Int. J Med. Pharm. Res. (P-ISSN: 2958-3675 | E-ISSN: 2958-3683)
Available on: https://ijmpr.in/

International Journal
of Medical and Pharmaceutical Research

ORIGINAL ARTICLE **OPEN ACCESS**

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

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Received: 12-01-2025
Accepted: 23-02-2025
Available online: 27-02-2025

A B S T R A C T

Background: Early initiation of breastfeeding (EIBF) within the first hour of birth is crucial for neonatal health and survival. Despite global recommendations, EIBF rates remain suboptimal due to various maternal, medical, and environmental factors.

Objective: This study aimed to identify barriers to early initiation of breastfeeding among healthy late preterm and term infants in a tertiary care hospital in Himachal Pradesh, India.

Methods: A prospective observational study was conducted from November 2022 to October 2023. A total of 1,020 mother-infant dyads were enrolled, and data were collected at the time of discharge. Statistical analysis was performed using SPSS version 17, with chi-square tests used to determine associations between breastfeeding initiation and maternal factors.

Results: Among the participants, 66.1% initiated breastfeeding within one hour of birth, while 33.9% had delayed initiation. The most common reasons for delayed breastfeeding included time taken for postnatal transfer (41%) and delayed milk production (40.1%). Other significant factors included maternal discomfort (11.5%), difficulty with positioning/attachment (2.6%), and anatomical challenges such as flat or inverted nipples (1.7%). Early initiation was significantly associated with maternal age ($p = 0.003$), education level ($p = 0.006$), and occupation ($p = 0.010$). Mode of delivery and peripartum complications also had a significant impact ($p = 0.001$), with cesarean deliveries contributing to delays.

Conclusion: While breastfeeding initiation rates in the study population were higher than national averages, logistical barriers, maternal discomfort, and cesarean deliveries contributed to delays. Strengthening postnatal support, improving breastfeeding education, and addressing hospital-related delays can further enhance EIBF rates.

Keywords: Early initiation of breastfeeding, barriers, maternal factors, neonatal health, cesarean delivery, breastfeeding support

INTRODUCTION

Breastfeeding is one of the most effective ways to ensure child health and survival. WHO recommends initiation of breastfeeding immediately after birth, preferably within 1 Hour and exclusive breastfeeding till 6 months of age and continue till 2 years along with complementary feeding.[1] Along with providing nutrition to baby in early life, breastfeeding has many long-term benefits too. Breastmilk is ideal food for infants containing all essential nutrients for a healthy growth and fight off infections.

Children who are exclusively breastfed for initial 6 months are less likely to suffer from atopic diseases including atopic eczema, bronchial asthma and hay fever. While children who are not exclusively breastfed or breastfed for a lesser duration, have a higher risk of gastrointestinal infections, respiratory illnesses and are more prone to hyperlipidaemia and

hypertension later in life.[2-6]Studies shows that breastfeeding also enhances the neurocognitive development and children who are breastfed for longer duration have higher IQ and better academic performance.[7]Breastfeeding helps mother as it causes postpartum uterine contraction thus decreases bleeding and prevents anaemia, lowers the risk for ovarian and breast cancers, and is a natural method of contraception (lactational amenorrhea).[8]

Despite numerous benefits to baby and mother, over the period of five years from 2015-2020, only about 44% of infants are breastfed exclusively till 6 months of age, worldwide. Studies show that neonatal deaths decrease by 22 percent if breastfeeding is initiated within the first hour of life.[9] The WHO also estimates that poor feeding practices attribute to 53 percent of pneumonia and 55 percent of diarrheal deaths in early six months of life.[10] A study using the WHO global survey on maternal and perinatal health found that the average global prevalence of EIBF is 57.6%.[11] In 1992, WHO and UNICEF launched the Baby Friendly Hospital Initiative (BFHI) to promote and ensure, early and exclusive breastfeeding following "Ten Steps to Successful Breastfeeding" in the hospital with maternity services.[12] In 2004, the Indian Government developed the Infant and Young Child Feeding (IYCF) guideline to promote exclusive breastfeeding.[13] EBF is also promoted under Integrated Child Development Services (ICDS) program of Indian Government. The National Family Health Survey 2019-21 (NFHS-5) shows that in India 41.8 percent of Children under age 3 years breastfed within one hour of birth (NFHS 4- 41.6%) and 63.7 percent of Children under age 6 months exclusively breastfed (NFHS 4- 54.9%). In Himachal Pradesh 70 percent of children under age 6 months exclusively breastfed while only 45 percent are put to breast within 1 hour of birth.[14] Many studies have shown that there are various demographic and socioeconomic factors, cultural beliefs associated with variable breastfeeding practices in different areas. In this study we observed the various factors interfering with breastfeeding which lead to delayed initiation of breastfeeding.

