Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

Original research article

A study on the role of latch score as a predictor of exclusive breastfeeding at 6 weeks and 10 weeks in postpartum primigravida in a tertiary care centre

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Abstract

Aim: The present study was done to assess the LATCH score in predicting exclusive breastfeeding by 6 weeks and 10 weeks of age and simultaneously used as an educational tool among educated mothers to improve their knowledge and confidence in promoting exclusive breastfeeding.

Materials and methods: This hospital-based prospective cohort study was conducted in the Department of Pediatrics, Viswabharathi Medical College, over 1 year from, during which 96 primipara mothers with their newborns were enrolled in the study. LATCH score was assessed at 8 hours of life and 48 hours of life. Mothers were contacted during routine immunization at 6 weeks and 10 weeks and enquired whether the baby is exclusively breastfed or not and the reason for early weaning was enquired for.

Results: In the current study it was observed that the majority of mothers belong to the age group of 21-25 years and belonged to the middle class. The sex ratio among the infants was equal. The majority (50%) of the mothers had a normal vaginal delivery, 14.3% had elective LSCS, 31.2% had emergency LSCS and 4.1% had assisted vaginal delivery using forceps. The majority of infants (45.8%) were first fed between 61 to 90 minutes. The mean time of first feed in the infants was 68.36 ± 31.14 minutes with a minimum time of 20 minutes and maximum time of 225 minutes. There was a significant increase in time for first feed among infants delivered by caesarian section when compared with delivered by normal vaginal delivery. Among various reasons for early weaning (n=35), the majority (37.1%) had less breast milk secretion.

Conclusion: This study concludes that the LATCH score can be used to identify mothers who would adopt non-exclusive breastfeeding and how proper education about breastfeeding can alter the attitude of mothers to adopt EBF.

Keywords: Breastfeeding, infants, lactating mothers, breast milk

Introduction

Breast milk is considered a well-thought-out essential for the endurance of the infant during the first year of life [1, 2]. Best Infant and Young Child Feeding emphasizes-beginning breastfeeding in 1st hour of life and continuing breastfeeding exclusively for 6 months. Breastfeeding improves mother and child emotional bonding and supplies species-specific nutrients and non-nutritional growth factors, immune factors, hormones, and other bioactive components that can act as biological signals to support normal infant growth. It can also lessen the frequency and severity of infectious diseases in the child, improve neurodevelopment, and reduce the prevalence of childhood obesity Breastfeeding helps promote the health of the mother by reducing risks of adverse cardiovascular health and type 2 diabetes and risk of maternal breast, ovarian and endometrial cancer [3].

Initiation of early breastfeeding i.e., as early as possible after the first hour of life, is crucial for establishing a successful lactation and providing the newborn with "colostrum", or the mother's first milk. This early initiation by the baby promotes milk production and secretion.

Late initiation of breastfeeding not only deprives the child of the valuable colostrum but also becomes a reason for the introduction of pre-lacteal feeds like water, glucose, honey, animal or formula milk which are potentially harmful and invariably contribute to diarrhea in the newborn [4].

Exclusive breastfeeding (EBF) is defined as “an infant’s consumption of human milk with no supplementation of any type (no water, no juice, no non-human milk, and no foods) except for vitamins, minerals and medications until six months”. EBF for six months is essential for both infant and maternal health. Adding even a single feed of the animal or formula milk, any other food or even depresses

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

lactation as a child will suck less and hence less breast milk will be produced, and also will increase the chances of infections particularly diarrhea and Pneumonia [5]. Partially breastfed or completely not breastfed newborns have a significantly higher risk of mortality from diarrhea and the other infectious diseases.

To overcome the problems that the mother faced in initiating breastfeeding, an objective assessment method was needed that forms a checklist of important areas of breastfeeding [6]. The main characteristics that make a breastfeeding assessment tool useful in clinical settings are reliability, validity and responsiveness. The screening tools should be simple to use and reliable to identify at-risk mothers Five lactation screening tools have been identified based on the assessment of maternal behavior/attitude and infant sucking skills in breastfeeding BREAST Feed Observation Form, Lactation Assessment Tool, LATCH Scoring System, Mother-Baby Assessment Tool and Mother-Infant Breastfeeding Progress Tool [7].

