

Early Initiation of Breastfeeding and Associated Maternal, Delivery, and Neonatal Factors: A Prospective Observational Study

Preeti Sharma¹, Chahat Sharma², Alok Raina³

¹Assistant Professor, Department of Pediatrics, Government Medical College, Udhampur, Jammu and Kashmir, India. ²Senior Resident, Department of Pediatrics, Government Medical College, Udhampur, Jammu and Kashmir, India. ³Consultant, Department of Pediatrics, Government Medical College, Udhampur, Jammu and Kashmir, India

Abstract

Background: Objectives: To find the prevalence of early initiation of breastfeeding and assess the association of maternal, delivery, and neonatal characteristics with delayed initiation of breastfeeding in postnatal mothers. **Material and Methods:** This prospective observational study, done in the postnatal ward of a tertiary care hospital for the period of 6 months from January to June 2026, included 99 mother–baby dyads who met the eligibility criteria. Sociodemographic and obstetric parameters, neonatal characteristics, breastfeeding practices, and reasons for delayed initiation were recorded at discharge using a structured proforma. Early initiation of breastfeeding was defined as initiation within one hour of birth. **Results:** Early initiation of breastfeeding was noted among 30 (30.30%) mothers, and delayed initiation in 69 (69.70%) mothers. Breastfeeding was initiated within 1 hour in 30 (30.30%), between 1–24 hours in 51 (51.52%), and after 24 hours in 18 (18.18%) mothers. Vaginal delivery showed a significant association with early initiation in comparison with cesarean delivery (76.67% vs. 55.07%; $p=0.042$). Moreover, breastfeeding counselling showed a significant positive impact on early breastfeeding (63.33% vs 26.09%, $p=0.0004$). Maternal age, residence, education, parity, antenatal visits, neonatal sex, gestational age, birth weight, and APGAR score showed no significant association with breastfeeding initiation. **Conclusion:** Early initiation of breastfeeding was suboptimal in 30.3% cases. Vaginal mode of delivery and breastfeeding counselling were significantly associated with early breastfeeding initiation. Strengthening antenatal breastfeeding counseling, facilitating vaginal deliveries and improving post-cesarean lactation support, may facilitate early initiation.

Keywords: Birth weight, colostrum, counselling, gestational age, infants, lactation.

Received: 30 August 2026

Revised: 04 September 2026

Accepted: 08 September 2026

Published: 10 October 2026

INTRODUCTION

Breastfeeding is one of the most effective ways to ensure child health and survival. As per the recommendation of WHO, breastfeeding should be initiated immediately following birth, possibly within 1st hour. Infants are recommended to be on exclusive breastfeeding for the first 6 months of age, after which breastfeeding should be continued up to the age of 2 years in addition to complementary feeding.^[1]

Newborns receive ideal nutrition from colostrum, the first milk after delivery. It supports neurodevelopment, intestinal maturation, immunity, infection prevention, and excess bilirubin removal. Early breastfeeding stabilizes the newborn's respiration, temperature, and heart rate while establishing beneficial maternal flora.^[2]

Worldwide, breastfeeding is initiated in nearly 46% of newborns within the one hour after birth.³ In India, 41.8% of children below 3 years of age were initiating breastfeeding within first hour following birth as per the National Family Health Survey 2019-21 (NFHS-5).^[4]

Breastfeeding gives significant long-term health benefits and adequate nutrition for both mothers and newborns.⁵ Long-term breastfeeding promotes neurocognitive development, increased intellect, and better academic achievement, while exclusively breastfed babies had a lower risk of respiratory

and gastrointestinal infections, allergic disorders, hypertension, and hyperlipidemia.⁶ Breastfeeding minimizes the lifelong risk of breast and ovarian malignancies, increases uterine contraction, lessens postpartum hemorrhage and anemia, and offers natural contraception through lactational amenorrhea.^[5,7]

Initiation of breastfeeding within one hour following birth is reported to decrease neonatal mortality by nearly 22%. Moreover, poor feeding practices among infants result in nearly 50% of pneumonia-related deaths and above 50% of diarrhea-related deaths during the first 6 months.^[5]

Not many studies have been conducted in India, particularly in North India, that evaluated the incidence of early breastfeeding and its effect on mothers and newborns.^[5,8-13] Thus, the present study aimed to assess the prevalence of early initiation of breastfeeding and the association of maternal, delivery, and neonatal characteristics with delayed initiation of breastfeeding

Address for correspondence: Dr. Alok Raina, Consultant, Department of Pediatrics, Government Medical College, Udhampur, Jammu and Kashmir, India. E-mail: arblueflame4@gmail.com

DOI:

10.21276/amit.2026.v13.i3.1112

How to cite this article: Sharma P, Sharma C, Raina A. Early Initiation of Breastfeeding and Associated Maternal, Delivery, and Neonatal Factors: A Prospective Observational Study. *Acta Med Int.* 2026;13(3):592-597.

in postnatal mothers.

