

Maternal and Newborn Factors Associated with LATCH Score and Breastfeeding Practices: A Cross-Sectional Study in a Tertiary Care Facility in Ahmedabad

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Abstract:

Introduction: LATCH is an acronym that stands for Latch, Audible swallowing, Type of nipple, Comfort and Hold. It helps in determining the breast-feeding effectiveness in post-natal mothers. **Objectives:** 1. To determine LATCH score in post-natal mothers. 2. To explore factors associated with LATCH score in a tertiary healthcare setup. **Methods:** A cross-sectional observational study was conducted in OBGY department of a tertiary care hospital in Ahmedabad among 100 post-partum mothers and their newborns selected purposively. LATCH score was assessed post observation & primary data was collected using pre-validated and semi-structured questionnaire. Chi-square statistics was utilized to determine the maternal and newborn factors associated with LATCH. **Results:** Majority of the participants (51%) had a LATCH score of <8, indicating ineffective breast feeding. The mean LATCH score was found to be $7.24 \pm 1.86SD$, with 5% of participants having lowest LATCH score of 0-3. Lower scores (<8) were significantly associated with caesarean (LSCS) delivery (**Conclusion:** LATCH score among post-natal mothers is primarily poor. Major determinants of lower LATCH scores are delayed initiation, improper positioning, and lack of skin-to-skin contact. Key clinical and maternal risk factors include preterm or C-section delivery, low birth weight, primiparity, low confidence and high maternal stress.

Keywords: Feeding, Infant, Postpartum Period

Introduction:

Breastfeeding, a vital childhood intervention remains an optimal method of infant feeding, conferring substantial short- and long-term health benefits for both neonates and mothers. These benefits include improved infant immunity, decreased risk of infectious and chronic diseases, better neurodevelopmental outcomes, and reduced maternal risks of postpartum haemorrhage, breast cancer etc.^[1] Despite these advantages, many

infants remain devoid of these benefits owing to numerous challenges faced by mothers, particularly in the initial postpartum period. Lack of confidence to breastfeed, problems associated with infant latching or suckling, breast pain or soreness, perceptions of insufficient milk and absence of personalized encouragement from healthcare providers during early postpartum are some of the common reasons for early breastfeeding discontinuation.^[2]

Quick Response Code	Access this article online	How to cite this article : Parikh T, Vegad H, Saurabh S, Shukla A, Vora HD. Maternal and Newborn Factors Associated with LATCH Score and Breastfeeding Practices: A Cross-Sectional Study in a Tertiary Care Facility in Ahmedabad. Healthline. 2026;17(3). 245-251
	Website : www.healthlinejournal.org	
	DOI : 10.51957/Healthline_848_2026	

Received : 19-05-2026

Accepted : 20-07-2026

Published : 15-10-2026

Early postpartum assessment of breastfeeding in the hospital before discharge may help

in identifying the problems faced by mothers associated with breastfeeding, providing necessary support and motivation, thus improving breast feeding efficiency and infant outcomes. For standardized evaluation of breastfeeding appropriateness, several clinical tools have been developed, among which the LATCH scoring system is most widely utilized. Originally introduced by Jensen, Wallace, and Kelsay in 1994, the LATCH tool acts as a simple, bedside method to document and quantify breastfeeding performance in a consistent and reproducible manner.^[3] The acronym LATCH represents five key elements of breastfeeding performance: Latch, Audible swallowing, Type of nipple, Comfort (breast/nipple), and Hold (positioning), each scored on a scale of 0 to 2, yielding a maximum total score of 10.

The LATCH score being similar to APGAR score format, helps healthcare providers to objectively assess breastfeeding technique, identify specific problem areas, and develop targeted interventions. However, various factors like mothers age, parity, birth weight of child, maternal stress, type of delivery etc have been found to affect LATCH score.^[2] Inappropriate latching during early phases of birth often leads to insufficient breast milk transfer thus becoming a conduit for degrading infant health further hampering normal growth & development in child.

Thus, this study was devised to determine LATCH score in post-natal mothers and explore various maternal and newborn factors affecting it.

Methods:

Study Design

A hospital-based cross-sectional study was conducted from January 2025 to March 2025 in the postpartum ward of a tertiary care teaching hospital.