ABBREVIATIONS

- AVD- Assisted Vaginal Delivery
- ANC- Antenatal Care
- EIBF- Early Initiation of Breastfeeding
- IQ- Intelligence Quotient
- LSCS- Lower Segment Caesarean Section
- NFHS- National Family Health Survey
- NICU- Neonatal Intensive Care Unit
- NVD- Natural Vaginal Delivery
- SPSS- Statistical Package for the Social Sciences
- UNICEF- United Nations International Children's Emergency Fund
- WHO- World Health Organization

STUDY METHOD

The study was conducted in the postnatal ward of Shri Lal Bahadur Shastri Government Medical College & Hospital, a tertiary care hospital in Mandi district of Himachal Pradesh. This 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. The aim of the study was to study common barriers to early initiation of breastfeeding in mothers with healthy late preterm and term infants with Primary Objective of determining maternal and environmental factors related to delayed initiation (more than 1 hour after delivery) of breastfeeding. Study conducted from November 2022 to October 2023. It was a prospective observational study. All women who delivered during study period and willing to participate were screened for eligibility. All the mother-baby dyad admitted in postnatal ward were eligible for study. All Mothers with infants- Below 34 weeks of gestation, Multiple births, admitted in NICU/hemodynamically unstable or Infants with congenital orofacial defects were excluded. Mothers who were advised to avoid breastfeeding due to any medical issue or hemodynamically unstable due to any perinatal complication along with mothers with gross breast malformation or any surgical procedure also excluded. All mothers who gave birth to a child between November 2022 to April 2023, were screened for eligibility. During the study period all mothers who fulfilled the inclusion criteria, and exclusion criteria and gave consent to participate, were included in this study. After applying inclusion and exclusion criteria 1020 participants completed the study and were included in the analysis. Data was collected at the time of discharge of mother and baby from the postnatal ward.

Breastfeeding definition

Exclusive Breastfeeding:

We defined exclusive breastfeeding as breastfeeding without the introduction of other Food or liquids (not even water) over the prior 24-h period, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicine.[15,16]

➢ **Predominant Breastfeeding:**
Child's predominant source of nutrition is breastmilk but water and water-based liquids are permitted.[16]

➢ **Partial Breastfeeding:**
Child is mainly breastfed but also consumes formula milk and other liquid or non-dairy Solid.[16]

Statistical analysis
The Data was entered and analyzed using Statistical Package for Social Sciences (SSPS) version [17]. Quantitative data on sociodemographic variables was summarized by using descriptive statistics and for categorical data, we computed frequency distributions and percentages. The chisquare test was used to ascertain statistical significance among proportions. Test of significance conducted at alpha=0.05 with a P-value of <0.05 considered statistically significant.

Ethical considerations
Approval for the study was obtained from the Institutional Scientific Research Committee and Institutional Ethics Committee. No harm was done to the participants during the study. Informed written consent was obtained from all participants before inclusion in the study and details about the study were explained to all the participants. All personal details of participants are kept confidential. Identification details of subjects were not revealed in any case.

RESULTS

Age Group	Frequency (n=1020)	Percentage
<25 Years	487	47.7
25-34 Years	483	47.4
>34 Years	50	4.9
Mother's Education		
No Formal Education	25	2.5
Primary	120	11.8
High School	512	50.2
Graduation	262	25.7
Post-Graduation & Above	101	9.9
Mother's Occupation		
Home-Maker	941	92.3
Employed	79	7.7
Residence		
Rural	916	89.8
Urban	104	10.2
Type of Family		
Joint Family	878	86.1
Nuclear Family	142	13.9
Socioeconomic Status		
Upper Class	4	0.4
Upper-Middle Class	57	5.6
Lower-Middle Class	551	54.0
Upper-Lower Class	364	35.7
Lower Class	44	4.3

Out of total participants 66.1% initiated breastfeeding early, while 33.9% initiated breastfeeding after one hour of delivery. The most common reasons for delayed feeding were time in shifting (41%) and delayed milk production (40.1%). Other significant reasons included the mother being in pain or not able to sit comfortably (11.5%). Less common reasons were difficulty in positioning/attachment (2.6%), flat/inverted nipple (1.7%), and combinations of these factors, such as delayed milk production combined with other issues. A very small number of cases cited the baby being unable to suck or a lack of awareness. Majority of participants (82.7%) exclusively fed their babies breast milk. A smaller percentage (16.3%) supplemented breast milk with formula milk, while a very small percentage (1.0%) supplemented breast milk with animal milk.

