

Knowledge, Attitude and Practice Regarding Golden Hour and Factors Responsible for Delay in Breastfeeding Initiation during the Golden Hour

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Abstract: Background: Initiation of breastfeeding within one hour of birth supports early mother-infant contact, colostrum feeding and successful lactation. Despite favourable maternal beliefs, maternal, neonatal, cultural and health-system barriers may delay initiation. Objectives: To assess maternal knowledge, attitude and practice regarding golden-hour breastfeeding and identify factors independently associated with delayed initiation. Methods: A hospital-based cross-sectional analytical study included 400 consenting postpartum mothers with live, healthy newborns in the maternity wards of Sardar Patel Medical College and associated hospital, Bikaner, from October 2025 to March 2026. A pretested semi-structured questionnaire recorded sociodemographic and obstetric characteristics, knowledge, attitude, actual initiation time and potential barriers. Categorical associations were tested using the chi-square test, followed by multivariable logistic regression; $p < 0.05$ was significant. Results: Breastfeeding was initiated within one hour by 260 mothers (65.0%); 140 (35.0%) experienced delay. Knowledge that breastfeeding should begin within one hour and that colostrum is beneficial was reported by 72.0% and 76.0%, respectively. Immediate breastfeeding was considered beneficial by 81.0%, and 84.0% supported colostrum feeding. Skin-to-skin contact occurred in 62.0%, healthcare-worker assistance in 73.0%, and prelacteal feeding in 23.0%. Delay was more frequent among illiterate (57.1%), rural (41.7%) and primigravida mothers (45.3%), mothers of low-birth-weight newborns (52.8%), mothers without antenatal counselling (53.3%), and mothers who gave prelacteal feeds (60.9%). Independent predictors included prelacteal feeding (adjusted odds ratio [aOR] 3.56), poor knowledge (aOR 3.12), no antenatal counselling (aOR 2.65), illiteracy (aOR 2.18), rural residence (aOR 1.74) and primiparity (aOR 1.69). Conclusion: Maternal knowledge and attitude were generally favourable, but one-third of mothers did not initiate breastfeeding within the golden hour. Antenatal counselling, prevention of prelacteal feeding, immediate skin-to-skin contact and focused support for rural, less educated and first-time mothers should be embedded in maternity care.

Keywords: breastfeeding initiation; golden hour; knowledge; attitude; practice; postpartum mothers; prelacteal feeding

1. Introduction

Early initiation of breastfeeding, defined as placing the newborn to the breast within the first hour after birth, is a core maternal and newborn care practice recommended by the World Health Organization (WHO) and UNICEF [1,2]. This period, commonly called the breastfeeding golden hour, enables uninterrupted skin-to-skin contact, supports neonatal thermal and glucose regulation, promotes maternal oxytocin release and facilitates receipt of colostrum. Colostrum is rich in immunological and bioactive components that contribute to mucosal protection and early immune development [3,4]. Breastfeeding also provides substantial short- and long-term benefits for child survival, development and maternal health [5].

The timing of the first breastfeed is clinically important. Systematic reviews show that delayed initiation is associated with increased neonatal morbidity and mortality, with risk

rising as the delay becomes longer [6,7]. Nevertheless, initiation within one hour is not universal, even after institutional delivery. The gap may reflect maternal fatigue, pain, operative delivery, low birth weight, delayed mother-infant contact, inadequate counselling, staff constraints, prelacteal feeding, misconceptions about colostrum and family influence [8-10]. In India, knowledge and favourable attitude do not always translate into timely practice because maternity routines and social norms can interrupt immediate contact [9-12].

Understanding knowledge, attitude and practice together is therefore essential. Knowledge identifies awareness gaps; attitude reveals beliefs and readiness; practice documents what actually occurred. Examining these domains alongside maternal, neonatal, cultural and health-system factors can identify modifiable causes of delay. Evidence from a tertiary hospital serving urban, peri-urban and rural populations can guide focused antenatal counselling, delivery-room protocols,

family engagement and postnatal support. The present study assessed golden-hour breastfeeding among postpartum mothers at a tertiary care hospital in Bikaner and evaluated the factors associated with delayed initiation.

