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“A Study to Assess the Effectiveness of Non-Nutritive Sucking on the Level of Pain Perception during Invasive Procedure among Preterm infant in Selected Hospital Ranchi”.

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Abstract

This study was conducted with objective to assess the effectiveness of non-nutritive sucking on the level of pain perception during invasive procedure in preterm infants. To compare the level of pain perception during invasive procedure among preterm infants in control and experimental group, and to find out the association between the level of pain perception and selected demographic variables. A quasi-experimental research design was adopted. A quantitative research approach was used for the study through non probability sampling technique that was adopted by consecutive sampling technique. The non-probability sampling technique used for selecting 60 sample. A standardized PIPPS was used to assess the level of pain.

The tool consisted two section: - Section(A) - Demographic variable Performa (Age, Gender, Gestational age, Birth weight, Birth order, Type of feeding, Last feed given, Medical illness of preterm infant, Nature of birth, Congenital abnormality, Previous history of surgery, Exposure to invasive procedure). Section (B) – Premature pain profile scale. Unpaired ‘t’ test analysis was used to check effectiveness of non-nutritive sucking on the level of pain perception. the total mean and mean score in control and experimental group was 13.33 (78.41%) and 8.4 (70%) respectively. The standard deviation of control group was 2.27 and experimental group was 1.78. in criteria wise control group level of pain perception 0 (0%) sample were in mild pain, 12 (40%) were moderate pain and 18(3.33%) in severe pain. Experimental group level of pain perception majority 4(13.20%) were in mild pain, 26 (85.80%) were in moderate pain and 0(0%) sample were in severe pain. The highly significant difference between control group level of pain perception as calculated unpaired ‘t’ value 9.79(df=58) was gathered than table value at 0.05 level of significance. Chi square analysis used for association between the level of pain perception and selected demographic variables. Their was association found between the age of the pre-term infant the calculated value 41.9 was more than the table value of chi square (9.49) at 0.05 level of significance, gender of the preterm infant the calculated value 27.06 was more than the table value of chi square (9.49) at 0.05 level of significance, weight at the time of birth of preterm infant the calculated value 38.1 was more than the table value of chi square (9.49) at 0.05 level of significance, subcategory of preterm infants the calculated value 34.3 was more than the table value of chi square (9.49) at 0.05 level of significance, nature of

birth the calculated value 27.9 was more than the table value of chi square (9.49) at 0.05 level of significance, exposure to invasive procedure of preterm infants the calculated value 18.88 was more than the table value of chi square (5.99) at 0.05 level of significance. The highly significant difference between experimental group level of pain perception as calculated unpaired 't' value 9.79(df=58) was gathered than table value at 0.05 level of significance. There was association found between the age of the pre- term infant the calculated value 27.1 was more than the table value of chi square (9.49) at 0.05 level of significance, gender of the preterm infant the calculated value 27.06 was more than the table value of chi square (9.49) at 0.05 level of significance, weight at the time of birth of preterm infant the calculated value 26.3 was more than the table value of chi square (9.49) at level of significance, subcategory of preterm infants the calculated value 22.08 was more than the table value of chi square (9.49) at 0.05 level of significance, last feed given the calculated value 38.4 was more than the table value of chi square (5.99) at 0.05 level of significance, nature of birth the calculated value 44.58 was more than the table value of chi square (9.49) at 0.05 level of significance, exposure to invasive procedure of preterm infants the calculated value 30.33 was more than the table value of chi square (5.99) at 0.05 level of significance. There was association found between the selected demographic variables calculated the effectiveness of non-nutritive sucking on the level of pain perception was analysed using frequency, percentage, mean, mean difference, mean percentage, standard deviation, unpaired 't' test, chi square test was used to determine the association between the social demographic variable and level of pain perception. The finding of the study was discussed with the help of supportive study.

NEED FOR THE STUDY:

There is a need to assess the effectiveness of non-nutritive sucking on the level of pain perception during invasive procedure among preterm infants, therefore as per researcher this study has been suggests that non-nutritive sucking is a natural and normal behavior for infant and children can provide comfort and security. Sucking on empty breast or nipple has been shown to have a calming effect and can help soothe infants during stressful situation, such as during invasive procedure.

Problem statement:

“A Study To Assess The Effectiveness Of Non-Nutritive Sucking On The Level Of Pain Perception During Invasive Procedure Among Preterm Infant In Selected Hospital Ranchi”.

Objective:

- To assess the effectiveness of non-nutritive sucking on the level of pain during invasive procedure in preterm infants among control and experimental group.
- To compare the level of pain perception during invasive procedure among preterm infant in control and experimental group.
- To find out the association between the level of pain perception and the selected demographic variables among the preterm infants receiving Non nutritive sucking during invasive procedure in control and experimental

group.

Hypothesis:

H0: -There will be no significant association between the non-nutritive sucking and level of pain perception during invasive procedure among the preterm infant in experimental group.

H1: -There will be significant difference in the level of pain perception during invasive procedure among the preterm infants in control and experimental group.

H2: -There is significant association between selected demographic variable and the level of pain perception among preterm infant during invasive procedure in control and experimental group.

