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## RESEARCH ARTICLE

### IMPACT OF ORAL STIMULATION TECHNIQUE UPON THE OUTCOMES OF PREMATURE NEONATES IN TERMS OF WEIGHT GAIN AND DURATION OF HOSPITALIZATION IN SELECTED PEDIATRIC CARE AREA OF RAJASTHAN

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#### ABSTRACT

Healthy children are the greatest resource and proud of a nation. Investment in childcare is an investment in future of nation because "today's children are adult of tomorrow". Children ought to be healthy and happy to become productive and contented adults of the future. To give them happy and healthy childhood, we must safeguard their total health, right from the beginning. More than 8.1 million newborns of India have low birth weight (less than 2500 grams or 5.5 pounds). In India 30 present infants born are low birth weight baby. They have high chances of dying within the first 28 days of life. Oral feeding problems in preterm infants are of growing concern over the world: cases of breast- or bottle-feeding failures often result in delayed hospital discharge, maternal stress and long-term health problems. Hence a Study was conducted on Impact Of Oral Stimulation Technique Upon The Outcomes Of Premature Neonates In Terms Of Weight Gain And Duration Of Hospitalization In Selected Pediatric Care Area Rajasthan. A quasi-experimental design (non-equivalent control group pretest-posttest design) was used without a control group on 550 premature neonates in selected pediatric care area Rajasthan state. The technique used in the study is Non-probability convenient sampling technique and Major findings shows In Terms Of Weight Gain obtained by Premature Neonates in Post-Exposure Weight (Grams) (2217.07) is higher than Pre- Exposure Weight (Grams) 2051.23 of experimental group. Whereas in control group Weight Gain obtained by Premature Neonates in Post-Exposure Weight (2039.48) is less high than Pre- Exposure Weight (Grams), which show the weight control group is a natural phenomenon of gaining weight. This may show that oral stimulation techniques have significant effect upon weight gain in experimental group.

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## INTRODUCTION

The last century has witnessed a considerable rise in the survival of preterm infants with feeding difficulties thanks to the advances in their care. Premature infants are "neonates born before 37 weeks gestational, newborn infant or neonate, is a baby under 28 days of age. During these first 28 days of life, the baby is at highest risk of dying. It is thus crucial that appropriate feeding and care are provided during this period, both to improve the infant's chances of survival and to lay the foundations for a healthy life. The suckling reflex is most intense in the first 20-30 minutes after birth. In some birth cases, the infant is not allowed to suck at the breast at this time, and this delayed gratification may make suckling more difficult later on.

The sucking skills of preterm infants become mature between week 32 and 34 (1) Oral feeding difficulties are almost common in preterm infants due to problems in their cardio respiratory and central nervous systems as well as the incomplete development of their oral structures. Preterm birth and being small for gestational age (SGA) are the reasons for low-birth-weight (LBW) & are also important indirect causes of neonatal deaths. LBW is the commonest cause of neonatal mortality & contributes almost 60% to 80% of all neonatal deaths. The global prevalence of LBW is 15.5%. According to UNICEF. LBW babies carry relatively higher risk of neonatal mortality and substandard growth and development. More than 8.1 million newborns of India have low birth weight (less than 2.5 kg). In India; about 30 percent infants born are LBW.

They have high chances of dying within the first 28 days of life. In India the Neonatal mortality rate is 36% (0-28 days). Major of them (28%) is early neonatal deaths (0-7 days). Sixty-five percentage of Infants die in their Neonatal period. Among them 45 % neonates die within first seven days of life. More than 100 neonates die every hour in India. Oral feeding problems in preterm infants are of growing concern over the world. Oral stimulation is used as an effective treatment strategy to enhance oral feeding performance of preterm infants with feeding problems to attain total oral feeding as soon as possible (Harding, et al, 2014).

