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A PROSPECTIVE OBSERVATIONAL STUDY ON LATCH SCORE AS A PREDICTOR OF EXCLUSIVE BREASTFEEDING IN MOTHERS ADMITTED IN THE POSTNATAL WARD AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Breast milk is the best nutrition and it is intended specifically for newborns because it consists of various antibody components, complete nutrition and is easily digested by newborns. WHO and UNICEF recommend to give optimal nutrition for newborns through a program of exclusive breastfeeding for six months.The skills of breastfeeding babies can be mastered naturally in every mother, mothers must still understand good and correct techniques during breastfeeding.It is often failure to breastfeed due to the wrong position and placement of the baby. LATCH score is an effective assessment tool to figure out those mother infant pairs who require support for breastfeeding and a low score below the derived cut off may denote that the mother requires breastfeeding support. Earlier the breastfeeding is established, better was the chance of successful breastfeeding in the days. Hence interventions should be done in the early phase after birth of the baby.

Aim and objective : To study the utility of LATCH score in predicting exclusive breastfeeding rates at 6 weeks postpartum along with an optimum cut off._Primary objective -To study the relationship between the LATCH score assessed in the first 24 hours after delivery and non-exclusive breastfeeding.

Materials: A hospital based prospective observational study was conducted at postnatal ward in KMCT Medical College, Kohikode. 269 postnatal mothers were included and the LATCH score was calculated once within 24 hours after delivery. The association between LATCH score and non exclusive breastfeeding at 6 weeks and 6months were tested.

Results: Among the study population, 76.6% had good total LATCH score,22.7% had moderate and poor score for 0.7%.. All participants with poor LATCH score and 78.7% of partcipants with moderate LATCH score followed non- exclusive breast feeding at 6 weeks. There was statistically significant association between LATCH score and non-exclusive breast feeding at 6 weeks and 6 months.

Conclusions: There is a statistically significant association between LATCH score and non exclusive breastfeeding at 6 weeks and 6 months.Cut off value between 7.5-8.5 showed maximum sensitivity and specificity in predicting breastfeeding status. Health workers should be made aware of components of LATCH score and should be trained regarding skillful assessment of breastfeeding technique. Antenatal and post natal advice regarding initiation and techniques of breastfeeding should be given to mothers.

INTRODUCTION

Breastfeeding is an art and the skill has to be achieved. Breast milk is the best nutrition and it is intended specifically for newborns because it consists of various antibody components, complete nutrition and is easily digested by newborns compared to formula milk[2]. WHO and UNICEF recommend to give optimal nutrition for newborns through a program of exclusive breastfeeding for six months[1]. The American Academy of Pediatrics recommends exclusive breastfeeding for babies for a minimum of 6 months and it can be continued at least until the baby is 12 months old.

Breastfeeding confers to both the mother and her child many short- and long-term benefits.[3] Although breastfeeding is the natural norm, successful breastfeeding can be a complex task for the mother–infant pair. It requires adequate infant neurobehavioral development, sufficient coordination of sucking, swallowing and breathing,[4,5] and a motivated and comfortable mother. Therefore, maternity health professionals need reliable, reproducible tools to assess the effectiveness of the feed and to identify mother–infant pairs who need extra support and follow-up[6].

Postpartum mothers who have just given birth, they usually describe the first few weeks of breastfeeding as a very difficult time, with many unexpected problems that emerge[7]. The research conducted by Tauriska, T. A, et al [8] reveals that the correct attachment will produce the right suction of infant. If the suction of infant is correct, it will stimulate the hypothalamus which will stimulate the anterior pituitary gland to produce prolactin and the posterior pituitary to produce the hormone oxytocin[9]. If the suction of baby is correct, it will be characterized by rounded cheeks, more areola above the mouth, slow, deep and resting suction, can be heard when the baby swallows. Research by Abbas et al [10]argue that the skills of breastfeeding babies can be mastered naturally in every mother, mothers must still understand good and correct techniques during breastfeeding to babies. It is often failure to breastfeed due to the wrong position and placement of the baby.

Hence there is a rising need for an assessment tool to assess the technique of breastfeeding early during hospital stay itself and support has to be offered for the establishment of successful breastfeeding at the earliest.Mothers should be discharged only if they are made confident enough to feed her baby without any external support, be it physical or mental. LATCH score is an effective assessment tool to figure out those mother infant pairs who require support for breastfeeding. Routine assessment of LATCH score in all mothers after delivery should be made mandatory and this may make a lot of changes in the outcome of breastfeeding.In various studies, it was observed that earlier the breastfeeding is established, better was the chance of successful breastfeeding in the later days.so interventions should be done in the early phase itself that is in the first 48 hours after birth of the baby.

The position of the baby and placement of the baby play key role in successful initiation of breastfeeding. Moreover the type of nipples also play a major role as the child finds it difficult to suck from a flat or retracted nipples. All these factors are taken into account in LATCH score and adequate scores are given. Total score is calculated and a low score below the derived cut off may denote that the mother requires breastfeeding support.

