



**RESEARCH ARTICLE**

**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF NON-NUTRITIVE SUCKING FOR PROMOTING PHYSIOLOGICAL STABILITY AND NUTRITIONAL STATUS IN PRETERM INFANTS ADMITTED IN NICU AT SELECTED HOSPITAL, BHILAI, CHHATTISGARH**

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**ABSTRACT**

Babies have specific needs that assist them in their development and enable to thrive. Feeding is an important aspect of development. In NICU it was found that sick premature babies who were admitted in the hospital had poor sucking and swallowing reflex unlike term babies. It is the responsibility of the nurse to assist the premature babies in their development and to boost their sucking ability. Hence present study intended to assess the effectiveness of non- nutritive sucking in preterm infant and to find the association between the physiological stability and nutritional status in preterm infants with selected socio demographic variables. Self structured interview schedule was constructed to obtain the base line data of preterm infants and their mother and Observational check list to assess the physiological stability and nutritional status in preterm infants. For the present study quasi experimental non equivalent control group design was adopted and non- probability convenient sampling technique was used. The sample taken were 40 preterm infants in that 20 experimental & 20 control group with low birth weight infants between 1.5 - 2.5 kg and less than 37 weeks of gestation admitted in NICU at selected hospital, Bhilai, Chhattisgarh. The 't' test value (6.998) revealed that non- nutritive sucking is effective in physiological stability and nutritional status in preterm infants.

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**INTRODUCTION**

The new white paper shows that in 2005, an estimated 13 million babies world wide were born preterm – defined as birth less than 37 full weeks of gestation. That is almost 10 percent of total birth world wide. About one million deaths in the first month of life (or 28 percent of total newborn deaths) are attributable to preterm birth. Preterm baby constitutes two thirds of low birth weight babies,. The incidence of low birth weight baby is about 30-40% in the developing countries.

Birth weight is an important determination of future nutritional status and growth patterns in infancy (1) Low birth weight has been associated with future under nutrition and growth faltering. (2) An important mediator of the association between birth weight and infant growth may be feeding maturation. Infant feeding involves integrative coordination of sucking, swallowing and breathing (3) impaired nutritive feeding may be an indicator of neurobehavioral dysfunction. Sucking is the infant's chief pleasure an may not be satisfied by breast or bottle feed.

It is such a strong need that infants who are deprived of sucking, those with a cleft lip repair, will suck on their tongues.

Some newborns are born with sucking blister on their hands in utero sucking activity. The documents benefits of non-nutritive sucking in preterm infants including increased weight gain, decreased length of stay and improved pain management. Provide opportunity for non- nutritive sucking improve weight. Non- nutritive sucking is the act of sucking the breast with no secretion of milk.

Infant may suckle when distress or to be calmed or quite. Non-nutritive sucking is used during gavage feeding and in the transmission from gavage to breast feeding in preterm infants. The rational for this intervention is that non- nutritive sucking behavior and improve digestion of eternal feedings. Non-nutritive sucking is encouraged for several reasons. Allowing the infants to suck on a empty breast or pacifier during gavage feedings may improve.

**Objectives**

1. To assess the physiological stability and nutritional status in preterm infants among experimental group and control group.
2. To assess the effectiveness of non-nutritive sucking for promoting physiological stability and nutritional status

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in preterm infants of experimental group and control group.

- To find the association between the physiologic stability and nutritional status in preterm infants with selected socio demographic variables.

**Hypothesis**

**H<sub>1</sub>:** There will be significant difference in mean post-test scores of the physiological stability and nutritional status in preterm infants among experimental group and control group.

**H<sub>2</sub>:** There will be significant association between pre intervention of physiological stability and nutritional status with selected socio demographic variables.

**METHODOLOGY**

Quasi experimental non equivalent control group design was adopted to find out the effectiveness of non-nutritive sucking for promoting physiological stability and nutritional status in preterm infant admitted in NICU. For the present study sample taken were 40 preterm infants in that, 20 experimental & 20 control group with low birth weight infants between 1.5 - 2.5 kg and less than 37 weeks of gestation admitted in NICU at selected hospital, Bhilai, Chhattisgarh. The sampling technique used for the study was non- probability convenient sampling. Reliability of the tool were tested by inter rater method, The reliability co-efficient was calculated using Karl parsons formula to determine reliability co-efficient. The value of ‘r’ was found to be 0.857, hence the item in the checklist were reliable and therefore retained. Informed consent was obtained from the subjects after explaining the objective and nature of the study. The data gathering process was done in two section. In section -1 baseline data of preterm infants and their mothers was obtained.