Conceptual framework:

Chinn and Kramer (1999) define “conceptual framework as a written or visual presentation that explain the main things to be studied in either graphically or narrative form-the key factors, concepts or the variables and the presumed relationship among them”.

The present study was true experimental study to assess the effectiveness of non-nutritive sucking on the level of pain perception during invasive procedure among preterm infant in selected hospital, Ranchi, Jharkhand. The conceptual framework for the present study based on The Gate Control Theory of pain which was proposed by Melzack and Wall in 1965 who was the first one to recognize the psychological aspects.

The theory states that there are certain nerve fibres under our skin and tissues which are of small diameters that conduct excitatory pain stimuli towards brain, but nerve fibre of a large diameter appear to inhibit the transmission of pain impulses travelling from the spinal cord to the brain. There is a gating mechanism that located in substantia gelatinosa cells in the dorsal horn of the spinal cord. The site is thought to act as a gating that determines which impulse will be blocked and which will be transmitted to thalamus. The image of gate is useful in teaching clients and their family about pain relief measures. If image of gate is closed, the signals are stopped before it reaches the brain, where the perception of pain occurs. If the gate is open the signal will continue on through the spinothalamic tract to the cortex and the client will feel pain. Whether the gate is closed or opened is influenced by impulses from peripheral nerve and nerve signals that descend from the brain. If a person is anxious, the gate can be opened by signals sent from the brain down to the mechanism to the dorsal horn of the spinal cord. On the other hand, if the person has had a positive experience with pain control in the past, the cognitive influence can send signals down to the gating mechanisms and close it. The gate control theory offered a great benefit by suggesting new approaches to relieving both acute and chronic pain. Pain could be relieved by blocking the transmission of pain impulses to the transmission of pain impulses to the brain by both physical modalities and by altering the individual's thought processes, emotion and behaviours.

Methodology:

- **Research approach:** - Quantitative research approach
- **Design:** - Quasi experimental research design (non-equivalent control group post-test only design)
- **Population:** - Preterm infant receiving invasive procedure
- **Accessible population:** - Stable preterm infants
- **Setting:** - Rani hospital, Ranchi
- **Sample:** - 60 preterm infants (30 were in control group and 30 were in experimental group)

Variables:

- **Dependent variable:** - Level of pain perception in preterm infant during invasive procedure.
- **Independent variable:** - Non-nutritive sucking

Sampling criteria:

The following criteria are set to select samples: -

Inclusion Criteria-

- Preterm Infant
- Both Genders
- Preterm Infants in which invasive procedure were conducted
- Mothers willing to participate
- Preterm infants available at the time of study
- Preterm infant who receiving non- nutritive sucking

Exclusive criteria-

- Unstable preterm infant
- Preterm infants with other medical illness
- Mothers not willing to participate

Description of the Tools

Section-1: - Demographic variable Performa

Section-2: - Premature Infant Pain Profile Scale (PIPPS)

Criteria measurement (scoring) scoring for section B: -

SCORE	LEVEL OF PAIN
0-6	MILD PAIN
7-12	MODERATE PAIN
>12	SEVER PAIN

Data analysis and interpretation:

Criteria wise compare the level of pain perception during invasive procedure among preterm infant in control and experimental group frequency and percentage

SCORING	CONTROL GROUP		EXPERIMENTAL GROUP	
	Frequency	Percentage	Frequency	Percentage
a) Mild pain	0	0%	4	13.20%
b) Moderate pain	12	40%	26	85.80%
c) Severe pain	18	60%	0	0%

Unpaired 't' test analysis to assess the effectiveness of non-nutritive sucking on the level of pain perception among preterm in control and experimental group mean, mean difference, standard deviation, 't' value

GROUP	MEAN	MEAN DIFFERENCE	STANDARD DEVIATION	't' VALUE
Control Group N=30	13.33	4.93	0.49	9.79 df= 58 (P<0.05)
Experimental Group N=30	8.4			S

Limitations:

The limitation of present study as follows:

- The study was limited to a sample size of 60.
- The study was limited to the preterm infants.
- The study was limited to the preterm infants in rani hospital, Ranchi, Jharkhand.
- The investigators found difficulty in getting number of samples with in the scheduledtime.
- The investigators had difficulty in getting the conceptual framework on systemapproach theory.
- The investigator had difficulty in controlling the preterm infant during the procedure.

Recommendations:

- The researcher recommends for implementing the non-nutritive sucking in preterminfants undergoing invasive procedure in the Rani children Hospital Ranchi, Jharkhand.
- A comparative study can be conducted to compare the effectiveness of non-nutritivesucking with other non-pharmacological pain relief measures.
- The study can be replicated with large samples in various other setting forreinforcement and generalization.
- Further study can be held to find out the effectiveness of non-nutritive sucking on otherdiagnostic procedures.

Conclusion:

In this study, comparison of overall level of pain perception during invasive procedure and effectiveness of non-nutritive sucking by mean, mean percentage, mean difference, standard deviation between the control and experimental group. Hence, it can be concluded that the during invasive procedure receiving non-nutritive sucking is effective found reducing the pain perception in the preterm infants.

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