of the provider. • Respectful care and good interpersonal skills. • Targeted conditional cash transfer to reach the poorest and least educated women
Human resources and physical environment	
• Lack of adequate number of trained professionals at all levels (doctors, nurses, assistants/ANMs, cleaners etc) • Lack of basic infrastructure, drugs and equipment and transport, especially in rural areas • Lack of efficient data collection and data on health outcomes due to several limitations	• Adequate basic infrastructure, health personnel, drugs and equipment, and transport in all areas • Systems in place to collect data on health outcomes

by professionally competent midwives trained to international standards, there is an imperative to conduct rigorous implementation studies to ensure women, babies, and families receive high-quality care.

This is the first review to focus specifically on studies conducted in India. It is encouraging that we found a relatively large number of studies. It is also encouraging that a significant proportion of the evidence involves studies that included national or regional population samples, thus increasing the generalizability of the findings.

Limitations are that, because India does not have a cadre of professional midwives educated to international standards, the studies focused on a range of health care providers including ANMs and GNMs, community health workers, and a range of other provider types. The overall quality of the included studies was mixed. Fewer than half the quantitative studies were assessed as low risk across all domains, and only two qualitative studies were assessed as of strong quality. It should also be noted that very few of these studies were prospective in nature and that most were cross-sectional. Nevertheless, the literature that is available from India can meaningfully inform policy and practice regarding pathways toward the development of a midwifery cadre delivering high-quality midwifery services.

ACKNOWLEDGMENTS

The study was conducted in collaboration with Ministry of Health and Family Welfare, Government of India. The research team acknowledges the technical support provided by Dr Kasonde Mwinga, Team Lead RMNCAH, and Dr Paul Francis, Planning Officer, WHO India Office

ORCID

Alison McFadden https://orcid.org/0000-0002-5164-2025

REFERENCES

1. UNFPA. *The State of the World's Midwifery 2014: A Universal Pathway. A Woman's Right to Health*. New York, NY: UNFPA; 2014.

