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Keithellakpam Linthoi
M.Sc. Nursing, Obstetrics & Gynecological Nursing, Bharati Vidyapeeth Deemed University, College of Nursing, Pune, Maharashtra, India

Dr. Lily Podder
Associate Professor, Obstetrics & Gynecological Nursing, Bharati Vidyapeeth Deemed University, College of Nursing, Pune, Maharashtra, India

Correspondence
Keithellakpam Linthoi
M.Sc. Nursing, Obstetrics & Gynecological Nursing, Bharati Vidyapeeth Deemed University, College of Nursing, Pune, Maharashtra, India

A study to determine the impact of breast crawl on breastfeeding among newborns in selected hospitals of Pune city

Keithellakpam Linthoi and Dr. Lily Podder

Abstract
Purpose: To determine the impact of breast crawl on breastfeeding.
Material and methods: The research approach adopted for this study is quantitative approach and research design adopted for the study is Quasi-Experimental—posttest only control group research design. Using non probability purposive sampling technique 60 newborns were enrolled for the study and were distributed in two groups. Breast crawl was given and assessment was done three times i.e, LATCH Breastfeeding Assessment after breast crawl and Modified Infant Breastfeeding Assessment was done at 24 hours and 48 hours of life.
Results: Average LATCH Breastfeeding score for experimental group was 7.7 which was 6.8 for control group. t-value for this comparison was 5.3 with 58 degrees of freedom. Corresponding p-value was of the order of 0.000 (less than 0.05), null hypothesis is rejected. Experimental group had significantly higher average LATCH Breastfeeding score than that of control group
On day1, Average Modified Infant Breastfeeding Assessment score for experimental group was 28.6 which was 25.6 for control group. On day2, average Modified Infant Breastfeeding Assessment score for experimental group was 28.8 which was 26.2 for control group. t-values for these comparisons were 5.3 and 4.3 on day 1 and day2 with 58 degrees of freedom. Corresponding p-values were of the order of 0.000 (less than 0.05), null hypothesis is rejected. Experimental group had significantly higher average Modified Infant Breastfeeding Assessment score than that of control group on day1 and day2. Association of LATCH Breastfeeding with demographic variables in experimental group under study, since p-value corresponding to weight of baby is 0.026, which is small (less than 0.05), weight of baby was found to have significant association with LATCH Breastfeeding in experimental group. More the weight of the baby, better is the LATCH Breastfeeding. Keeping in view the research findings the same kind of research can be replicated in large setting. Breast crawl should be given to all the newborns immediately after birth to establish breastfeeding as early as possible.
Conclusion: The findings shows that newborns who received breast crawl achieved early establishment of breastfeeding and more the weight of the newborn better the breast crawl.

Keywords: Determine, Impact, Breast crawl, Breastfeeding, Newborn

1. Introduction
Lawrence R states that breast milk is the nature's most previous gift to the newborns. Breast feeding is as old as human being. Breast milk is accepted as the unique, natural and nutritive food provide by nature for the newborns. Breast feeding is a mother's gift to herself, her baby and the earth. Just as there is no substitute for mothers love, there is no substitute for mother's milk [1] Lawrence R. Breast feeding a guide for medical profession. St. Louis: WB Saunders; 1991
Breastfeeding is the feeding of a baby with milk directly from the mother's breast, rather than from a baby bottle or other container. Babies have a sucking reflex that enables them to suck and swallow milk. Human breast milk is the most healthful form of milk for babies. Breast milk, especially the first milk colostrum which contains antibacterial and antiviral agents that protects the infant against disease especially diarrhea. These are not present in animal milk or formula milk. Breast milk aids the development of infant's own immune system. Breast feeding immediately after delivery encourages the "bonding" of the mother to her infant. Initiation of breastfeeding, it is the first contact and first breastfeed.

