

Effectiveness of Premature Infant Oral Motor Intervention on Improving the Level of Sucking Reflex in Preterm Infants Admitted in NICU

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ABSTRACT

BACKGROUND: Preterm infants' organs are not fully developed at birth. Sucking reflex does not developed until 32 weeks of gestation and not fully developed until 36 weeks. Premature birth is associated with feeding difficulties due to inadequate coordination of sucking, swallowing, and breathing. So, they required care at birth and need a hospitalization. Feeding difficulties can be results from CNS immaturity, medical complications and/or cerebral injury. Therapeutic approaches are involved in improving the sucking reflex among preterm infants. The approaches are like oral massage, pacifiers, cheek-chin support, tactile approach. Premature Infant Oral Motor Intervention (PIOMI), improve positive effects on sucking reflex and helps in feeding and the growth of preterm infants.

AIM: Aim of the study was to assess the effectiveness of Premature Infant Oral Motor Intervention (PIOMI) on improving sucking reflex in preterm infants admitted in NICU.

METHODOLOGY: A quantitative research approach was adopted using true experimental (two group pre-test post-test design) was done on 60 samples are selected by using simple random sampling technique.

RESULTS: The results found that the effectiveness of Premature Infant Oral Motor Intervention on improving sucking reflex in preterm infants. The significant mean difference between the post-test score of control group and experimental group was 0.63 ($p < 0.05$). The mean difference between experimental group pre-test and post-test was 2.74 ($p < 0.05$), it showed that there is significant difference in level of sucking reflex those who received Premature Infant Oral Motor Intervention (PIOMI).

CONCLUSION: The study findings concluded that the PIOMI had a positive improvement in the level of sucking reflex among the preterm infants born between 29-37 weeks of gestation.

KEYWORDS: Preterm Infants, Premature Infant Oral Motor Intervention, Infant Breastfeeding Assessment Tool, Sucking reflex.

INTRODUCTION

Prematurity is defined as a birth that occurs before 37 completed weeks of gestation or less than 259 days of gestation.¹ Preterm infants classified as extremely very low birth weight babies born before 28 weeks of gestation, very low birth weight born before 32 weeks of gestation and low birth weight born between 32-37 weeks of gestation age.²

The preterm infant's chance of survival rate 6% at 22 weeks, 26% at 23 weeks 55% at 24 weeks and about 72% at 25 weeks.³ Preterm Infants birth affected 1 of every 10 infants born in the United States. The preterm birth rose 4% in 2021 from 10.1% in 2020 and 10.5% in 2021.⁴

Preterm infants' organs are not fully developed at birth. The pre-term infant's need special care in a nursery until the organ systems has developed enough to sustain life without medical support.⁵ Preterm birth is associated with feeding difficulties due to inadequate coordination of sucking, swallowing and breathing.⁶

Sucking reflex does not developed until 32 weeks of gestation and not fully developed until 36 weeks.⁷ Sucking reflex is an important reflex that helps baby to meet the nutritional requirement.⁸ An estimated 80% of preterm infants experienced difficulty with oral feeding. Feeding difficulties can be results from CNS immaturity, medical complications and/or cerebral injury.⁹ Therapeutic approaches are involved in improving the sucking reflex among preterm infants. The approaches are like oral massage, pacifiers, cheek-chin support, tactile approach.¹⁰

Oro-motor intervention methods were adopted for improving the level of sucking reflex. It also helpful for preterm infant under nasogastric tube feeding to wean off from NG tube feeding to complete oral feeding. It is also effective to reduce the length of hospital stay, improve the sucking pattern and increase the weight of the preterm infants.¹¹

OBJECTIVES

The objectives of the study were to:

1. assess the pre-test and post-test level of sucking reflex among pre-test infants in control group and experimental group.
2. find out the effect of PIOMI and routine care on improving sucking reflex among pre-term infants in control group and experimental group.
3. find the association of the level of sucking reflex among pre-term infants in control group and experimental group with their selected demographic variables.

METHODOLOGY

A quantitative research approach was adopted using true experimental (two group pre-test post-test design). 60 samples were randomly assigned into two groups (30 in control group and 30 in experimental group). Pre-term infants born between 29-37 weeks of gestational age were selected as study samples. Research Setting was NICU of Shri Vinoba Bhawe Civil Hospital, Silvassa. Pre-test was done using IBFAT in both the groups, intervention was provided to experimental group and routine care was given to control group for 5 days and on 6th day post-test was done using IBFAT scale.