The LATCH score was devised in 1994 by Jensen, Wallace and Kelsay to assist health professionals in evaluating maternal and infant breastfeeding techniques [6]. It has the advantage of having fewer components and the similarity with the Apgar score format, which makes it easier to apply in practice. The LATCH scoring assessment tool has a composite score of 0-10, similar to the Apgar scoring system. The staff involved should be well-trained to ensure the reliability of the tool [7]. This tool is to be completed by nurses and the self-report from the mother will be recorded in response to standard questions for each parameter. The score would indicate the extent of support required from nursing staff to the mother and infant during breastfeeding so that healthcare professionals (HCPs) could assign a higher priority to offer help [6, 8, 9].

The present study was done to assess the LATCH score in predicting exclusive breastfeeding by 6 weeks and 10 weeks of age and simultaneously used as an educational tool among educated mothers to improve their knowledge and confidence in promoting exclusive breastfeeding.

Materials and Methods

This prospective cohort study was conducted in the Department of Pediatrics, Viswabharati Medical College, Kurnool from March 2022 to February 2023. Based on the prevalence rate of primigravidas in our hospital (which was 1750 in the year 2021 and the OPD was 2, 89,985 for the same period), using a simple random sampling method, a sample size of 96 participants was calculated. Primi mothers who underwent either vaginal delivery or cesarean section or who delivered term healthy newborns or mothers with singleton pregnancies or who delivered normal-weight newborns were included in this study.

Women with any complications during the antenatal period or multigravidas or newborns with birth asphyxia or with weight <2.5 Kgs or > 3.5 Kgs premature babies or babies with congenital malformation or sick babies and babies with absolute contraindication to breastfeeding were excluded from the study.

Confidentiality of study participants was maintained. Informed consent was taken on the proforma sheet. Before initiating the first feed all the mothers were educated about proper breastfeeding techniques. LATCH score was assessed and first recorded at 8 hours of life and subsequently at 48 hours of life. A final score of > 8 at 48 hours was a positive predictor of successful exclusive breastfeeding for the next 6 months. If the score was < 8 at 48 hours, it indicates that the mother was still having difficulty feeding the baby and was suspected to go in for early weaning. The intervention was needed if the score was less than 8. Mothers were contacted during routine immunization at 6 weeks and 10 weeks to know if the baby was exclusively breastfed or not.

Statistical methods

Data was entered in Microsoft Excel 2016. IBM SPSS 20.0 software was used for statistical analysis. For quantitative variables, the mean and SD were used in the descriptive analysis, while frequency and proportion were used for categorical variables.

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	0	1	2
L Latch	Too sleepy or reluctant No latch achieved	Repeated attempts Hold nipple in mouth Stimulate to suck	Grasps breast Tongue down Lips flanged Rhythmic sucking
A Audible swallowing	None	A few with stimulation	Spontaneous and intermittent <24 hrs old Spontaneous and frequent >24 hrs 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 Nontender
H Hold (positioning)	Full assist (staff holds infant at breast)	Minimal assist (ie, elevate head of bed, place pillows for support) Teach one side; mother does other Staff holds and then mother takes over	No assist from staff Mother able to position/hold infant

Results

The majority of mothers belong to the age group of 21-25 years (49%) followed by 26-30 years (28.2%) age. The mean age of the mothers was 22.02 ± 3.81 years with minimum age of 18 years and maximum age of 38 years. Most of the study participants had finished their secondary school education (51%). 31.2% of mothers studied till primary school, 11.4% of mothers studied till intermediate, 5.2% of mothers were graduates and 1% of mothers were post-graduates.