MATERIALS AND METHODS

The prospective observational study was conducted in the postnatal ward in the Department of Obstetrics and Gynecology of a tertiary care hospital in India. The study was initiated after obtaining approval from the Institutional Ethical Committee. The period of carrying out the study was January 2026 to June 2026 (6 months). The tertiary care institute is equipped with state-of-the-art facilities, enabling skilled professionals to efficiently perform both normal vaginal deliveries and caesarean sections, followed by comprehensive postnatal care for both mother and newborn. Women who delivered during the study period were screened for the study. Mother–baby pairs admitted to the postnatal ward were included. All healthy term and late preterm babies were taken for the study.

Exclusion criteria included mothers advised against breastfeeding with perinatal hemodynamic instability, gross breast malformations, or previous breast surgery. Mothers with infants born before 34 weeks' gestation, multiple births, NICU admission, hemodynamic instability, or congenital orofacial defects were also excluded.

Sample size: Taking into account the Panwar P et al study,⁵ where breastfeeding was initiated within one hour of birth and delayed initiation occurred in 33.9% patients, minimum patients were taken as 87 patients with 10% error margin and 5% level of significance. The total sample population taken was 99 to decrease the margin of error.

After application of inclusion and exclusion criteria and taking written informed consent, women were enrolled in the present study. Participants were informed about the study,

and after enrollment, details such as age, education, occupation, residence, socioeconomic status, and type of family were collected. The type of delivery was noted. Neonatal data included gestational age, birth weight, timing of breastfeeding initiation, and prelacteal feeds. Based on the timing of initiation of breastfeeding, the outcome measures were proportion of early breastfeeding and late breastfeeding; and pertinently, reasons for late breastfeeding initiation were noted.

Statistical analysis: Shapiro–Wilk test performed data normality assessment. Quantitative variables with normal and non-normal distribution were associated using the Independent t-test and Mann–Whitney U test, respectively. Chi-square test assessed associations with qualitative variables, and Fisher's exact test in case of expected frequency in any cell being below 5. Univariate logistic regression assessed significant factor for delayed breastfeeding. Data was entered in Microsoft Excel spreadsheets. IBM Statistical Package for the Social Sciences (SPSS) software, version 25.0 (IBM Corp., Chicago, USA) performed statistical analysis, with p-value below 0.05 being statistically significant.

RESULTS

The mean age of the mothers was 25.13 ± 4.4 years. Most mothers resided in rural areas [82 (82.83%)], while 17 (17.17%) resided in urban areas. Regarding educational status, 57 (57.58%) mothers had primary education, 15 (15.15%) had secondary education, 14 (14.14%) were graduates or above, and 13 (13.13%) were illiterate. The study included 49 (49.49%) primiparous and 50 (50.51%) multiparous mothers. Most mothers had more than four antenatal visits [66 (66.67%)], whereas 33 (33.33%) had fewer than four antenatal visits [Table 1].

Table 1: Maternal characteristics.

Maternal characteristics	n(%) / Mean $\pm$ SD (Range)
Age (years)	25.13 $\pm$ 4.4 (17–43)
Residence	
Rural	82 (82.83%)
Urban	17 (17.17%)
Education	
Illiterate	13 (13.13%)
Primary	57 (57.58%)
Secondary	15 (15.15%)
Graduate and above	14 (14.14%)
Parity	
Primi	49 (49.49%)
Multi	50 (50.51%)
Antenatal visits	
<4	33 (33.33%)
>4	66 (66.67%)

Antenatal breastfeeding counselling was received by 37 (37.37%) mothers, while prelacteal feeding was practiced by 35 (35.35%). Breastfeeding assistance from healthcare personnel was provided to 86 (86.87%). Breastfeeding was initiated within 1 hour by 30 (30.30%) mothers, between 1

and 24 hours by 51 (51.52%), and after 24 hours by 18 (18.18%). Overall, early initiation of breastfeeding was observed in 30 (30.30%) mothers, whereas delayed initiation was observed in 69 (69.70%) mothers [Table 2, Figure 1].