The initiation of breastfeeding comprises of early skin-to-skin contact and opportunity to suck within the first hour or soon after birth are both important. Contact and sucking are closely interrelated with each other. Early initiation offers advantages to the mother and baby, helps to keep the baby warm leads to faster and effective achievement of feeding skills by the baby. The baby starts getting colostrum as the baby starts getting colonized by safe germs from the mother. Both these offer protection against infections and important for the survival of the baby. It also helps mother to have good uterine contractions and fastens expulsion of placenta, decreases maternal blood loss and prevents anemia. It maintains better sugar level and other biochemical parameters of the mother in the first few hours of birth [2].

One of the method for early initiation of breastfeeding is Breast Crawl. Breast crawl is the natural instinctive behavior of the human newborn. The mother and newborn are mutually response in the most sensitive period of half to one hour following delivery for successful breast feeding.

2. Objectives

1. To assess the breastfeeding after providing breast crawl in experimental group.
2. To assess the breastfeeding of control group.
3. To compare the breastfeeding among control and experimental group.
4. To associate the findings with selected demographic variables.

3. Conceptual framework

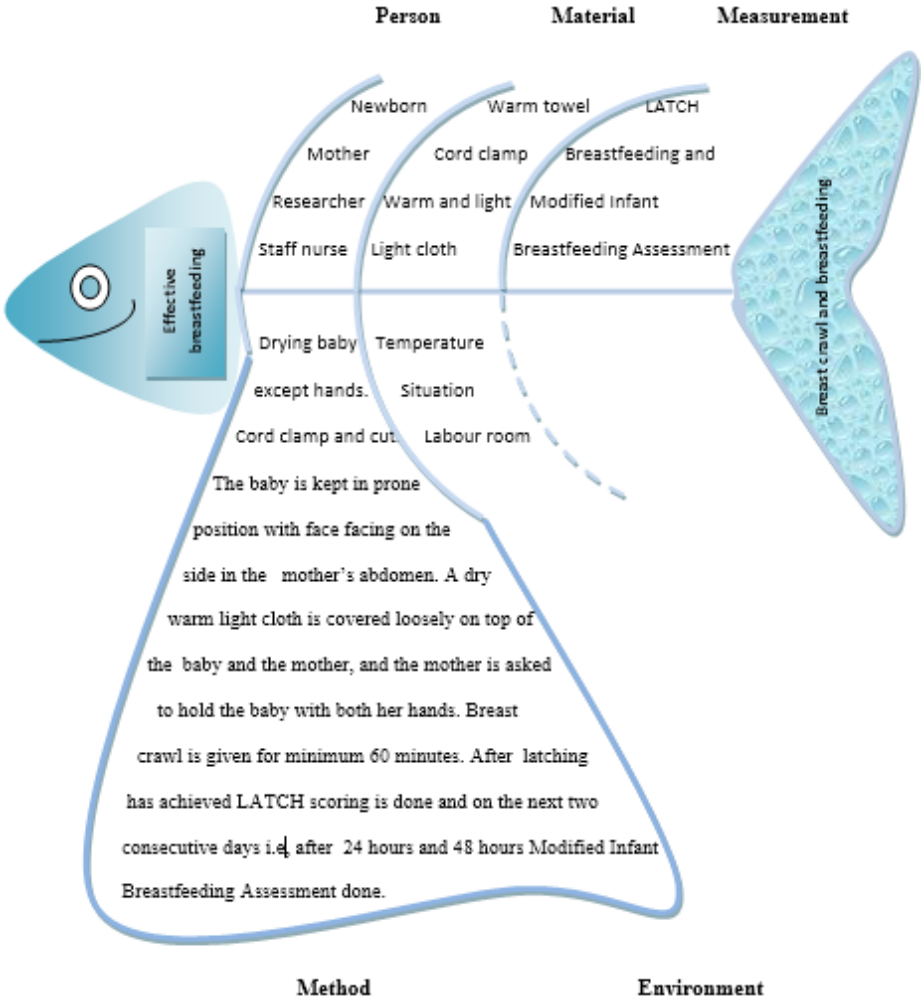

Fig 1: Fishbone model or cause and effect

4. Materials and method

Hypothesis

- Ho: There is no significant difference in newborn breastfeeding between control and experimental group at 0.05 level of significance.