Many study participants (62.5%) belonged to the middle class, 19.7% of mothers belonged to a lower middle class, 12.5% belonged to the upper middle class and 12.5% of mothers belonged to the upper class.

Normal vaginal delivery (50%) was the most common mode of delivery, followed by LSCS (45.5%) and assisted vaginal delivery (4.1%).

The majority of infants (45.8%) had first feed between 61 to 90 minutes after delivery. The mean time for first feed among newborns delivered by cesarean section was 82.37 ± 19.01min which was significantly higher than that among newborns delivered by normal vaginal delivery (46.03 ± 33.80min). 51% of newborns were males and 49% were females.

63.5% of infants had exclusive breastfeeding whereas 36.5% of infants had no exclusive breastfeeding at 6 weeks. Less breast milk secretion (37.1%) and hypoglycemia (20%) were the commonest reasons for not breastfeeding exclusively. Other reasons were sick condition of the mother, flat nipples, hyperbilirubinemia and traveling.

The median LATCH score at 8 hours was 6, at 48 hours it was 7, at discharge was 9, and at 6th and 10th weeks was 10. There was statistical significance (P value <0.0001).

Table 1: Comparison of LATCH scores over the mode of delivery

LATCH score	Mode of delivery				P value
	LSCS		Vaginal		
	Median	Range	Median	Range	
At 8 hrs	5	3,9	7	5,10	<0.0001
At 48 hrs	6	4,9	8	6,10	<0.0001
At discharge	8	5,10	9	6,10	0.0003
At the mother's discharge	8	5,10	9	6,10	0.0004

There is a statistically significant difference between the median LATCH scores over the mode of delivery.

Table 2: Comparison of Mother's behavior with LATCH scores

LATCH score	Mothers behavior				P value
	Needs help		Will try + breastfeed		
	Median	Range	Median	Range	
At 8 hrs	6	3,9	7.5	5,10	0.000
At 48 hrs	6	4,7	7	5,9	<0.0001

Mothers who studied above secondary school had significantly higher rates of exclusive breastfeeding (88.7%) than those mothers who studied only up to secondary school (58.2%). 70.5% of mothers belonging to the socio-economic class upper middle and upper class breastfeeding for 6 weeks and 10