AIM AND OBJECTIVES

AIM

- To study the utility of LATCH score in predicting exclusive breastfeeding rates at 6 weeks postpartum along with an optimum cut off.
- LATCH score is assessed within 24 hours of delivery and the status of breastfeeding (exclusive or non exclusive) obtained by interviewing the mothers at the first immunization visit at 6 weeks post partum.

OBJECTIVES

Primary objective

- To study the relationship between the LATCH score assessed in the first 24 hours after delivery and non-exclusive breastfeeding.

Secondary objective

- To identify a cutoff for the LATCH score so as to identify women with increased risk of non-exclusive breastfeeding who may need additional breastfeeding support.
- To identify the factors leading to non exclusive breastfeeding.

MATERIALS AND METHODS

STUDY DESIGN

This is a type of hospital based prospective observational study

STUDY SETTING

Postnatal ward in KMCT Medical College, Manassery

STUDY PERIOD

April 2021-July 2021

STUDY POPULATION

All mothers admitted at postnatal ward at Woman & Child Hospital, KMCT Medical College during the period of April 2021-July 2021

SAMPLING

Sampling Population: All Mother infant dyads admitted in postnatal ward of KMCT Medical College, Mukkam during April 2021-July 2021.

INCLUSION CRITERIA

All Mother infant dyads in postnatal ward of KMCT Medical College, Mukkam, Kozhikode during April 2021-July 2021.

EXCLUSION CRITERIA

1. Mothers with sick baby
2. Early preterm babies
3. Mothers not giving consent

METHOD OF DATA COLLECTION

A brief introduction to the mothers regarding the study was given, then consent was obtained. The mother to be interviewed was given a pre-tested proforma regarding demographic details of delivery. Mothers were examined while breastfeeding ensuring proper conduct and privacy. Interventions were done as and when required. Follow up of these patients was done at 6 weeks and at 6 months

SAMPLING TECHNIQUE

The following data were collected from medical records:

- infant's date of birth
- parity and twin pregnancy;

- Phone number
- birth weight and gestational age;
- type of delivery (vaginal, elective CS, or emergency CS);
- Apgar score at 1 and 5 minutes;
- The LATCH score calculated once within 24 hours after delivery

(partial scores for each breastfeeding component and total score);

Latch Score

	0	1	2	TOTAL
L LATCH	Too sleepy or reluctant	Repeated attempts for sustained latch or suck. Hold nipple in mouth Stimulate to suck	Grasps breast Lips flanged Rhythmic sucking	
A Audible Swallowing	None	A few with stimulation	Spontaneous and intermittent Spontaneous and frequent	
T Type of Nipple	Inverted	Flat	Everts after stimulation	
C Comfort	Engorged Severe pain	Filling Red	Soft Non-Tender	
H Hold	Full assist	Minimal assist	No assist	

- phototherapy (yes vs. no)
- type of feeding at discharge (exclusive breastfeeding, predominant breastfeeding, complementary feeding, or no breastfeeding)
- date of hospital discharge.
- LATCH score was assessed within 24 hours of delivery. The status of breastfeeding (exclusive or non exclusive) was obtained by interviewing the mothers at the first immunization visit at 6 weeks post partum and at 6months via phone.

DATA ENTRY

After data collection data entered into excel sheet and analyzed with statistical packages for social sciences(SPSS 20)

STUDY ANALYSIS

Categorical variables in this study were expressed as frequency and percentages; and continuous variables as mean. Association between LATCH score and non exclusive breastfeeding at 6 weeks and 6months were tested using chi-square test. Association between LATCH score and breastfeeding status was tested using t test. ROC curve showing sensitivity and specificity of LATCH score was made for predicting status of breastfeeding at 6months.Factors leading to non exclusive breastfeeding were analyzed by chi-square test between breastfeeding status and those factors, like birth order, birth weight, type of delivery, gestational age, APGAR score and phototherapy.

OBSERVATION AND RESULTS

269 postnatal mothers were included in the study and the LATCH score was calculated once within 24 hours after delivery. Majority (56.9%) of the study population had gestational age between 37-40 weeks and 68.4% had normal vaginal delivery. Among the children born, majority were of birth

order either birth order1 (n=97) or birth order 2 (n=134).In this study, 67.2% of the children had birth weight more than 2.5Kg and 32.7 % of children had birthweight less than 2.5.The mean APGAR score at 1 minute among the infants was found to be 8.94±0.267 ranging from 7 to 9 and 28.3% of the infants required phototherapy.

Assessment of LATCH score

Table 1 : Distribution of L (Latch) score among study population

Latch	Frequency	Percent
Score of 1 (repeated attempts, hold nipple in mouth, stimulate to suck)	87	32.3
Score of 2 (grasps breast, lips flanged, rhythmic sucking)	182	67.7
Total	269	100.0

Assessment of Latch mong the study population showed that, majority (67.7%) had a score of 2 and the rest had score 1. None of them had score 0.

Table 2 : Distribution of A (Audible swallowing) score among study population

Audible swallowing	Frequency	Percent
Score of 0 (none)	1	0.4
Score of 1 (a few with stimulation)	73	27.1
Score of 2 (spontaneous and frequent)	195	72.5
Total	269	100.0

Audible swallowing was absent in only 0.4% of the study population (n=1). The rest had a score of either 1 or 2. Majority (72.5%) had a score of 2.