Methodology

In order to achieve the desired objectives of the study quantitative research approach with Quasi experimental post test only control group research design was adopted for the present study. Using non-probability purposive sampling 60 newborns delivered through normal vaginal delivery who cried immediately at birth with a APGAR score of 7-10 (5 min) in labour room of selected hospitals of Pune City, were enrolled for the study and distributed in two groups (30 each in control and experimental group). After obtaining administrative approval and written consent from the participants, tool was administered for data collection. Data collection was accomplished by using tool comprised of, Section I: Demographic profile consist of Gestational weeks, weight, Apgar score, gravid, time taken to latch, Newborn temperature after 1 hour/ after breast crawl. Section II: which consists of LATCH Breastfeeding Assessment and Modified Infant Breastfeeding Assessment

tool. After checking newborn's Apgar score after 5 minute the baby is kept in prone position with face facing on one of the side in the mother's abdomen. A dry light warm cloth is covered loosely on top of the baby and the mother, and the mother is asked to hold the baby with both her hands. Breast crawl is given for minimum 60 minutes. After latching has achieved LATCH scoring is done and on the next two consecutive days i.e, after 24 hours and 48 hours Modified Infant Breastfeeding Assessment done.

5. Results

Section I

Description of samples based on their personal characteristics

Table 1: Description of samples based on their personal characteristics in terms of frequency and percentages, N=30, 30

Demographic variable	Experimental group		Control group	
	Freq	%	Freq	%
Gestational week				
37-38	1	3.3%	8	26.7%
39-40	28	93.3%	18	60.0%
41-42	1	3.3%	4	13.3%
Weight of baby				
2.0-2.5	1	3.3%	4	13.3%
2.6-3.0	8	26.7%	15	50.0%
3.1-3.5	21	70.0%	11	36.7%
APGAR Score				
7		0.0%	1	3.3%
8	2	6.7%		0.0%
9	28	93.3%	29	96.7%
Gravida				
MG	25	83.3%	25	83.3%
PG	5	16.7%	5	16.7%
Time taken to Latch in hours				
>60	6	20.0%	22	73.3%
31-45	6	20.0%		0.0%
46-60	18	60.0%	8	26.7%
Temperature after breast crawl in ºF				
<96	3	10.0%	11	36.7%
96.1-98.6	27	90.0%	19	63.3%

Analysis of demographic profile revealed that in experimental group, majority i.e, 93.3% (28 out of 30) of the mothers had completed 39-40 weeks of gestation whereas in control group majority i.e,60 % of the mothers had completed 39-40 weeks of gestation, in experimental group majority i.e, 70% (21 out of 30) of the babies had weight 2.6-3 kg whereas in control group majority i.e, 50 % of the babies had weight 2.6-3 kg, in experimental and control group majority i.e, 93.3% (28 out of 30) of babies had Apgar score 9, In experimental and control group majority i.e, 83.3% (25 out of 30) of them were multigravida, in experimental group majority i.e, 60% (18 out of 30) of them took 46-60 minutes to latch whereas in control group majority i.e, 73.3% of the newborns took >60 minutes to latch, in experimental group majority i.e, 90% (27 out of 30) of the newborns had temperature 96.1-98.6ºF after breast crawl whereas in control group majority i.e, 63.3% of the newborns had temperature 96.1-98.6ºF after 1 hour.

