Paediatrics Section

LATCH Score as a Tool to Predict Weight Gain in Term Babies at Six Weeks Post-discharge: A Prospective Cohort Study

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ABSTRACT

Introduction: The LATCH score is an acronym representing L-LATCH, A- Audible swallowing, T- Type of nipple, C- Comfort, H-Hold. It is a comprehensive yet simple breastfeeding assessment tool used to evaluate breastfeeding practices. Babies with a poor LATCH score at discharge are at an increased risk of early breastfeeding cessation and inadequate weight gain. According to World Health Organisation (WHO), only about 44% of infants aged 0-6 months worldwide were exclusively breastfed from 2015-2020, with a goal of increasing this rate to atleast 50% by 2025. There have been very few studies conducted in developing countries regarding this matter.

Aim: To determine the correlation between the LATCH score and weight gain at six weeks post-discharge in term babies.

Materials and Methods: This prospective cohort study was conducted at MVJ Medical College and Research Hospital, Bengaluru, Karnataka, India, from January 2023 to June 2023. The study included 355 healthy term and singleton babies. LATCH scores were assessed at the time of the first feed, 24 hours, 48 hours, 72 hours, and at the time of discharge. Mothers with a low LATCH score and the reasons for the low score were identified, corrected, and counselled until discharge. Weight gain velocity was analysed at the six-week follow-up. Analysis of Variance (ANOVA) was used to compare the mean values between variables, and Pearson's correlation was used to analyse the correlation between the LATCH score and weight gain at six weeks post-discharge in term babies.

Results: In the present study, the mean age of mothers was 26.21±5.40 years, and there were 200 males and 155 females babies. The mean LATCH score at the time of the first feed was found to be 3.91±1.09, which improved to 5.61±0.890, 7.03±0.742, 7.67±0.578, and 9.12±0.662 at 24 hours, 48 hours, 72 hours, and at the time of discharge, respectively. The reasons for a poor LATCH score were mainly attributed to primiparous mothers (42%) and incorrect positioning (35.5%). A significant positive correlation was found between the improvement of the LATCH score and weight gain at the six-week follow-up.

Conclusion: The LATCH score was found to be a simple tool for identifying mothers and infants who require breastfeeding support and timely intervention to sustain breastfeeding. The LATCH score can serve as an effective predictor of weight gain at the six-week follow-up.

INTRODUCTION

The World Health Organisation (WHO) advises Exclusive Breastfeeding (EBF) for six months [1]. Epidemiological data suggests that EBF acts as a preventive measure for a number of diseases [2-4]. Despite these advantages, EBF for six months is still a goal too far. Twenty million infants in India are not exclusively breastfed for the first six months [5]. The early postpartum period may be a crucial time for mothers to successfully initiate breastfeeding [6-8].

Lactation screening tools developed in recent years include behavioural, observational, and psychosocial aspects related to breastfeeding [9,10]. Several feeding assessment tools are available, such as [10]: Breastfeeding Attrition Prediction Tool (BAPT), Breastfeeding Self-efficacy Scale: Short form (BSES-SF), H and H Lactation Scale (HHLS), Lactation Assessment Tool (LAT), Bristol Breastfeeding Assessment Tool (BBAT), Infant Breastfeeding Assessment Tool (IBFAT), and the LATCH scoring system. The LATCH scoring system was designed by Jensen D et al., with a composite score ranging from 0 to 10 [11-13].

As there are very few studies, such as the one by Shah MH et al., which states that their study was the first to correlate the LATCH score with weight gain velocity at six weeks postpartum. Additionally, Shah MH et al., states that the study conducted by Sowjanya SVNS and Venugopalan L, is the only study in the literature from the

Indian subcontinent on a breastfeeding assessment tool [14,15]. Previous studies by Kumar SP et al., aimed to determine whether LATCH scores assessed during the in-hospital stay were predictive of breastfeeding at six weeks, and the study by Karthika S et al., was conducted to identify areas of needed intervention using the LATCH score and to find factors responsible for the fall in exclusive breastfeeding rates [13,16].

However, in the present study, the authors conducted a daily assessment of breastfeeding using the LATCH score until discharge. This approach helped in early recognition of factors causing a low LATCH score, which were then corrected through daily counselling and demonstrations of correct breastfeeding techniques including posture, attachment, latchment, and early recognition and correction of problems such as nipple issues and breast engorgement. These interventions aimed to achieve a LATCH score of >8 before discharge, which differs from the previous study by Shah MH et al., who stated that the main limitation of their study was the assessment of the LATCH score based on observing a single feeding session at one point in time, rather than using a composite score of several consecutive feedings [14].

