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Original Research Paper

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EFFECTIVENESS OF TACTILE AND KINESTHETIC STIMULATION ON SELECTED PARAMETERS AMONG LOW-BIRTH-WEIGHT BABIES IN SELECTED HOSPITAL, SALEM.

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ABSTRACT

Introduction: Tactile stimulation is activation of a sensory receptor by a touch[1] and kinesthetic stimulation consists of passive motion of the limbs. Early stimulation given to neonates will improve the physical growth, adoptive behavior.[2] **Objectives:** A study to assess the effectiveness of tactile and kinesthetic stimulation on selected parameters among low-birth-weight babies in selected hospital, Salem. **Methods:** This study adopted quantitative, quasi experimental pre and posttest, control group design. Purposive sampling technique was used to select the 60 new born with low birth weight (C= Control Group-30 and E =Experimental Group- 30). Demographic and Observational checklist was used. First day pretest was conducted and followed by intervention were implemented. The routine hospital care for both group. Tactile and kinesthetic stimulation for experimental group, 15 minutes, 3 times a day for 10 days, there after the Post-test was done on 10th day. **Result:** There is the improvement when comparing the pre and posttest, the post test score was improved in both groups. However, the experimental group post test score was higher than the control group. The mean and SD value for Weight (C = 2248.1±132.9), (E=2394±157.4), Feeding pattern (C=11.17±0.95), (E=15.43±2.05), Neonatal behavior (C=12.97±2.45), (E=21.93±2.03) and Respiration (C=47.53±4.97), (E=45.13±1.94) respectively. **Conclusion:** The tactile and kinesthetic stimulation has improved the positive effect among low birth weight babies in weight, feeding pattern, neonatal behavior and respiration. Also, it maintains stable heart rate and temperature, it clearly shows that tactile and kinesthetic stimulation is effective.

KEYWORDS : Tactile and kinesthetic stimulation, new born, low birth weight babies.

INTRODUCTION

Low birth weight is public health problem in most developing countries. Babies who are under nourished in the womb face increased risk of dying during their early months and years. Those who survive have impaired immune function and increased risk of disease and reduced muscle strength, throughout their lives and to suffer a higher incidence of diabetes and heart disease. Children born underweight also tend to have cognitive disabilities and a lower IQ affecting their performance in school[3]. The epidemiological observations depicted that babies weighing less than 2500 grams are approximately 20 times more likely to die than heavier babies, closely associated with fetal and neonatal morbidity and mortality. In India, 30-35% of babies are low birth weight and more than half of them are full-term babies.[4]

Massage affects the whole body to decrease muscular tension and flaccidity in musculoskeletal system, moreover it increases blood flow, flow of lymph, and it stimulates or sedates the nervous system and enhance tissue healing in skin.[5] At birth, infants can perceive tactile sensation in any part of the body, although the face (especially the mouth), hands and soles of the feet seem to be most sensitive. Evidence shows that touch and motion are essential to normal growth and development.[6] the typical massage used in neonates is a gentle stroking with moderate pressure of parts of the body combined with kinesthetic stimulation that consists of passive motion of the limbs. Early stimulation given to neonates will change the growth of the brain cells, improve adaptive behavior and finally cause the achievement of the optimal development their age.[7] Tactile and kinesthetic stimulation help to improve the growth and development and added benefit of reducing behavioral manifestations of stress.[8]

Elmoneim MA, et al., (2020) conducted a study on tactile and kinesthetic stimulation and his study stated that, the Infants on massage therapy showed significant increase in total body mass, fat mass, lean mass and bone mineral density values compared with routine care group. The massage therapy improves growth quality as evident by increased total and regional lean masses, increased bone mineral density, and peripheral rather than central fat distribution.[9]

In this study researcher assessed, the effectiveness of tactile and kinesthetic stimulation among low birth weight babies in selected parameters such as, weight, feeding pattern, neonatal behavior, heart rate, respiration rate and temperature.