RESULTS

SECTION 1: Description of demographic variables of preterm infants

Table 1.1: Frequency and Percentage Distribution of Demographic Variables of Preterm Infants.

[n=60]

SR. NO.	DEMOGRAPHIC VARIABLES	CONTROL GROUP (n=30)		EXPERIMENTAL GROUP (n=30)	
		Frequency	Percentage	Frequency	Percentage
1	Age (in days)				
	a) 0-7 days	13	43.3	12	40
	b) 8-14 days	11	36.7	9	30
	c) 15-21 days	4	13.3	5	16.7
	d) 22-28 days	2	6.7	4	13.3
	e) >28 days	0	0	0	0
2	Sex				
	a) Male	15	50	17	56.7
	b) Female	15	50	13	43.3
3	Gestational Age				
	a) 29-32 weeks	17	56.7	14	46.7
	b) 33-37 weeks	13	43.3	16	53.3
4	Birth Weight				
	a) <1 Kg	1	3.3	0	0
	b) 1-2 Kg	28	93.3	26	86.7
	c) 2-2.5 Kg	1	3.3	4	13.3
5	Type of Delivery				
	a) Normal Vaginal Delivery	18	60	11	36.7
	b) Lower Segment Caesarean Section	12	40	19	63.3

Section 2: Description of Pretest and Posttest level of sucking reflex among preterm infants in control group and experimental group.

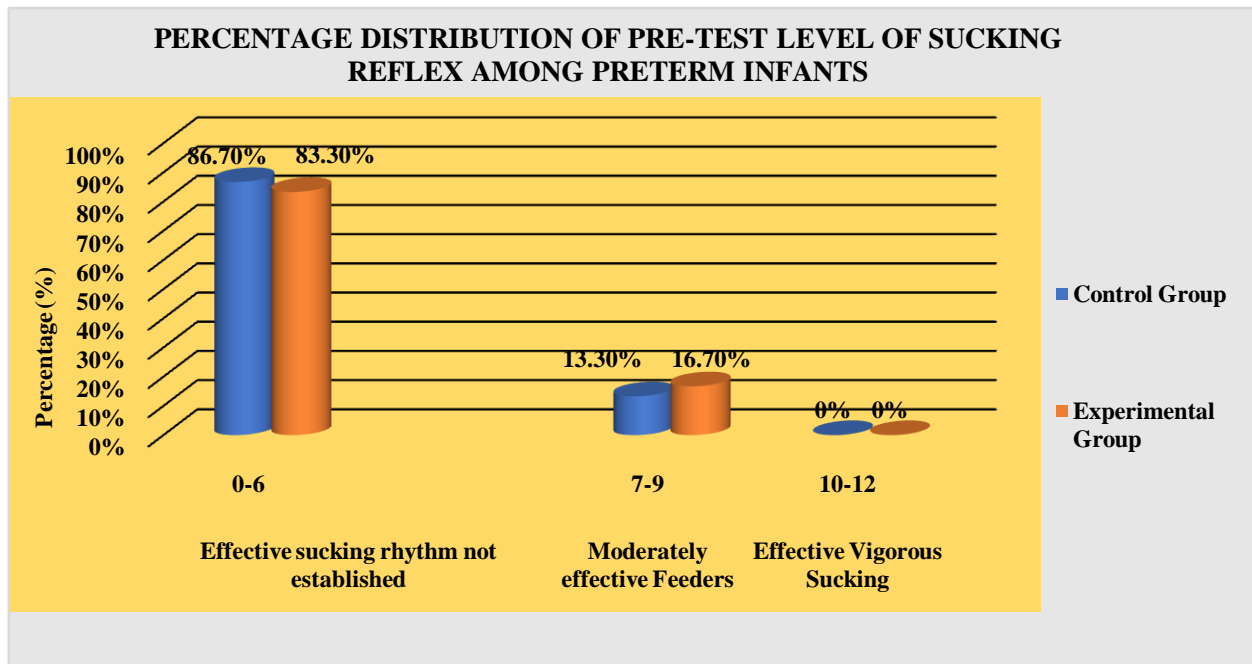


Figure 2.1: Frequency and Percentage Distribution of pre-test Level of Sucking Reflex among Preterm Infants in Control Group and Experimental Group.

