INTERNATIONAL JOURNAL OF RESEARCH CULTURE SOCIETY ISSN(O): 2456-6683
Monthly Peer-Reviewed, Refereed, Indexed Journal [Impact Factor: 9.241]
Volume - 8, Issue - 12, December - 2024

DOIs:10.2017/IJRCS/202412036 --:-- Research Paper / Article / Review

An experimental study to assess the effectiveness of breast crawl on physiological parameter of neonate and breastfeeding outcome among mother in SMI hospital Dehradun.

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Abstract: *An experimental study was conducted to assess the effectiveness of breast crawl on physiological parameter of neonate and breastfeeding outcome among mother in SMI hospital Dehradun. The study involved a sample of 60 mothers from SMI hospital Dehradun. The research employed a quasi-experimental design (Post test only design), Utilising non probability purposive sampling technique . The conceptual framework was based on Ernestine wiedenbachs model of midwifery practice. Post test revealed physiological parameter of neonate outcome among experimental group and control group. majority of the respondents in experimental group 93.3% of neonates have birth weight ranging from 2.5-3.5 kg, 6.7 % of neonate have birth weight ranging from >3.5kg. 100% of neonate have heart rate ranges from 130-160 bpm, 100% neonate have spo2 ranges from 95-98%, 53% neonate have temperature <36.50C, 4O% Neonate have temperature ranges from 36.5-37.50C, 6.6% neonate have temperature >36.5oC.Majority of the respondents in control group 76.7% of neonates have Birth weight < 2.5kg ,23.3% neonate have birth weight ranges 2.5 to 3.5kg, 83.3% Neonate have heart rate ranges from 100 - 130 bpm, 17% neonate have heart rate >160 bpm, 63.3% neonate have Spo2 <95%,36.7 % neonate have Spo2 ranges from 95 -98% ,97 % neonate have temperature <36.50c ,3.3% neonate have temperature ranges from 36.5-37.5 0c. Majority of the respondents in experimental group 93.3% had good breast-feeding outcome ,6.7% had moderate breastfeeding outcomes. In control group 93.3% had moderate breastfeeding outcomes, 6.7% had good breast-feeding outcomes overall post-test mean Breast feeding outcome scores on among Experimental and control groups. Overall post-test mean breast feeding outcome score of experimental and control group was 86.7% and 56.3%. The obtained 't' value is 11.79 and statistically significant at 5 % level. In experimental group 100% of neonates had good urine outcome. In control group 93.3% had average urine output, 6.7 % had good urine output. Stool level in experimental and control group. In experimental group 70% of neonates had good stool outcome, 30 % had average stool outcome. In control group 60% had average stool output, 40 % had good stool output.*

Key Words: *Breast crawl, Physiological parameter, Maternal outcome.*

1. INTRODUCTION

Breast crawl is the spontaneous movement of a newborn mammal toward the nipple of its mother for the purpose of latching on to initiate breastfeeding . There are many Advantages of breast crawl technique. Prevents hypothermia by keeping the baby warm due to skin-to-skin contact with the mother. Baby achieves effective feeding skills faster so chances of long-term breastfeeding success increase. Baby gets early protection from

infections from colostrum (initial milk secretions which have a high concentration of antibodies and other anti-infective properties) as the first feed[1].

NEED AND SIGNIFICANCE OF STUDY:

The best time to start breastfeeding is within 20-30 minutes of the newborn's birth, if there are not complications with delivery. Importance of this study is that every year many neonates are died due to hypothermia or due to inappropriate breastfeeding technique or delayed breastfeeding due to Labour process as mother become exhaust and unable to do breastfeed

2. LITERATURE REVIEW:

A study was conducted to see the effect of neonatal breast crawl on breastfeeding Neonates were divided into successful and failed groups, according to whether the newborn crawled to the breast and began sucking for the first time within 1 h after delivery. The initiation of lactation and breastfeeding duration of the two groups were analysed at 24 h, 48 h, 72 h, the feeding practices were followed-up on the 7th day, 42nd day, and 5th month in order to explore the long-term benefits of breast crawl on breastfeeding. A total of 163 neonates were included. The initiation time and the duration of first feeding, the lactation initiation in the successful group was earlier, the scores of first and in-hospital breastfeeding scales were higher [2]. **Pang Y, Wang X 2023**