Sample size

The sample size was calculated using Cochrane formula: $n = Z^2 pq / l^2$. Based on a previous Indian study by Boora MR et al.^[4] which reported the prevalence of unsatisfactory LATCH score (<8) as 60.3% at 24–48

hours postpartum, with a 95% confidence level and an absolute precision of 10%, the minimum sample size was calculated to be 96, which was rounded up to 100.

Study Population- Inclusion/exclusion criteria

All the mothers delivered and their respective newborn in OBGY department of tertiary care hospital during the study period were included in the study. Babies with congenital abnormalities like cleft lip, cleft palate, down's syndrome, birth weight <1.8 kg, gestational age <35 weeks and mothers with known psychiatric illness and/ or not willing to participate were excluded from the study.

Data Collection tools & technique

Data was collected after obtaining prior consent from the mothers. Post-birth breastfeeding initiation time was recorded, followed by LATCH score assessment using the LATCH charting system (Table 1) between 24 to 48 hours of birth. A LATCH score of 0-3 was regarded as poor, 4-7 as moderate, and 8-10 as good.^[3] Participants were further classified as having satisfactory LATCH score (≥ 8) and unsatisfactory LATCH score (<8).

Stress among mothers was assessed using the 10-item Perceived Stress Scale (PSS).^[5] Screening and diagnosis of postpartum stress were done based on PSS, with 0-13 graded as 'mild', 14-26 as 'moderate', and 27-40 'severe'. For simplifying the study calculations, scores of 0-26 was re-graded as low stress and 27-40 as high stress. It was rated on a five-point scale ranging from 'never' to 'very often'. PSS scores were obtained by reversing responses (e.g., 0=4, 1=3, 2=2, 3=1 and 4=0) to the four positively stated items (4, 5, 7, and 8) and then summing across all scale items.

Maternal Confidence was assessed using breast feeding self-efficacy scale short form (BSES-SF).^[6] Participants were evaluated for 14 items and scored on a 5-point Likert scale ranging from 1 (not at all confident) to 5 (always confident). The total score ranged from 14 to 70, with lower scores of 14-52 reported as low self-efficacy/confidence and 53-70 as high self-efficacy/confidence.

Observation Technique- Breastfeeding was observed unobtrusively by a single investigator (principal investigator) between 24-48 hours of delivery using the standardized LATCH assessment tool. Before commencement of data collection, the investigator underwent training in LATCH scoring under the supervision of the faculty from the Department of Community Medicine and the Department of Obstetrics & Gynaecology to ensure uniform application of the scoring criteria. The investigator evaluated infant latch, audible swallowing, maternal nipple type and comfort, and the assistance required for positioning and holding the infant. Scores for each component were recorded immediately after the feeding session using the standardized LATCH assessment form. Pre-existing conditions like hypertension, diabetes mellitus, hypothyroidism etc were reported as co-morbidities based on previous diagnosis & treatment history of the participants. Positioning and attachment of the baby was assessed in accordance to Infant & Young Child feeding (IYCF) & Integrated Management of Neonatal and Childhood Illness IMNCI guidelines.^[7,8]

Sociodemographic and birth related data were obtained by conducting a one-on-one interview using a

pre-validated and semi-structured questionnaire in vernacular language.

Ethical approval was obtained from Institutional Review Board (IRB) (NHLIRB/2026/22April/26/234). After securing necessary permissions from hospital authorities, post-natal mothers were identified and explained about the purpose of the study. Informed consent was obtained followed by LATCH related observation and interview of the participants. No incentives were provided to the participants.

Statistical Analysis

The data was entered in Microsoft Excel and data analysis was performed using SPSS version 21 software. Associations between LATCH scores and maternal /newborn factors were tested using Chi square tests. Statistical significance was considered at $p < 0.05$.

