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A study to evaluate the effect of nesting on posture, discomfort and physiological parameters of Low birth weight infants admitted in selected hospitals of Jalandhar, Punjab

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Abstract
Low birth weight is defined by the World Health Organization as a birth weight of an infant of 2,499g (5lb 8.1 oz) or less, regardless of gestational age. Such babies are at higher risk for long term health conditions. The study is conducted to evaluate the effect of nesting on posture, discomfort and physiological parameters of Low birth weight infants admitted in selected hospitals of Jalandhar, Punjab. The quantitative approach and quasi experimental design is used. Data was collected by using purposive sampling technique from 30 low birth weight babies admitted in different hospitals. Observational checklist, neonatal Comfort scale and Structured Observation Schedule were used to collect data, findings revealed that there is statistical significant improvement in posture, discomfort and physiological parameters of low birth weight infant who receive nesting and as measured by Observational checklist, neonatal comfort scale and Structured Observation Schedule respectively at $p<0.05$ level of significance. This study concluded that nesting is effective in improving posture, reducing discomfort and improving physiological parameters in low birth weight infants.

Keywords: Nesting, posture, discomfort, physiological parameters, low birth weight infants

Introduction
Low birth weight babies are becoming major public health issue and require special attention and competent approach. WHO regularly updates guidelines for care of preterm and LBW babies, including use of antenatal corticosteroids, care at birth, kangaroo mother care, optimal feeding, micronutrients, respiratory care and follow up care and supporting countries to implement these guidelines. Nesting is effective for improving posture, comfort and stable physiological parameters of low birth weight children during their stay in neonatal intensive care. Nurses are at the heart of the hospital's efforts to improve the quality of care. Easy intervention in nursing care will help to increase patient satisfaction and ultimately leads to institutional development. This technique not only helps for low birth weight infants to improve posture, discomfort and physiological parameters but also help them to face challenges of life further as they grow. Thus this study was conducted to evaluate the effect of nesting on posture, discomfort and physiological parameters of Low birth weight infants admitted in selected hospitals.

Materials and Methods
Quantitative research approach with Quasi experimental research design was use. The study was conducted on 30 low birth weight babies admitted in hospitals of selected hospitals of Jalandhar, Punjab. Data was collected using purposive sampling technique. The tool was prepared on the basis of the objectives of the study. Tool was divided into following sections. It includes:

Section I: It includes demographic variables postnatal age, gender, birth weight, type of feed, mode of delivery, duration of hospital stay.

Section II: Observation Checklist to assess posture of low birth weight infants.

Section III: Neonatal Comfort Scale to assess Discomfort level of low birth weight infants. It is given by the Ambuel *et al.*, 1992 [5]. This is a multidimensional instrument comprising

both behavioral and physiological indicators of pain, which had been developed for the intensive care environment to assess distress/comfort in ventilated children. With the addition of a new item 'Crying' the scale could also be used in the Non-ventilated infants, who were necessary in our study sample. The COMFORT scale comprises eight items, each with five response categories consisting of distinct behavioral descriptions. Six of the items are behavioral ones (Alertness, Calmness, Muscle tone, Movement, Facial tension, and Respiratory response/Crying).

Section IV: Structured Observation data sheet to evaluate physiological parameters such as temperature, Respiratory rate and Heart rate.

Socio demographic data sheet, Observation Checklist to assess posture, Neonatal Comfort Scale to assess discomfort level and Structured Observation data sheet to evaluate physiological parameters were submitted to 5 experts in the field of nursing and their suggestions were accepted and incorporated. The collected data was tabulated and analyzed in accordance with the objectives of study by using descriptive and inferential statistics. The data analysis was done by calculated frequency, percentage, mean, standard deviation, Chi-square, F-test. Informed consent was taken from the parents of subjects. Ethical approval for the study obtained from Ethical Committee of Shri Guru Ram Dass College of nursing Hoshiarpur, Punjab.

Results

Data were analyzed by using descriptive and inferential statistics in order to bring light on real meaning of the findings of the study. The data analysis was organized as follows:

Table 1: Frequency and Percentage distribution of low birth weight babies according to socio-demographic variables. (N= 30)

Demographic Variables	Experimental Group (n=15)		Control Group (n=15)			
	n	%	n	%	DF	χ^2
Age (in days)						
1-3	3	20	2	13.33	2	0.345 NS
4-6	9	60	9	60		
7-10	3	20	4	26.66		
Gender						
Male	8	53.33	7	46.66	1	0.1337NS
Female	7	46.66	8	53.33		
Birth weight						
1.0kg to 1.5kg	7	46.66	9	60	2	0.65NS
1.5kg to 2.0kg	6	40	4	26.66		
2.0kg to2.5kg	2	13.33	2	13.33		
Mode of feed						
Spoon feeding	0	0	0	0	2	0.24NS
Cup feed	2	13.33	3	20		
NG tube feed	13	86.66	12	80		
Mode of delivery						
Normal vaginal Delivery	8	53.33	7	46.66	1	0.3657NS
Cesarean section	7	46.66	8	53.33		
Duration of hospital stay (in days)						
1-5	8	53.33	6	40	1	0.3183NS
6-10	7	46.66	9	60		
NS = Non significant at $p<0.05$ level						

This table shows frequency and percentage distribution of samples as per socio – demographic variables under study i.e. age, gender, birth weight, mode of feed, mode of delivery and duration of hospital stay. The Chi square value was calculated to compare demographic characteristics of sample in experimental and control group and differences were found to be statistically non-significant at $p<0.05$ level in all variables. Thus it was concluded that experimental and control group were homogenous in all aspects.

