

Research Article

Latch Score at Discharge as a Predictor of Exclusive Breastfeeding at Six Weeks in Healthy Term Newborns: A Prospective Observational Study

Dr. Sowjanya¹, Dr. Hareesh^{2*}, Dr. P Sai Sindhuja Reddy³

¹Senior Resident, Department of Pediatrics, Mahavir Institute of Medical Sciences, Vikarabad, Telangana.

^{2*,3}Assistant Professor, Department of Pediatrics, Mahavir Institute of Medical Sciences, Vikarabad, Telangana.

Corresponding Author: Dr. Hareesh

Assistant Professor, Department of Pediatrics, Mahavir Institute of Medical Sciences, Vikarabad, Telangana.

Email: hareeshkp92@gmail.com

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ABSTRACT

Background: Early breastfeeding difficulties may contribute to inadequate feeding, and early discontinuation of exclusive breastfeeding (EBF). The LATCH score provides a structured assessment of breastfeeding effectiveness.

Methods: This prospective observational study included 667 mother-infant dyads at Mahavir Institute of Medical Sciences, Vikarabad, Telangana. LATCH scores were assessed within 24 hours of birth and at discharge. Mothers were followed up at six weeks to determine feeding pattern.

Results: The mean LATCH score increased significantly from 7.11 ± 0.825 within 24 hours to 8.78 ± 1.082 at discharge ($p=0.001$). At six weeks, 501 (75.1%) infants were exclusively breastfed. A discharge LATCH score >8 predicted EBF at six weeks with 95.4% sensitivity, 91.6% specificity, and an AUC of 0.949.

Conclusion: A higher LATCH score at discharge was associated with EBF at six weeks. LATCH scoring may help identify mother-infant dyads requiring additional breastfeeding support.

Keywords: Latch Score, Exclusive Breastfeeding, Breastfeeding Assessment, Newborn, Lactation Support.

INTRODUCTION

Breastfeeding is a fundamental component of infant nutrition and contributes substantially to reducing infant and under-five morbidity and mortality. Although breastfeeding is a physiological process, difficulties may arise in the early postpartum period because of maternal, neonatal, and breastfeeding-related factors. Ineffective breastfeeding techniques can result in inadequate milk transfer and may contribute to excessive neonatal weight loss, jaundice, hypernatremic dehydration, and rehospitalization. Early initiation and establishment of exclusive breastfeeding (EBF) before hospital discharge are therefore important for sustaining breastfeeding during infancy.(1,4,5)

Breast milk provides optimal nutrition for healthy growth and development and has immunological and developmental benefits. The World Health Organization (WHO) and United Nations Children's Fund recommend early initiation of breastfeeding and exclusive

breastfeeding during the first six months of life.(2,6) Epidemiological evidence also demonstrates the protective effects of breastfeeding against infectious diseases and infant mortality.(3,7) In India, the proportion of children younger than six months who were exclusively breastfed increased from 54.9% in the National Family Health Survey-4 to 63.7% in NFHS-5, although further improvement remains necessary.(8) The thesis identifies early breastfeeding difficulties as an important period for intervention because breastfeeding cessation is particularly frequent during the early postnatal period.

Several structured tools have been developed to assess breastfeeding, including the Mother-Infant Breastfeeding Assessment Tool, Mother-Baby Assessment, Mother-Infant Breastfeeding Progress Tool, Infant Breastfeeding Assessment Tool, and LATCH assessment tool. Among these, the LATCH scoring system provides a simple and systematic method for evaluating breastfeeding performance.

Introduced in 1994, LATCH is an acronym representing five components: Latch, Audible swallowing, Type of nipple, Comfort, and Hold. Each component is assigned a score from 0 to 2, producing a total score ranging from 0 to 10. The tool facilitates objective assessment of breastfeeding and may identify mother–infant dyads at risk of breastfeeding difficulties. (9) Previous studies have demonstrated an association between higher LATCH scores and subsequent breastfeeding continuation. However, the thesis notes that relatively few Indian studies have evaluated the relationship between LATCH scores and the rate or duration of EBF, and many involved comparatively small samples. Early identification and correction of ineffective latching before discharge may therefore represent a practical approach to improving breastfeeding outcomes.

The present study was undertaken to evaluate the utility of the LATCH score as a predictor of exclusive breastfeeding among healthy term newborns at six weeks of age. LATCH scores were assessed within 24 hours after birth and again at hospital discharge, and subsequent EBF status was evaluated at six weeks.

MATERIALS AND METHODS

Study Design and Setting

This prospective observational study was conducted in the postnatal ward of Mahaveer Institute of Medical Sciences, Vikarabad, Telangana, India

Study Population

Mother–infant dyads were eligible for inclusion if the neonate was inborn and had a gestational age of ≥ 37 weeks. Outborn neonates, preterm neonates, term neonates admitted to the neonatal intensive care unit (NICU), physiologically unstable or sick neonates, and mothers in whom the LATCH score could not be assessed within the stipulated period were excluded.