Results:

The total of 100 mothers and their children participated in the study, thus the percentages mentioned in the study corresponds to the actual frequencies. It was observed in the study that mean age of the mothers studied was 25.68 ± 3.9 years (minimum 19 and maximum 36) with majority of the mothers (88%)

Table 1: LATCH charting system ^[3]

Parameters	0	1	2
L: Latch	Too sleepy or reluctant, no latch achieved	Repeated attempts hold suck nipple in mouth stimulate	Grasps breast, tongue down lips flanged rhythmic suction
A: Audible swallowing	None	A few with stimulation	Spontaneous and intermittent <24 hours Spontaneous and frequent >24 hours old
T: Type of nipple	Inverted	Flat	Everted (after stimulation)
C: Comfort (Breast/nipple)	Engorged cracked, bleeding, large blisters, or bruises. Severe discomfort.	Filling reddened/small blisters or bruises mild/moderate discomfort	Soft, non-tende
H: Hold (positioning)	Full assist (Staff holds infant at breast)	Minimal assist (i.e., elevate head of bed; place pillows for support.) Teach one side; mother does other side. Staff holds and then mother takes over	No assist from staff mother able to position/hold infant

Table 2: Maternal and Newborn Characteristics (N=100)

Variables	Categories	Frequency (%)
Maternal Characteristics		
Age groups (in years)	≤25	20
	>25	80
	Mean Age: 25.68 ± 3.91	
Education	Primary	12
	Above Primary	88
Parity	Primipara	51
	Multipara	49
Type of Delivery	Normal	32
	C-Section	68
Newborn Characteristics		
Gestational Age	Full term	73
	Pre term	27
Birth weight	Normal	80
	LBW	20
Breastfeeding Initiation time	≤ 1 hour	24
	>1 hour	76
Signs of Good Attachment	Present	80
	Absent	20
Signs of Good Positioning	Present	82
	Absent	18
Skin-to-Skin Contact	Given	44
	Not given	56

Figure 1: Participant wise LATCH score (N=100)