The applied perioral stimulation increases oral motor organization, improve muscle contractility and sucking rate as a result increases oral intake and minimize fluid loss, while applied intraoral stimulation and non-nutritive sucking (NNS) enhance the salivary secretions and facilitate swallowing (Greene, et al, 2012 and Corbin-Lewis, & Liss, 2014). Oral stimulation is used as an effective treatment strategy to enhance oral feeding performance of preterm infants with feeding problems to attain total oral feeding as soon as possible (Harding, et al, 2014). The applied peri oral stimulation increases oral motor organization, improve muscle contractility and sucking rate as a result increases oral intake and minimize fluid loss, while applied intraoral stimulation and non-nutritive sucking (NNS) enhance the salivary secretions and facilitate swallowing (Greene, et al, 2012

## MATERIALS AND METHODS

The main aim of this study is to check the impact of oral stimulation technique upon the outcomes of premature neonates in terms of weight gain and duration of hospitalization in NICU area of Sikar city. The Samples were selected by Non-probability purposive sampling technique and A quasi-experimental design (non-equivalent control group pretest-posttest design) was used with a control group on 600 premature neonates in selected pediatric care area Rajasthan state from may 2017 to September 2017.

Premature Neonates were enrolled with the criteria of: (1) born between 28 and 36 weeks gestational age, weight in gms (1500-2499) and length in cm from 41 cm to 44cm. as per hospital record(2) received all feedings through a tube (3) without any congenital anomalies or congenital diseases such as chromosomal or genetic abnormalities, neurological abnormalities, complex congenital heart disease, congenital gastrointestinal malformations or bronchopulmonary dysplasia (4) without any severe medical complications or severe infections. Informed consent was obtained from parents before participants' enrolled in the study. 600 Premature Neonates were selected into the experimental group or the control group using Non-probability purposive sampling technique. All sample had statistically similar baseline characteristics.

**Interventions:** The experimental group received the A 5-minutes oral stimulation programme. The programme included two forms of oral stimulation. Three minutes of manual peri- and intraoral stimulation followed by two minutes of sucking on a pacifier. Which was delivered twice a day for Five consecutive days. The control group received routine feeding care according to GA.

## RESULTS

**The collected data is tabulated, analyzed, organized and presented under the following headings:**

**Section I-** Demographic characteristics of sample.

**Section II-** Finding related to comparison of pre test and post test mean increases weight gain and decreases duration of hospitalization of control or experimental group

**Section III-** Relationship of pre and posttest mean weight gain and duration of hospitalization of sample.

**MAJOR FINDINGS OF STUDY:** Suggest That distribution showed that out of 600 samples In experimental group and control each group have 300 samples .Experimental group have 160 male samples and 140 female. whereas in control group have 163 male samples and 137 female samples. There is no significant difference between both groups as per gender.

- According to gestational age experimental group have 35 samples in 28-30 weeks and in control group also have 35 samples in same gestational age group. 30-32 weeks have 60 samples in experimental group whereas in control group same gestational as group have 62 samples. Gestational age groups 32-34 weeks have 95 samples in experimental group whereas in control group same gestational age groups have 90 samples.
- Gestational age groups 34-36 weeks have 110 samples in experimental group whereas in control group same gestational age groups have 113 samples. According to length maximum samples in experimental group belong to 146 samples in 42-44 cm category whereas in control group same Category have 130 samples .41-42 cm Category have 123 samples in experimental group while 130 samples in control group. While length<41 cm have only 31 samples in experimental group and 40 samples in control group.

Table shows that in experimental group after Oral Stimulation Technique Upon The Outcomes Of Premature Neonates In Terms Of Weight Gain obtained by Premature Neonates in post-test mean score (2217.07) is higher than pretest exposure. Since calculated value of 't' (7.899) is greater than the tabulated value (2.61) required for t-ratio to be significant at .01 level of significance. Table 3 shows that in control group without Administration Of Oral Stimulation Technique Upon The Outcomes Of Premature Neonates In Terms Of Weight Gain obtained by Premature Neonates in post-test mean score (2039.48) is higher than pretest exposure. Since calculated value of 't' (2.968) is less greater than the tabulated value (2.61) required for t-ratio to be significant at .01 level of confidence. Hence. Comparison of weight gain of both experimental and control group before and after the oral stimulation programme in that the experimental group have higher Post-Exposure Weight (Grams) (2217.07) than the Post-Exposure Weight (2039.48) of control group. The t-ratio was statistically significant as the obtained 2.501 value is less than the tabulate value required for t-ratio to be significant at 0.01 levels of confidence table shows that oral stimulation techniques have significant effect upon weight gain in experimental group.