Table 2: Breastfeeding related characteristics.

Breastfeeding related characteristics	Frequency	Percentage
Antenatal Breastfeeding counselling	37	37.37%
Prelacteal feeding	35	35.35%

Breastfeeding assistance provided by healthcare personnel	86	86.87%
Time of initiation of breastfeeding		
<1	30	30.30%
1-24	51	51.52%
>24	18	18.18%
Early or delayed initiation of breastfeeding		
Early breastfeeding	30	30.30%
Delayed breastfeeding	69	69.70%

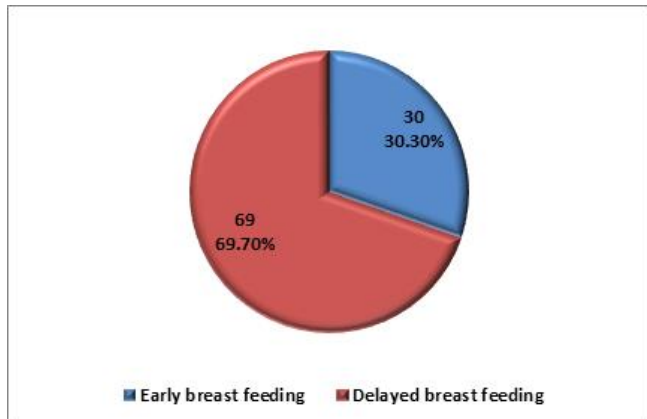


Figure 1: Early or delayed initiation of breastfeeding distribution.

Among the mothers with delayed initiation of breastfeeding, the most common reason was lack of knowledge [25 (36.23%)], followed by LSCS [19 (27.54%)], maternal illness [13 (18.84%)], and the baby not being with the mother [12 (17.39%)] [Figure 2].

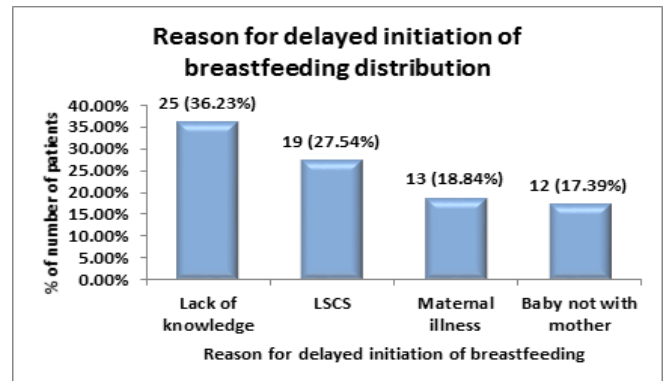


Figure 2: Reason for delayed initiation of breastfeeding distribution.

Most mothers delivered vaginally [61 (61.62%)], while 38 (38.38%) underwent LSCS. The neonates included 52 (52.53%) males and 47 (47.47%) females. Most neonates were born at term [97 (97.98%)], whereas 2 (2.02%) were late preterm. The median birth weight was 3 (2.7–3.2) kg, and the median APGAR score was 9 (8–10) [Table 3].

Table 3: Delivery and neonatal characteristics.

Delivery and neonatal characteristics	n(%) / Median (25th-75th percentile)
Mode of delivery	
Vaginal	61 (61.62%)
LSCS	38 (38.38%)
Sex of the neonate	
Female	47 (47.47%)
Male	52 (52.53%)
Gestational age (Term/Preterm)	
Term	97 (97.98%)
Late preterm	2 (2.02%)
Birth weight (kg)	3 (2.7-3.2)
APGAR score	9 (8-10)

While comparing the demographic and clinical characteristics between early and delayed breastfeeding groups, the mean maternal age was comparable (25.37 ± 3.69 years vs. 25.03 ± 4.75 years; p=0.73). Also, residence (rural: 83.33% vs. 82.61%; urban: 16.67% vs. 17.39%; p=0.93), educational status (p=0.971), parity (primiparous: 40% vs.

53.62%; multiparous: 60% vs. 46.38%; p=0.213), and the number of antenatal visits (<4: 36.67% vs. 31.88%; >4: 63.33% vs. 68.12%; p=0.643) were comparable between mothers with early and delayed initiation of breastfeeding [Table 4].

Table 4: Association of maternal characteristics with early/delayed breastfeeding.