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

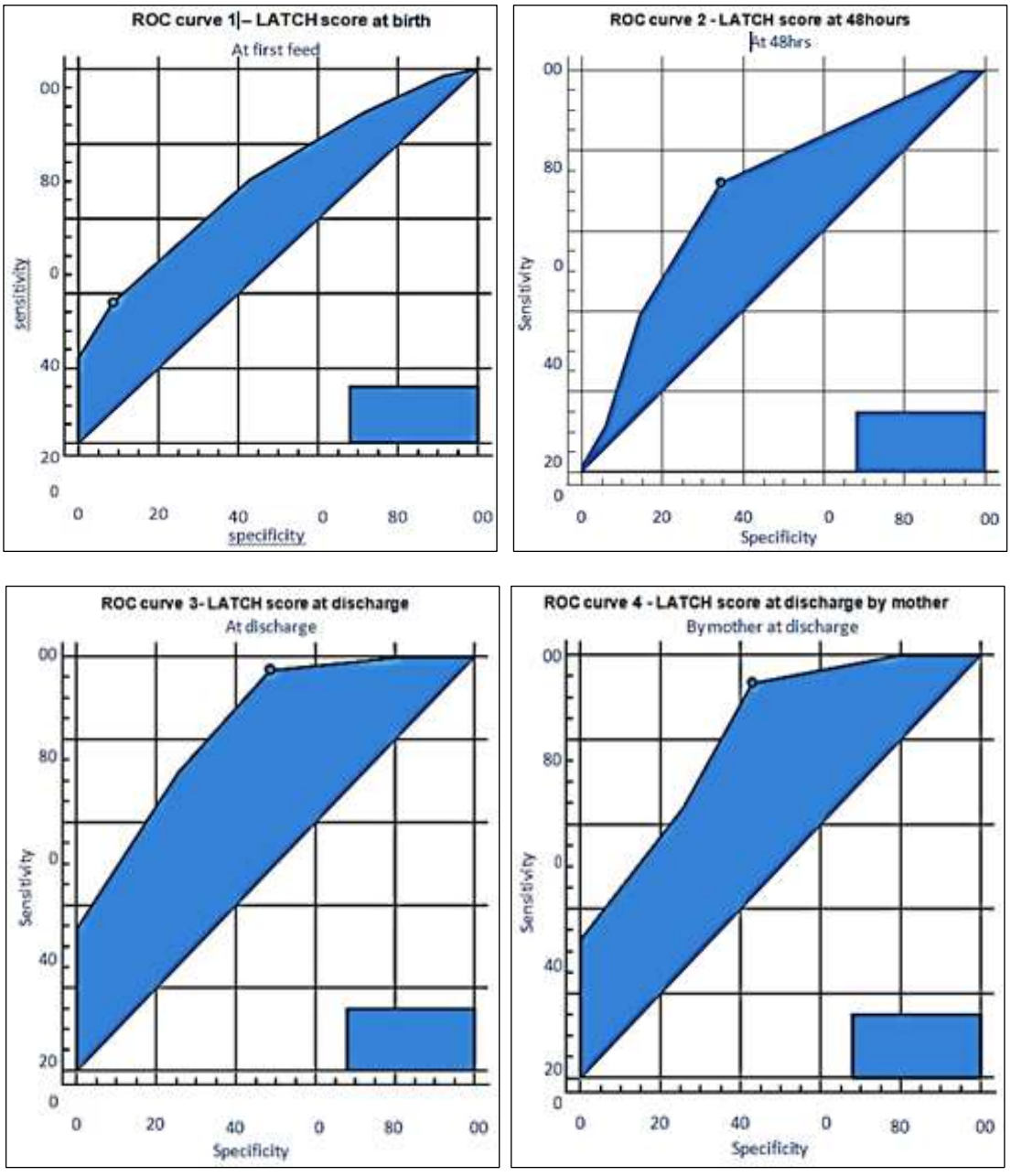
weeks.

A higher percentage of mothers (82.6%) who had normal vaginal delivery gave breastfeeding for 6 weeks and 10 weeks. The odds of infants with exclusive breastfeeding for 6 weeks and 10 weeks was 3.87 times more among mothers delivered by vaginal delivery in comparison to mothers delivered by cesarean section.

Table 3: Comparison of LATCH scores at different timelines with exclusive breastfeeding during 6 weeks and 10 weeks

LATCH score	Breastfeeding during 6th week and 10th week				P value
	Yes (61)		No (35)		
	Median	Range	Median	Range	
At 8hrs	6	3,10	5	3,7	0.0002
At 48hrs	7	5,10	6	4,9	0.0004
At discharge	9	7,10	7	5,9	<0.0001
At discharge by mother	9	7,10	7	5,9	<0.0001
At 6th week and 10th week	10	8,10	9	6,10	<0.0001

There was a statistically significant difference in LATCH score distribution at every point of time till the 10th week after delivery, among the exclusively breastfed group.



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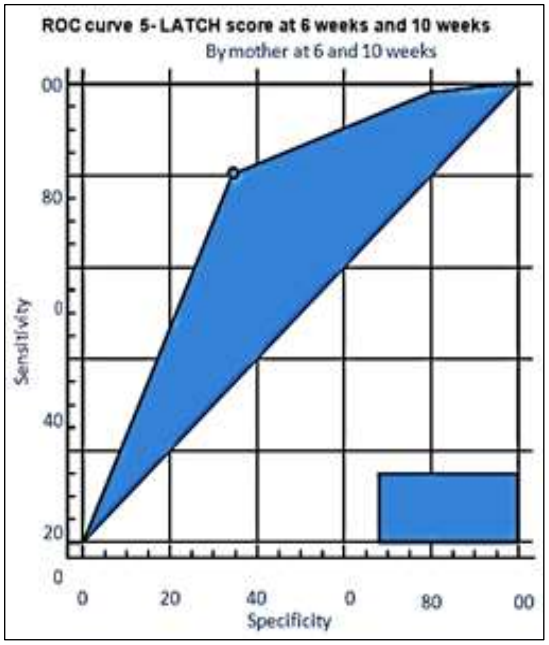