A study was conducted to see the Efficacy of the Standard Breast Crawl Technique on Maternal and Newborn Outcomes. A single-centre single-masked randomized controlled trial was conducted among 132 women who had given birth vaginally to a full-term newborn. The study group had received the standard breast crawl (SBC) technique and the control group had received skin-to-skin contact (SSC). The outcome measures included time to initiation of breast crawl and breastfeeding, LATCH score, newborn breastfeeding behaviour, time to expulsion of placenta, episiotomy suturing pain, amount of blood loss, and uterine involution. Outcomes were analysed for 60 women in each group who remained eligible. Compared with those in the SSC group, women in the SBC group had shorter time to initiation of the breast crawl (7.40 minutes vs 10.42 minutes, P = .001), shorter time to initiation of breast feeding (23.18 minutes vs 30.58 minutes, P = .003), higher LATCH scores (7.57 vs 5.35, P = .001), and higher newborn breastfeeding behaviour scores (11.38 vs 9.08, P = .001). Women in the SBC group also had decreased mean time to birth of the placenta (4.67 minutes vs 6.58 minutes, P =.001), lower episiotomy suturing pain scores (2.72 vs 4.50, P =.001), and decreased maternal blood loss (16.66% vs 53.33%, P = .001); were more likely to involute the uterus below the umbilicus after 24 hours of birth (77% vs 10%, P = .001); and had higher maternal birth satisfaction score (7.15 vs 2.0, P = .001)[3]. **Rana P, Swain D 2023**

A study was conducted with the purpose to determine whether breast feeding behaviours, skin temperature, and blood 20 glucose influenced through the use of breast crawl at the time of birth in healthy full-term infants. They took nine full term neonates given breast crawl beginning within 1 minute of birth and continuing until completion of the first breast feeding by mothers who intended to breastfeed. Infant skin temperature was taken at 1 and 5 minutes after birth and every 15 minutes thereafter. Blood glucose level was taken 60 minutes after birth, the time at which the infant latched onto the breast was recorded and breastfeeding behaviours were observed during the first breastfeeding. The results were the skin temperature rose during birth kangaroo care in eight of the nine infants, and temperature remained within neutral thermal zone for all infants. Blood glucose levels varied between 43 and 85 mg/dL for infants who had not already fed and between 43 and 118 mg/dL for those who had fed. All but one infant spontaneously crawled to and latched onto a breast by 74 minutes after birth[4] **Bystrova. K 2014.**

3. MATERIALS AND METHODS:

The research design selected for the study was a quasi-experimental design as Post test only design utilising non probability purposive sampling technique. The sample consisted of 60 Mothers of labor room at Shri Mahant Indiresh Hospital Dehradun who are willing to participate in the study.

TOOLS AND TECHNIQUE

Section A Demographic variables

Items on demographic variables like Age, Occupation, Education of mother, parity , Gestational age, History of illness, medication taken for labor pain.

Section B consist of Checklist

Tool 1 - Physiological parameter of neonate

Physiological Parameter	Day 1	Day 2	Day 3
Weight			
Heart rate			
Spo2			
Temperature			

Tool 2 – Mother outcome measured by LATCH breastfeeding assessment tool

	0	1	2	0	1	2
L- Latch	-Too sleepy -No latch achieved	-Repeated attempts. -Hold nipple in mouth -Stimulateto suck	-Grasp breast -Tongue down -Lip flanged -Rhythmic sucking			
A-Audible swallowing	-None	- few with stimulation.	-Spontaneous and Intermittent.<24 hour old. -Intermittent >24 hour old			
T – Type of nipple	-Inverted	-Flat	- Everted after Stimulation			
C- Comfort	-Engorged -Cracked, bleeding -Large blisters or bruises -Severe discomfort	-Filling -Reddened/small blisters. -Mild/moderate discomfort.	-Soft -Tender			
H- Hold	-Baby requires wrapping. -Pillow required for support -Mother learning skill	-Minimal support required - Mother gaining confidence	-No assist from staff -Mother able to position infant -Mother and baby relaxed.			

Tool 3 – Neonatal outcome

This outcome was measured in terms of urine frequency and stool passed by neonate per day.

NEONATAL OUTCOME	DAY1	DAY 2	DAY 3
Urine frequency			
Stool frequency			

4. ANALYSIS AND FINDINGS:

This chapter presents the analysis and interpretation of data collected from Mothers of labor room to assess the effectiveness of breast crawl on physiological parameter of neonate and breastfeeding outcome among mother in SMI hospital Dehradun. The data were analysed according to the objectives and hypothesis is formulated for study.

Organization of the findings

Section A

Table 1-: Frequency and percentage distribution of physiological Parameter of Neonates.