Table 3 : Distribution of T (Type of nipple) score among study population

Type of nipple	Frequency	Percent
Score of 0 (inverted)	10	3.7
Score of 1 (flat)	66	24.5
Score of 2 (everted)	193	71.7
Total	269	100.0

A T score of 2 was observed among 71.7% (n=193) of the study population. T score was found to be 0 among 3.7% of the study population.

Table 4 : Distribution of C (Comfort) score among study population

Comfort	Frequency	Percent
Score of 0 (engorged, severe pain)	29	10.8
Score of 1 (filling, red)	45	16.7
Score of 2 (soft, non tender)	195	72.5
Total	269	100.0

Among the study population, majority (72.5%) had a C score of 2, 10.8% had score 0 and 16.7% had score1.

Table 5 : Distribution of H (Hold) score among study population

Hold	Frequency	Percent
Score of 0 (full assist)	9	3.3
Score of 1 (minimal assist)	72	26.8
Score of 2 (no assist)	188	69.9
Total	269	100.0

The score of Hold among the study population was observed to be zero among only 3.3% (n=9). A score of 1 was observed among 26.8% and 2 among 69.9% of the study population.

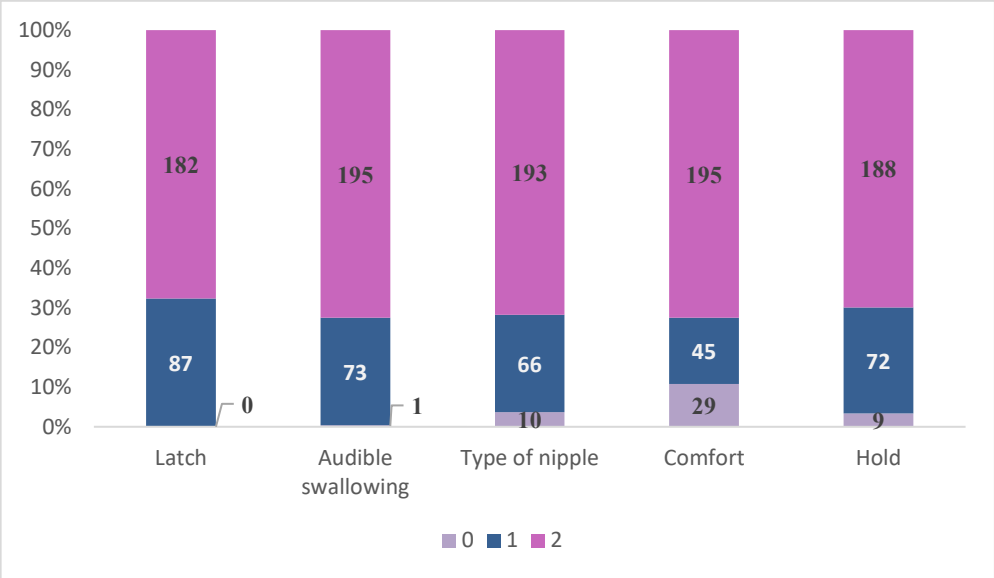

Figure 1 : Distribution of components of LATCH score among study population

Table 6: Total LATCH score among study population

	Number of participants	Minimum score	Maximum score	Mean	Std. Deviation
Sum of LATCH score	269	3	10	8.36	1.440

Table 7: Distribution of LATCH score among study population

	Frequency	Percent
<5	2	0.7
5-7	61	22.7
>7	206	76.6
Total	269	100.0

In this study a LATCH score of >7 was considered good,5-7 was considered moderate and >5 was taken to be poor

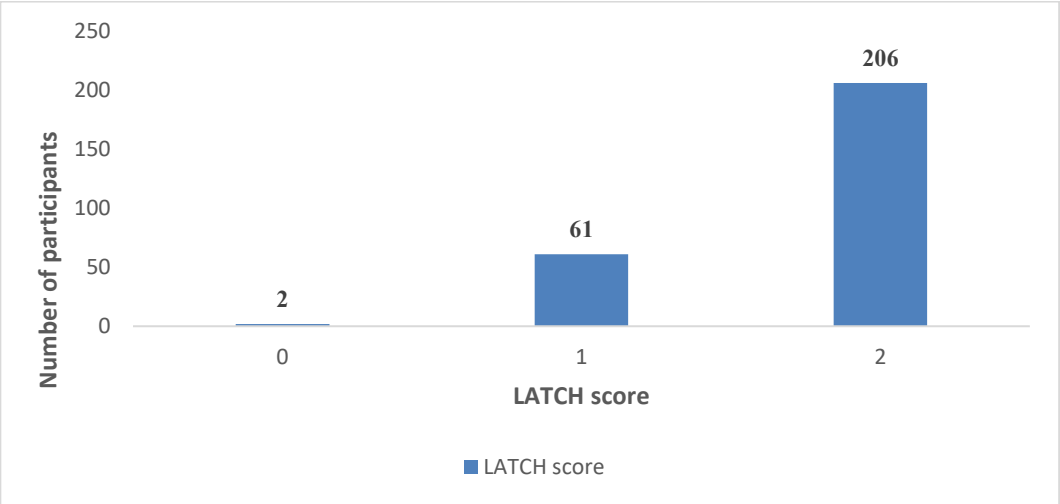

Figure 2: Distribution of study participants based on total LATCH score

Among the study population, 76.6% (n=206) had good total LATCH score. The score was moderate for 22.7% (n=61) and poor for 0.7% (n=2).