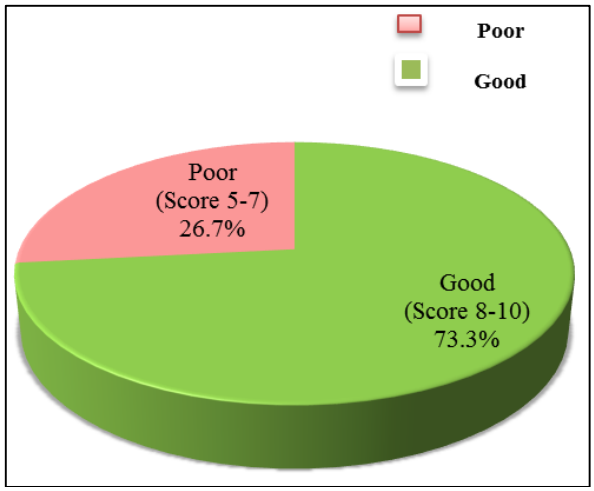

Fig 2: Percentage score of LATCH Breastfeeding after breast crawl in experimental group

Figure 2 represents that 73.3% of the samples in experimental group had good LATCH Breastfeeding score after breast crawl and 26.7% of them had poor latch breastfeeding score

Section II

Analysis of data related to LATCH Breastfeeding and Modified Infant Breastfeeding Assessment after providing breast crawl in experimental group

Section II A

Analysis of data related to the LATCH Breastfeeding after providing breast crawl in experimental group, n= 30

Section II B

Analysis of data related to the Modified Infant Breastfeeding after providing breast crawl in experimental group, n= 30

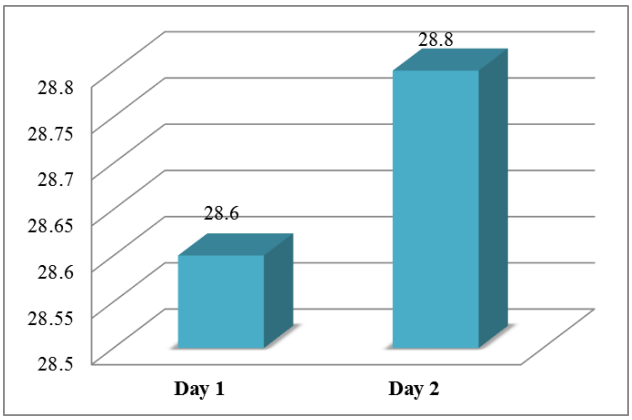

Fig 3: Average Modified Infant Breastfeeding Assessment score on day 1 & day 2

In figure 3 researcher applied paired t-test for comparison of day1 and day2 average Modified Infant Breastfeeding Assessment scores in experimental group. Average Modified Infant Breastfeeding Assessment score was 28.8 on day 2 which was 28.6 on day 1.

Section- III

Analysis of data related to LATCH Breastfeeding and Modified Infant Breastfeeding Assessment in control group

Section III A

Analysis of data related to the LATCH Breastfeeding in control group, n = 30

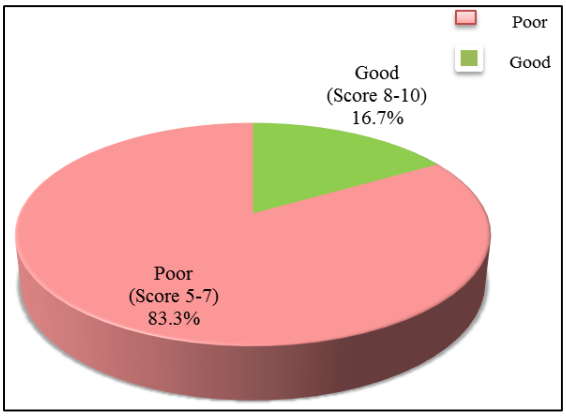

Fig 4: Percentage score of Latch Breastfeeding in control group

Figure 4 represents 16.7% of the samples in control group had good LATCH Breastfeeding score and 83.3% of them had poor LATCH Breastfeeding score.