Parameters	Category	Group	Group/Respondents				χ^2 Test
			Experimental (n=30)		Control (n=30)		
			N	%	N	%	
Weight (kg)	< 2.5	< Normal	0	0%	23	76.7%	37.60*
	2.6-3.5	Normal	28	93.3%	7	23.3%	
	>3.5	> Normal	2	6.7%	0	0%	
Heart Rate(bpm)	100-130	< Normal	0	0%	25	83.3%	60.00*
	140-160	Normal	30	100%	0	0%	
	>160	> Normal	0	0%	5	17%	
Spo2(%)	<95	< Normal	0	0%	19	63.3%	27.80*
	96-98	Normal	30	100%	11	36.7%	
	99-100	> Normal	0	0%	0	0%	
Temperature (degree Celsius)	<36.5	< Normal	16	53%	29	97%	15.06*
	36.6-37.5	Normal	12	40%	1	3.3%	
	>37.5	> Normal	2	6.6%	0	0%	
Total			**30**	**100.0**	**30**	**100.0**	

* Significant at 5% level, χ^2 (0.05,2df) = 5.99

Table 2- Overall Breast-feeding outcome scores on among Experimental and control groups

Groups	Sample	Max. Score	Scores Obtained				Student 't' Test
			Mean	SD	Mean(%)	SD(%)	
Experimental	30	30	8.67	0.76	86.7	7.6	11.79*
Control	30	30	5.63	1.19	56.3	11.9	

*Significant at 5% level, t (0.05,58df) = 1.96

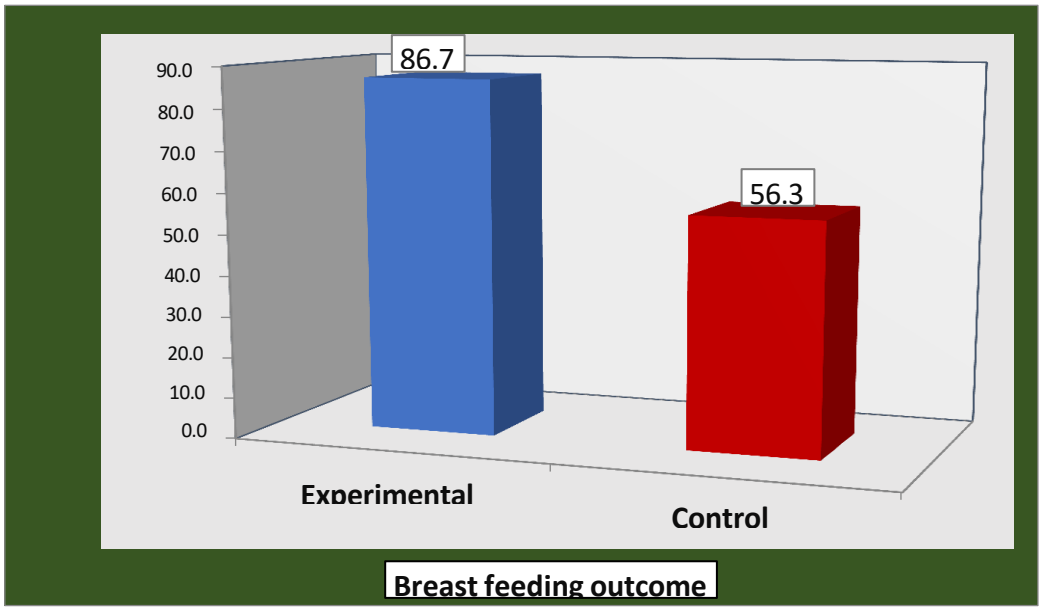

Figure 2.1- showing the percentage distribution of participants Over-all Breast-feeding outcome scores on among Experimental and control group.

PART – B: Neonatal Outcome

TABLE 3 -Assessment of Level on Neonatal Urine Level

Neonatal Outcome Level	Scores	Group/Respondents				χ^2 Test
		Experimental		Control		
		N	%	N	%	
Urine	Poor	0	0.0	0	0.0	52.50*
	Average	0	0.0	28	93.3	
	Good	30	100.0	2	6.7	
Total		**30**	**100.0**	**30**	**100.0**	