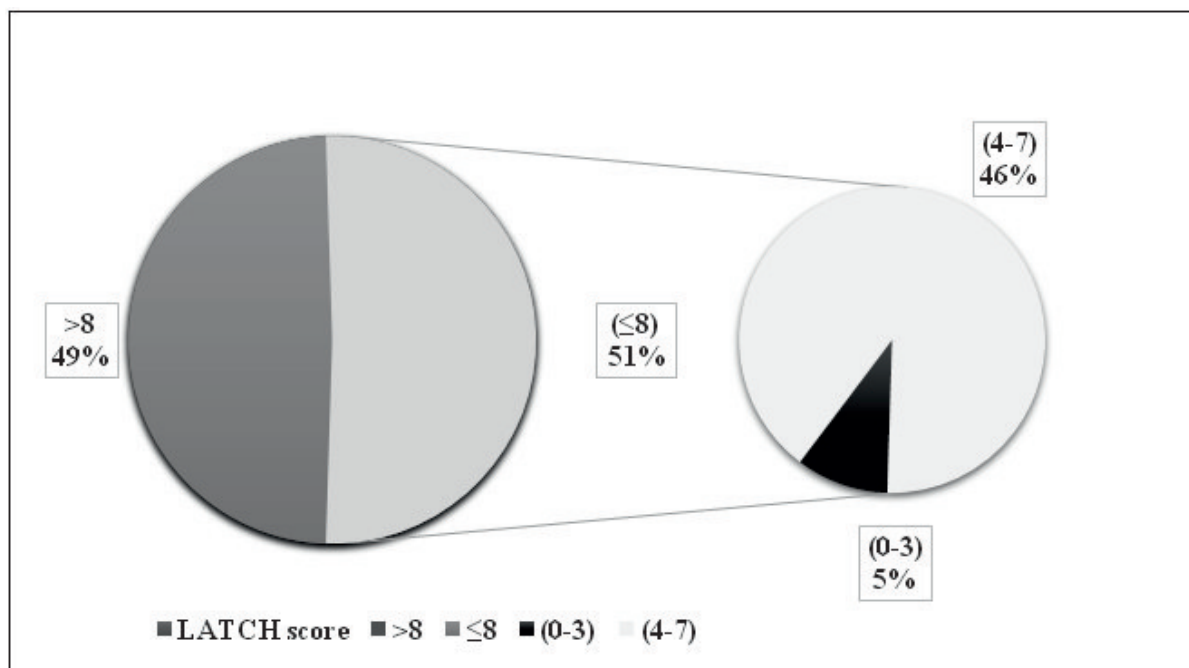


Table 3: Association between Maternal/Neonatal factors and LATCH score

Variable	Category	LATCH score	LATCH score	Chi square X ² Value	P value
		<8 (n=51)	≥8 (n=49)		
Age of mother	≤25 years	26 (47)	29 (53)	0.68	0.409
	>25 years	25 (56)	20 (44)		
Birth weight of baby	≤2.5 kg	18 (90)	2 (10)	15.21*	<0.001
	>2.5 kg	33 (41)	47 (59)		
Parity	Primipara	19 (70)	32 (30)	5.74*	0.016
	Multipara	30 (61)	19 (39)		
Type of delivery	Normal	8(25)	24 (75)	12.73*	<0.001
	C-section	43 (63)	35 (37)		
Gestational age of baby	Pre-term	19 (70)	8 (30)	5.55*	0.018
	Full-term	32 (44)	41 (56)		
Immediate skin to skin contact	Given	8 (18)	36 (82)	33.86*	<0.001
	Not given	43 (77)	13 (23)		
Confidence of mother	Less confidence	20 (87)	3 (13)	15.45*	<0.001
	High Confidence	31 (40)	46 (608)		
Maternal stress	High	32 (82)	7 (18)	24.66*	<0.001
	Low	19 (31)	42 (69)		
Good positioning of the baby	Present	35 (43)	47 (57)	12.61*	<0.001
	Absent	16 (88)	2 (12)		
Co-morbidity risk	Present	12 (71)	4 (29)	3.14	0.070
	Absent	39 (47)	45 (53)		
Breast feeding initiation time	Within 1 hour of birth	4 (17)	20 (83)	14.89*	<0.001
	After 1 hour of birth	47 (62)	29 (38)		
Maternal education	Upto primary level	7 (58)	5 (42)	0.293	0.58
	Above primary level	44 (50)	44 (50)		

*' denotes p value <0.05 (significant association)

having education above primary level. Almost half of the mothers (51%) in the study were primiparous with 61% of them showing signs of maternal stress post-delivery. Prior to the delivery, only 16% of the mothers were diagnosed with co-morbidities. Among the study participants, majority of the mothers delivered full term (73%) while LSCS (68%) remained the most common mode of delivery. Though 80% of the babies had a birth weight >2.5 kg (mean birth weight = 2.85 ± 0.60 kgs), breast feed was initiated after 1 hour of birth in majority (76%) of the babies. It was observed that positioning of the babies was good by 82% of the mothers, however immediate skin to skin contact was provided to just 44% of the babies. (Table 2)

Majority of the participants (51%) had a LATCH score of <8, indicating ineffective breast feeding. While 49% of the mothers achieved a LATCH score ≥ 8 ,

indicating effective breastfeeding (mean LATCH score being 7.24 ± 1.86), 46% had a LATCH score of 4-7 and 5% with LATCH score 0-3.

"Lower scores (<8) were significantly associated with caesarean (LSCS) delivery ($\chi^2=12.73$, $p<0.001$), delayed initiation (>1 hour post-delivery) of breastfeeding ($\chi^2=14.89$, $p<0.001$), absence of immediate skin-to-skin contact ($\chi^2=33.86$, $p<0.001$), preterm delivery ($\chi^2=5.55$, $p=0.018$), low-birth-weight ($\chi^2=15.21$, $p<0.001$), primiparity ($\chi^2=5.74$, $p=0.016$), poor positioning ($\chi^2=12.61$, $p<0.001$), higher maternal stress ($\chi^2=24.66$, $p<0.001$) and lower maternal confidence ($\chi^2=24.66$, $p<0.001$)"

Discussion:

The present study explores LATCH score among mothers in a tertiary healthcare setup and its association

with various maternal and neonatal factors. The mean LATCH score was found to be 7.24 ± 1.86 , which was considerably higher than a similar study conducted by Halgar K et al,^[2] and Lakshmi et al.^[9]

Maternal factors like parity, type of delivery, maternal stress, maternal confidence, early initiation of breast feeding and positioning of baby had significant association with satisfactory LATCH score (≥ 8). Some of the factors like parity and type of delivery found similarities when compared to the findings by Halgar K et al.^[2] A deeper look into the findings suggested that primiparous mothers were significantly more likely to have a LATCH score < 8 (chi square = 5.74, $p < 0.05$) similar to the findings by Gerçek et al,^[10] while neonates of confident mothers and mothers experiencing lower stress levels were significantly more likely to achieve a LATCH score ≥ 8 (chi square = 15.45 and 24.66, $p < 0.05$ respectively). This is likely due to the lack of previous breastfeeding experience, which can impact confidence, positioning skills, and early self-efficacy compared to multiparous mothers.