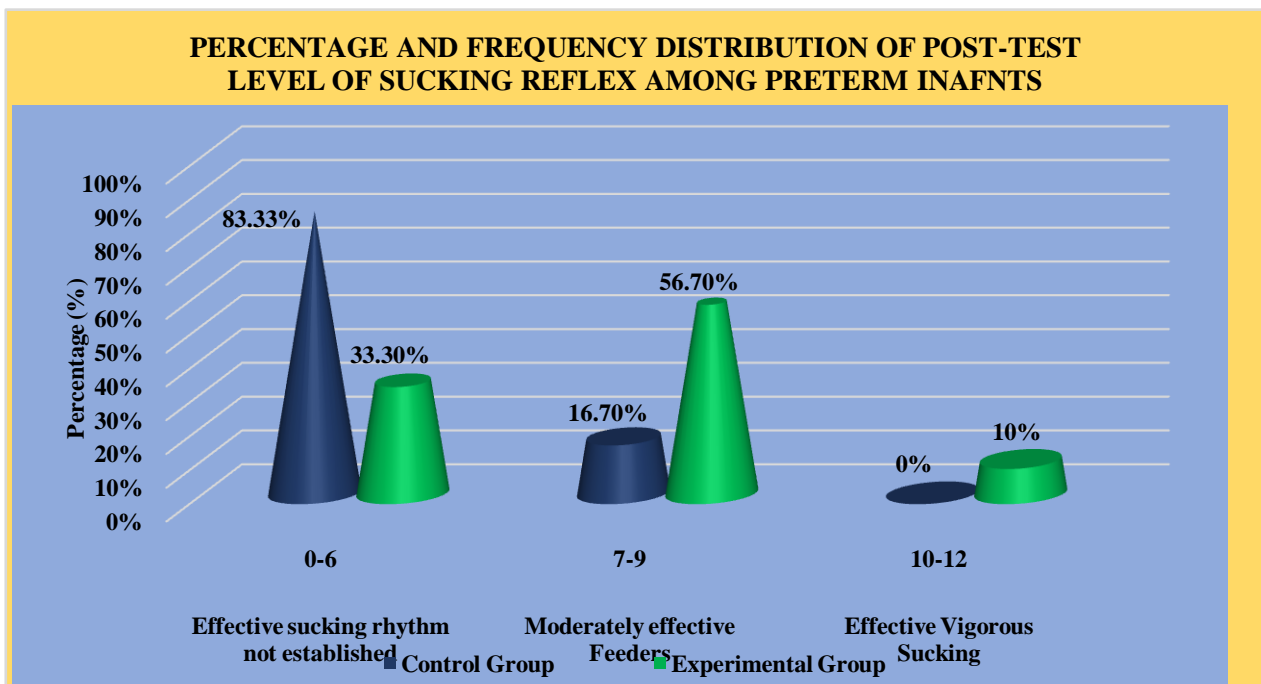


Figure 2.2: Frequency and Percentage Distribution of Level of Sucking Reflex among Preterm Infants in Experimental Group.

Section 3: Effect of PIOMI and routine care on improving sucking reflex among preterm infants in control group and experimental group.

Table 3.1: Post-test comparison of control group and experimental group

[n=60]

Group	Test	Mean	SD	Mean Difference	Independent t-test value	p- value
Control Group	Post-test	4.27	1.84	0.63	6.82	p<0.001 ***
Experimental Group	Post-test	7.3	1.60			

Section 4: Association between level of sucking reflex score among preterm infants with their selected demographic variables.

There was a significant association between gestational age, birth weight and level of sucking reflex among the preterm infants admitted in NICU of Shri Vinoba Bhave Civil Hospital, Silvassa, DNH and DD at 0.05 level of significance. Other demographic data had no significant association with level of sucking reflex. The stated hypothesis was rejected at $p < 0.05$.

DISCUSSION

The result obtained showed that there is significant mean difference between the post-test score of control group and experimental group was 0.63 ($p < 0.05$). The mean difference between experimental group pre-test and post-test was 2.74 ($p < 0.05$), it showed that there is significant difference in level of sucking reflex those who received Premature Infant Oral Motor Intervention (PIOMI).

CONCLUSION

Based on the study findings the following conclusion was drawn that the majority of preterm infants in control group 30 (100%) had score between 0-6 that indicate their sucking rhythm is not established effectively. In experimental group 25 (83.33%) scored between 0-6 that indicates their sucking rhythm not established effectively and 5 (16.66%) scored between 7-9 who were moderately effective feeders. Hence, it can be concluded that there is need to provide PIOMI to preterm term infants in order to improve the level of sucking reflex among the preterm infants.

There was a significant association between gestational age and level of sucking reflex among preterm infants. The stated hypothesis was rejected at $p < 0.05$.

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