2. Aim and Objectives

Aim

- 1) To assess knowledge, attitude and practice regarding golden-hour breastfeeding and factors responsible for delayed initiation among postpartum mothers.
- 2) To determine maternal knowledge and attitude regarding initiation within one hour and colostrum feeding.
- 3) To measure actual breastfeeding-initiation practice and related maternity-care practices.
- 4) To identify maternal, neonatal, cultural and health-system factors associated with delay and determine independent predictors.

3. Materials and Methods

This hospital-based cross-sectional analytical study was conducted in the maternity wards of the Department of Obstetrics and Gynaecology, Sardar Patel Medical College and associated hospital, Bikaner, Rajasthan, from October 2025 to March 2026. The study population comprised postpartum mothers who delivered live newborns during the study period. Mothers with a live, healthy newborn who provided written informed consent were eligible. Mothers whose newborn required immediate neonatal intensive care, mothers with critical antenatal or postpartum illness requiring intensive care, congenital anomalies interfering with breastfeeding, stillbirth, or a maternal/neonatal contraindication to breastfeeding were excluded.

A sample of 400 mothers was recruited by convenience sampling. The minimum sample was estimated using $n = Z^2 pq/d^2$, assuming 58% prevalence of delayed initiation, 95% confidence and 5% absolute precision; the calculated value was approximately 390 and was rounded to 400. After explaining the study, trained investigators administered a pretested semi-structured questionnaire. It contained four sections: sociodemographic and obstetric characteristics; knowledge about the golden hour, colostrum, exclusive breastfeeding, prelacteal feeds and skin-to-skin contact; attitude toward early breastfeeding; and practice, including actual initiation time. Potential barriers were grouped as maternal, neonatal, healthcare-system, cultural and social factors. The dependent variable was breastfeeding initiation within or after one hour.

Data were entered in Microsoft Excel and analysed using frequencies, percentages and appropriate inferential statistics. Associations between categorical variables and delayed initiation were assessed by chi-square test. Variables of clinical or statistical relevance were entered into multivariable logistic regression to estimate adjusted odds ratios (aORs) with 95% confidence intervals (CIs). A p value <0.05 was considered significant. Institutional ethics approval was obtained before recruitment. Participation was

voluntary, confidentiality was maintained and no monetary incentive was provided. Potential limitations included recall, observer and social-desirability bias, convenience sampling, exclusion of critical cases and the single-centre design.

4. Results

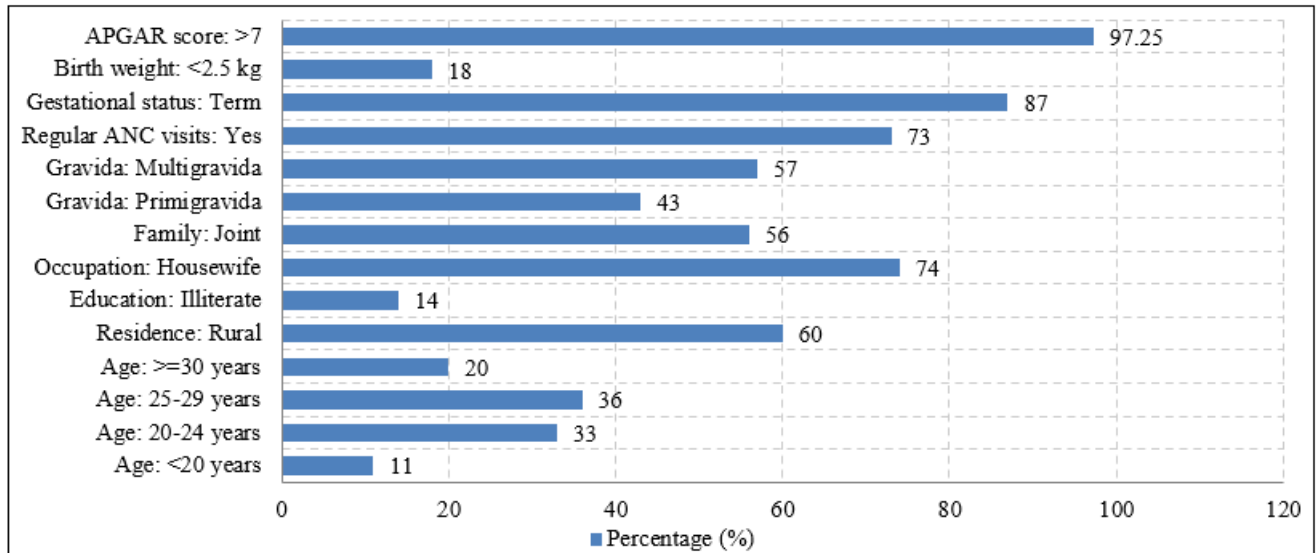
Among 400 postpartum mothers, 36.0% were aged 25-29 years, 60.0% lived in rural areas, 74.0% were housewives and 57.0% were multigravida. Regular antenatal care was reported by 73.0%; 87.0% delivered term newborns, while 18.0% of newborns weighed <2.5 kg (Table 1).