2. Office of the Registrar General & Census Commissioner. Chapter 4: Estimates of mortality indicators. 2017. http://www.censusindia.gov.in/vital_statistics/SRS_Report_2017/11.%20Chap%204-Estimates%20of%20Mortality%20Indicators-2017.pdf. Accessed September 02, 2019
3. Ministry of Health and Family Welfare. *Guidelines on Midwifery Services in India*. New Delhi: Ministry of Health and Family Welfare, Government of India; 2018.
4. WHO. What is the Quality of Care Network? 2020. https://www.who.int/maternal_child_adolescent/topics/quality-of-care/network/en/. Accessed February 18, 2020
5. WHO. *Quality, Equity, Dignity: The Network to Improve Quality of Care for Maternal, Newborn and Child Health – Strategic Objectives*. Geneva: World Health Organization; 2018.
6. Chaturvedi S, De Costa A, Raven J. Does the Janani Suraksha Yojana cash transfer programme to promote facility births in India ensure skilled birth attendance? A qualitative study of intrapartum care in Madhya Pradesh. *Global Health Action*. 2015;8(1):27427.
7. Randive B, Diwan V, De Costa A. India's conditional cash transfer programme (the JSY) to promote institutional birth: is there an association between institutional birth proportion and maternal mortality? *PLoS One*. 2013;8(6):e67452.
8. Sharma B, Hildingsson I, Johansson E, Prakasamma M, Ramani K, Christensson K. Do the pre-service education programmes for midwives in India prepare confident 'registered midwives'? A survey from India. *Global Health Action*. 2015;8(1):29553.
9. Bali S, Reddy VB. Evaluation of competency and skills of skilled birth attendants in Madhya Pradesh, central India. *Indian J Public Health*. 2018;62(1):61.
10. Munabi-Babigumira S, Glenton C, Lewin S, Fretheim A, Nabudere H. Factors that influence the provision of intrapartum and postnatal care by skilled birth attendants in low-and middle-income countries: a qualitative evidence synthesis. *Cochrane Database Syst Rev*. 2017(11).
11. Harvey SA, Blandón YCW, McCaw-Binns A, et al. Are skilled birth attendants really skilled? A measurement method, some disturbing results and a potential way forward. *Bull World Health Organ*. 2007;85:783-790.
12. Homer CS, Friberg IK, Dias MAB, et al. The projected effect of scaling up midwifery. *Lancet*. 2014;384(9948):1146-1157.
13. Renfrew MJ, McFadden A, Bastos MH, et al. Midwifery and quality care: findings from a new evidence-informed framework for maternal and newborn care. *Lancet*. 2014;384(9948):1129-1145.
14. Filby A, McConville F, Portela A. What prevents quality midwifery care? A systematic mapping of barriers in low and middle income countries from the provider perspective. *PLoS One*. 2016;11(5):e0153391.
15. Sharma B, Johansson E, Prakasamma M, Mavalankar D, Christensson K. Midwifery scope of practice among staff nurses: a grounded theory study in Gujarat, India. *Midwifery*. 2013;29(6):628-636.
16. Sandelowski M, Barroso J. Classifying the findings in qualitative studies. *Qual Health Res*. 2003;13(7):905-923.
17. WHO. *Standards for Improving Quality of Maternal and Newborn Care in Health Facilities*. Geneva: WHO; 2016.
18. Agrawal PK, Agrawal S, Ahmed S, et al. Effect of knowledge of community health workers on essential newborn health care: a study from rural India. *Health Policy Plan*. 2011;27(2):115-126.
19. Agrawal N, Kumar S, Balasubramaniam SM, et al. Effectiveness of virtual classroom training in improving the knowledge and key maternal neonatal health skills of general nurse midwifery students in Bihar, India: a pre-and post-intervention study. *Nurse Educ Today*. 2016;36:293-297.
20. Bloom SS, Wypij D, Gupta MD. Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city. *Demography*. 2001;38(1):67-78.
21. Bogren MU, Wiseman A, Berg M. Midwifery education, regulation and association in six South Asian countries–a descriptive report. *Sex Reprod Healthc*. 2012;3(2):67-72.
22. Chaturvedi S, Upadhyay S, De Costa A. Competence of birth attendants at providing emergency obstetric care under India's JSY conditional cash transfer program for institutional delivery: an assessment using case vignettes in Madhya Pradesh province. *BMC Pregnancy Childbirth*. 2014;14(1):174.
23. Iyengar K, Iyengar SD. Emergency obstetric care and referral: experience of two midwife-led health centres in rural Rajasthan, India. *Reprod Health Matters*. 2009;17(33):9-20.
24. Jha P, Larsson M, Christensson K, Skoog Svanberg A. Satisfaction with childbirth services provided in public health facilities: results from a cross-sectional survey among postnatal women in Chhattisgarh, India. *Global Health Action*. 2017;10(1):1386932.
25. Joshi P, Mahalingam G, Sorte D. Utilization of MCH services among the postnatal mothers in selected hilly areas of Pauri district Uttarakhand. *Int J Nurs Educ*. 2016;8(3):40-44.
26. Kavitha N. Are young mothers in India deprived of maternal health care services? A comparative study of urban and rural areas. *J Health Manag*. 2015;17(2):204-220.
27. Kesterton AJ, Cleland J, Sloggett A, Ronsmans C. Institutional delivery in rural India: the relative importance of accessibility and economic status. *BMC Pregnancy Childbirth*. 2010;10(1):30.
28. Kumar P, Khan AM, Inder D, Mehra A. A comparative study of job satisfaction among regular and staff on contract in the primary health care system in Delhi, India. *J Fam Commun Med*. 2014;21(2):112.
29. Kumar P, Mehra A, Inder D, Sharma N. Organizational commitment and intrinsic motivation of regular and contractual primary health care providers. *J Fam Med Prim Care*. 2016;5(1):94.
30. Lim SS, Dandona L, Hoisington JA, James SL, Hogan MC, Gakidou E. India's Janani Suraksha Yojana, a conditional cash transfer programme to increase births in health facilities: an impact evaluation. *Lancet*. 2010;375(9730):2009-2023.
31. Pallikadavath S, Foss M, Stones RW. Antenatal care: provision and inequality in rural north India. *Soc Sci Med*. 2004;59(6):1147-1158.
32. Pricilla RA, David KV, Siva R, Vimala TJC, Rahman SPM, Angeline N. Quality of antenatal care provided by nurse midwives in an Urban health centre with regard to low-risk antenatal mothers. *Indian J Community Med*. 2017;42(1):37.
33. Purohit B, Vasava P. Role stress among auxiliary nurses midwives in Gujarat, India. *BMC Health Serv Res*. 2017;17(1):69.
34. Sharma B, Hildingsson I, Johansson E, Christensson K. Self-assessed confidence of students on selected midwifery skills: Comparing diploma and bachelors programmes in one province of India. *Midwifery*. 2018;67:12-17.
35. Singh PK, Rai RK, Alagarajan M, Singh L. Determinants of maternity care services utilization among married adolescents in rural India. *PLoS One*. 2012;7(2):e31666.
36. Singh L, Rai RK, Singh PK. Assessing the utilization of maternal and child health care among married adolescent women: evidence from India. *J Biosoc Sci*. 2012;44(1):1-26.
37. Singh A, Kumar A, Pranjali P. Utilization of maternal healthcare among adolescent mothers in urban India: evidence from DLHS-3. *PeerJ*. 2014;2:e592.