Although the calculated minimum sample size was 322 mother–infant dyads, the final analysis included 667 eligible mother–infant dyads recruited during the study period. The sample-size calculation assumed a successful LATCH score proportion of 70%, a type I error of 0.05, and a precision of 5%.

Study Procedure and Latch Assessment

After obtaining written informed consent from the mothers, eligible mother–infant dyads underwent two breastfeeding assessments using the LATCH scoring system. The first assessment was performed within 24 hours of

birth, and the second was performed at the time of hospital discharge.

The LATCH system evaluates five breastfeeding components: Latch, Audible swallowing, Type of nipple, Comfort of the breast/nipple, and Hold/positioning. Each component is scored from 0 to 2, resulting in a total score ranging from 0 to 10, with higher scores indicating more effective breastfeeding.

During the initial breastfeeding session, each mother–infant dyad was observed and evaluated according to these five components. Following the first assessment, mothers received education regarding appropriate breastfeeding techniques. Specific counselling, education, and breastfeeding support were provided according to the problems identified during LATCH assessment. Mothers who had undergone caesarean delivery were instructed regarding breastfeeding in the side-lying position. Signs of optimal attachment were explained, and mothers were encouraged to assess and correct the infant's positioning and attachment during subsequent feeds. The LATCH score was reassessed at discharge.

According to the institutional protocol described in the thesis, breastfeeding was initiated in the delivery room approximately 15–30 minutes after birth whenever feasible. Breastfeeding counselling and correction of improper latching were provided during the hospital stay.

Follow-up and Outcome Assessment

At six weeks postpartum, mothers were contacted by telephone to obtain information regarding the infant's feeding pattern. Infants were classified according to whether they were receiving exclusive breastfeeding (EBF) or were non-EBF at six weeks. For infants who were not exclusively breastfed, the reason for discontinuation of EBF was documented.

The primary outcome measure was the LATCH score within 24 hours after birth and at hospital discharge. Secondary outcomes included the proportion of mothers continuing EBF at six weeks postpartum and the relationship of the discharge LATCH score with breastfeeding status at six weeks.

Statistical Analysis

Study data were collected using a pre-approved study proforma and entered into Microsoft Excel 2017 after checking for completeness and consistency. Statistical analysis was performed using SPSS version 21 and MedCalc software. Continuous variables were summarized using descriptive statistics, including mean, standard

deviation (SD), median, interquartile range, minimum, and maximum, as applicable. Categorical variables were expressed as frequencies and percentages. Comparisons were considered statistically significant according to the reported *p* values. Receiver operating characteristic (ROC) curve analysis

was used to evaluate the ability of the LATCH score at discharge to predict EBF at six weeks. The area under the ROC curve (AUC), sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were determined for the evaluated LATCH score cut-offs.

RESULTS

Table 1. Baseline Characteristics of the Study Population (N=667)

Characteristic	Value
Maternal age, years, mean $\pm$ SD	30.26 $\pm$ 3.538
Gestational age, weeks, mean $\pm$ SD	37.88 $\pm$ 0.797
Birth weight, kg, mean $\pm$ SD	3.025 $\pm$ 0.366
Male sex, n (%)	338 (50.7)
Female sex, n (%)	329 (49.3)
Normal vaginal delivery, n (%)	189 (28.3)
Assisted vaginal delivery, n (%)	45 (6.7)
Elective LSCS, n (%)	260 (39.0)
Emergency LSCS, n (%)	173 (25.9)
First-time breastfeeding, n (%)	326 (48.8)
Previous breastfeeding experience, n (%)	341 (51.2)

Table 2. Distribution of LATCH Scores within 24 Hours and At Discharge

LATCH score	Within 24 hours, n (%)	At discharge, n (%)
5	1 (0.1)	0
6	171 (25.6)	0
7	272 (40.8)	153 (22.9)
8	202 (30.3)	22 (3.3)
9	21 (3.1)	313 (46.9)
10	0	179 (26.8)
Mean $\pm$ SD	7.11 $\pm$ 0.825	8.78 $\pm$ 1.082

p=0.001 for the difference in mean LATCH score.

