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A Study To Assess And Evaluate The Effectiveness Of Kangaroo Mother Care On The Physiological Parameters Of Neonates In Selected Hospital Of Haryana And Punjab

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ABSTRACT:- The burden evoked as a result of low birth weight in developing countries is a major public health problem. High mortality rates amongst this group of high-risk neonates could be reduced by the provision of quality health care. But with limited resources available and booming costs of the high technology care required for LBW neonates, it is essential to test alternative approaches that could reduce the induced separation of mother and baby, and which would be sustainable for its cost, acceptability and ease in implementation. Hence with this intention in mind, Kangaroo Mother Care (KMC) was tested on low birth weight (LBW) babies of a selected tertiary hospital for its effect on the physiological parameters (heart rate, respiratory rate, and temperature and oxygen saturation). Perceptions regarding KMC of mothers also assessed.The main objective of the study were to assess and evaluate the physiological parameters (temperature, respiratory rate, heart rate and oxygen saturation level) of neonates in control group and experimental group, before and after KMC(Kangaroo Mother Care) An **experimental research approach** is used for the present study as the study aimed at evaluating the effectiveness of a KMC on physiological parameters of neonates admitted in neotology selected hospital of Haryana and Punjab. The hospital was selected on the convenient basis. Sample include 60 neonates 30 for experimental group and 30 for control group admitted in selected hospital The tool developed and used for data collection were physiological parameters record sheet . the physiological parameters record sheet consists of two sections one consists of sample characteristic of mother and neonates. Section two consist of record sheet . the physiological parameters (temperature, respiratory rate, heart rate, oxygen saturation level). Temperature was monitored through Gloe Vue digital thermometer. Heart rate, respiratory rate & oxygen saturation was monitored through multiparamonitor. The content validity of

tool was established by taking opinion from experts in the fields of Pediatric nursing, obstetrics and gynecology nursing, community health nursing and neonatology. Inter observer reliability of tool was calculated by using simple kappa formula. The data obtained were analysed using both descriptive & inferential statistics in term of frequency,percentage, mean, median , standard deviation 't' value.Significant findings of the study were that all the physiological parameters were within normal rage after (at 60 min) KMC. Mean temperature (98.47 ^{C} F) on day 1 at 60th minute (after KMC) was significantly higher than mean temperature before KMC (98.05 ^{C} F) on day 2& day 3(98.39 ^{C} F) in control group.Mean heart rate (138.40) (138.06) before KMC in experimental group & control group is higher than mean heart rate day 1(137.00), day3 (137.53) of both experimental & control group. Mean respiratory rate (40.06) at 60 th min on day 3 is very low as comparatively respiratory rate (42.20) day 1 in experimental group. Mean saturation level has shown no significant change before & at 60 th min after KMC remain within normal range

Key words: Effectiveness, Kangaroo Mother Care,Physiological Parameters,Hospital ,Neonates.

INTRODUCTION:- "Premature births are an enormous global problem that is exacting a huge toll emotionally, physically, and financially on families, medical systems and economies Globally 12.9 million births are preterm every year, representing an incidence of preterm birth of 9.6%. Approximately 85% of these preterm births are concentrated in Africa and Asia where almost 11 million births are preterm.In low- and middle-income countries, hypothermia at birth is one of the most important risk factors for morbidity and mortality in newborn infants of all birth weights and gestational ages. It is estimated 99% of the 4 million babies that die each year worldwide during the neonatal period (0-27 days) live in those settings This studies shows that the first days of life are critical as most neonatal deaths occur during this period (25%–45% within the first 24 hours) .These statistics represent the critical gaps in the continuum of care due to a backdrop of poverty, suboptimum care-seeking, and weak health systems .A baby born with a low birth weight, particularly if the baby is also preterm, is at much greater risk of dying or getting sick than other newborns. Prevention and management of hypothermia is one of the key interventions for reducing neonatal mortality and morbidity. According to UNICEF, such interventions can help reduce neonatal mortality or morbidity by 18%–42% .The objective of this Cochrane review was to assess efficacy and safety of interventions designed to prevent hypothermia in preterm and/or low-birth-weight infants applied within the first 10 minutes after birth in the delivery ward compared with routine thermal care.