Breast feeding status

Table 8: Distribution of study population based on Breast feeding status at 6 weeks

	Frequency	Percent
PARTIAL	14	5.2
PREDOMINANT	36	13.4
EXCLUSIVE	219	81.4
Total	269	100.0

EXCLUSIVE BREAST FEEDING[12]

At 6 weeks, majority of the study population (n=219) followed exclusive breast feeding and 13.4% were predominantly breastfed.

Table 9: Distribution of study population based on Breast feeding status at 6 months

Breast feeding status at 6 months	Frequency	Percent
PARTIAL	23	8.6
PREDOMINANT	81	30.1
EXCLUSIVE	165	61.3
Total	269	100.0

At 6 months of age , the proportion of study population who followed exclusive breast feeding reduced to 61.3 % and 30.1 % were predominantly breastfed.

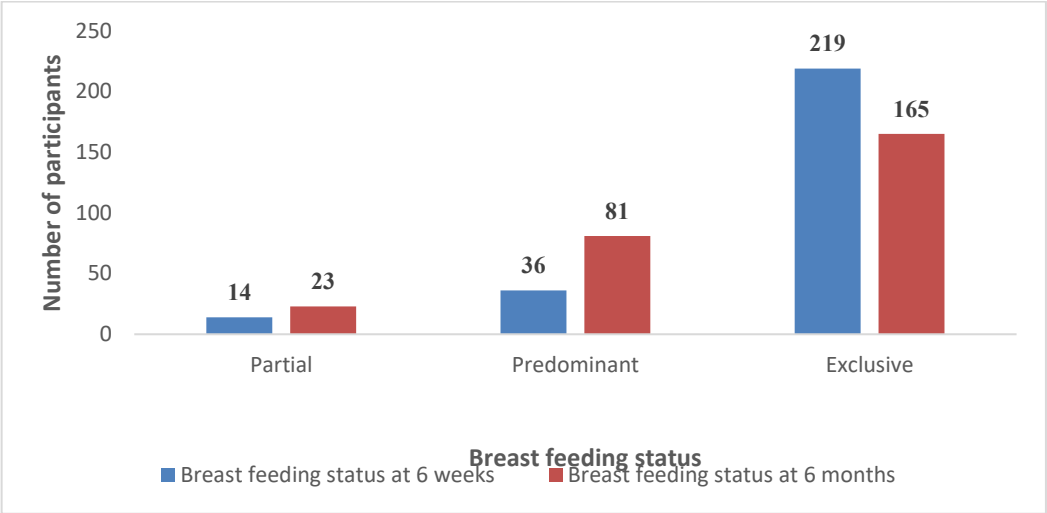

Figure 3 : Distribution of study population based on breast feeding status at 6 weeks and at 6 months

Table 10: Distribution of study population based on non exclusive breast feeding at 6 weeks

Breast feeding status at 6 weeks	**Frequency**	**Percent**
NON-EXCLUSIVE	50	18.6
EXCLUSIVE	219	81.4
Total	269	100.0

A total of 50 participants (18.6%) followed non- exclusive breast feeding at 6weeks

Table 11: Distribution of study population based on non exclusive breast feeding at 6 months

	Frequency	**Percent**
NON-EXCLUSIVE	104	38.7
EXCLUSIVE	165	61.3
Total	269	100.0

At 6 months, a total of 104 participants (38.7%) followed non- exclusive breast feeding.

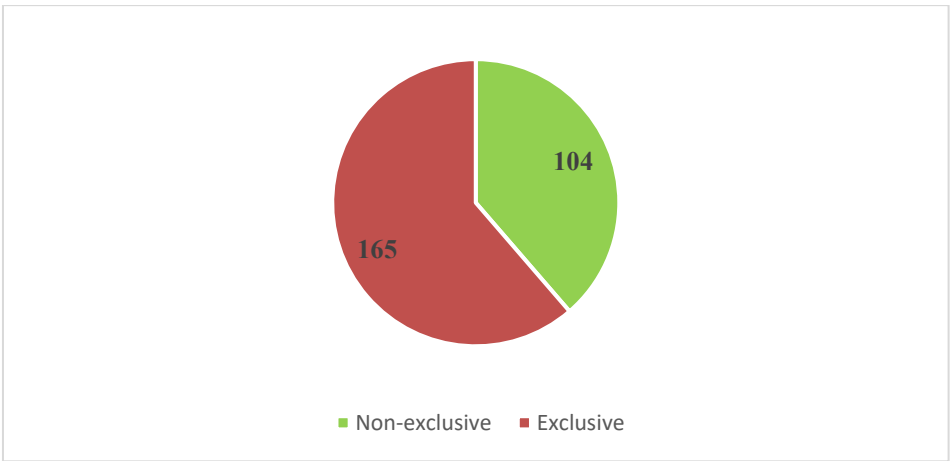

Figure 4 : Distribution of study population based on breast- feeding status at 6months