Table 3. Latch Scores According To Clinical Characteristics

Characteristic	Within 24 hours, mean $\pm$ SD	<i>p</i> -value	At discharge, mean $\pm$ SD	<i>p</i> -value
Vaginal delivery	7.35 $\pm$ 0.925	0.001	9.01 $\pm$ 1.174	0.001
LSCS	6.97 $\pm$ 0.732		8.65 $\pm$ 1.008	
First-time breastfeeding	7.10 $\pm$ 0.823	0.886	8.77 $\pm$ 1.098	0.795
Previous breastfeeding experience	7.11 $\pm$ 0.828		8.79 $\pm$ 1.069	

Table 4. Feeding Status and Latch Scores At Six Weeks

Feeding pattern	n	LATCH within 24 h mean $\pm$ SD	LATCH at discharge mean $\pm$ SD
EBF $\rightarrow$ EBF	425	7.42 $\pm$ 0.544	9.34 $\pm$ 0.503
Non-EBF $\rightarrow$ Non-EBF	151	6.09 $\pm$ 0.422	7.21 $\pm$ 0.584
EBF $\rightarrow$ Non-EBF	15	6.40 $\pm$ 0.632	7.73 $\pm$ 1.100
Non-EBF $\rightarrow$ EBF	76	7.51 $\pm$ 1.026	8.95 $\pm$ 1.044
Total	667	7.11 $\pm$ 0.825	8.78 $\pm$ 1.082

p=0.001 as reported in the thesis for comparisons across feeding-pattern groups.

Table 5. Diagnostic Performance of Discharge Latch Score

Outcome	Result
Optimal LATCH cut-off at discharge	>8
AUC	0.949
95% CI for AUC	0.929–0.964
ROC p-value	<0.0001
Sensitivity	95.41%
Specificity	91.57%
PPV	97.2%
NPV	86.9%

DISCUSSION

The present prospective observational study evaluated the utility of the LATCH score for predicting exclusive breastfeeding (EBF) at six weeks among 667 healthy term mother–infant dyads. The principal findings were a significant improvement in LATCH scores between the first 24 hours and hospital discharge, a strong association between higher discharge LATCH scores and EBF at six weeks, excellent predictive performance of a discharge LATCH score >8.

The mean LATCH score increased significantly from 7.11 ± 0.825 within 24 hours to 8.78 ± 1.082 at discharge ($p=0.001$). This improvement followed breastfeeding counselling, education, and correction of positioning and attachment problems after the initial assessment. Similar findings were reported by Shah et al., who observed significant improvement in LATCH scores following breastfeeding counselling.(10) These observations support the usefulness of early structured breastfeeding assessment for identifying potentially correctable feeding difficulties.

Mode of delivery was significantly associated with breastfeeding performance. Infants delivered vaginally had higher LATCH scores than those delivered by caesarean section both within 24 hours (7.35 vs. 6.97) and at discharge (9.01 vs. 8.65; $p=0.001$ for both comparisons). This may reflect postoperative pain, discomfort, delayed maternal mobility, and difficulties with positioning after caesarean delivery. Sorkhani et al. similarly reported better breastfeeding-pattern scores following vaginal delivery than caesarean delivery. (11)

Previous breastfeeding experience, however, was not significantly associated with LATCH scores in the present study. Initial and discharge scores were comparable between first-time breastfeeding mothers and mothers with previous breastfeeding experience ($p=0.886$ and $p=0.795$, respectively). This finding differed from Shah et al., who reported higher discharge LATCH scores among mothers

with previous breastfeeding experience.(10)

The present findings suggest that breastfeeding technique should be objectively assessed irrespective of previous maternal experience.

At six weeks, 501 (75.1%) infants were exclusively breastfed. Infants continuing EBF had substantially higher discharge LATCH scores than those remaining non-EBF (9.34 ± 0.503 vs. 7.21 ± 0.584). Riordan et al. similarly demonstrated higher LATCH scores among women who continued breastfeeding compared with those who weaned earlier. (12) Sowjanya et al. also reported that LATCH scores obtained early after birth and at discharge could predict EBF at six weeks.(13) These findings reinforce the potential value of LATCH scoring as an early indicator of subsequent breastfeeding success.

The most frequent reason for non-EBF at six weeks was perceived inadequate milk secretion (63.8%), followed by flat nipples (10.3%), severe dehydration/neonatal jaundice (6.6%), and maternal medical problems (5.4%). This highlights the importance of continued maternal counselling and lactation support after delivery, particularly when mothers perceive their milk supply as inadequate.

ROC analysis demonstrated excellent predictive ability of the discharge LATCH score. A cut-off of >8 yielded an AUC of 0.949, sensitivity of 95.4%, specificity of 91.6%, PPV of 97.2%, and NPV of 86.9%. Shah et al. reported a lower optimal discharge threshold, whereas previous studies have also identified higher LATCH scores as predictive of continued breastfeeding.(10,14) These findings indicate that discharge LATCH assessment may provide a simple clinical method for identifying mother–infant dyads at increased risk of early discontinuation of EBF.

CONCLUSION

A higher LATCH score at hospital discharge was strongly associated with exclusive breastfeeding at six weeks. A discharge LATCH score >8 demonstrated high sensitivity and specificity for predicting EBF at six weeks. Routine LATCH assessment may therefore

provide a simple and cost-effective approach to identifying mother–infant dyads who require additional breastfeeding counselling and support before discharge.

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