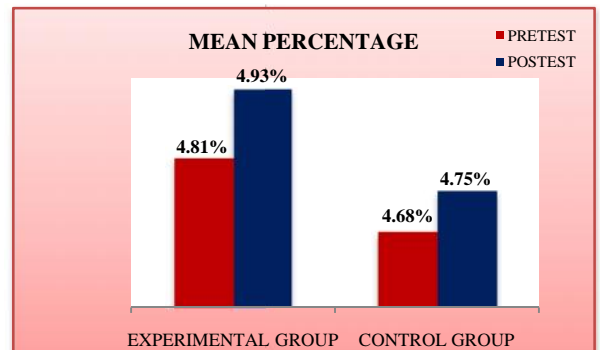
In section -2 observational checklist was used to find out the physiological stability and nutritional status in preterm infants. The intervention was carried out in following way. Sample (40) was selected conveniently for experimental group i.e. 20 and control group i.e. 20. Non-nutritive sucking intervention was given to only to experimental group.

done for physiological stability and nutritional status in preterm infants. No attempt was made to control the extraneous variables in any group. The investigator on the record sheet recorded the findings of the entire test. The patient were observed according to the case available in NICU. The data obtained during pretest and posttest assessment were coded numerically and tabulated. Data’s were analyzed by using descriptive and inferential statistics.

**Major Findings**

The main finding of the study revealed that the Socio demographic variables of preterm infants in experimental group majority of preterm infants were (55%) belongs to the age group of 34-37 age in gestation, majority of preterm infants were Male75% and 60% were 2001-1500gm in weight. Socio demographic variables of preterm infants mother revealed that in experimental group majority of mothers were (60%) belongs to the age group of 20-25 years, maximum mothers were( 80% )illiterate, majority (90%) were house wife, and highest 55% were having one children, (80%) were Hindu,(45%) were having income between Rs. 1000 - <1000, (55%) were having joint family, (70%) were 33-35 weeks of pregnancy, (70%) were cause of spontaneous abortion.

“ t “ test to find out the effectiveness of non-nutritive sucking for promoting physiologic stability and nutritional status in preterm infants.



**Graph 1** Bar diagram showing the comparison of mean percentage of pretest and post test between experimental and control group.

**B) Effectiveness of nutritional status Table - 24**

Nutritional status	Experimental Group (Non-nutritive sucking) N=20			Control Group (No non-nutritive sucking) N=20			‘t’ test value (Significance)	df
	Mean score	Mean %	SD	Mean score	Mean %	SD		
Pretest	3.3	2.062%	0.6589	3.1	1.937%	0.7677	2.544	19
Post test	5.95	3.718%		2.3	1.437%		6.988	

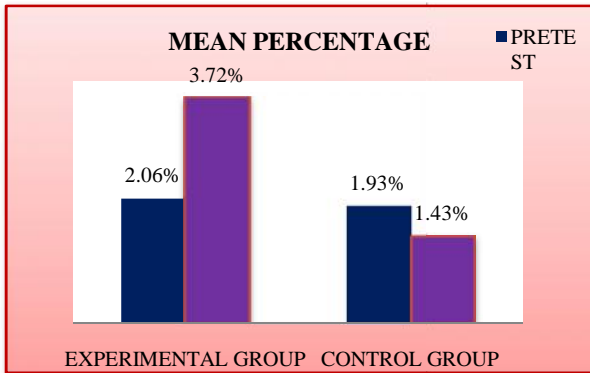
**A) Effectiveness of physiologic stability Table - 1**

Physiological stability	Experimental group (non- nutritive sucking) n=20			Control group (non-nutritive sucking) n=20			‘ t ’ test value (significance)	Df
	Mean score	Mean %	SD	Mean score	Mean %	SD		
Pretest	3.85	4.812	0.523	3.75	4.68	0.5501	1.7094	19
Post test	3.95	4.937		3.8	4.75		2.032	

Non-nutritive sucking was given before 5 minutes of gavage feeding, time spent for each sample was 30 minutes, intervention was given for 7 days. After 7 days assessment was

**Table – 1 and graph 1** – elicit the physiological stability in both experimental group and control group.

In experimental group the pre-test mean is 3.85 and post-test mean is 3.95 with mean % of 4.812% and 4.937% and SD 0.523 respectively. where as in control group the pre-test mean is 3.75 and post-test mean is 3.8 with mean% of 4.68% and 4.75% and SD 0.5501 respectively. the 't' value of pre-test and post-test is 1.7094 and 2.032 at df 19 which is more than the table value and it is significant.



GRAPH – 2 Bar diagram showing the comparison of mean percentage of pretest and post test between experimental and control group.

Table – 2 and graph- 2 elicit the nutritional status in both experimental group and control group. In experimental group the pre- test mean is 3.3 and post-test mean is 5.95 with mean% of 2.062% and 3.718% and SD 0.6589 respectively. Where as is in control group the pre-test mean is 3.1 and post-test mean is 2.3 with mean% of 1.937% and 1.437% and SD 0.7677 respectively. the 't' value of pre-test and post-test is 2.544 and 6.988 at df 19 which is more than the table value and it is significant.

The chi square test reveals that there is no significant association between the physiologic stability and nutritional status and selected socio demographic variables, that is age, sex and weight of preterm infants.

## CONCLUSION

The non-nutritive sucking refers to sucking activity when no fluid or nutrition is delivered to the infant. Delivered via a blind nipple or pacifier, Non – nutritive sucking is a clinical intervention used to modulate the physiological stability and nutritional status in preterm infants, reducing the length of hospital stay, proportionately improving transmission from gavage to breast feeding. Based on this study findings the health care professionals should give importance to non-nutritive sucking activity in preterm infants to promote physiological stability and nutritional status.

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