Table 2: Frequency and Percentage distribution of low birth weight babies in experimental group and control group according to Post-test level of Posture

Posture Assessment Tool	Experimental group (n=15)						Control group (n=15)					
	Post-test Day 1		Post-test Day 2		Post-test Day 3		Post-test Day 1		Post-test Day 2		Post-test Day 3	
	n	%	n	%	n	%	n	%	n	%	n	%
Normal	0	0	1	6.66	3	20	1	6.66	1	6.66	2	13.3
Mild	2	13.3	1	6.66	3	20	1	6.66	1	6.66	2	13.3
Moderate	13	86.6	11	73.33	4	26.6	9	60	8	53.3	7	46.6
Severe	0	0	0	0	0	0	1	6.66	0	0	0	0

Maximum score =13, Minimum score =0

Thus based on above findings it was concluded that in experimental group as compared to control group there was much improvement in posture from day 1 to day 3 after administration of nesting.

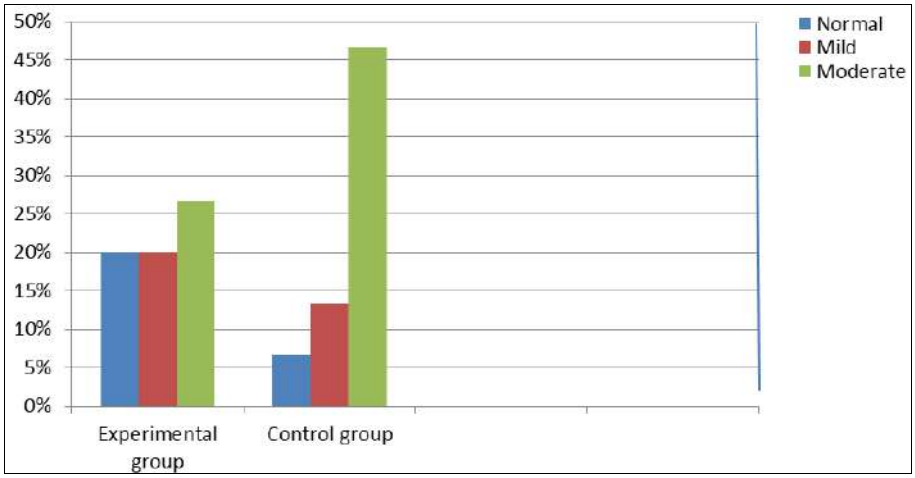

Fig 1: Frequency and Percentage distribution of low birth weight babies in experimental group and control group according to Post-test level of Posture after administration of nesting.

Table 3: Frequency and Percentage distribution of low birth weight babies in experimental group and control group according to Post-test level of discomfort. (N=30)

Level of Discomfort	Experimental group (n=15)						Control group (n=15)					
	Post-test Day 1		Post-test Day 2		Post-test Day 3		Post-test Day 1		Post-test Day 2		Post-test Day 3	
	n	%	n	%	n	%	n	%	n	%	n	%
Normal	0	0	0	0	4	26.6	1	6.66	1	6.66	1	6.66
Mild	7	46.6	8	53.3	9	60	7	6.66	1	6.66	1	6.66
Moderate	8	53.3	7	46.66	2	13.3	6	40	6	40	7	46.6
Severe	0	0	0	0	0	0	1	6.66	1	6.66	0	0
Profound	0	0	0	0	0	0	0	0	0	0	0	0

Maximum score =30, Minimum score =06

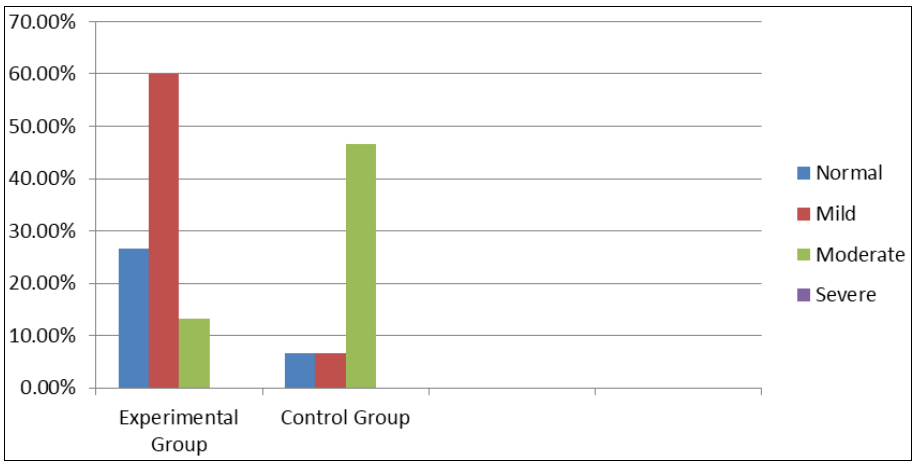

Fig 2: Frequency and Percentage distribution of low birth weight babies in experimental group and control group according to Post-test level of Discomfort after administration of nesting.