38. Singh A. Supply-side barriers to maternal health care utilization at health sub-centers in India. *PeerJ*. 2016;4:e2675.
39. Matthews Z, Ramakrishna J, Mahendra S, Kilaru A, Ganapathy S. Birth rights and rituals in rural south India: care seeking in the intrapartum period. *J Biosoc Sci*. 2005;37(4):385-411.
40. Raj A, Dey A, Boyce S, et al. Associations between mistreatment by a provider during childbirth and maternal health complications in Uttar Pradesh, India. *Matern Child Health J*. 2017;21(9):1821-1833.
41. Ager A, Pepper K. Patterns of health service utilization and perceptions of needs and services in rural Orissa. *Health Policy Plan*. 2005;20(3):176-184.
42. Bhate-Deosthali P, Khatri R, Wagle S. Poor standards of care in small, private hospitals in Maharashtra, India: implications for public–private partnerships for maternity care. *Reprod Health Matters*. 2011;19(37):32-41.
43. Jolivet RR, Uttekar BV, O'Connor M, Lakhwani K, Sharma J, Wegner MN. Exploring perceptions of group antenatal Care in Urban India: results of a feasibility study. *Reprod Health*. 2018;15(1):57.
44. Nagarajan P, Tripathy JP, Goel S. Is mother and child tracking system (MCTS) on the right track? An experience from a northern state of India. *Indian J Public Health*. 2016;60(1):34.
45. Vidler M, Ramadurg U, Charantimath U, et al. Utilization of maternal health care services and their determinants in Karnataka State, India. *Reprod Health*. 2016;13(1):37.
46. Hagopian A, Mohanty MK, Das A, House PJ. Applying WHO's 'workforce indicators of staffing need' (WISN) method to calculate the health worker requirements for India's maternal and child health service guarantees in Orissa State. *Health Policy Plan*. 2011;27(1):11-18.
47. International Confederation of Midwives. Global Standards for Midwifery Education (2010) Amended 2013. 2013. https://www.internationalmidwives.org/our-work/policy-and-practice/global-standards.html. Accessed April 30, 2019
48. Ireland J, Bryers H, Van Teijlingen E, et al. Competencies and skills for remote and rural maternity care: a review of the literature. *J Adv Nurs*. 2007;58(2):105-115.
49. Akter M, Yimyam S, Chareonsanti J, Tiansawad S. The challenges of prenatal care for Bangladeshi women: a qualitative study. *Int Nurs Rev*. 2018;65(4):534-541.
50. Anwar I, Sami M, Akhtar N, et al. Inequity in maternal health-care services: evidence from home-based skilled-birth-attendant programmes in Bangladesh. *Bull World Health Organ*. 2008;86:252-259.
51. Blum LS, Sharmin T, Ronsmans C. Attending home vs. clinic-based deliveries: perspectives of skilled birth attendants in Matlab, Bangladesh. *Reprod Health Matters*. 2006;14(27):51-60.
52. Bogren M, Erlandsson K, Byrskog U. What prevents midwifery quality care in Bangladesh? A focus group enquiry with midwifery students. *BMC Health Serv Res*. 2018;18(1):639.
53. Chowdhury ME, Ronsmans C, Killewo J, et al. Equity in use of home-based or facility-based skilled obstetric care in rural Bangladesh: an observational study. *Lancet*. 2006;367(9507):327-332.
54. Chowdhury RI, Islam MA, Gulshan J, Chakraborty N. Delivery complications and healthcare-seeking behaviour: the Bangladesh Demographic Health Survey, 1999-2000. *Health Soc Care Community*. 2007;15(3):254-264.
55. Bogren MU, Wigert H, Edgren L, Berg M. Towards a midwifery profession in Bangladesh–a systems approach for a complex world. *BMC Pregnancy Childbirth*. 2015;15(1):325.
56. Rehnström U, Khanna R, Kar M. *Strengthening Midwifery and Emergency Obstetric Care (EmOC) Services in India*. Stockholm: Swedish International Development Cooperation Agency; 2010.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

How to cite this article: McFadden A, Gupta S, Marshall JL, et al. Systematic review of barriers to, and facilitators of, the provision of high-quality midwifery services in India. *Birth*. 2020;00:1–18. https://doi.org/10.1111/birt.12498