



EFFECTIVENESS OF KANGAROO MOTHER CARE ON LEVEL OF PHYSIOLOGICAL PARAMETERS AMONG PRETERM NEONATES AT SELECTED HOSPITAL.

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Abstract

Preterm infants are born too earlier in time they reach their full gestational age of 40 weeks, in which the preterm infant's loss their time, to grow in their mother womb, leads to structural and physiological immaturity.

Methodology: A quasi-experimental pre and posttest control group research design was adopted in order to assess the effectiveness Kangaroo Mother Care on level of physiological parameters among preterm neonates . The independent variable of this study was Kangaroo Mother Care. The dependent variables were physiological parameters. . The study population includes preterm infants between 26-36 weeks of gestation admitted in the NICU AT SRM General hospital. The sample size consisted of 30 preterm neonates (who fulfills the inclusion and exclusion criteria) in study and control group by selected by non-probability purposive sampling technique. The study included the preterm infants who where hemodynamically stable, birth weight more than 1500 grams and admitted in the NICU. The study excluded mothers of preterm infants who were affected with contagious disease and who was not willing to provide KMC.

Results and Discussion: The findings of the study revealed that KMC for 30 minutes for three consecutive days among preterm infants between study and control group, there was no significant difference in pretest level physiological parameters among preterm neonates between study and control group.

Conclusion: The findings proved that the KMC for 30 minutes for three consecutive days was effectively improving the physiological parameters among preterm infants. Kangaroo Mother Care also improved the behavioral and psychological wellness of the preterm neonates.

Keywords: kangaroo mother care , physiological parameters,preterm neonates.

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1. Introduction

Preterm neonates are born too earlier in time they reach their full gestational age of 40 weeks, in which the preterm infant's loss their time, to grow in their mother womb, leads to structural and physiological immaturity. So Kangaroo Mother Care is a non-invasive, cost effective, therapeutic motherly based care and its promotes breast-feeding, maintain thermal stability, promotes physiological and behavioral effects and promotes weight gain, reduce the length of hospital stays also enhance the humanization, and bonding between the mother and the preterm infants.

Background of The Study

More than 80 % infants born between 32-37 weeks of gestation age lose their life without the essential care. (Born Too Soon 2013). WHO,2013)In U.K 85% infants are born prematurely with very low birth weight of 1000 gm and 94% babies born 24 weeks of gestation (Centre for Disease Control and Prevention 2014).Premature birth in developing countries is the extensive global killer of young children; with more than millions of children lose their life in every year. Therefore, the research investigator during her clinical experience in NICU and wards recognized the importance and potential benefits of physiological parameters on the delegate features of the preterm infants. The investigator also sensitized KMC as simple, cost effective and motherly based care that effectively maintains the physiological parameters, and provides various opportunities for the growth of the preterm neonates.

Statement Of The Problem

A Study to assess the effectiveness of kangaroo mother care on level of physiological parameters among preterm neonates at SRM hospital.

objectives

- 1 To assess and compare the pre and post test level of physiological parameters among preterm neonates in study and control group.
- 2 To assess the effectiveness of KMC on level of physiological parameters among preterm neonates.
- 3 To associate the selected demographic variables with the mean differed score of physiological parameters among preterm neonates in study and control group.

Assumptions

- ✓ Improving the behavior pattern may be helpful for growth of preterm newborn.
- ✓ Improving the physiological parameter may improve the comfort of the preterm newborn.
- ✓ KMC may have an effect on level of physiological parameters among preterm Neonates

NULL HYPOTHESES

NH1: There is no significant difference between the effectiveness of KMC on level of physiological parameters among preterm infants in study and control group

NH2: There is no significant association of selected demographic variables with mean differed score of physiological parameters among preterm infants in study and control group .

DELIMITATION

- Preterm newborn born between 32-37weeks gestation
- Preterm newborn admitted in NICU
- This study is delimited to newborn who are between at birth to 28 days.

2. Methodology

A quasi-experimental pre and posttest control group research design was adopted in order to assess the effectiveness Kangaroo Mother Care on level of physiological parameters among preterm infants. The independent variable of this study was Kangaroo Mother Care. The dependent variables were physiological parameters. . The study population includes preterm infants between 26-36 weeks of gestation admitted in the NICU. The sample size consisted of 30 preterm infants (who fulfills the inclusion and exclusion criteria) selected by non-probability purposive sampling technique. The study included the preterm infants who where hemodynamically stable, birth weight more than 1500 grams and admitted in the NICU. The study excluded mothers of preterm infants who were affected with contagious disease and who was not willing to provide KMC. WHO guidelines was used to assess the level of physiological parameters of the preterm infants. After preparation of articles, environment, preterm infant and mothers of preterm infants, the investigator wore cap and mask, performed hand hygiene and monitored the physiological parameters such as temperature heart rate, respiratory rate oxygen saturation and weight of the preterm infants was recorded. The investigator assisted the mother to perform KMC with the preterm infants for 30 minutes by placing the preterm infant between the mothers breast, in a perpendicular position such that the head is turned to one side in slightly extended position, flexed and abducted the arms, hip in a frog like position. The investigator placed the preterm abdomen at the level of mother's epigastrium, asked the mother to hold the preterm infants and then the investigator supported both the mother and the preterm infant by autoclaved cotton sheet for 30 minutes for three consecutive days. After the intervention of KMC preterm infant placed in a comfortable position. The investigator checked and documented the physiological parameters after the procedure for