Association between LATCH score and Non- exclusive breast feeding

Table 12 : Association between LATCH score and Non- exclusive breast feeding at 6 weeks

LATCH score	Breast feeding status at 6 weeks		Total	Chi square value	p value
	Non exclusive	Exclusive			
POOR(5)	2 (100%)	0 (0%)	2 (100%)	201.4	**<0.0001**
MODERATE(5-7)	48 (78.7%)	13 (21.3%)	61(100%)		
GOOD(>7)	0(0%)	206(100%)	206(100%)		

The study showed statistically significant association between LATCH score and non-exclusive breast feeding at 6 weeks. In this study a LATCH score of >7 was considered good,5-7 was considered moderate and >5 was taken to be poor. All the participants with good LATCH score followed exclusive breast feeding at 6 weeks. For all participants with poor LATCH score and 78.7% of partcipants with moderate LATCH score followed non- exclusive breast feeding.

Table 13: Association between LATCH score and Non- exclusive breast feeding at 6 months

Latch score	Breast feeding status at 6 months		Total	Chi square value	p value
	Non exclusive	Exclusive			
POOR(5)	2 (100%)	0 (0%)	2 (100%)	62.36	**<0.0001**
MODERATE(5-7)	49(80.3%)	12 (19.7%)	61 (100%)		
GOOD(>7)	53 (38.7%)	153 (61.3%)	206 (100%)		

In this study, 38.7% of the participants with good LATCH score followed non-exclusive breast feeding at 6 months. For all participants with poor LATCH score and 80.3% of participants with moderate LATCH score followed non- exclusive breast feeding at 6 months. The study demonstrates a statistically significant association between LATCH score and non-exclusive breast feeding at 6 months.

Table 14:Association between mean LATCH score and breastfeeding status at 6 weeks

Breast feeding status at 6 weeks	Frequency	Mean LATCH score	Std. Deviation	Mean difference	t value	p value
NON-EXCLUSIVE	50	6.08	1.007	2.801	18.986	<0.001
EXCLUSIVE	219	8.88	.926			

The mean LATCH score of participants with non-exclusive breast feeding at 6 weeks was found to be less than that of those with exclusive breast feeding at 6weeks. This difference was found to be statistically significant.

Table 15 :Association between mean LATCH score and breastfeeding status at 6 months

Breast feeding status at 6 months	Frequency	Mean LATCH score	Std. Deviation	Mean difference	t value	p value
NON-EXCLUSIVE	104	7.52	1.66	1.372	8.573	<0.0001
EXCLUSIVE	165	8.89	0.96			

The mean LATCH score of participants with non-exclusive breast feeding at 6 months was found to be less than that of those with exclusive breast feeding at 6months. This difference was found to be statistically significant in this study.

ROC curve

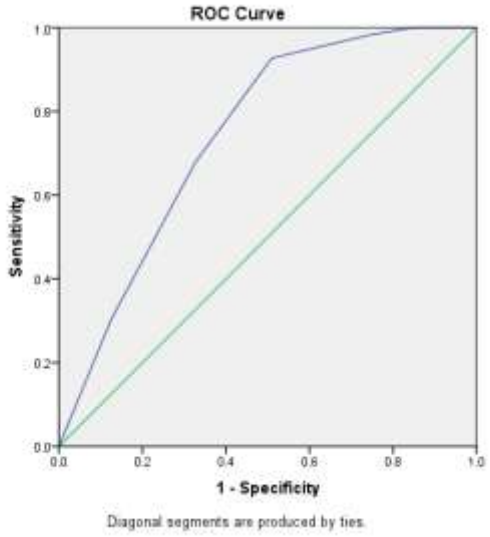

Figure 5 : ROC curve showing sensitivity and specificity of LATCH score predicting status breast feeding

The study observed that area under the ROC curve for predicting breastfeeding status using LATCH score was 0.744 (95% CI : 0.680,0.807), and it was statistically significant.
Cut off value of LATCH score between 7.5 to 8.5 shows maximum sensitivity and specificity in predicting breast feeding status. A positive result will indicate exclusive breast feeding and negative result will indicate non- exclusive breast feeding. Hence, a total LATCH score below the cut off point predicts non- exclusive breast feeding. At a cut off of 7.5 sensitivity is 92.7% and specificity is 49%. At a cut off point of 8.5, sensitivity is 67.9% and specificity is 67.3%.

Factors leading to non-exclusive breast feeding

Table 16 : Association between birth order and non-exclusive breast feeding at 6weeks

Birth order	Breast feeding status at 6 weeks		Total	Chi square value
	NON-EXCLUSIVE	EXCLUSIVE		
1	48 (49.5%)	49(50.5%)	97 (100%)	95.746
2	2 (1.5%)	132 (98.5%)	134 (100%)	
3	0 (0%)	21(100%)	21 (100%)	
4	0 (0%)	12(100%)	12 (100%)	
5	0 (0%)	5(100%)	5 (100%)	
Total	50 (18.6%)	219 (81.4%)	269 (100%)	

The study observed statistically significant association between birth order and non-exclusive breast feeding with p value < 0.0001.