*Significant at 5% level, χ^2 (0.05,1df) =3.841

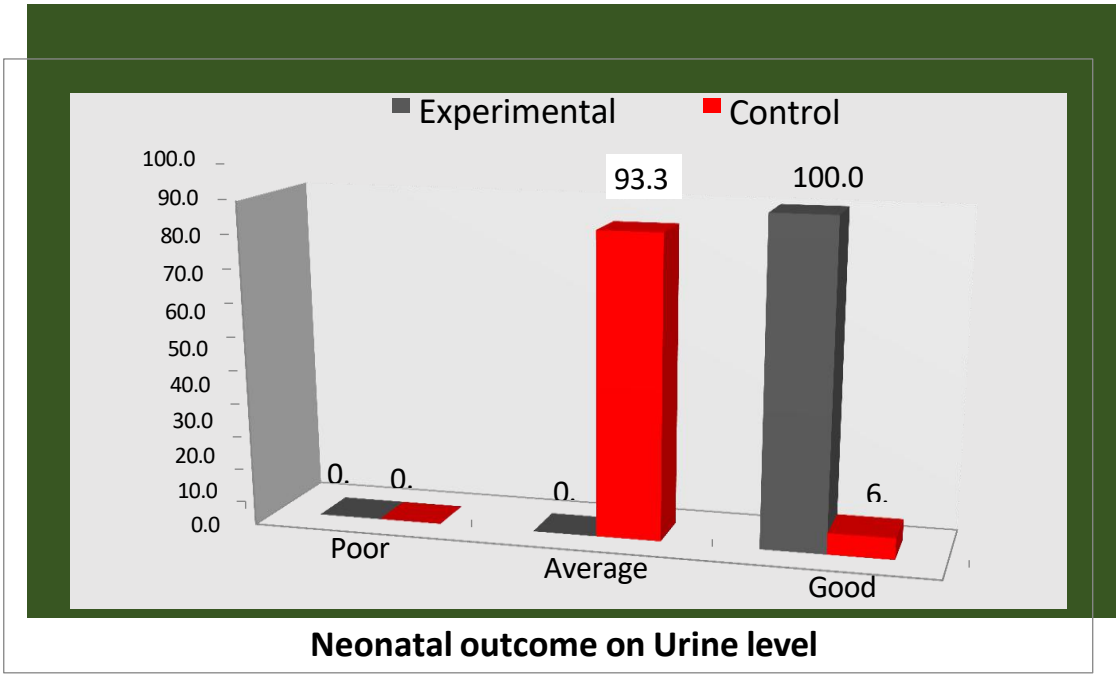

Figure 3.1- showing the aspect of Assessment of Level on Neonatal Urine Level

Table 4 -Assessment of Neonatal Outcome on Stool Level

Neonatal Outcome Level	Scores	Group/Respondents				χ^2 Test
		Experimental		Control		
		N	%	N	%	
Stool	Poor	0	0.0	0	0.0	5.46*
	Average	9	30.0	18	60.0	
	Good	21	70.0	12	40.0	
Total		**30**	**100.0**	**30**	**100.0**	

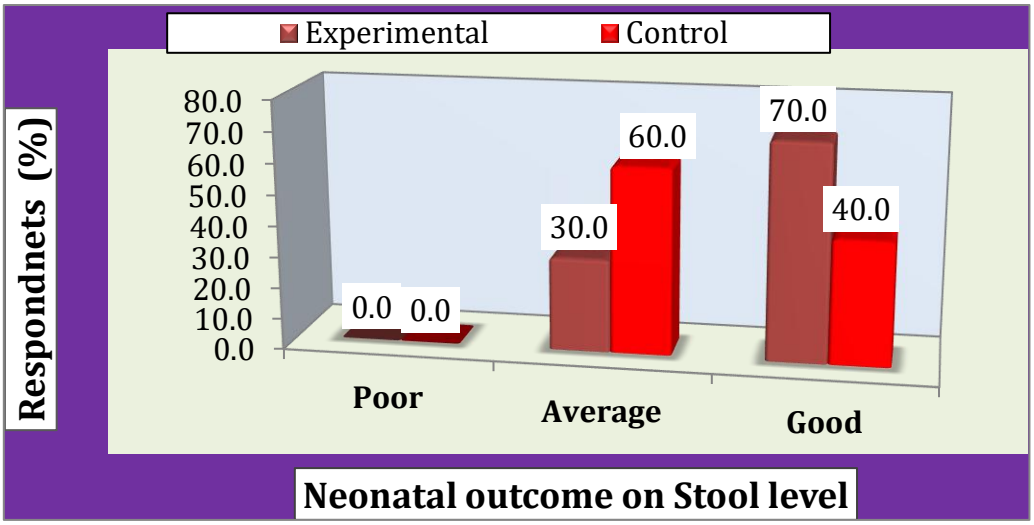

Figure 4.1 -- showing the aspect of Assessment of Level on Neonatal Stool Level

5. DISCUSSION :

The finding of the study has been discussed in the following section

Objective 1. to evaluate effectiveness of breast crawl on physiological parameter of neonate outcome in experimental group.