SPECIFIC OBJECTIVE

1. To assess the pre-test and post-test level of selected parameters among low-birth-weight babies.
2. To evaluate the effectiveness of tactile and kinesthetic stimulation on the level of selected parameters among low-birth-weight babies in experimental group.
3. To compare the level of selected parameters among low-birth-weight babies in control group and experimental group.

METHODS AND MATERIALS

Quantitative approach, Quasi Experimental research - pre-test and post-test control group design was adapted for this study. The study was conducted in one of the private hospitals in Salem, which has the 100 bedded hospital. Non-probability purposive sampling technique was used to select the 60 sample. Inclusion Criteria for this study was Low birth weight neonates (birth weight between 1800 gms to less than 2499 gms), Gestational age 38 to 42 weeks and Early neonatal period 5 to 10 days. The variables included in the study are, Independent variable - Tactile and kinesthetic stimulation, dependent variables - weight, feeding pattern, neonatal behavior, heart rate, respiratory rate and temperature and demographic variables are Gestational age (weeks), Birth order, Birth weight and Gender. Instrument used for the data collection is demographic data and observational checklist. In this study J.W.Kenny's Open System theoretical model was adopted. The Patient anonymity and confidentiality was maintained throughout the research, not noted any physical or psychological damage to neonates. The collected data was analyzed by descriptive and inferential statistics.

RESULT AND DISCUSSION

There is a significant difference were identified between pre and posttest score of selected parameters such as weight, feeding pattern, neonatal behavior, respiration rate and temperature in control group.

Table 1: Mean, SD, Mean difference, Paired 't' test and P-value Of Pre And Posttest Scores Of Selected Parameters Of Low-birth-weight Babies In Control Group. N=30

Parameters	Control group pre-test			Control group post-test			Difference in mean	Paired 't' test	P-value
	Mean	SD	SE	Mean	SD	SE			
weight	2151.7	130.3	23.7	2248.1	132.9	24.27	96.4	26.41	P<0.001(HS)
Feeding pattern	8.03	0.96	0.17	11.17	0.95	0.17	3.14	13.71	P<0.001(HS)
Neonatal behavior	15.43	2.05	0.37	12.97	2.45	0.44	2.46	5.49	P<0.001(HS)
Heart rate	152.2	7.71	1.40	152.6	7.15	1.30	0.4	0.75	0.455 (NS)
Respiration rate	46.73	5.81	1.06	47.53	4.97	0.98	0.8	2.11	0.04 (S)
Temperature	36.69	0.40	0.07	37.09	0.23	0.04	0.33	4.73	P<0.001(HS)

S- Significant, HS- Highly significant, NS- Not significant

The above table showed the control group pre and posttest score of mean, SD value, mean differences and Paired 't' test value of the selected parameters such as weight, (2151.7±130.3), (2248.1±132.9), 96.4 and 26.41; feeding pattern (8.03±0.96), (11.17±0.95), 3.14, and 13.71, Neonatal behavior (15.43±2.05), (12.97±2.45), 2.46 and 5.49; Temperature, (36.69±0.40), (37.09±0.23), 0.33 and 4.73, respectively, and P level is P<0.001. In respiration rate, (46.73±5.81), (47.53±4.97), 0.8, 2.11 respectively, and P level is 0.04.

Table-2: Mean, SD, Mean difference, Paired 't' test and P-value Of Pre And Posttest Scores Of Selected Parameters Of Low-birth-weight Babies In Experimental Group. N=30