In terms of age, mothers under 25 years were more likely to initiate breastfeeding early with a p-value of 0.003. Education level also showed significant differences (p-value = 0.006). Mothers with no formal education had a slight difference, with 2.7% initiating early and 2.0% delaying. Those with primary education and High school graduates, were more likely to initiate early. Among graduates and post-graduation, there was higher proportion of delayed initiation. Regarding occupation, home-makers predominantly initiated breastfeeding early (94.1%), Employed mothers had a higher percentage of delayed initiation (11.3%) compared to early (5.9%). Residence and type of family did not show a significant difference. Socioeconomic status approached significance with a p-value of 0.057. The upper-lower class had higher proportion of early initiation, Lower-middle class mothers had a near-equal distribution while the upper class and the lower class had higher proportion of delayed initiation. Antenatal Complications, type of Delivery and Peripartum Complications was significantly different (p-value = 0.001) with early initiation in Normal vaginal delivery (NVD) and higher proportion of delayed initiation in LSCS and mothers with Peripartum Complications. Medical History, parity, Previous Breastfeeding Experience and Breastfeeding Counseling During Antenatal Visits. Antenatal Care approached significance (p-value = 0.058).

	Breastfeeding initiation			
	Early	**Delayed**		
	N (%)	**N (%)**	**Total**	**p-value**
Age Group				0.003
<25 Years	346(51.3)	139(40.2)	485	
25-34 Years	299(44.4)	186(53.8)	485	
>34 Years	29(4.3)	21(6.1)	50	
Mother's Education				0.006
No formal education	18(2.7)	7(2.0)	25	
Primary	83(12.3)	37(10.7)	120	
High school	360(53.4)	152(43.9)	512	
Graduation	151(22.4)	111(32.1)	262	
Post-graduation & above	62(9.2)	39(11.3)	101	
Mother's Occupation				0.010
Home-Maker	634(94.1)	307(88.7)	941	
Employed	40(5.9)	39(11.3)	79	
Residence				0.552
Rural	608(90.2)	308(89.0)	916	
Urban	66(9.8)	38(11.0)	104	
Type of Family				0.446
Joint	576(85.5)	302(87.3)	878	
Nuclear	98(14.5)	44(12.7)	142	
Socioeconomic Status				0.057
Upper class	1(0.1)	3(0.9)	4	
Upper-middle class	30(4.5)	27(7.8)	57	
Lower-middle class	366(54.3)	185(53.5)	551	
Upper-lower class	250(37.1)	114(32.9)	364	
Lower class	27(4.0)	17(4.9)	44	

	Initiation of Breastfeeding					
	Early		Delayed			
	N	%	N	%	Total	p-value
Medical History						0.454
No Medical History	653(96.9)		329(95.1)		982	
Underlying Medical Illness	21(3.1)		17(4.9)		38	
Parity						0.521
Nulliparous	382(56.7)		193(55.8)		575	
Primiparous	191(28.3)		108(31.2)		299	
Multiparous	101(15.0)		45(13.0)		146	
Previous Breastfeeding Experience						0.707
No Experience	382(56.7)		194(56.1)		576	
Experienced	292(43.3)		152(43.9)		444	
Antenatal Care						0.058
<4	58(8.6)		18(5.2)		76	
≥4	616(91.4)		328(94.8)		944	
Breastfeeding Counselling in ANC Visits						0.165
No	258(38.3)		148(42.8)		406	
Yes	416(61.7)		198(57.2)		614	
Antenatal Complication						0.001
No	607(90.1)		285(82.4)		892	
Yes	67(9.9)		61(17.6)		128	
Type of Delivery						0.001
NVD	629(93.3)		79(22.8)		708	
AVD	5(0.7)		2(0.6)		7	
LSCS	40(5.9)		265(76.6)		305	
Peripartum Complication						0.001
No	670(99.4)		308(89.0)		978	
Yes	4(0.5)		38(11.0)		42	
Planning to Breastfeed						0.566
6 Months or More	355(52.7)		174(50.3)		529	
Less Than 6 Months	16(2.4)		6(1.7)		22	
Not Decided Yet	303(45.0)		166(48.0)		469	
Pre-Lacteal Feed						0.067
No	623(92.4)		308(89.0)		931	
Yes	51(7.6)		38(11.0)		89	