three consecutive days. Preterm infants are allowed to perform their routine activities.

Organization of The Data

Section 1: Description of the demographic variables of the preterm neonates in the study and the control group.

Section 2: Assessment and comparison of pre test and post test level of physiological parameters among preterm neonates in study and control group.

Section 3: Assessment and comparison of pre

test and post test level of physiological parameters among preterm neonates between the study and control group.

Section 4.4: Association of the selected demographic variables with the mean differed score of physiological parameters among preterm neonates in study and control group.

DESCRIPTION OF DEMOGRAPHIC VARIABLES OF THE PRETERM NEONATES IN THE STUDY AND CONTROL GROUP.

Table 4.1.1: Frequency and Percentage distribution of demographic variables of preterm neonates in study and control group with respect to gestational age, gender, weight of the preterm and birth order. N =30

S. No.	Demographic variables	Study Group n=15		Control Group n=15		Chi-square value
		No.	%	No.	%	
1.	Gestational age in weeks (Pair matched)					$\chi^2= 0.270$ p = 0.7125N.S
	26-28	-	-	-	-	
	29-31	1	6.6	5	33	
	32-34	3	20	3	20	
	35-36	11	73	7	47	
2.	Gender					$\chi^2= 0.606$ p = 0.616 N.S
	Male	9	60	8	53	
	Female	6	40	7	47	
3.	Weight of the preterm infant in grams (Pair matched)					$\chi^2= 0.000$ p = 1.000 N.S
	1500-2000	4	27	6	40	
	2001-2500	5	33	5	33	
	>2500	6	40	4	27	
4.	Birth order					$\chi^2= 0.288$ p = 0.890 N.S
	1st	7	47	9	60	
	2nd	6	40	2	13	
	3rd	2	13	4	27	
	4th	-	-	-	-	

The above table shows that majority of the preterm infants were in the gestational age of 35-36 weeks in both groups, and most of the preterm infant were males in study group, females in control group with birth weight of 2001-2500 grams in both the groups and the birth order was 1st

& 2nd in the study group, and 1st in control group.
ASSESSMENT AND COMPARISON OF PRE AND POST TEST LEVEL OF PHYSIOLOGICAL PARAMETERS AMONG PRETERM NEONATES S WITH IN THE STUDY AND CONTROL GROUP.

Assessment and comparison of pre and post test level of physiological parameters among preterm infants within the study group N=30

Group	Mean	Std. Deviation	Mean Difference	Paired 't' test score	
				T	Sig.
Pre Temperature (Celsius)	34.45	0.79			

Post Temperature (Celsius)	35.76	0.18	-1.31	-9.92	.000***
Pre Heart rate (beats/min)	115.80	2.64	-11.66	-21.82	.000***
Post Heart rate (beats/min)	126.47	3.84			
Pre Respiration (breaths/min)	36.20	2.14	-8.53	-14.64	.000***
Post Respiration (breaths/min)	47.73	2.55			
Pre Oxygen Saturation (%)	86.57	1.00	-4.10	-23.40	.000***
Post Oxygen Saturation(%)	93.67	1.47			
Pre Weight (grams)	2107.33	267.25	-32.76	-108.48	.000***
Post Weight (grams)	2140.10	267.89			

df – degrees of freedom, sig. – Level of statistical significance, ***- significance at $p < 0.001$

The above Table 4.2.1 presents that the assessment and comparison of pre and post test level of physiological parameters within the study group with paired t' test inferred that

there was high level significant differences pertaining to temperature ,heart rate, respiratory rate ,oxygen saturation and weight at $p < 0.001$. The table depicts that KMC along with hospital routine (warmer care) was highly significant in improving the physiological parameters of the preterm infants.