Section III B

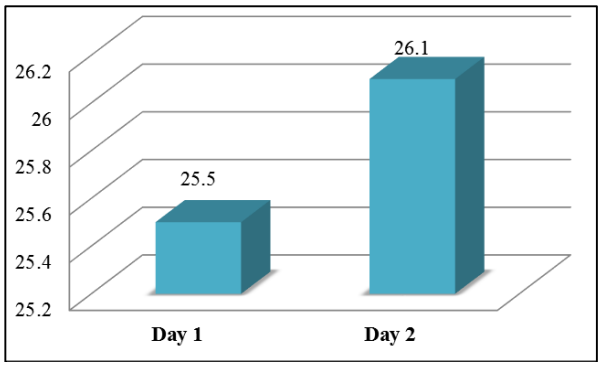

Fig 5: Average Modified Infant Breastfeeding Assessment score of control group on day 1 & day 2

In figure 5 researcher applied paired t-test for comparison of day1 and day2 Modified Infant Breastfeeding Assessment scores in control group. Average Modified Infant Breastfeeding Assessment score was 26.1 on day 2 which was 25.5 on day 1.

Section- IV

Analysis of data related to comparison of LATCH Breastfeeding and Modified Infant Breastfeeding Assessment in control and experimental group

Section IV A

Analysis of data related to comparison of the LATCH Breastfeeding score among control and experimental group, n= 30, 30

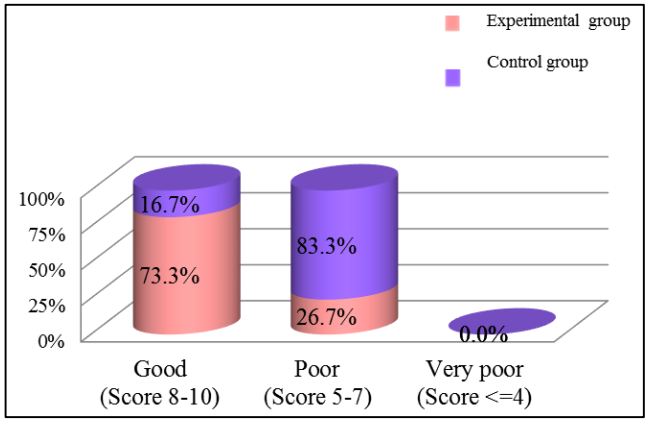

Fig 6: Percentage distribution of comparison of LATCH Breastfeeding score in experimental and control group

Figure 6 represents 73.3% of the samples in experimental group had good LATCH Breastfeeding score after breast crawl and 26.7% of them had poor LATCH Breastfeeding score after breast crawl. 16.7% of the samples in control group had good LATCH Breastfeeding score and 83.3% of them had poor LATCH Breastfeeding score. This indicates that the LATCH Breastfeeding score is better in experimental group as compared to that in control group.

Table 2: Two sample t-test for comparison of LATCH Breastfeeding score among Control and experimental group

Group	Mean	SD	T	df	p-value
Experimental	7.7	0.7	5.3*	58	0.000
Control	6.8	0.7			

n= 30, 30, *Significance at 0.05 level of significance (t table = 2.00)

In Table 2 researcher applied two sample t-tests for comparison of average LATCH Breastfeeding score among experimental and control group. Average LATCH Breastfeeding score for experimental group was 7.7 which was 6.8 for control group. T-value for this comparison was 5.3 with 58 degrees of freedom. Corresponding p-value was of the order of 0.000 (less than 0.05), null hypothesis is rejected. Experimental group had significantly higher average LATCH Breastfeeding score than that of control group, n= 30, 30

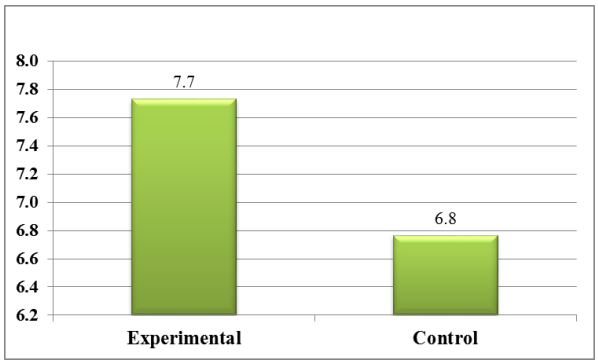

Fig 7: Percentage distribution of comparison of average LATCH Breastfeeding score in experimental and control group