Thus, in spite of improved technology, preterm infants tend to present with more stress than they can handle. According to Symington and Pinelli (2002:3) typical markers of stress are physiological parameters such as increased heart rate and decreased oxygen saturation. The

preterm infant's growth is negatively affected by the increased energy expenditure that occurs as a result of the infant's reaction to environment and routine care in the neonatal intensive care unit (NICU). Short-term sequelae, such as changes in heart rate, respiration rate, colour, blood pressure and saturation levels, are specifically related to physiological instability and/or increased stress levels. Incorrect body positioning results in postural deformities, such as hip abduction and external rotation, ankle eversion, retracted and abducted shoulders, neck hyperextension, shoulder elevation and cranial molding. today is attaining an optimal physiologic and neurologic outcome for preterm infants . A neonatal nurse stand out as a key figure in the management of preterm infants. preterm infants are delicate plants and the nurse is the only person who is continually in contact with them.A study conducted in 1992 reported that 70% of the day's total interaction of the preterm infants in NICU were spent with nurses, 8 percent with parents , 4.5 percent with physicians , 6.3 % with respiratory therapist , 4% with physical or occupation therapist. These findings affirmed the important role of the nurses working in NICU.

PROBLEM STATEMENT:-

A study to assess and evaluate the effectiveness of kangaroo mother care on the physiological parameters of neonates in selected hospital of Haryana and Punjab .

OBJECTIVES:-

1. To evaluate the effectiveness of kangaroo mother care on physiological parameter of neonates in control group and experimental group.

REVIEW OF LITERATURE:-

Colin AA,Mc Evoy C,Castile RG(2010) undertook a project to summarize the evidence demonstrating respiratory system vulnerability in infants aged 34 to 36 weeks' gestational age and to review the developmental and physiologic principles that underlie this vulnerability. A comprehensive search for studies on the PubMed, Medline, Ovid Biosis, and Embase databases from 2000 to 2009 consistently revealed that infants born at 32 to 36 weeks' GA, including infants of 34 to 36 weeks' GA, experienced substantial respiratory morbidity compared with term infants. Findings further presents evidence to demonstrate that the immaturity of the respiratory system of infants 34 to 36 weeks' GA at birth results in increased morbidity in infancy and leads to deficits in lung function that may persist into adulthood.

Swinth et al (2003) conducted a study to assess effectiveness Kangaroo (skin-to-skin) care with a preterm infant before, during, and after mechanical ventilation. The 33-week-gestation infant in this case study presented with mild respiratory distress at birth, requiring supplemental oxygen at hour 2. With no improvement by hour 18, KC was also begun, first for 1.25 hours and then, 2 hours later, for 3.5 hours. The infant was intubated at hour 45 for increasing respiratory distress, and KC resumed 24 hours later for 1 hour and 3

hours after that for an additional 3 hours. Extubation occurred at hour 90. Kangaroo care resumed 2 hours later for periods of 1.5, 1.5, and 1 hour over the next 8 hours, 2.5 hours more later that day (day 5, the last day of data collection). Thereafter, KC was done intermittently until discharge on day 9. Total KC times for pre-vent, vent, and immediate post-vent periods were 4.75, 4, and 6.5 hours, respectively. The data from this study suggest that KC may assist in recovery from respiratory distress rather than retard. KC may also foster maternal relaxation and minimize maternal stress.