Parameters	Experimental group pre-test			Experimental group post-test			Difference in mean	Paired 't' test	P-value
	Mean	SD	SE	Mean	SD	SE			
Weight	2205	170.87	31.19	2394	157.4	24.27	189	19.02	P<0.001 (HS)
Feeding pattern	9.9	2.37	0.43	15.43	2.05	0.37	5.53	15.74	P<0.001 (HS)
Neonatal behavior	14.37	3.02	0.55	21.93	2.03	0.37	7.56	15.0	P<0.001 (HS)
Heart rate	149.9	6.13	1.56	149.2	1.56	1.12	0.7	0.69	P=0.496 (NS)
Respiration rate	44.67	3.54	0.64	45.13	1.94	0.35	0.46	0.54	P=0.589 (NS)
Temperature	36.92	0.52	0.09	37.15	0.35	0.06	0.23	1.92	0.064 (NS)

S- Significant, HS- Highly significant, NS- Not significant

The experimental group pre and post test of mean, SD value, mean difference and Paired 't' test value of the parameters such as weight, (2205±170.87), (2394±157.4), 189, 19.02 ; feeding pattern, (9.9±2.37), (15.43±2.05), 5.53 and 15.74 ; Neonatal behavior, (14.37±3.02), (21.93±2.03), 7.56 and 15.0, respectively and P level is P<0.001.

It shows that there is a significant difference between pre and post-test level of weight, feeding pattern and neonatal behavior.

This present study supported by Ahmed, et.al, (2015) study on Effect of tactile and kinesthetic stimulation on preterm infants, Over the constitutive 7 days the case group gained significantly more weight (1071 gm versus 1104 gm) compared with the control group (1077 gm versus 1084 gm) (1084.55± 60.74) who gained only 6.9 gm with in the 7 days without TKS treatment. The tactile and kinesthetic stimulation for preterm infants has beneficial effect on weight gain and earlier discharge from hospital.[10]

Table 3: Comparison of posttest score of Mean, SD, Mean difference and P-value On The Selected Parameters In The Control And Experimental Group. (N=60)

Parameters	Test	Control group		Experimental group		Mean difference	't' value	P-value
		Mean	SD	Mean	SD			
Weight	Post test	2248.1	132.9	2394	157.4	145.83	3.87	P<0.001 (HS)
Feeding pattern	Post test	11.17	0.95	15.43	2.05	4.27	10.36	P<0.001 (HS)
Neonatal behavior	Post test	12.97	2.45	21.93	2.03	8.96	15.40	P<0.001 (HS)
Heart rate	Post test	152.6	7.15	149.2	1.56	3.4	1.588	P=0.117 (NS)
Respiration rate	Post test	47.53	4.97	45.13	1.94	2.4	2.46	P=0.018 (S)
Temperature	Post test	37.09	0.23	37.15	0.35	0.06	0.77	P=0.48 (NS)

S- Significant, HS- Highly significant, NS- Not significant

The control and experimental group posttest of mean, SD value, mean difference and 't' test value of the parameters such as weight (2248.1±132.9), (2394±157.4), 145.83 and 3.87; feeding pattern (11.17±0.95), (15.43±2.05), 4.27 and 10.36; neonatal behavior (12.97±2.45), (21.93±2.03), 8.97 and 15.40, respectively, and P level is <0.001. Which is statistically highly significant. In respiration rate (47.53±4.97), (45.13±1.94), 2.4, and 2.46 respectively, the P level is 0.018, which is statistically significant.

There is a significant difference was identified after intervention especially in the experimental group. The experimental group post test score was higher than the control group.

This present study supported by Alice Jeba, et, al (2020) the study assessed the effect of tactile-kinesthetic stimulation on weight of preterm infants and found a significant positive effect on weight gain in the experimental group. The mean (SD) weight gain after 10 days was higher in the experimental group as compared to control group 10.79 (0.62) g vs. 4.03 (0.89) g, P<0.001.[11]

CONCLUSION

Present study concluded that the Tactile and kinesthetic stimulation is effective and intervention can be used initial level of newborn baby's care. So that the babies can improve their weight, feeding pattern, neonatal behavior and maintains stable heart rate, respiration and temperature. Highly Recommended to practice the Tactile and kinesthetic stimulation in Newborn care setting or NICU especially for low birth weight babies.

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