In figure 7 average LATCH Breastfeeding score for experimental group was 7.7 which was 6.8 for control group. This indicates that experimental group had significantly higher average LATCH Breastfeeding score than that of control group

Section IV B

Analysis of data related to comparison of the Modified Infant Breastfeeding Assessment scores among control and experimental group, n= 30, 30

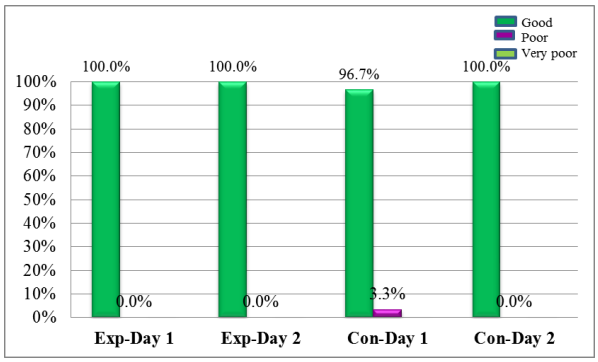

Fig 8: Percentage distribution of comparison of Modified Infant Breastfeeding Assessment scores in experimental and control group

In figure 8 all of the experimental group samples had good Modified Infant Breastfeeding Assessment score after breast crawl on day1 and day2. 96.7% of the samples had good Modified Infant Breastfeeding Assessment score on day 1 and 3.3% of them had poor Modified Infant Breastfeeding Assessment score. All of the control group samples had good Modified Infant Breastfeeding Assessment score on day2. This indicates that the experimental group had better Infant Breastfeeding Assessment score on Day 1 as compared to that in control group.

Table 3: Two sample t-test for comparison of Modified Infant Breastfeeding Assessment score among control and experimental group, n=30, 30

Day	Group	Mean	SD	T	df	p-value
Day1	Experimental	28.6	1.9	5.3*	58	0.000
	Control	25.6	2.5			
Day2	Experimental	28.8	1.9	4.3*	58	0.000
	Control	26.2	2.8			

***Significance at 0.05 level of significance (t table = 2.00)

In Table 3 researcher applied two sample t-test for comparison of average Modified Infant Breastfeeding Assessment score among experimental and control group. On day1, Average Modified Infant Breastfeeding Assessment score for experimental group was 28.6 which was 25.6 for control group. On day2, average Modified Infant Breastfeeding Assessment score for experimental group was 28.8 which was 26.2 for control group. t-values for these comparisons were 5.3 and 4.3 on day 1 and day2 with 58 degrees of freedom. Corresponding p-values were of the order of 0.000 (less than 0.05), null hypothesis is rejected. Experimental group had significantly higher average Modified Infant Breastfeeding Assessment score than that of control group on day1 and day2.

n= 30, 30

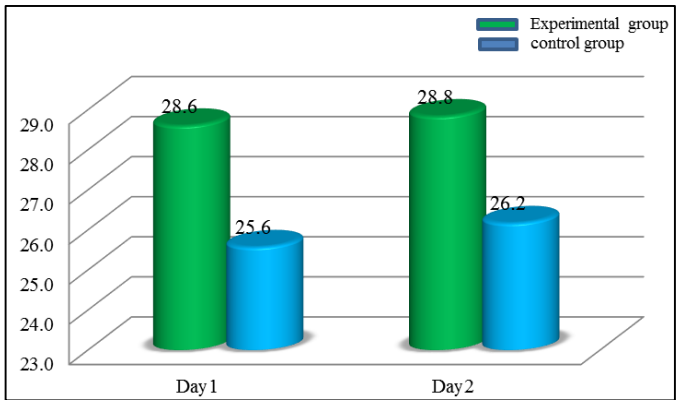

Fig 9: Percentage distribution of comparison of Modified Infant Breastfeeding Assessment scores of experimental and control group