Review of literature aimed at kangaroo mother care and spo2

Sontheimer et al. (2004) conducted a study to compare Kangaroo transport instead of incubator transport. This study conducted among kangaroo transports of 31 stable preterm and term infants in different settings and recorded data regarding transport conditions and cardio-respiratory stability. Eighteen transports were back transfers and 13 were transfers in. Twenty-seven transports were conducted by the mother, 1 by the father, 2 by nurses, and 1 by a doctor. Transport distance was 2 to 400 km. Result of study revealed that Heart rate, respiratory rate, oxygen saturation, and rectal temperature remained stable during all kangaroo transports lasting 10 to 300 minutes. Weight at transport was 1220 to 3720 g. Parents felt very comfortable and safe and appreciated this method of transport. Study concluded that Kangaroo transport promotes mother-infant closeness and might ameliorate several of the risks associated with incubator transport.

Chwo, M. J., G. C. Anderson, et al. (2002). "A randomized controlled trial of early kangaroo care for preterm infants: effects on temperature, weight, behavior, and acuity." one-group repeated measure design. This randomized controlled trial (RCT) was done to test the hypotheses that KC infants would have higher mean tympanic temperatures, less weight loss, more optimal behavioral states, and lower acuity (length of stay). Thirty-four eligible mother-infant dyads were randomly assigned to the KC or the control group by computerized minimization on the day following birth. Stratification variables included infant gender, birth weight, delivery method, and parity. KC infants compared to control infants had higher mean tympanic temperature (37.3 degrees C vs. 37.0 degrees C), more quiet sleep (62% vs. 22%), and less crying (2% vs. 6%) all at p=.000. No significant difference was found for weight loss and acuity (length of stay). With the knowledge attained from this RCT, nurses can educate and motivate mothers to keep their stable preterm infants warm by skin-to- skin contact inside their clothing, thereby encouraging self-regulatory feeding.

Fohe et al. (2000) evaluate the effect of Skin-to-skin contact improves gas exchange in premature infants. Study examined 53 preterm infants of < 1800 gm in a prospective, pretest-test-posttest design study during incubator care (60 minutes), skin-to-skin contact

(90 minutes), and incubator care again (90 minutes). Heart rate, respiratory rate, oxygen saturation (SaO2), transcutaneous pO2 (tcpO2), transcutaneous pCO2, rectal temperature, and fraction of inspired oxygen were measured. Result revealed that the heart rate increased during skin-to-skin contact by 5 beats per minute ($p < 0.001$), the respiratory rate dropped by 5/minute ($p < 0.01$), the SaO2 improved by 0.4% ($p < 0.05$) accompanied by an increase of tcpO2 of 4.8 mm Hg ($p < 0.001$), the tcpCO2 dropped by 1.2 mm Hg ($p < 0.001$), and the rectal temperature increased by 0.3 degree C ($p < 0.001$). Analyzing three groups separately by postnatal weight, we observed the smallest increase in heart rate and the highest decrease in respiratory rate in infants of < 1000 gm ($p < 0.001$). The increase in SaO2 and in the tcpO2 doubles in infants of < 1000 gm compared with infants of > 1000 gm ($p < 0.001$). All changes were independent of postnatal age. CONCLUSION: During skin-to-skin contact, preterm infants not only remain clinically stable but also show a more efficient gas exchange. Although the patient is removed (transferred) from the incubator, there is no risk of hypothermia even in infants of < 1000 gm.

METHODS:-

RESEARCH DESIGN:- multiple time series quasi experimental control group

RESEARCH SETTING:- The setting is the physical location and condition in which data collection take place. The study was conducted in neotology unit in selected Hospital at Haryana (MMISR& Hospital) and Punjab (Rajindra Hospital Patiala)

SAMPLE:- The total sample for the study will be 60 neonates 30 for experimental group and 30 for control group.

SAMPLING TECHNIQUE:- Non probability purposive sampling technique is adopted for the study

SAMPLING CRITERIA:-

INCLUSION CRITERIA- neonates who are eligible for kangaroo care include

1. Neonates weighing > 1500-1800 grams
2. Less than one month (i.e. 28 days)
2. Hemodynamically stable
3. Mothers of neonates willing to participate in study.

EXCLUSION CRITERIA- Severelly ill neonates

DESCRIPTION OF THE TOOL:-

Part -1:- It comprises item 5 items seeking information pertaining to demographic variables as age of mother, education qualification of mother, occupation of mother, religion.