i. Comparison Mean between Weight, Heartrate, SPO2 and Temperature with control group

Present study depicts that the mean post test score in terms of physiological parameter of neonate of the experimental group is greater than the mean post test score of the control group. Majority of the respondents in experimental group 93.3% of neonates have birth weight ranging from 2.5-3.5 kg, 6.7 % of neonate have birth weight ranging from >3.5kg. 100% of neonate have heart rate ranges from 130-160 bpm, 100% neonate have spo2 ranges from 95-98%, 53% neonate have temperature <36.5^{0}C, 4O% Neonate have temperature ranges from 36.5-37.5^{0}C, 6.6% neonate have temperature >36.5^{o}C. Majority of the respondents in control group 76.7% of neonates have Birth weight < 2.5kg ,23.3% neonate have birth weight ranges 2.5 to 3.5kg, 83.3% Neonate have heart rate ranges from 100 -130 bpm, 17% neonate have heart rate >160 bpm, 63.3% neonate have Spo2 <95% ,36.7 % neonate have Spo2 ranges from 95 -98% ,97 % neonate have temperature <36.5^{0}c ,3.3% neonate have temperature ranges from 36.5-37.5 ^{0}c. The study concluded that the mean physiological parameter of neonate in experimental group would be significantly normal than control group.

ii. Comparison of post test score in terms of urine output Between experimental and control group

Data presented reveals assessment of neonate urine level in experimental and control group. In experimental group 100% of neonates had good urine outcome. In control group 93.3% had average urine output, 6.7 % had good urine output. It concludes that the physiological parameter of neonate in experimental group would be significantly normal than control group hence accepting the H^1 hypothesis

iii. Comparison of post test score in terms of Stool Between experimental and control group Data presented reveals assessment of neonate stool level in experimental and control group. In experimental group 70% of neonates had good stool outcome, 30 % had average stool outcome. In control group 60% had average stool output, 40 % had good stool output**.** It concluded that the experimental group neonate stool frequency is improved as compared to control group. Therefore, the breast crawl approach is particularly helpful in maintain physiological parameter of new born.

OBJECTIVE 2: To evaluate the effectiveness of Breast crawl on breastfeeding outcome of mother in experimental group.

i. Comparison of mean post test score in terms of breastfeeding outcome between experimental and control group

Present study depicts that the mean post score in terms of breastfeeding outcome in experimental group. The difference in Latch, Audible swallowing, Type of Nipple, Comfort and Hold scores Latch, Mean & SD 1.87 ± 0.35, Audible swallowing Mean & SD 1.67 ± 0.48, Type of Nipple Mean & SD 1.67 ± 0.48, Comfort Mean & SD 1.87 ± 0.35 and Hold Mean & SD 1.60± 0.50. Present study depicts that the mean post score in terms of breastfeeding outcome in control group. The difference in Latch, Audible swallowing, Type of Nipple, Comfort and Hold scores Latch, Mean & SD 1.20 ± 0.41, Audible swallowing Mean & SD 1.23 ± 0.50, Type of Nipple Mean & SD 1.27 ± 0.52, Comfort Mean & SD 0.93 ± 0.69 and Hold Mean & SD 1.00± 0.37. Overall post-test mean breast feeding outcome score of experimental and control group was 86.7% and 56.3%. The obtained 't' value is 11.79 and statistically significant at 5 % level. hence there is significant difference in the post test breastfeeding outcome score among experimental and control group.

6. RECOMMENDATION

On the basis of the study that has been conducted certain suggestion are given for the studies a similar study can be done on a larger population in hospital setting.

- A future study would be conducted on mothers using control and experimental group
- The mother should educated about the effectiveness of Breast crawl. A future study could be conducted on mothers.
- The government should take actual steps to sponsor funds for the studies as there was not much research regarding breast crawl.
- The government should provide awareness campaign advertisement through mass media to aware the mothers about the breast crawl technique

7. CONCLUSION

On the basis of the finding of the study the following conclusion was drawn which also brings out the limitation of the study picture. The result of Control group is showing insignificant differences at p values. On the other hand, experimental group is showing significant p value. As comparing the mean difference of LATCH scale, physiological parameter (weight, temperature pulse, spo2, urine frequency and stool frequency) scores in experimental groups, the mean difference in control group which is lesser than experimental group this result showed that the post-test mean breastfeeding score in experimental group is significantly higher that control group.

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