Maternal characteristics	Early breastfeeding (n=30)	Delayed breastfeeding (n=69)	Total	P value
Age (years)	25.37 ± 3.69	25.03 ± 4.75	25.13 ± 4.44	0.73‡
Residence				
Rural	25 (83.33%)	57 (82.61%)	82 (82.83%)	0.93†
Urban	5 (16.67%)	12 (17.39%)	17 (17.17%)	
Education				
Illiterate	4 (13.33%)	9 (13.04%)	13 (13.13%)	0.971*
Primary	17 (56.67%)	40 (57.97%)	57 (57.58%)	
Secondary	4 (13.33%)	11 (15.94%)	15 (15.15%)	

Graduate and above	5 (16.67%)	9 (13.04%)	14 (14.14%)	
Parity				
Primi	12 (40%)	37 (53.62%)	49 (49.49%)	0.213†
Multi	18 (60%)	32 (46.38%)	50 (50.51%)	
Antenatal visits				
<4	11 (36.67%)	22 (31.88%)	33 (33.33%)	0.643†
>4	19 (63.33%)	47 (68.12%)	66 (66.67%)	

‡ Independent t test, * Fisher's exact test, † Chi square test

Prelacteal feeding was significantly less common among mothers with early initiation of breastfeeding than among those with delayed initiation (6.67% vs. 47.83%; $p < 0.0001$).

Antenatal breastfeeding counselling showed a significant positive impact on early breastfeeding (63.33% vs 26.09%, $p = 0.0004$). [Table 5].

Table 5: Association of breastfeeding-related characteristics with early/delayed breastfeeding.

Breastfeeding related characteristics	Early breastfeeding(n=30)	Delayed breastfeeding(n=69)	Total	P value
Antenatal Breastfeeding counselling	19 (63.33%)	18 (26.09%)	37 (37.37%)	0.0004
Prelacteal feeding	2 (6.67%)	33 (47.83%)	35 (35.35%)	<.0001*
Breastfeeding assistance provided by healthcare personnel	29 (96.67%)	57 (82.61%)	86 (86.87%)	0.101*
Time of initiation of breastfeeding				
<1	30 (100%)	0 (0%)	30 (30.30%)	<.0001†
1-24	0 (0%)	51 (73.91%)	51 (51.52%)	
>24	0 (0%)	18 (26.09%)	18 (18.18%)	

* Fisher's exact test, † Chi square test

Vaginal delivery was significantly more common among mothers with early initiation of breastfeeding than among those with delayed initiation (76.67% vs. 55.07%), whereas LSCS was more common in the delayed breastfeeding group (44.93% vs. 23.33%; $p = 0.042$) with odds ratio of 2.562 (0.982 to 6.686). The sex of the neonate (female: 60% vs.

42.03%; male: 40% vs. 57.97%; $p = 0.1$) and gestational age (term: 100% vs. 97.10%; late preterm: 0% vs. 2.90%; $p = 1$) were comparable between the early and delayed breastfeeding groups. Median birth weight [2.95 (2.7–3) kg vs. 3 (2.7–3.2) kg; $p = 0.572$] and APGAR score [9 (8–10) in both groups; $p = 0.842$] were also comparable [Table 6].

Table 6: Association of delivery and neonatal characteristics with early/delayed breastfeeding.

Table 4: Association of delivery and neonatal characteristics with early/adequate breastfeeding				
Delivery and neonatal characteristics	Early breastfeeding(n=30)	Delayed breastfeeding(n=69)	Total	P value
Mode of delivery				
Vaginal	23 (76.67%)	38 (55.07%)	61 (61.62%)	0.042†
LSCS	7 (23.33%)	31 (44.93%)	38 (38.38%)	
Sex of the neonate				
Female	18 (60%)	29 (42.03%)	47 (47.47%)	0.1†
Male	12 (40%)	40 (57.97%)	52 (52.53%)	
Gestational age (Term/Preterm)				
Term	30 (100%)	67 (97.10%)	97 (97.98%)	1*
Late Preterm	0 (0%)	2 (2.90%)	2 (2.02%)	
Birth weight (kg)	2.95(2.7-3)	3(2.7-3.2)	3(2.7-3.2)	0.572§
APGAR score	9(8-10)	9(8-10)	9(8-10)	0.842§

§ Mann Whitney test, * Fisher's exact test, † Chi square test

DISCUSSION

In the present study, approximately one-third of the mothers initiated breastfeeding within the recommended first hour after birth, whereas nearly two-thirds experienced delayed initiation, with almost one-fifth delaying initiation beyond the first day (24 h) of life.