Knowledge was generally fair: 72.0% knew that breastfeeding should begin within one hour, 76.0% knew the benefits of colostrum, 63.0% knew the recommended duration of exclusive breastfeeding and 59.0% recognized the harm of prelacteal feeds (Table 2). Attitudes were favourable; 81.0% considered immediate breastfeeding beneficial, 84.0% supported colostrum feeding and 87.0% acknowledged the importance of family support. In practice, 260 mothers (65.0%) initiated breastfeeding within one hour and 140 (35.0%) experienced delay. Skin-to-skin contact occurred in 62.0%, rooming-in in 79.0%, healthcare-worker assistance in 73.0%, and prelacteal feeding in 23.0% (Table 3).

Delayed initiation was significantly more common among illiterate mothers (57.1%; $p=0.003$), rural residents (41.7%; $p=0.001$), primigravidae (45.3%; $p<0.001$), mothers of low-birth-weight newborns (52.8%; $p=0.001$), mothers without antenatal counselling (53.3%; $p<0.001$), those who gave prelacteal feeds (60.9%; $p<0.001$), and those reporting cultural practices or family pressure (Table 4). Timely initiation increased across knowledge categories: 33.3% among mothers with poor knowledge, 56.3% with average knowledge and 83.3% with good knowledge ($p<0.001$). In multivariable analysis, prelacteal feeding showed the strongest association with delay (aOR 3.56), followed by poor knowledge (aOR 3.12), absence of antenatal counselling (aOR 2.65), maternal illiteracy (aOR 2.18), rural residence (aOR 1.74) and primiparity (aOR 1.69) (Table 5).

Table 1: Selected sociodemographic and obstetric characteristics (N=400)

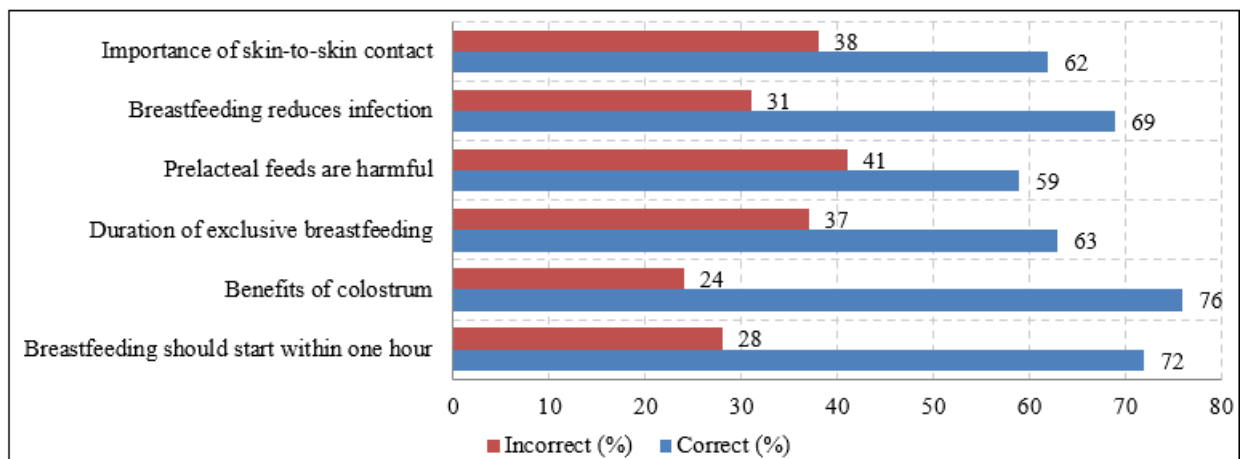
Variable	Category	n	%
Age	<20 years	44	11
Age	20-24 years	132	33
Age	25-29 years	144	36
Age	>=30 years	80	20
Residence	Rural	240	60
Education	Illiterate	56	14
Occupation	Housewife	296	74
Family	Joint	224	56
Gravida	Primigravida	172	43
Gravida	Multigravida	228	57
Regular ANC visits	Yes	292	73
Gestational status	Term	348	87
Birth weight	<2.5 kg	72	18
APGAR score	>7	389	97.25