Table 17 : Association between birth weight and non-exclusive breast feeding at 6weeks

Birth weight	Breast feeding status at 6 weeks		Total	Chi square value
	NON-EXCLUSIVE	EXCLUSIVE		
>3 KG	3 (11.1%)	24(88.9%)	27 (100%)	1.325
2.5 kg to 3 kg	31(20.1%)	123 (79.9%)	154 (100%)	
2 kg to 2.5 kg	15 (18.5%)	66(81.5%)	81 (100%)	
< 2 kg	1 (14.3%)	6(85.7%)	7 (100%)	
Total	50(18.6%)	219(81.4%)	269(100%)	

There is no statistically significant association between birth weight and non-exclusive breast feeding at 6 weeks in this study. (p value =0.723)

Table 18 : Association between type of delivery and non-exclusive breast feeding at 6weeks

Type of delivery	Breast feeding status at 6 weeks		Total	Chi square value	p value
	Non exclusive	Exclusive			
NVD	30 (16.3%)	154 (83.7%)	184 (100%)	2.134	0.344
CS	18 (23.1%)	60 (76.9%)	78 (100%)		
Emergency CS	2(28.6%)	5(71.4%)	7(100%)		

There is no statistically significant association between type of delivery and non-exclusive breast feeding at 6 weeks in this study.

Table 19 : Association between gestational age and non-exclusive breast feeding at 6weeks

Gestational age	Breast feeding status at 6 weeks		Total	Chi square value	p value
	Non exclusive	Exclusive			
<35 WEEKS	1 (9.1%)	10 (90.9%)	11 (100%)	1.480	0.687
35-37 WEEKS	18 (17.5%)	85 (82.5%)	103(100%)		
37-40 WEEKS	31(20.3%)	122 (79.7%)	153 (100%)		
>40 WEEKS	0(0%)	2(100%)	2(100%)		

There is no statistically significant association between gestational age and non-exclusive breast feeding at 6 weeks in this study

Table 20 : Association between APGAR score at 1 minute and non-exclusive breast feeding at 6weeks

APGAR score at 1 minute	Breast feeding status at 6 weeks		Total	Chi square value	p value
	Non exclusive	Exclusive			
7	0 (0%)	2 (100%)	2(100%)	1.357	0.507
8	1 (8.3%)	11(91.7%)	12 (100%)		
9	49(19.2%)	206(80.8%)	255(100%)		

There is no statistically significant association between APGAR score at 1 minute and non-exclusive breast feeding at 6 weeks in this study

Table 21 : Association between phototherapy and non-exclusive breast feeding at 6weeks

Photo therapy	Breast feeding status at 6 weeks		Total	Chi square value	p value
	Non exclusive	Exclusive			
Yes	28 (36.8%)	48 (63.2%)	76 (100%)	23.32	<0.001
No	22(11.4)	171 (88.6)	193 (100%)		

There is statistically significant association between phototherapy and non-exclusive breast feeding at 6 weeks in this study.

DISCUSSION

The study was done to assess relationship between the LATCH score assessed in the first 24 hours after delivery and non-exclusive breastfeeding. A total of 269 mother-infant dyads were included in the study.

In this study majority (56.9%) of the study population had gestational age between 37- 40 weeks. This was comparable with the study done by Gianluca Tornese et al which reported that the mean gestational age of their study population was 39.4±1.3 weeks.[11]

In our study, majority 68.4% of the study population had normal vaginal delivery and the rest underwent caesarean section.The study by Shah et al reported that among their study population, 78.5% of mothers delivered by caesarean section .They explain that high rate of operative deliveries is because the study setting is a tertiary care referral centre, where most of the complicated pregnancies are managed.[14]

In this study, among the children born, majority were of birth order either birth order1 (36%) or birth order 2 (49.81%). A similar result was observed in another study by Priyantha J Perera et al which reports that 41.9% were of first order and 37.06% were of second order.[1] In our study, 67.2% of the children had birth weight more than 2.5Kg and 32.7 % of children had birth weight less than 2.5 Kg. The study by Shah et al reported that the mean birth weight among their study population was 2.92±0.475 Kg.[14]

The mean APGAR score at 1 minute among the infants was found to be 8.94±0.267 ranging from 7 to 9 which was comparable with the study by Gianluca Tornese as reported as 8.7±0.9.[11] In our study, 28.3% of the infants required phototherapy. A lower proportion was observed in the study by Gianluca Tornese et al which reported that 16.8% of infants required phototherapy.[11]

On assessment of each component of LATCH score, our study showed that major proportion of the study population had a score of 2 in each category. The proportion of participants with a score of 2 was observed in each component as follows : 67.7% in Latch, 72.5% in audible swallowing, 71.7% in type of nipple, 72.5% in comfort, 69.9% in hold. The mean LATCH score in this study population was 8.36±1.44. Another study by S V N S Sowjanya and Lakshmi Venugopalan reported a slightly lower mean LATCH score at birth. They observed a mean LATCH score of 7.17 ± 1.13 among the mothers who followed exclusive breast feeding and a score of 4.26 ± 1.7 among mothers who followed non-exclusive breast feeding.[12]