Assessment and comparison of pre and post test level of physiological parameters among preterm neonates within the control group n=30

Group	Mean	Std. Deviation	Mean Difference	Paired 't' test score	
				T	Sig.
Pre Temperature (Celsius)	35.46	0.50	-0.376	-8.74	.000***
Post Temperature (Celsius)	35.83	0.41			
Pre Heart rate (beats/min)	117.17	2.32	-2.33	-7.00	.000***
Post Heart rate (beats/min)	119.50	1.25			
Pre Respiration (breaths/min)	34.93	2.27	-2.53	-9.37	.000***
Post Respiration (breaths/min)	37.47	1.65			
Pre Oxygen Saturation (%)	89.60	0.93	-1.43	-13.81	.000***
Post Oxygen Saturation (%)	91.03	0.80			
Pre Weight (grams)	2136.33	240.65	-15.20	-4.54	.000***
Post Weight (grams)	2151.53	242.79			

df – degrees of freedom, sig. – Level of statistical significance, ***- significance at $p < 0.001$

The above table 4.2.2 shows that the assessment and comparison of pre and post test level of physiological parameters within the control group with paired ‘t’ test and inferred that high level significant differences pertaining to temperature, heart rate, respiratory rate, oxygen saturation and weight at $p < 0.001$. Preterm

infants in the control group underwent the hospital routine (warmer) also had improvement in their physiological parameters.

ASSESSMENT AND COMPARISON OF PRE AND POST TEST LEVEL OF PHYSIOLOGICAL PARAMETERS AMONG PRETERM NEONATES BETWEEN THE STUDY AND CONTROL GROUP.

Table 4.3.1: Assessment and comparison of pre and post test level of physiological parameters among preterm infants between study and control group(N = 30)

	Group	Mean	Std. Deviation	Mean Difference	Unpaired ‘t’ test score	
					t	Sig.
Pre Temperature (Celsius)	Study	35.45	0.79	-0.006	-0.039	.969
	Control	35.46	0.50			
Pre Heart rate (beats/min)	Study	117.80	2.64	0.63	0.98	.328
	Control	117.17	2.32			
Pre Respiration (breaths/min)	Study	37.20	2.14	2.27	3.97	.000***
	Control	34.93	2.27			
Pre Oxygen Saturation (%)	Study	89.57	1.00	-0.033	-0.13	.895
	Control	89.60	0.93			
Pre Weight (grams)	Study	2106.33	267.25	-30.00	-0.45	.649
	Control	2136.33	240.65			
Post Temperature (Celsius)	Study	36.76	0.18	0.93	11.29	.000***
	Control	35.83	0.41			
Post Heart rate (beats/min)	Study	129.47	3.84	9.96	13.48	.000***
	Control	119.50	1.25			
Post Respiration (breaths/min)	Study	45.73	2.55	8.26	14.85	.000***
	Control	37.47	1.65			
Post Oxygen Saturation (%)	Study	93.67	1.47	2.63	8.59	.000***
	Control	91.03	0.80			
Post Weight (grams)	Study	2139.10	267.89	-12.43	-0.18	.851
	Control	2151.53	242.79			

df – degrees of freedom, sig. – Level of statistical significance, ***- significance at $p < 0.001$, *- Significance at $p < 0.05$.

The above table 4.3.1 shows that the assessment and comparison of pre and post test level of

physiological parameters between the study and control group with independent t test and inferred that high level significant differences pertaining to temperature ,heart rate, respiratory rate, oxygen saturation at $p < 0.001$.

Effect of Kangaroo Mother Care (KMC) on level of physiological parameters among preterm infant between study and control group N = 30

Physiological parameters	Study Group Effect Size (r)	Control Group Effect Size (r)
Temperature	0.87	0.85
Heart rate	0.97	0.79
Respiratory rate	0.93	0.86

Oxygen Saturation	0.97	0.93
Weight gain	0.99	0.67

The above table 4.3.6 depicts the effect size of Kangaroo Mother Care on level of physiological parameters between the study group (temperature, heart rate, respiratory rate, oxygen saturation, weight gain) and control group (temperature, heart rate, respiratory rate, oxygen saturation, weight gain) revealed that there was significant effect size in the study group than the

control group, which depicts that 30 minutes of Kangaroo Mother Care (three consecutive days) was effectively improving the physiological parameters of the preterm infants.

DESCRIPTION OF DEMOGRAPHIC VARIABLES OF THE PRETERM NEONATES IN THE STUDY AND CONTROL GROUP.