In figure 9, on day1 average Modified Infant Breastfeeding Assessment score for experimental group was 28.6 which was 25.6 for control group. On day2, average Modified Infant Breastfeeding Assessment score for experimental group was 28.8 which was 26.2 for control group. It indicates that experimental group had significantly higher average Modified Infant Breastfeeding Assessment score than that of control group on day1 and day2**.**

Section V

Analysis of data related to association of LATCH Breastfeeding with selected demographic variables in control and experimental group

Section V A

Analysis of data related to association of LATCH Breastfeeding findings in control group with selected demographic variables.

Table 4: Fisher's exact test for association of LATCH Breastfeeding with selected demographic variables in control group, n= 30

Demographic variable		Good	Poor	p-value
Gestational week	37-38	1	7	0.522
	39-40	4	14	
	41-42	0	4	
Weight of baby	2.0-2.5	4	11	0.176
	2.6-3.0	1	3	
	3.1-3.5	0	11	
APGAR score	7	1	0	0.075
	9	4	25	
Gravida	MG	5	20	0.549
	PG	0	5	
Time taken to latch in minutes	>60	4	18	0.934
	46-60	1	7	
Newborns temperature after 1hour of birth/ after breast crawl in ˚F	<96	4	7	0.088
	96.1-98.6	1	18	

*Significance at 0.05 level of significance (t table = 2.00)

Table 4 represents the data related to association of LATCH Breastfeeding with demographic variables under study. Since all the p-values are large (greater than 0.05), none of the demographic variable was found to have significant association with LATCH Breastfeeding in control group

Section V B

Analysis of data related to association of LATCH Breastfeeding findings in experimental group with selected demographic variables

Association between LATCH Breastfeeding findings with selected demographic variables was assessed using Fisher's exact test.

Table 5: Fisher's exact test for association of LATCH Breastfeeding with selected demographic variables in experimental group, n= 30

Demographic variable		Good	Poor	p-value
Gestational week	37-38	0	1	0.053
	39-40	22	6	
	41-42	0	1	
Weight of baby	2.0-2.5	1	0	0.026
	2.6-3.0	3	5	
	3.1-3.5	18	3	
APGAR score	8	1	1	0.742
	9	21	7	
Gravida	MG	20	5	0.182
	PG	2	3	
Time taken to latch in minutes	>60	4	2	0.256
	31-45	3	3	
	46-60	15	3	
Newborns temperature after 1hour of birth/ after breast crawl in ˚F	<96	3	0	0.545
	96.1-98.6	19	8	

*Significance at 0.05 level of significance (t table = 2.00)

Table 5 represents the data related to association of LATCH Breastfeeding with demographic variables under study. Since p-value corresponding to weight of baby is 0.026, which is small (less than 0.05), weight of baby was found to have significant association with LATCH Breastfeeding in experimental group. More the weight of the baby better is the LATCH Breastfeeding.

6. Discussion

The findings of the study have been discussed with reference to the objective and hypothesis stated. In this section the major findings of the present study have been discussed with the reference to the results obtained by other researcher.