Among this study population, 76.6% (n=206) had good total LATCH score. The score was moderate for 22.7% (n=61) and poor for 0.7% (n=2). Another study by Iqbal Majeed Abbas, and Rajaa Tareq Hasan reported that among their study population highest percentage (53.3%) of study sample had moderate LATCH score of 4-7 and only 42.5% had a high LATCH score of 8-10.[10]

In present study, at 6 weeks, majority of the study population (81.4%) followed exclusive breast feeding and 13.4% were predominantly breastfed. At 6 months of age, the proportion of study population who followed exclusive breast feeding reduced to 61.3 % and 30.1 % were predominantly breastfed. A lower proportion of exclusive breast feeding of 39.8% at 6 months was observed in a study by Vaidilė Jakaitė et al.[16] A higher rate of exclusive breast feeding at 6 weeks was observed in a study by Archana Patel et al. They analyzed rates and determinants of early initiation of breastfeeding and exclusive breast feeding at 6 weeks in six low and middle-income countries. They reported that Indian states with highest rates of exclusive breast feeding at 6 weeks :Belgaum, 99.5% and Nagpur, 99.0%.[17]

In this study, a total of 50 participants (18.6%) followed non- exclusive breast feeding at 6weeks and at 6 months, a total of 104 participants (38.7%) followed non- exclusive breast feeding. A similar result was observed in a study by Dejen GetanehFeleke et al . The study report a prevalence of non-exclusive breastfeeding within the first 6 months as 39.8% (95% CI: 36.6–43.0).[18]

The present study observed a statistically significant association between LATCH score and non-exclusive breast feeding at 6 weeks. All the participants with good LATCH score followed exclusive breast feeding at 6 weeks. For all participants with poor LATCH score and 78.7% of participants with moderate LATCH score followed non- exclusive breast feeding. The study also demonstrates a statistically significant association between LATCH score and non-exclusive breast feeding at 6 months. The mean LATCH score of participants with non-exclusive breast feeding at 6 weeks and 6 months was found to be less than that of those with exclusive breast feeding at 6weeks. This difference was found to be statistically significant in this study. Another study by Karthika S et al assessed role of LATCH scoring in duration of exclusive breastfeeding in a rural tertiary care hospital, Puducherry. The study reported that among their study population 84% were exclusively breastfed at 6 weeks whereas only 51% were exclusively breastfed at 6 months. The study also observed that when mothers with LATCH score <8 at 48 hours were intervened, rate of exclusive breastfeeding at 6 weeks improved. Hence, they conclude that LATCH score helps to predict breastfeeding duration at an early stage- as early as 48 hours of life. Low LATCH scores indicate, requirement of intervention.[13]

In this study, ROC curve was prepared to estimate the cut-off point of LATCH score in predicting non-exclusive breast feeding. ROC curve showed that area under the curve for predicting breastfeeding status using LATCH score was 0.744 (95% CI: 0.680,0.807). This result was statistically significant. Cut off value of LATCH score between 7.5 to 8.5 shows maximum sensitivity and specificity in predicting breast feeding status. A positive result will indicate exclusive breast feeding and negative result will indicate non- exclusive breast feeding. Hence, a total LATCH score below the cut -off point can be considered as an indicator of non- exclusive breast feeding. Sensitivity and specificity at cut off point 7.5 is 92.7% and 49% respectively and the corresponding values at cut off point 8.5 is 67.9% and 67.3% respectively.

The study by Gianluca Tornese et al reported that on analysis of ROC in their study, a LATCH score of < 6 was identified the highest percentage of correctly classified (true positives and true negatives), with sensitivity and specificity for identification of non-exclusive breastfeeding of 20% and 92%,respectively.[11]

Another study by S V N S Sowjanya and Lakshmi Venugopalan reported that a LATCH score ≥6 at birth had a sensitivity 93.5% and specificity 65.78% in detecting status of breast feeding at 6 weeks. LATCH score ≥8 at 48 hours/discharge demonstrated a sensitivity of 93.55% and specificity of 92.1%. On analysis of receiver operating characteristic (ROC) curve for LATCH score at birth and exclusive breastfeeding at 6 weeks , it was observed that, area under curve was 0.915 (cutoff ≥5.5 sensitivity 93.5%, false positive rate—34.2%). The study also report that ROC for LATCH score at 48 hours/discharge and exclusive breastfeeding at 6 weeks had an AUC 0.979 (cutoff ≥7.5 sensitivity 93.5%, false positive rate—7.9%).[12]

The study by Shah et al reported that the receiver operating characteristic curve of LATCH score at discharge and exclusive breastfeeding at 6 weeks demonstrated in their study had an area under the curve of 0.785 with a cut off ≥5.5. At this cutoff, the study observed highest sensitivity of 93.6% with a false-positive rate of 30.1%. The study also report that a LATCH score >6 at discharge was significantly associated with higher exclusive breastfeeding rate and appropriate weight gain (≥ 20 grams/day) at 6 weeks of age.[14]

This study observed a statistically significant association between birth order and non-exclusive breast feeding at 6 weeks. Highest proportion of non- exclusive breastfeeding was observed among first order births. The study by Priyantha J Perera et al reported that among their study population, the second born babies had a higher exclusive breastfeeding rate compared to first borns. They also observed that the rate dropped again after the second baby. Their study could not demonstrate a statistically significant association between exclusive breastfeeding and birth order.[15]