ROC curves:

a) LATCH score >5 at birth showed a sensitivity of 70.49% and specificity of 57.14% in the prediction of exclusive breastfeeding at 6 weeks with an Area under the curve of 0.711 (0.609-0.799).
b) LATCH score >6 at 48hrs showed a sensitivity of 72.13% and specificity of 65.71% in the prediction of exclusive breastfeeding at 6 weeks with an Area under the curve of 0.711 (0.609-0.799)
c) LATCH score >8 at discharge when assessed by a health professional showed a sensitivity of 72.13% and specificity of 74.29% in the prediction of exclusive breastfeeding at 6 weeks and 10 weeks with an Area under the curve of 0.839 (0.750-0.906).
d) LATCH score >7 at discharge when assessed by the mother showed a sensitivity of 93.44% and specificity of 57.14% in the prediction of exclusive breastfeeding at 6 weeks and 10 weeks with an Area under the curve of 0.819 (0.727-0.890).
e) E-LATCH score >9 at 6 weeks and 10 weeks when assessed by the mother showed a sensitivity of 80.33% and specificity of 65.71% in the prediction of exclusive breastfeeding at 6 weeks with an Area under the curve of 0.745 (0.646-0.828).

Table 4: Comparison of mother's behavior at 8hrs, 48 hrs, at discharge with breastfeeding at 6th week and 10th week

Mother's behavior		Breastfed at 6th week and 10th week		P value
		Yes (61)	No (35)	
At 8 hrs	Need help	4 (25.0%)	12 (75.0%)	0.001
	Will try	46 (67.6%)	22 (32.4%)	
	Can breastfeed	11 (91.7%)	1 (8.3%)	
At 48hrs	Need help	4 (25.0%)	12 (75.0%)	0.001
	Will try	46 (67.6%)	22 (32.4%)	
	Can breastfeed	11 (91.7%)	1 (8.3%)	
At discharge	Need help	0 (0.0%)	1 (100.0%)	<0.0001
	Will try	6 (20.0%)	24 (80.0%)	
	Can breastfeed	55 (84.6%)	10 (15.4%)	

The LATCH score difference in mother's confidence about breastfeeding at 8 hrs, at 48 hrs, and at the time of discharge was observed to be significant after educating them.

Discussion

WHO advises early breastfeeding, i.e. within one hour following. This guarantees that the newborn obtains colostrum and mother and child have skin-to-skin contact as soon as possible. Hypothermia risks are reduced, and the mother-infant relationship is strengthened as a result. Infants learn to suckle while they are young as babies are active when they are first born. Early breastfeeding has been demonstrated to reduce morbidity and mortality including newborn sepsis in underdeveloped nations. This prospective cohort study was done among 96 Primipara mothers and their newborns who were admitted to the postnatal ward in Viswabharati Medical College, Kurnool.

The majority of mothers belong to the age group of 21 to 30 years of age group. The mean age of the mothers was 22.02 ± 3.81 years with minimum age of 18 years and maximum age of 38 years. Most of

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

the women had finished their secondary schooling (51%). Most of the mothers (62.5%) belonged to the middle class in our study. Normal vaginal delivery was the commonest mode of delivery (50%) in the present study. 51% of infants were males and 49% were females. Similar demographic findings were seen in studies done by Swapna KP *et al.* [10] and Divya E *et al.* [11].

In the current study, 63.5% of infants had exclusive breastfeeding at 6 weeks and 10 weeks whereas 36.5% of infants had no exclusive breastfeeding at 6 weeks and 10 weeks.