Table 4: Frequency and Percentage distribution of low birth weight babies in experimental group and control group according to Post-test level of physiological parameters. N =30

Physiological parameters	Experimental group (n=15)						Control group (n=15)					
	Post-test Day 1		Post-test Day 2		Post-test Day 3		Post-test Day 1		Post-test Day 2		Post-test Day 3	
	n	%	n	%	n	%	n	%	n	%	n	%
Normal	0	0	1	6.66	3	20	0	0	1	6.66	1	6.66
Mild	02	13.3	8	53.33	12	80	7	46.6	6	40	7	46.6
Moderate	13	86.6	6	40	0	0	7	46.6	8	53.3	7	46.6
Severe	0	0	0	0	0	0	1	6.66	0	0	0	0

Maximum score =9
Minimum score= 0

Thus based on above findings it was concluded that in experimental group majority of the low birth weight infants had mild alteration in physiological parameters as compared to control group and 3 low birth weight infants has normal physiological parameters in experimental group.

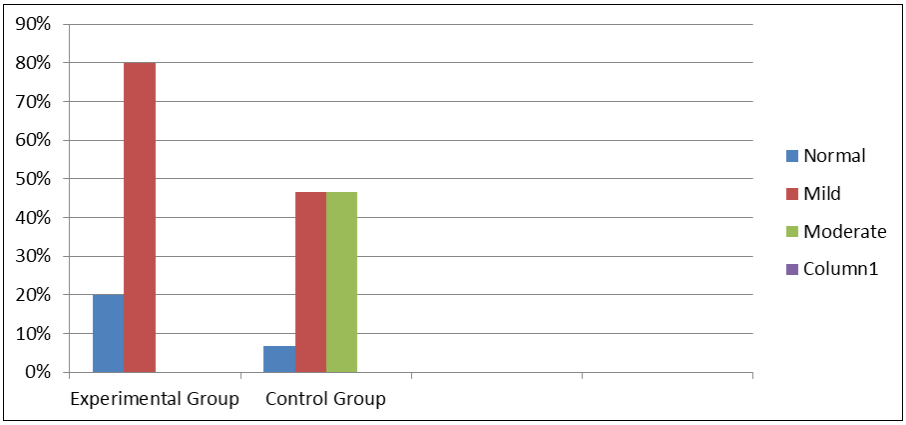

Fig 3: Frequency and Percentage distribution of low birth weight babies in experimental group and control group according to Post-test level of physiological parameters.

Discussion

Nesting position plays a major role in maintaining beneficial posture, where they feel more secure. This findings of the present study are consistent with the findings of study conducted by F Ferrari (2007) [6] aimed to evaluate the Posture and movement in healthy preterm infants in supine position in and outside the nest. The researcher reported that a nest promotes a flexed posture of the limbs with adduction of shoulders, facilitates elegant wrist movements and movements towards and across the midline and reduces abrupt movements and frozen postures of the arms and legs. Nesting also helps in reducing discomfort. This findings of the study for reducing discomfort are consistent with the present study conducted by Slevin M on a prospective study to evaluate the degree of distress caused by retinopathy of prematurity (ROP) screening in a cohort of preterm infants was assessed and the modifying effects of nesting in reducing their discomfort was evaluated. The distress caused by ROP screening was significantly less for the nested group compared with the non-nested group for both movement activity (p<0.01) and crying (p<0.01) ROP screening is distressing for preterm infants. Nesting can significantly reduce this discomfort. ROP screening is distressing for preterm infants. Nesting position plays a major role in maintain beneficial for maintaining physiological parameters. This study was consistent with the study conducted by Mrs. Ramya paulose, on effect of nesting on posture discomfort and physiological parameters of low birth weight infants in NICU of selected government hospital of Delhi. 60 subjects, 30 in experimental group and 30 in control group were selected by stratified sampling technique where infants were stratified in to three groups based on their birth weight (1.0 -1.5 kg, 1.5 to 2.0 kg) pretest post-test control group design was used in which nesting was provided in experimental group 9hours per day for 5 days. Posture, comfort and physiological parameters were assessed before and during application of nesting. Infants with nesting experienced stable physiological parameters of heart rate (F=1.70, p=0.16) respiratory rate (F=1.26, p=0.29) and temperature (p<0.050).

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