The LATCH score is a simple tool to assess breastfeeding efficacy; however, it is not being implemented or used routinely, and no similar study has been conducted in Karnataka. Hence, the present study

was conducted to determine the correlation between the LATCH score and weight gain at six weeks post-discharge in term babies.

MATERIALS AND METHODS

This prospective cohort study was conducted at MVJ Medical College and Research Hospital, Hoskote, Bangalore, Karnataka, India, from January 2023 to June 2023. The study was conducted after obtaining Ethical Committee clearance (MVJMC & RH/IEC-13/2023).

Inclusion criteria: All healthy term and singleton babies delivered during the study period, along with their mothers, were included in the study.

Exclusion criteria: Preterm babies, term babies referred from outside, mothers/infants separated due to medical reasons at birth, infants/mothers requiring admission for any medical/surgical reasons during the follow-up period of the first six weeks postpartum, physiologically unstable sick neonates, and babies with an absolute contraindication to breastfeeding were excluded from the study.

Sample size: A total of 402 cases (mother-infant dyad) were initially screened during the study period. Among these 402 cases, 47 were excluded (due to separation of mother/babies requiring admission). After exclusion, 355 cases were eligible. Among these 355 cases, 285 newborns returned for follow-up at six weeks (44 babies were lost to follow-up/six were on formula feeds, and 20 babies were hospitalised in the first six weeks, either due to hypernatraemic dehydration or viral respiratory illness).

Study Procedure

A pretested, semistructured proforma was used to collect information after obtaining informed consent. The proforma included questions about the mother's age, education, occupation, prior experience with breastfeeding, and antenatal history. This information was collected through interviews with the mothers. All mothers were educated about proper breastfeeding techniques before initiation the first feed. They were encouraged to start feeding the newborn within one hour of life, both in cases of spontaneous vaginal deliveries and caesarean sections. LATCH scores were assessed at the time of the first feed, 24 hours, 48 hours, 72 hours, and at the time of discharge. Each letter of the acronym represents an area of assessment in the LATCH score:

L-How well the infant latches onto the breast.

A-Amount of audible swallowing noted.

T-Type of nipple.

C-Maternal comfort during feeding.

H-The amount of help the mother needs to hold her infant to the breast.

The total LATCH score ranges from 0 to 10, with higher scores indicating a higher likelihood of successful breastfeeding. A LATCH score of 0-3 is considered poor, 4-7 is moderate, and 8-10 is good. Mothers with low LATCH scores and the causes for the low scores were identified. They were then counselled and given demonstrations until discharge on the correct position for breastfeeding, latchment, identifying and rectifying nipple problems, and techniques such as correct positioning, latching, and syringing for breast engorgement. Weight gain velocity was analysed at the six-week follow-up period.

STATISTICAL ANALYSIS

The data was collected and compiled in MS Excel. Descriptive statistics were used to present the data. Statistical Package for Social Sciences (SPSS) (Version 26.0) was used to analyse the data. The significance level was set at 5% (p-value <0.05). Qualitative variables were expressed as frequency and percentages, while quantitative variables were expressed as mean and Standard Deviation (SD). ANOVA was used to compare the mean values between variables. Pearson's correlation was used to analyse the correlation between variables.

RESULTS

The mean age of the mothers was found to be 26.21±5.40 years. The majority of the mothers were graduates 124 (34.9%). A total of 202 (56.9%) of the mothers were multipara. Among the study participants, 283 (79.7%) delivered through Lower (Uterine) Segment Caesarean Section (LSCS). The mean birth weight of the newborns was found to be 2.93±0.29 kg. A total of 195 (54.9%) of the mothers had prior experience in breastfeeding. The mean time of initiation of the first feed after birth was found to be 35.06±15.29 minutes. The mean duration of hospital stay was found to be 4.48±0.821 days. The discharge weight was found to be 2.85±0.27 kg. A total of 70 (19.7%) of the mothers were lost to follow-up. In the present study, 279 (78.6%) of the newborns were exclusively breastfed [Table/Fig-1].

Variables		n (%)
Mothers age (years), mean±SD		26.21±5.40
Education	Primary school	40 (11.3%)
	High school	81 (22.8%)
	Higher secondary	110 (31%)
	Graduate	124 (34.9%)
Occupation	Working	79 (22.3%)
	Home makers	276 (77.7%)
Parity	Primi	153 (43.1%)
	Multi	202 (56.9%)
Gestational age, mean±SD		38.34±1.20
Mode of delivery	NVD	72 (20.3%)
	LSCS	283 (79.7%)
Birth weight (kg), mean±SD		2.93±0.29
Gender of the newborn	Male	200 (56.3%)
	Female	155 (43.7%)
Prior BF experience	Yes	195 (54.9%)
	No	160 (45.1%)
Time of initiation of 1st feed after birth (min), mean±SD		35.06±15.294
Duration of hospital stay (days)		4.48±0.821
Discharge weight (kg)		2.85±0.27
Loss to follow-up		70 (19.7%)
Baby on exclusive BF at six weeks	Yes	279 (78.6%)
	No	6 (1.7%)

[Table/Fig-1]: Characteristics of the mother and newborn.