In a study by Sowjanya *et al.* [12], the prevalence was found to be 62% at 6 weeks; the prevalence reported here is higher. The prevalence of EBF at 6 weeks was 84% in a different study conducted in Pondichery by Karthika S *et al.* [13].

Less breast milk production was the major reason for not exclusive breastfeeding (37.1%). However, maternal issues made up 42% of the study by Karthika S. *et al.* [13] followed by influences from health professionals and lower secretions noticed by mothers and other family members.

Cutoff values as determined by ROC Analysis of LATCH scores are >5 at birth, >6 at 48hrs, >8 at discharge, >9 at 6 weeks, and >9 at 10 weeks in the present study. However, the LATCH score calculated by the mother at the time of discharge had a higher specificity and sensitivity. A study conducted by Tornese *et al.* [14] found that a LATCH Score 6 had a sensitivity of 20% and a specificity of 92% for predicting non-exclusive breastfeeding at 6 weeks. According to Sowjanya *et al.* [13] study a cutoff score of >6 at birth showed the highest sensitivity (93.5%), specificity (65.78%), and relative risk (5.92). (2.37- 14.81).

LATCH score in mothers who had normal vaginal delivery was significantly higher at 8hrs, 48hrs, at time of discharge, at 6 weeks, and at 10^{th} week, than in mothers who had LSCS or assisted vaginal delivery. A study done by Swapna KP *et al.* [10] showed that 41.8% of mothers who delivered by NVD and 33.6% of mothers who delivered by LSCS showed higher LATCH scores where there has been statistical significance (P value <0.05).

Educating the mother about the proper techniques of breastfeeding is very crucial. The improvement in the technique of the mother was measured at different intervals (24hrs and 48hrs) and was correlated with the LATCH score. In the present study, the LATCH score had significantly improved after educating the mothers and more mothers ensured proper techniques of breastfeeding, thereby improving the score.

In the present study, 58.2% of women who studied till SSC had given EBF to their infants for 6 weeks and 10 weeks, and 88.7% of women with education till intermediate and more have given EBF to their infants for 6 weeks and 10 weeks. The higher the education level, the better the mothers realize the importance of exclusive breastfeeding.

Women with more than 12 years of education have 5.2 times more chance to have EBF than women with less than 9 years of education, according to a study conducted in Baghdad by Iqbal *et al.* [15] contrast, a study conducted in Jordan16 showed that those with high education were less likely to use EBF than women with low education.

Women from lower, lower-middle, and middle SES had relatively lower rates of EBF (56.9%) than compared to women from upper-middle and upper-class SES (70.5%).

When comparing our findings to those of a study conducted by Amir L *et al.* [17] in Australia, it can be seen that women from lower socioeconomic status families or families with lower incomes are less likely to breastfeed for a variety of reasons, such as less family support, fewer opportunities to receive assistance with breastfeeding issues and less flexible work schedules.

Rosemary Blyth *et al.* [18] enrolled 300 mothers to know the impact of maternal self-assurance on the duration of breastfeeding by applying the breastfeeding self-efficacy theory. They were asked to fill out questionnaires about infant feeding motivations. Subsequently, they were contacted via telephone at 1 week and 4 months postpartum to learn about the infant feeding approaches and maternal confidence level. At one week after giving birth, 91.7% of moms were still nursing their babies, and 10 of them did so for only three days. Insufficient milk supply, maternal issues such as nipple difficulties, mastitis, and exhaustion, newborn issues including bad latch, slow weight growth, and feeding periodicity were all cited as reasons for not feeding. The emergence of solid foods and limited milk supply were the causes of the change in newborn feeding patterns.

Conclusion

This study showed that the LATCH Score is a crucial tool for determining whether babies will be exclusively breastfed at six weeks and ten weeks. Therefore, the LATCH Score should be well-versed by postgraduates, residents and nursing staff and it should be practiced during the postnatal rounds to identify the high-risk women.

Conflict of interest: None.

Funding support: Nil.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 09, 2023

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