Graph 1: Selected sociodemographic and obstetric characteristics (N=400)

Table 2: Knowledge regarding golden-hour breastfeeding (N=400)

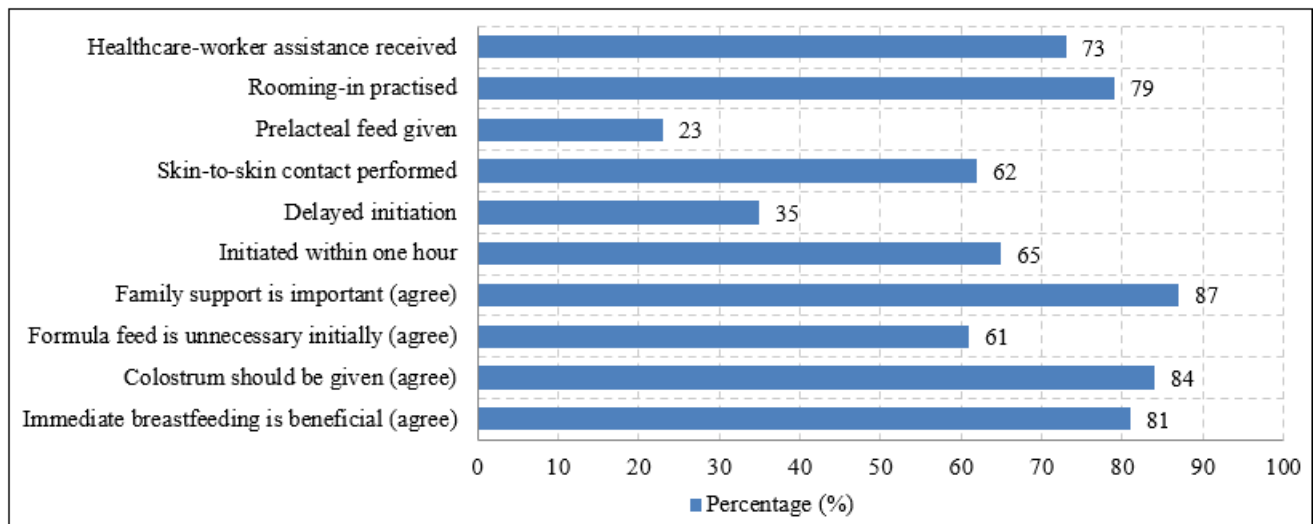
Knowledge item	Correct n (%)	Incorrect n (%)
Breastfeeding should start within one hour	288 (72.0)	112 (28.0)
Benefits of colostrum	304 (76.0)	96 (24.0)
Duration of exclusive breastfeeding	252 (63.0)	148 (37.0)
Prelacteal feeds are harmful	236 (59.0)	164 (41.0)
Breastfeeding reduces infection	276 (69.0)	124 (31.0)
Importance of skin-to-skin contact	248 (62.0)	152 (38.0)



Graph 2: Knowledge regarding golden-hour breastfeeding (N=400)

Table 3: Attitude and practice regarding early breastfeeding (N=400)