DISCUSSION

WHO recommends early or timely initiation of breastfeeding preferably within 1 hour of birth. (WHO 2012) According to NFHS-5, 45.1% infants breastfed within one hour of birth in Himachal Pradesh.[14] In our study early initiation rate was 66.1%, higher as compared to NFHS5 data. Among reasons cited by mothers for delayed breastfeeding initiation, delayed milk production (13.6%) was a common reason. In a study by Mary JJF et al[17], 88% mothers stated inadequate breastmilk as a reason for delay in feeding and 56.5% had delayed initiation due to transfer time from operation theatre to ward. In our study also 13.9% mothers had delayed breastfeeding due to transfer time from labor room or operation theatre to postnatal ward. Another study mentions delay in shifting women from the labour room[18], time for recovery from caesarean delivery[19] and delay in uniting the newborn and mother after caesarean section[20] as a reason for late breastfeeding initiation. Other significant reasons included the mother being in pain or not able to sit comfortably (3.9%). Less common reasons were difficulty in positioning/attachment (0.9%), flat/inverted nipple (0.6%), and combinations of these factors, such as delayed milk production combined with other issues[21]. A very few mothers cited the baby being unable to suck or a lack of awareness.[22,23]

Several studies emphasized on role of sociodemographic factors on breastfeeding practices. In our study, mother's age, education, occupation affected breastfeeding significantly with pvalue <0.05. Studies done in Ghana[24], Ethiopia[25,26], Tanzania[27], and China[28] shows positive association between higher maternal education and EIBF. In our study, Mothers with education upto primary or high school were more likely to initiate early while there was delay in breastfeeding initiation in mothers with higher education and no formal education. Previous studies in Bangladesh[29,30], India[31], Nepal[32] and Pakistan[33] also suggest higher prevalence of Delayed initiation of breastfeeding among women who have no formal

education. Probable explanation maybe Maternal education playing a critical role in improving child health through better access to information, more control over financial resources, and greater capacity to adopt positive health behaviours. Study conducted in United Arab Emirates showed no significant association of EIBF with maternal education, maternal age while significantly affected by mother's occupation and delivery method[34].A meta-analysis done by Cohen also showed higher likelihood of early initiation of breastfeeding among mothers with comparatively higher education level among study groups and mothers who delivered vaginally.[35] Secondary analysis of the WHO Global Survey by Takahashi et al also found no significant association between EIBF and sociodemographic factors.[11]

Mothers under 25 years were more likely to initiate breastfeeding early, whereas advanced maternal age was associated with delayed initiation. Working mothers also had significant delay in breastfeeding initiation. Socioeconomic status also impacted breastfeeding initiation but not statistically significant. Among obstetric details, type of delivery and antenatal or any perinatal complication had significant association with breastfeeding initiation.[36] Breastfeeding initiated early in NVD while delayed in AVD and LSCS. Dibley et al[37], Senarath et al[38] and Pandey et al[39] also reported caesarean section as a significant factor for delayed initiation. Several studies conducted in Bangladesh[20], India[31,40], Nepal[39], Pakistan[41], Maldives[42] and Sri Lanka[43] highlighted delivery by caesarean section as a major factor. Mothers with any antenatal or perinatal complication had delay in breastfeeding initiation. Maternal health conditions and complications during delivery encompass a wide range of issues that can impact the health and well-being of both the mother and the baby. These conditions can arise before, during, or after delivery, posing significant challenges that require prompt medical intervention and management[44]. Regular prenatal care, early detection, and timely interventions play crucial roles in mitigating risks associated with these conditions, improving outcomes, and promoting maternal and infant health. Patel et al[36] also found that timely initiation was lower in mothers with obstetric problems. Mothers who counselled regarding breastfeeding benefits, who did not give pre-lacteals to baby, also showed tendency towards early initiation but p values were not significant. Gupta et al[45] conducted a randomized controlled study where mothers who received breastfeeding counselling, achieve significantly higher rate of early initiation of breastfeeding46. Khadduri et al[47] also mentioned pre-lacteal feeding as a barrier to early initiation[48,49]. Our study did not find any significant association of medical history of participants, previous breastfeeding experience and parity with breastfeeding initiation.

CONCLUSION

Breastfeeding practices were generally positive, with high rates of early initiation and a strong consensus on the benefits of breastfeeding. Despite this, some challenges were noted, including the introduction of prelacteal feeds. The main reasons for delayed initiation were related to logistical issues. Strengths of the study are Large Sample Size increasing the reliability of the findings, Prospective Observational Design to minimizes recall bias. The study thoroughly examined breastfeeding initiation, exclusivity, and identified specific challenges related to breastfeeding, such as pre-lacteal feeding and perceived inadequate milk supply, providing actionable data for improving breastfeeding support. The study also provides valuable insights into the breastfeeding practices in rural areas, which are often underrepresented in research.

Single-Center Study, may limit the generalizability of the findings to other settings or populations. The reporting of breastfeeding difficulties and problems may be inconsistent, as not all participants may have been equally aware of or willing to report their issues. Enhancing educational programs and support systems for breastfeeding mothers could further improve early breastfeeding initiation rates and overall infant health outcomes.

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