Table 4.1.1: Frequency and Percentage distribution of demographic variables of preterm neonates in study and control group with respect to gestational age, gender, weight of the preterm and birth order. N =30

S. No.	Demographic variables	Study Group n=15		Control Group n=15		Chi-square value
		No.	%	No.	%	
1.	Gestational age in weeks (Pair matched)					$\chi^2 = 0.270$ $p = 1.000$ N.S
	26-28	-	-	-	-	
	29-31	1	3.3	1	3.3	
	32-34	11	36.7	11	36.7	
	35-36	18	60.0	18	60.0	
2.	Gender					$\chi^2 = 0.606$ $p = 0.616$ N.S
	Male	16	53.3	13	43.3	
	Female	14	46.7	17	56.7	
3.	Weight of the preterm infant in grams (Pair matched)					$\chi^2 = 0.000$ $p = 1.000$ N.S
	1500-2000	10	33.3	10	33.3	
	2001-2500	20	66.7	20	66.7	
	>2500	-	-	-	-	
4.	Birth order					$\chi^2 = 0.288$ $p = 0.890$ N.S
	1st	12	40.0	14	46.7	
	2nd	12	40.0	11	36.7	
	3rd	6	20.0	5	16.7	
	4th	-	-	-	-	

The above table 4.1.1 shows that majority of the preterm infants were in the gestational age of 35-36 weeks in both groups, and most of the preterm infant were males in study group, females in control group with birth weight of 2001-2500 grams in both the groups and the birth order was 1st & 2nd in the study group, and 1st in control group.

ASSESSMENT AND COMPARISON OF PRE AND POST TEST LEVEL OF PHYSIOLOGICAL PARAMETERS AMONG PRETERM NEONATES WITH IN THE STUDY AND CONTROL GROUP.

Table 4.2.1: Assessment and comparison of pre and post test level of physiological parameters among preterm neonates within the study group n=30

Group	Mean	Std. Deviation	Mean Difference	Paired 't' test score	
				T	Sig.
Pre Temperature (Celsius)	35.45	0.79			

Post Temperature (Celsius)	36.76	0.18	-1.31	-9.92	.000***
Pre Heart rate (beats/min)	117.80	2.64	-11.66	-21.82	.000***
Post Heart rate (beats/min)	129.47	3.84			
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Post Respiration (breaths/min)	45.73	2.55			
Pre Oxygen Saturation (%)	89.57	1.00	-4.10	-23.40	.000***
Post Oxygen Saturation(%)	93.67	1.47			
Pre Weight (grams)	2106.33	267.25	-32.76	-108.48	.000***
Post Weight (grams)	2139.10	267.89			

df – degrees of freedom, sig. – Level of statistical significance, ***- significance at p<0.001

The table depicts that KMC along with hospital

routine (warmer care) was highly significant in improving the physiological parameters of the preterm infants.

Assessment and comparison of pre and post test level of physiological parameters among preterm neonates within the control group n=30

Group	Mean	Std. Deviation	Mean Difference	Paired 't' test score	
				T	Sig.
Pre Temperature (Celsius)	35.46	0.50	-0.376	-8.74	.000***
Post Temperature (Celsius)	35.83	0.41			
Pre Heart rate (beats/min)	117.17	2.32	-2.33	-7.00	.000***
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df – degrees of freedom, sig. – Level of statistical significance, ***- significance at p<0.001

The above table 4.2.2 shows that the assessment and comparison of pre and post test level of physiological parameters within the control

group with paired 't' test and inferred that high level significant differences pertaining to temperature, heart rate, respiratory rate, oxygen saturation and weight at $p < 0.001$. Preterm infants in the control group underwent the hospital routine (warmer) also had improvement in their physiological parameters.

3. Results and Discussion

The findings of the study revealed that KMC for 30 minutes for three consecutive days among preterm infants between study and control group, there was no significant difference in pretest level physiological parameters among preterm neonates between study and control group. The post test mean difference and calculated unpaired 't' value founded after the intervention of KMC along with the hospital routine for physiological parameters such as temperature was 0.93, 11.29 & heart rate was 9.96, 13.48 & respiratory rate 8.26, 14.85 & oxygen saturation 2.63, 8.59 and weight was -12.43, -0.18 respectively. The calculated unpaired 't' value shows there was statistically high significant difference in the post test level of physiological parameters among preterm infants between study and control group at $p < 0.001$ level. Thus, the null hypothesis NH1 stated earlier "There is no significant difference between pre and post test level of physiological parameters among preterm infants between study and control group at $P < 0.05$ level was rejected." Hence the null hypothesis NH2 stated earlier "There is no significant association of selected demographic variables with the mean differed score of physiological parameters among preterm infants in study and control group at $P < 0.05$ level" was rejected

4. Conclusion

The findings proved that the KMC for 30 minutes for three consecutive days was effectively improving the physiological parameters among preterm infants. Kangaroo Mother Care also improved the behavioral and psychological wellness of the preterm neonates. The health care providers in their practice while caring for the preterm infants in the NICU, postnatal ward and home settings can utilize KMC. Hence, it can be used as a simple, cost effective, motherly based nursing measure for improving the physiological parameters of the preterm infants and it can be used as a routine care of preterm infants.

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