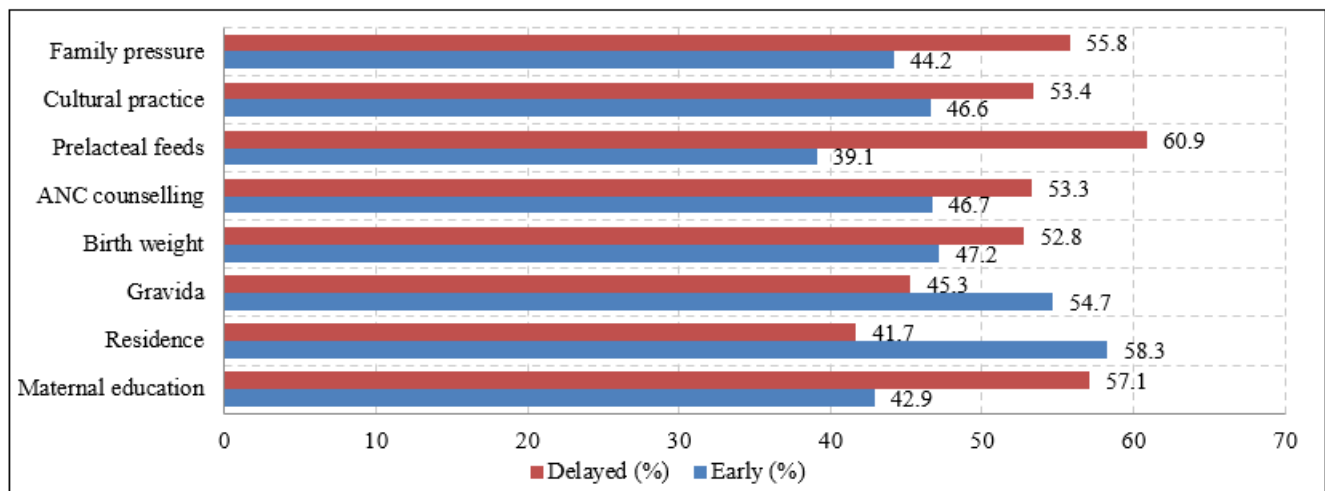
Domain	Indicator	n	%
Attitude	Immediate breastfeeding is beneficial (agree)	324	81
Attitude	Colostrum should be given (agree)	336	84
Attitude	Formula feed is unnecessary initially (agree)	244	61
Attitude	Family support is important (agree)	348	87
Practice	Initiated within one hour	260	65
Practice	Delayed initiation	140	35
Practice	Skin-to-skin contact performed	248	62
Practice	Prelacteal feed given	92	23
Practice	Rooming-in practised	316	79
Practice	Healthcare-worker assistance received	292	73



Graph 3: Attitude and practice regarding early breastfeeding (N=400)

Table 4: Factors associated with delayed initiation of breastfeeding (N=400)

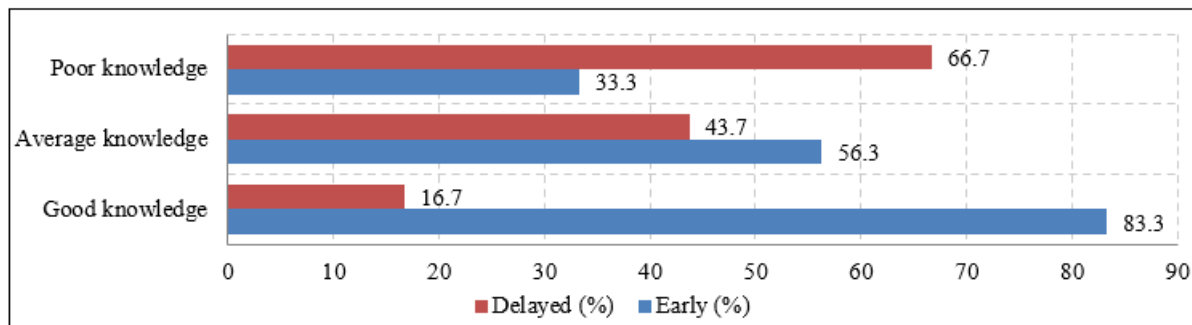
Factor	Higher-risk category	Early n (%)	Delayed n (%)	p value
Maternal education	Illiterate (n=56)	24 (42.9)	32 (57.1)	0.003
Residence	Rural (n=240)	140 (58.3)	100 (41.7)	0.001
Gravida	Primigravida (n=172)	94 (54.7)	78 (45.3)	<0.001
Birth weight	<2.5 kg (n=72)	34 (47.2)	38 (52.8)	0.001
ANC counselling	Not received (n=120)	56 (46.7)	64 (53.3)	<0.001
Prelacteal feeds	Given (n=92)	36 (39.1)	56 (60.9)	<0.001
Cultural practice	Present (n=116)	54 (46.6)	62 (53.4)	<0.001
Family pressure	Present (n=104)	46 (44.2)	58 (55.8)	<0.001



Graph 4: Factors associated with delayed initiation of breastfeeding (N=400)