Part-2 :- It comprise of 3 items seeking information pertaining to background data of the neonates birth weight, weight on the day of intervention, weight on the day of discharge.

Part:- 3 It comprise of recording the neonates physiological parameters (weight ,temperature, heart rate, respiration rate, , spo2(oxygen saturation) and weight of the baby([2,8,16,18,20,21)] before and after giving Kangaroo mother care with the help of monitor,\ pulse oximeter ,weighing machine.

CONTENT VALIDITY OF THE TOOLS

To ensure content validity of tool presentation has been done in front of experts and experts were requested to judge the items of tools, clarity, relevance, appropriateness, relatedness and meaning full for the purpose of the study and to give their opinion and suggestion on the content. Its coverage, organization, presentation, language, feasibility and practability of observation.Expert suggested modification which were incorporated after careful review and discussion with experts.

Reliability

Inter-Observer reliability was calculated by Kappa method for Mercury digital thermometer, and cardiac monitor.(0.74) . The tools were found to be reliable for the purpose of the study

RESULTS:-

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter presents with the analysis and interpretation of the data collected to evaluate the effectiveness of kangaroo mother care on the physiological parameters of neonates in selected hospitals of Haryana and Punjab.

According to **Kerlinger (1973)** data analysis is "categorizing, ordering, manipulating and summarizing of data obtain answer to research questions". The purpose of the analysis is to reduce the data to an interpretable form so that research problem can be studied and tested. The researcher has broken the data into constituent parts for the purpose of answering research questions and hypothesis.

Polit and Hungler (1999) stated that the data analysis is the systematic organization and synthesis of research data, and the testing of research hypothesis using those data.

According to **Abdellah and Levine (1979)** interpretation of tabulation data can bring to light the real meaning of the findings of a study.

The data collected by using digital thermometer & cardiac monitor on record sheet of 60 samples (neonates) 30 in experimental group & 30 in control group. The data were analyzed and interpreted by employing both descriptive and inferential statistics, based on objectives of the study and hypothesis to be tested. All data was tabulated and summarized in the master data sheets.

ORGANIZATION AND PRESENTATION OF DATA

The data obtained were analyzed, tabulated and interpreted by employing descriptive and inferential statistics. The data have been organized and presented under the following sections.

Section I: Description of the sample characteristics

Table 1: Description of the sample characteristics of neonates

Section II: Assessment and evaluation of physiological parameters of neonates before and after Kangaroo Mother Care in experimental and control group.

SECTION -I

Description of sample characteristics

This section describes characteristics of the neonates under study. The sample consists of 60 subjects (30 in experimental and 30 in control group). The sample characteristics are described in terms of birth weight of neonates are presented in table - 1.

TABLE- 1 Frequency and Percentage Distribution of Sample Characteristics of Neonate In Terms of Birth Weight

N=60

Sr. NO	Sample Characteristics	Experimental Group (n=30)		Control Group (n=30)	
		F	(%)	F	(%)
1.	**Birth weight of the neonates**				
1.1	1500-1600gms	28	93.33	21	70.33
1.2	1600- 1700gms	02	6.67	07	23.33

1.3	1700-1800gms	-	-	02	6.67

The data presented in Table 2 showed majority of neonates 28 (93.33%) were having a birth weight of 1500-1600gms followed by 2 (6.67%) of neonates with birth weight between 1600-1700gms in the experimental group. whereas it was 21 (70.33%) & 7(23.33%) & 2(6.67%) with the birth weight of 1500- 1600gms, 1600-1700gms, 1700-1800gms respectively in the control group.

SECTION II Findings related to effect of KMC on physiological parameters on experimental and control groups.

This section deals with the analysis and interpretation of data related to physiological parameters (temperature, respiratory rate, heart rate, oxygen saturation level) of neonates are described and analyzed using descriptive and inferential statistics. Mean and Standard Deviation of physiological parameters, before and after KMC for both experimental and control is shown in table 2. Physiological parameters for all neonates were monitored before KMC in both the groups and after KMC for experimental group and without KMC in control group.