These findings are in accordance with the findings by Sharma et al,^[8] who found that 30% of the mothers started early breastfeeding initiation in a hospital in Punjab. Delayed breastfeeding was noted in 61% of mothers, among which 29.3% of mothers started breastfeeding after 24 hours and 31.5% initiated within 2–24 hours of delivery.

Patel et al,^[13] reported a higher rate of early breastfeeding initiation (61.6%) in public health facilities in Chhattisgarh while delayed initiation was started by 38.4% of mothers, where 25.3% initiated after one hour but within the first day,

and 13.1% initiated after 24 hours. In the study by Priya et al,^[11] higher prevalence rate of early initiation was seen in 51.3% of the mothers, among which 31.7% initiated between 1-24 hours and 17% of the mothers delayed breastfeeding beyond the first day of life (where 4.4% started between 1–3 days and 12.6% after 3 days).

Even, Jeyakumar et al,^[10] found a higher rate of early breastfeeding initiation (45.2%). Breastfeeding was started in 1-4 hours in 41.8% of mothers, and 43.6% initiated after 24 hours after birth. A lower rate of early breastfeeding initiation was reported by Soren et al,^[12] who found 21.5% initiated early, with a reported median initiation time of 3 hours.

Among the delivery and neonatal characteristics, only mode of delivery showed a significant association with the timing of breastfeeding initiation, with early initiation being more frequently observed following vaginal delivery than cesarean section ($p = 0.042$). Moreover, it needs to be stressed here that in

general, vaginal deliveries should be favored and only in the absolute indications, the caesarean delivery should be suggested.

Similar to the present study, Priya et al,^[11] reported that having a normal delivery was a statistically significant predictor of early breastfeeding initiation ($P=0.015$). Other significant factors were higher educational status, urban residence, delivery in a government institution, being primipara (first-time mother), and the birth of a male child. Additionally, receiving antenatal care was found to promote favorable initiation behavior.

In accordance with our study findings, Patel et al,^[13] noted that cesarean-section delivery showed a significant association with poor early initiation (AOR for normal delivery = 8.13), which is in line with the present study's finding. Besides this, the factors increasing the likelihood of early initiation were receiving advice on breastfeeding at the health facility (AOR = 2.52) and a birth order of two or above (AOR = 2.20).

This was also supported by Jeyakumar et al,^[10] who found that cesarean delivery significantly decreased the odds of early initiation (AOR: 0.403), which is in line with the present study. Other factors were also identified, which included delivery in a public healthcare facility that significantly increased the odds (AOR: 1.439) and very low birth weight that significantly decreased the odds of early initiation (AOR: 0.209).

Sharma et al,^[8] also observed that early breastfeeding initiation was higher for women who had normal vaginal deliveries (37%) in comparison with cesarean sections (23%). On regression analysis, factors that showed significant association with delayed initiation were urban residence (OR: 0.37), higher maternal educational status (OR: 2.69), and lack of antenatal breastfeeding counseling (OR: 4.43) ($P<0.05$).

Furthermore, Soren et al,^[12] found mode of delivery to be a significant predictor of early breastfeeding initiation, as babies born through normal vaginal delivery were nine times more likely to have early initiation compared to those born by cesarean section (OR: 8.93). Rural residence (OR: 2.98), maternal education (OR: 3.18), and frequent antenatal care (ANC) (OR: 0.441) visits also proved to be significant predictors of early breastfeeding initiation.

It can be stressed here that vaginal delivery is associated with early breastfeeding initiation since postoperative care after cesarean section can interfere with immediate skin-to-skin contact. Oxytocin reflexes, which are important for uterine contractions and the milk let-down reflex, are delayed by surgical delay. This postpones secretion of milk. Moreover, fatigue in mothers along with post-surgical recovery prevent mothers from being with their infants, which poses significant challenges for the initiation of lactation. These problems tend to increase the likelihood of providing prelacteal feeds rather than breast milk. Early initiation after surgery is possible but requires specially trained health professionals to provide the needed guidance and support during recovery.^[8,11,12]

Apart from vaginal deliveries the importance of antenatal breastfeeding counselling can't be ignored, which showed a

significant association with early breastfeeding in the present study. The findings were replicated in a cluster randomized trial conducted among 224 postpartum women in Bule Hora Teaching and Yabelo General Hospitals, which found that women who received immediate postpartum breastfeeding counselling had significantly higher rates of early initiation of breastfeeding than those who did not receive counselling (54.1% vs. 45.9%, $p = 0.001$).^[14]

Limitations: The study is limited by its small sample size and study design, as it was done at single center, thereby limiting generalization to broader populations. Additionally, this study did not assess social, cultural, and traditional beliefs, which may also affect breastfeeding initiation.