The mean LATCH scores at the time of the first feed, 24 hours, 48 hours, and 72 hours were found to be 3.91±1.09, 5.61±0.890, 7.03±0.742, and 7.67±0.578, respectively. The mean LATCH score at discharge was found to be 9.12±0.662 [Table/Fig-2]. LATCH scores were categorised as poor (0-3), moderate (4-7), and

good (8-10). Out of 355 cases, 132 babies had a poor score, 222 had a moderate score, and 1 baby had a good score at admission. With daily assessment of the LATCH score and identification of risk factors, the scores improved to good by the time of discharge [Table/Fig-3].

LATCH score	Mean	Standard deviation
1st feed	3.91	1.09
24 hours	5.61	0.890
48 hours	7.03	0.742
72 hours	7.67	0.578
Discharge	9.12	0.662

[Table/Fig-2]: LATCH scores from 1st feed till discharge.

LATCH score	At admission	At discharge
Poor (0-3)	132	0
Moderate (4-7)	222	0
Good (8-10)	1	355

[Table/Fig-3]: Number of babies with poor, moderate, good LATCH score at admission/discharge.
LATCH score at six weeks was good (8-10) for all follow-up babies. However, it has not been calculated separately

The main reasons for a poor LATCH score were attributed to primiparous mothers (149, 42%) and incorrect positioning (126, 35.5%). A total of 53 (15%) of the mothers had a poor LATCH score due to short nipples, and 21 (5.9%) had a poor score due to flat nipples [Table/Fig-4].

Reasons for poor LATCH score	Frequency	Percentage
Primiparous mothers	149	42.0
Incorrect position	126	35.5
Short nipple	53	15
Flat nipple	21	5.9
Inverted nipple	14	3.9
Previous baby formula feed	14	3.9
Breast engorgement	6	1.7
Family members influence to start formula feeds	2	0.6

[Table/Fig-4]: Reasons for poor LATCH score.

Education and occupation were not found to be statistically significant with the LATCH scores during the first feed and discharge. Parity and prior experience with breastfeeding were found to be statistically significant with the LATCH scores during the first feed. The mode of delivery was found to be statistically significant with the LATCH scores during the first feed and at discharge, with the scores being highest among mothers delivered by Normal Vaginal Delivery (NVD) due to early initiation of breastfeeding compared to LSCS mothers [Table/Fig-5]. Weight gain at the six-week follow-up was found to increase with an improvement in the LATCH score in the present study. A positive correlation was found between the improvement in LATCH score and weight gain at the six-week follow-up, and this correlation was found to be statistically significant [Table/Fig-6,7].

DISCUSSION

The present study demonstrates the utility of the LATCH score at discharge as a predictor of weight gain at six weeks in term healthy babies. In a study by Karthika S et al., 94 (48%) had a caesarean delivery, which was lower compared to this study with 283 (79.75%)

Variables		LATCH score, mean±SD	
		1st feed	Discharge
Education	Primary school	3.65±1.075	9.17±0.636
	High school	3.85±1.141	9.07±0.685
	Higher secondary	3.95±1.095	9.10±0.677
	Graduate	4.00±1.059	9.15±0.646
p-value		0.319	0.816
Occupation	Working	3.86±1.174	9.10±0.672
	House wife	3.93±1.069	9.12±0.660
p-value		0.632	0.796
Parity	Primi	3.57±1.050	9.14±0.649
	Multi	4.17±1.053	9.10±0.672
p-value		<0.001	0.639
Mode of delivery	NVD	3.65±1.291	9.00±0.692
	LSCS	3.89±1.028	9.15±0.652
p-value		0.024	0.089
Prior BF experience	Yes	4.25±1.047	9.11±0.661
	No	3.50±1.003	9.13±0.665
p-value		<0.001	0.739
Baby on exclusive BF at 6 weeks	Yes	4.17±1.329	9.14±0.631
	No	3.94±1.053	9.00±0.000
p-value		0.490	0.610

[Table/Fig-5]: Predictors of LATCH score.