Early initiation of breastfeeding within one hour of birth resulted in a significantly higher LATCH score ≥ 8 (chi square = 14.89, $p < 0.05$), with 83% of these newborns scoring successfully which is in line with the findings of a similar study conducted in Karnataka,^[11] reiterating the fact that early initiation leverages the newborn's peak alertness in the first hour.

Key findings related to the delivery process and newborn status included mode of delivery where neonates born via vaginal delivery were found to have a significantly higher LATCH score ≥ 8 (chi-square = 12.73, $p < 0.05$) compared to C-section deliveries which is similar to the study done by Ýsik et al,^[12] and Pillai et al,^[13] possibly due to C-section mothers experiencing delayed physical recovery, higher stress, and a delay in the initiation of breastfeeding due to the operative setting. A similar study conducted by Ýsik Y et al.^[12] and Cetisli et al^[14] suggested that the mothers who delivered their babies by caesarean section had problems related to maternal attachment and breastfeeding more often than those who delivered vaginally and hence the lower LATCH scores.

Consecutively babies who received immediate skin-to-skin contact were overwhelmingly more likely to score LATCH ≥ 8 (chi square = 33.86, $p < 0.05$), with 82% of this group achieving a successful score. Neonatal factors like low birth weight ($< 2.5\text{kg}$) and pre-term babies had a significantly higher prevalence of LATCH scores < 8 (chi square = 15.21 and 5.55 respectively, $p < 0.05$) which likely attributes to the newborn's immaturity, weaker suck/swallow reflex, thus requiring greater assistance for a sustained latch.

The study identified a critical practice of providing ample support to the mothers for positioning to be a crucial component as good positioning of baby was significantly associated with a LATCH score ≥ 8 (chi square = 12.61, $p < 0.05$). Since the "Hold" component of the LATCH score is directly linked to the assistance provided for positioning, the need for healthcare providers to train and support mothers during breastfeeding becomes paramount.

Limitation:

The main limitation of the study was that the assessment of LATCH score was done by observing a single feeding session at one point in time and not a composite score of several consecutive feedings. Breastfeeding by mothers was not followed beyond 48 hours. Hence, other facets related to breastfeeding that appear later could not be assessed. Neonates who were born with congenital anomalies leading to feeding difficulties or requiring NICU admission who may be at risk of improper breastfeeding were not included in the study.

Conclusions:

It can be concluded from the study that a majority of the participants had unsatisfactory LATCH score (< 8), indicating ineffective breast feeding. The main risk factors of unsatisfactory LATCH score were found to be poor breast-feeding practices such as delayed initiation (later than 1 hour after delivery) of breastfeeding, improper positioning, preterm & C-section delivery, lack of immediate skin-to-skin contact, low birth weight ($< 2.5\text{kg}$) and important maternal factors like primiparity, low confidence and raised stress level of mothers. It

underscores a greater need for the healthcare providers to train the mothers in proper technique during antenatal phase and assist them in post-natal phase to achieve better LATCH scores and infant outcomes.

Recommendation:

Routine LATCH score assessment should be incorporated within 24–48 hours of delivery to identify mothers requiring breastfeeding support before discharge. Additional counselling and hands-on assistance by trained healthcare provider should be prioritized for mothers with caesarean delivery, primiparity, preterm birth, low-birth-weight infants, high maternal stress, and low breastfeeding confidence, as these factors were significantly associated with lower LATCH scores. Healthcare providers should also ensure early initiation of breastfeeding, immediate skin-to-skin contact, and correct positioning and attachment to improve breastfeeding effectiveness.

Declaration:

Conflict of Interest: None declared

Funding: None

Use of AI: None

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