CONCLUSION

In conclusion, early initiation of breastfeeding was observed in 30.3% of the study population. Among the maternal, delivery, and neonatal factors evaluated, only mode of delivery showed a significant association with the timing of breastfeeding initiation, with vaginal delivery favoring earlier initiation than cesarean section. The results support the need for opting for cesarean delivery only in absolutely indicated cases, while the relative indications of caesareans should be managed by vaginal deliveries. Moreover, antenatal breastfeeding counselling showed a significant improvement in achieving a higher proportion of early breastfeeding, warranting the need for enhanced antenatal counseling on breastfeeding, additional breastfeeding support after cesarean delivery, and evidence-based institutional practices that promote early mother-newborn contact and facilitate early initiation of breastfeeding.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. World Health Organization. Infant and young child feeding. Available from <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding> [Accessed July 2026].
2. Mary JJ, Sindhuri R, Kumaran AA, Dongre AR. Early initiation of breastfeeding and factors associated with its delay among mothers at discharge from a single hospital. *Clin Exp Pediatr* 2022;65(4):201-8.
3. Rubagumya D, Abeid M, Aghan E, Noorani M. Barriers to early initiation of breastfeeding: a hospital-based qualitative study. *East Afr Health Res J* 2025;9(1):78-85.
4. International Institute for Population Sciences (IIPS) and ICF. IIPS; Mumbai: 2022. National family health survey (NFHS-5), 2019-20: India.
5. Panwar P, Kumar V, Sharma R. Barriers to early initiation of breastfeeding in term and healthy preterm and infants: a prospective observational study at Shri Lal Bahadur Shastri Government Medical College & Hospital for a period of one year. *Int J Med Pharm Res* 2025;6(1):323-30.
6. Vargas-Pérez S, Hernández-Martínez C, Canals-Sans J, Arija V. Factors influencing breastfeeding initiation, duration, and early

- cessation: a focus on maternal and infant characteristics. *Int Breastfeed J* 2025;20(1):49.
7. Mengistu GT, Mengistu BK. Early initiation of breastfeeding and associated factors among mother-baby dyads with immediate skin-to-skin contact: cross-sectional study based on the 2016 Ethiopian Demographic and Health Survey data. *BMJ Open* 2023;13(3):e063258.
 8. Sharma N, Oberoi S, Moses PM. Positive influencers for early initiation of breastfeeding. *J Family Med Prim Care* 2023;12:990-5.
 9. Sharma A, Thakur PS, Tiwari R, Kasar PK, Sharma R, Kabirpanthi V. Factors associated with early initiation of breastfeeding among mothers of tribal area of Madhya Pradesh, India: a community based cross sectional study. *Int J Comm Med Pub Health* 2017;3(1):194–9.
 10. Jeyakumar A, Jungari S, Nair R, Menon P, Babar P, Bhushan B, et al. Prevalence and determinants of early initiation (EI), exclusive breastfeeding (EBF), and prelacteal feeding among children aged 0-24 months in slums of Pune City, in Maharashtra. *Ecol Food Nutr* 2021;60(3):377-93.
 11. Priya N, Juneja K, Narain S, Sundaram S, Mehnaz S, Giri P. Maternal and child determinants of early initiation of breastfeeding among recently delivered mothers in Uttar Pradesh: A community-based cross-sectional study. *J Family Med Prim Care* 2026;15(2):912-7.
 12. Soren S K, Sahu S, Kujur A, Dandpat A, Kashyap V, Kumari P, et al. Predictors of breastfeeding initiation among postnatal mothers at tertiary care center of a tribal dominant state in India: a regression analysis. *Cureus* 2021;13(8): e16936.
 13. Patel K, Gupta V, Garg S. Institutional deliveries and early initiation of breastfeeding in India – lessons from comparing the public facilities in Chhattisgarh state. *BMC Pregnancy Childbirth* 2026;26:620.
 14. Beyene BN, Wako WG, Moti D, Edin A, Debela DE. Postnatal counseling promotes early initiation and exclusive breastfeeding: a randomized controlled trial. *Front Nutr* 2025;12:1473086.