Variables	Values
Pearson's correlation	0.228
p-value	<0.001
n	285

[Table/Fig-6]: Correlation of improvement in LATCH scores with weight gain at six weeks follow-up.
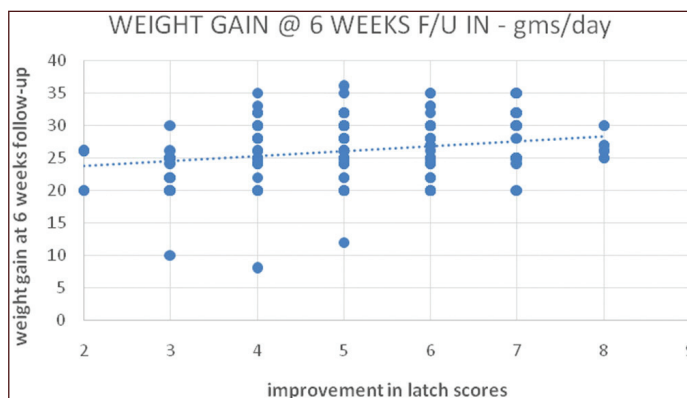
[Table/Fig-7]: Correlation of LATCH scores with weight gain at six weeks follow-up.

[16]. This finding was similar to the study by Shah MH et al., where 73 (78.5%) had a caesarean delivery [14]. About 78.6% of the newborns in the present study were found to be exclusively breastfed, which was similar to the study by Karthika S et al., where 84% were exclusively breastfed [16].

The mean LATCH score at the time of the first feed was found to be 3.91±1.09, which improved to 5.61±0.890, 7.03±0.742, 7.67±0.578, and 9.12±0.662 at 24 hours, 48 hours, 72 hours, and at the time of discharge, respectively. This improvement in the LATCH score was due to daily assessment of the LATCH score until discharge, early recognition of problems, and daily breastfeeding counselling sessions. This is in contrast to the study by Shah MH

et al., where only two LATCH score assessments were carried out, one within 24 hours of birth and the other at discharge, with LATCH scores of 6.2±1.45 and 7.6±1.42, respectively. The present study showed a significant improvement in the LATCH score at discharge [14]. The reasons for a poor LATCH score were mainly attributed to primiparous mothers (42%) and incorrect positioning (35.5%), similar to the study by Karthika S et al., which showed that compared to primiparous mothers (31.1%), multigravida mothers had a higher score of 62.2% [16]. The poor LATCH score at the first feed among primiparous women may be due to a lack of prior breastfeeding experience.

In the present study, 15% of the mothers were found to have a poor LATCH score due to short nipples, and 5.9% had a poor score due to flat nipples, which was similar to a study by Griffin CM et al., [17]. In the study by Shah MH et al., prior breastfeeding experience was significantly associated with a higher LATCH score at the first assessment, which is similar to the current study [14].

All study participants, irrespective of parity, mode of delivery, education, and occupation, showed a significant improvement in LATCH scores from the first feed to discharge. This improvement was attributed to breastfeeding sessions, similar to a study by Divya R et al., which demonstrated the importance of breastfeeding counselling in improving LATCH scores [18]. However, a study by Sroiwatana S and Puapornpong P, reported no improvement in LATCH scores even after counselling sessions, which contrasts with the findings of the present study [19]. The study participants in the present study consistently showed a good response, which may be a reason for the improvement in LATCH score.

Raghavan V et al., observed that babies with good LATCH scores had a better chance of being exclusively breastfed at six weeks, similar to the findings of the present study [20]. Additionally, in a study by Karthika S et al., exclusive breastfeeding at six weeks improved after intervention, which aligns with the results of the present study [16]. Thus, the LATCH score can be helpful in early identification of mothers with poor scores, and timely intervention can help sustain breastfeeding among them.

In the study by Shah MH et al., improvement in the LATCH score at discharge was significantly associated with appropriate weight gain of >20 grams per day, consistent with the findings of the present study [14]. In the current study, early initiation of breastfeeding immediately after birth, daily assessment of breastfeeding using the LATCH score, early recognition of barriers to breastfeeding, and early intervention through daily counselling helped improve the LATCH score and sustain exclusive breastfeeding and weight gain at six weeks post-discharge.

Limitation(s)

A limitation of the present study is that the LATCH score was evaluated as a whole, rather than evaluating the individual components of the LATCH score. Another limitation of the study is that factors such as maternal stress and social support, which play an important role in establishing breastfeeding, were not assessed. Additionally, the study had a small sample size and a significant number of cases were lost to follow-up at six weeks post-discharge.

CONCLUSION(S)

In the present study, the improvement in LATCH score served as an effective tool to predict weight gain at six weeks in term healthy babies, showing a statistically significant correlation. A low LATCH score indicates the need for early intervention. Frequent or daily assessment of the LATCH score and identification of barriers to exclusive breastfeeding can result in improved exclusive breastfeeding rates as well as weight gain. The present study suggests adopting and implementing the LATCH score in all maternity and child hospitals in developing countries like India to improve exclusive breastfeeding rates.

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