### Impact Of Oral Stimulation Technique In Experimental Group By Comparing The Weight Gain Before And After Administration Of Oral Stimulation Technique

Group	No. Of Sample	Pre- Exposure Weight (Grams)	Post-Exposure Weight (Grams)	T-Test	P Value
Experimental Group	✓300	✓2051.23	✓2217.07	✓7.899	✓0.01

#### Comparison of Weight Gain in control group without Administration of Oral Stimulation Technique

Group	No. Of Sample	Pre- Exposure Weight (Grams)	Post-Exposure Weight (Grams)	T-Test	P Value
Control Group	300	1981.84	2039.48	2.968	0.01

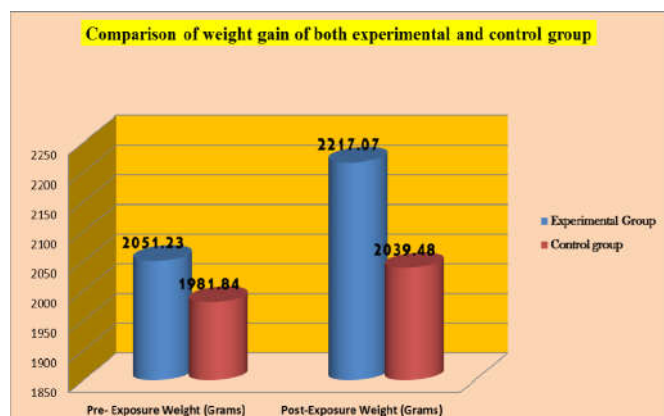
#### Evaluate the impact of oral stimulation technique in experimental group and control group by comparing the pre and post-test weight

Group	No. Of Sample	Pre- Exposure Weight (Grams)	Post-Exposure Weight (Grams)	T-Test	P Value
Experimental Group	300	2051.23	2217.07	7.899	
Control Group group	300	1981.84	2039.48	2.968	0.01

#### Compare the post-test duration of hospitalization in experimental group and control group of premature neonates

Group	No. Of Sample	Duration of hospitalization	Md	T-Test	P Value
Experimental Group	300	4.5 Days			
Control Group group	300	5.12 Days	1.017	5.1299	0.01 shows highly significance

This may also indicate that the null hypothesis is rejected and research hypothesis is accepted. Table shows the Comparative mean score of duration of hospitalization of both experimental and control group after the oral stimulation programme in that the experimental group have 4.5 days of hospitalization than the 5.12 days of control group.



Shows that children admitted in Hospital those were exposed to oral stimulation technique programme discharged from Hospital at average of 4.5 days. While children those were not to exposed to oral stimulation programme were discharge at average 5.12 days. This-ratio was statistically in significant as the obtained 5.1299 value is greater than the tabulate value required for t-ratio to be in significant at 0.01 levels of confidence table shows that oral stimulation techniques have significant effect upon duration of hospitalization in experimental group. This may also indicate that the null hypothesis is rejected and research hypothesis is accepted.

#### CONCLUSION

- This study lead to following conclusions.
- Major finding of study revealed that In experimental group and control each group have 300 samples. Experimental group have 160 male samples and 140 female. While in control group have 163 male samples

and 137 female samples. There is no significant difference between both groups as per gender.

- Major findings related to Comparison of weight gain of both experimental and control group after the oral stimulation programme. In Terms Of Weight Gain obtained by Premature Neonates in Post-Exposure Weight (Grams) (2217.07) is higher than Pre- Exposure Weight (Grams) 2051.23 of experimental group . Since calculated value of 't' (7.899) is greater than the tabulated value (2.61) required for t-ratio to be significant at .01 level of confidence.
- Null hypothesis is rejected and research hypothesis is accepted whereas in control group without Oral Stimulation Technique Upon The Outcomes Of Premature Neonates In Terms Of Weight Gain obtained by Premature Neonates in Post-Exposure Weight (2039.48) is less higher than Pre- Exposure Weight (Grams), 1981.84 which shows the weight in control group is a natural phenomena of gaining weight . Since calculated value of 't' (2.968) is less greater than the tabulated value (2.61) required for t-ratio to be significant at .01 level of confidence. Hence research hypothesis is accepted and null hypothesis is rejected. This may also shows that oral stimulation techniques have significant effect upon weight gain and duration of hospitalization in experimental group.

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