Analysis of demographic profile revealed that in experimental group, majority i.e, 93.3% (28 out of 30) of the mothers had completed 39-40 weeks of gestation whereas in control group majority i.e,60 % of the mothers had completed 39-40 weeks of gestation, in experimental group majority i.e, 70% (21 out of 30) of the babies had weight 2.6-3 kg whereas in control group majority i.e, 50 % of the babies had weight 2.6-3 kg, in experimental and control group majority i.e, 93.3% (28 out of 30) of babies had Apgar score 9, In experimental and control group majority i.e, 83.3% (25 out of 30) of them were multigravida, in experimental group majority i.e, 60% (18 out of 30) of them took 46-60 minutes to latch whereas in control group majority i.e, 73.3% of the newborns took >60 minutes to latch, in experimental group majority i.e, 90% (27 out of 30)

of the newborns had temperature 96.1-98.6ºF after breast crawl whereas in control group majority i.e, 63.3% of the newborns had temperature 96.1-98.6ºF after 1 hour. The association of latch breastfeeding with demographic variables reveals demographic variable weight of baby was found to have significant association with breast crawl. That is more the weight of the baby breast crawl is done effectively.

LATCH Breastfeeding Assessment score and Modified Infant Breastfeeding Assessment score is better in experimental group than in control group i.e, breast crawl was an effective intervention.

A study was conducted by "Ni Nyoman Murti & Ari Rita Rathomi" on the Impact of breast crawl to breast milk production on puerperium mothers in rose room of Abdoel Wahab Sjahranie Regional Public Hospital of Samarinda in 2014. Non probability purposive sampling was used. Data analysis technic used univariate analysis by frequency distribution bivariate analysis by statistics test difference test between two proportions with level of confidence (CI 95%) also □ = 5%. Result of the research is that there was significant impact of Breast Crawl to Breast Milk production, which resulted of z test obtained Zcalculation value for 3,14627 > than value for 1,96. Based on result of the research, the researchers concluded that there was a significant impact of Breast Crawl to Breast Milk production.

7. Conclusion

The purpose of the study is to determine the impact of breast crawl on breastfeeding and its association with the selected demographic variables. Based on the objectives of the study the major variable identified were breast crawl as independent variable and breastfeeding as dependent variable. A review of related literature has helped the researcher to gain in-depth knowledge of the content, to develop conceptual framework for the study, tool for data collection and analysis of data. The study was Quasi-experimental and was conducted on a sample of 60 newborns at Kamla Nehru Hospital, Chandumama Maternity Home and Bharati Hospital and Research Centre. Non- probability purposive sampling technique was used to select the sample subject from the population. Data collection was accomplished by using modified standardized tool. Pilot study was conducted on 6 newborns at the labour room of Kamla Nehru Hospital and Chandumama Maternity Home., final data was collected from three hospitals from 12/07/2016 -23/08/2016. Data was analysed with the help of descriptive and inferential statistics using average, SD and calculating the "t" values. For further analysis unpaired t test was used to find the association with 0.05 level of significance and would be documented in percentage using graphs and diagrams. For association fisher's exact test was used. The following conclusions can be drawn from the study findings i.e, breast crawl is effective method in early establishment and maintenance of breastfeeding. Breastfeeding score in experimental group was significantly higher than breastfeeding score in control group i.e, breast crawl is an effective intervention for early establishment and maintenance of breastfeeding. So, the hypothesis is rejected.

8. Recommendations

On the basis of the findings of the study, it is recommended that

- A similar study may be conducted on a larger population for generalization of findings.
- A study can be conducted in different settings to strengthen the study findings.
- A study can be done by doing breast crawl before cutting the umbilical cord to strengthen the study findings.
- A study can be done in breast crawl on caesarean section mothers.
- A study can be done in breast crawl on maternal postpartum bleeding.
- A study can be done to compare the prolonged health conditions of newborns who had undergone breast crawl with newborns who has not undergone breast crawl.

9. Limitations

Breast crawl must be given immediately after the delivery but in this study due to hospital policies breast crawl was given after 5 minutes of delivery i.e after the immediate newborn care has been done.

10. Acknowledgement

We express our appreciation to the respected officials of the Bharati Vidyapeeth Deemed University, College of Nursing, and Pune for cooperation with us for executing this research. The author would like to thank Dr. Mrs. Lily Podder for her constant encouragement, detailed and constructive comments. The author also thank all the participants in the study and those who helped directly or indirectly in successfully completing the research.

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