There was no statistically significant association between birth weight and non-exclusive breast feeding at 6 weeks in this study. Another study by Valerie J. Flaherman et al reported that the mean birth weight of infants differed significantly among those who were exclusively breastfeeding at 3 months (3.59 ±0.46 kg) and those who were not exclusively breastfeeding at 3 months (3.29 ±0.43 kg).[19]

There is no statistically significant association between type of delivery and non-exclusive breast feeding at 6 weeks in this study. Another study by David Kling et al association between method of delivery and exclusive breastfeeding reported that among their study population, the odds of exclusive breastfeeding at hospital discharge was observed to be lower among women who underwent cesarean delivery compared with women who gave birth vaginally. The study observed that proportion of exclusive breastfeeding at hospital discharge was 70.6% among participants who gave underwent cesarean delivery compared with 79.9% of women who underwent vaginal delivery.[20] A study by Nüket Paksoy Erbaydar et al on relationship between caesarean section and breastfeeding observed that women who underwent caesarean section in their study had a higher risk of late initiation of breastfeeding and non-exclusive breastfeeding during the three days following delivery.[21]

In the present study, there was no statistically significant association between gestational age and non-exclusive breast feeding at 6 weeks. A similar result was observed in a study by Paola Soledad Mosquera et al on factors affecting exclusive breastfeeding in the first month of life among Amazonian children. The study observed that 90.7% of their study population had gestational age ranging between 37-40 weeks. They couldn't demonstrate any statistically significant association between gestational age and non-exclusive breast feeding.[22]

This study didn't observe any statistically significant association between APGAR score at 1 minute and non-exclusive breast feeding at 6 weeks. A similar result was observed in the study by Gianluca Tornese et al.[11]

In this study, there was a statistically significant association between phototherapy and non-exclusive breast feeding at 6 weeks. A similar result was observed in the study by Gianluca Tornese et al. In their study, there was a statistically significant association between phototherapy and non-exclusive breast feeding with an odds ratio of 2.85, and 95% confidence interval ranging from 1.45 to 5.59.[11]

We are aware that the present study has some limitations. The main limitation of the present study is that the LATCH score assessment was made by observing a single feeding session at one point of time and not a composite score of several consecutive feedings. Maternal stress, social support, and prior breastfeeding knowledge were not assessed in the present study.
As the study was conducted in a single tertiary care centre, the mother infant dyads included were from the same locality due to which the social taboos and practices may have got a role in the outcome. Moreover, we did not take in to account the working status of the mothers which may have had an impact on exclusive breastfeeding. Another limitation of the study was antenatal counselling was not given to all mothers. It should involve other care takers also, since early weaning was highly influenced by relatives. So, care of the newborn is not only the responsibility of the mother but also all the caretakers.

CONCLUSION

This study entitled "A prospective observational study on LATCH score as a predictor of exclusive breastfeeding in mothers admitted in the postnatal ward at a tertiary hospital" was done during April 2021 to July 2021 at KMCT Medical College Mukkam Kozhikode
The aim was to study the use of LATCH score in predicting exclusive breastfeeding rates at 6 weeks postpartum along with an optimum cut-off . Study protocol was approved by institutional ethics committee. Prior consent was taken from mothers. Technique of breastfeeding was assessed within 24 hours of delivery. Data was collected according to the pretested proforma. Willing mothers were followed up at 6 weeks and 6 months. Appropriate assistance were given as and when required. At the end of the study we could arrive at the following conclusions.

1. There is a statistically significant association between LATCH score and non exclusive breastfeeding at 6 weeks and 6 months
2. 84%of the study population was exclusively breast fed at 6 weeks postpartum
3. 51% of the study population was exclusively breast fed at 6 months postpartum
4. Cut off value between 7.5-8.5 showed maximum sensitivity and specificity in predicting breastfeeding status.
5. No significant association was found between gestational age and non exclusive breastfeeding
6. No significant association was found between APGAR score and non exclusive breastfeeding
7. There is a statistically significant association between phototherapy and non exclusive breastfeeding at 6 weeks and 6 months

RECOMMENDATIONS

LATCH score is a simple tool to identify mothers who require breastfeeding support and counselling before discharge from the hospital to prevent early breastfeeding cessation. It represents a cost-effective tool capable of predicting breastfeeding as early as in the first 24 hours of life, especially in resource-limited settings. Several programmes like mother baby friendly hospital initiative (MBFHI) have been implemented in our country even after which there are still mothers who require or is not provided with breastfeeding support. So we have to start focusing on the early diagnosis of unsuccessful breastfeeding and providing with the adequate measures for the establishment of successful breastfeeding. Some of the recommendations are as follows:

1. Importance of exclusive breastfeeding should be taught to all expectant mothers and their relatives.
2. Health workers including doctors and nurses should be made aware of components of LATCH score and should be trained regarding skillful assessment of breastfeeding techniques.
3. Antenatal and post natal advice regarding initiation, techniques of breastfeeding should be given to expectant mothers.
4. Family should be trained to assist primi mothers in initiation of breastfeeding.
5. Hospital should strictly follow a MBFHI policy.

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