Table 5: Knowledge-practice association and independent predictors of delayed initiation

Analysis	Category / predictor	Estimate	95% CI / delayed %	p value
Knowledge-practice	Good knowledge (n=180)	Early: 150 (83.3%)	Delayed: 16.7%	<0.001
Knowledge-practice	Average knowledge (n=160)	Early: 90 (56.3%)	Delayed: 43.7%	
Knowledge-practice	Poor knowledge (n=60)	Early: 20 (33.3%)	Delayed: 66.7%	
Adjusted model	Prelacteal feeding	aOR 3.56	2.07-6.12	<0.001
Adjusted model	Poor maternal knowledge	aOR 3.12	1.78-5.47	<0.001
Adjusted model	No ANC counselling	aOR 2.65	1.61-4.36	<0.001
Adjusted model	Maternal illiteracy	aOR 2.18	1.21-3.93	0.009
Adjusted model	Rural residence	aOR 1.74	1.08-2.79	0.023
Adjusted model	Primiparity	aOR 1.69	1.07-2.67	0.025



Graph 5: Knowledge-practice association and delayed initiation

5. Discussion

In this study, 65.0% of mothers initiated breastfeeding within one hour, whereas 35.0% experienced delay. Although 72.0% knew the recommended timing and more than four-fifths expressed favourable attitudes toward immediate breastfeeding and colostrum, practice remained lower than knowledge and attitude. This gap indicates that awareness alone cannot guarantee timely initiation when postpartum discomfort, separation, staff workflow, family influence or prelacteal feeding intervenes. Comparable knowledge-practice gaps have been reported among postnatal mothers in India and other low-resource settings [10-13].

Low birth weight and inadequate maternal knowledge have previously been associated with delayed initiation [9]. The present findings extend this pattern: low birth weight, illiteracy, rural residence and primigravida status were significantly associated with delay. First-time mothers may need hands-on positioning support and reassurance, while rural and less educated mothers may have less exposure to consistent antenatal messages. Importantly, mothers who received antenatal counselling had substantially less delay than those who did not, supporting repeated, practical counselling during pregnancy rather than a single information session.

Prelacteal feeding was the strongest independent predictor (aOR 3.56). Prelacteal feeds can postpone suckling, reflect misconceptions about colostrum and indicate influential family or cultural practices [11,14]. Poor knowledge and lack of antenatal counselling also remained strong predictors, demonstrating that modifiable educational and behavioural factors operate alongside sociodemographic vulnerability. Immediate skin-to-skin contact occurred in only 62.0%, leaving considerable scope for delivery-room improvement. Early skin-to-skin contact supports breastfeeding initiation and physiologic stability [8].

These findings favour a bundled response: repeated antenatal counselling, visible documentation of a golden-hour plan, uninterrupted skin-to-skin contact, rapid lactation assistance, avoidance of non-indicated prelacteal feeds and involvement of influential family members. Because this was a single-centre convenience sample excluding critically ill mothers and newborns, prevalence estimates may not generalize to high-risk deliveries or other settings; recall and social-desirability bias are also possible.

6. Conclusion

Maternal knowledge and attitude toward golden-hour breastfeeding were generally favourable, yet timely initiation was not universal: 35% of mothers experienced delay. The difference between awareness and actual practice shows that improving knowledge must be accompanied by dependable maternity-care processes. Prelacteal feeding, poor maternal knowledge and absence of antenatal counselling were the strongest independent predictors, while illiteracy, rural residence and primiparity also increased the likelihood of delay. These findings identify both vulnerable groups and modifiable barriers.

Antenatal services should deliver repeated, understandable counselling on initiation within one hour, colostrum and avoidance of prelacteal feeds, with family members included wherever possible. Labour rooms and postnatal wards should prioritize immediate uninterrupted skin-to-skin contact, early mother-newborn reunion, rooming-in and prompt practical assistance with positioning and attachment. First-time mothers, mothers of low-birth-weight newborns and women recovering from operative or difficult deliveries require proactive support rather than waiting for them to request help.

The golden hour should be monitored as a routine quality indicator, with delays documented by cause and reviewed by maternity teams. Multicentre prospective studies including high-risk mothers and newborns would improve generalizability and clarify institution-level barriers. Strengthening counselling and delivery-room support can narrow the knowledge-practice gap and improve early breastfeeding uptake.

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