Mean, and Standard Deviation of pre assessment (pretest) and post assessment (post-test) of physiological parameters in experimental and control group.

The mean, and SD of pre assessment (pretest) and post assessment (post-test) of physiological parameters of experimental and control groups & "t" value to find significance of difference between mean pre-assessment (pretest) & post assessment (post-test) of physiological parameters of experimental and control groups were calculated.

Table 2 Mean and Standard Deviation of pre assessment (pretest) and post assessment (post-test) physiological parameters in experimental group.

N=30

Physiological Parameters	**Mean**		**SD**	
	pre - Assessment	**post- Assessment**	**pre- Assessment**	**post- Assessment**
Temperature	98.08^0F	98.47^0F	0.25^0F	0.39^0F
Heart rate	137.00	138.6	6.40	6.02

Respiratory rate	42.20	44.13	4.67	4.10
Oxygen Saturation level	96.70	97.66	1.86	1.21

The data presented in table 2 reveal the mean post assessment (post test) of temperature 98.47^0F after administration of KMC was found to be higher than the pre assessment (Pre test) temperature of (98.8^0F).similar findings were reported in the post assessment of physiological parameters of mean heart rate (138.6) was higher than pre assessment of mean heart rate (137.00) before administration of KMC.

The data further shows that reveal the mean post assessment (post test) of respiratory rate was found to be 44.13 after administration of KMC and is higher than the pre assessment (Pre test) of 42.20.similar findings were reported in the post assessment of physiological parameters of mean oxygen saturation level of 97.66 was higher than pre assessment level of 96.70 before administration of KMC.

The change in the physiological parameters in the post test or assessment can be attributed to the effect of Kangaroo mother care in the experimental group.

Table 3
Mean, and Standard Deviation of pre assessment (pretest) and post assessment (post-test) of physiological parameters in control group.

N=30

Physiological Parameters	**mean**		**SD**	
	pre - Assessment	**post- Assessment**	**pre- Assessment**	**post- Assessment**
Temperature	98.05^0F	98.08^0F	0.31^0F	0.25^0F
Heart rate	135.46	137.63	10.81	8.90

Respiratory rate	44.46	44.73	5.16	5.15
Oxygen Saturation level	96.70	97.53	1.86	1. 38

The data presented in table 3 reveal the mean post assessment (post test) of temperature 98.08^0 KMC was found to be higher than the pre assessment (Pre test) temperature of (98.05^0F).similar findings were reported in the post assessment of physiological parameters of mean heart rate (137.63) was higher than pre assessment of mean heart rate (135.46) in control group.

The data further shows that reveal the mean post assessment (post test) of respiratory rate was found to be 44.73 is higher than the pre assessment (Pre test) of 44.46.similar findings were reported in the post assessment of physiological parameters of mean oxygen saturation level of 97.70 was higher than pre assessment level of 96.53in control group without administration of KMC.

The change in the physiological parameters in the post test or assessment can be attributed to the effect of extraneous variable like birth weight of the babies in the control weight.

In order to determine the significance of difference between the pre test and post-test values of physiological parameters of neonates in experimental and control group the following hypothesis **H_1** and null Hypothesis **H_{01}** was stated and't' value was computed.

H_1: The mean post assessment of physiological parameters in neonates who were exposed to KMC in experimental group will be significantly higher than those who were not exposed to KMC in control group as evidence from the physiological parameters at 0.05 level of significance.

H_{01}: There will be no significant difference between the mean post test physiological parameters in neonates who were exposed to KMC in experimental group than those who were not exposed to KMC in control group as evidence from the physiological parameters at 0.05 level of significance.

TABLE 4

Mean, Mean difference, Standard error and't' value of pre test & post test of neonates temperature in experimental & control group.

N=60

Time	**Groups**	**Mean**	**Mean Difference**	**SE**	**'t'**

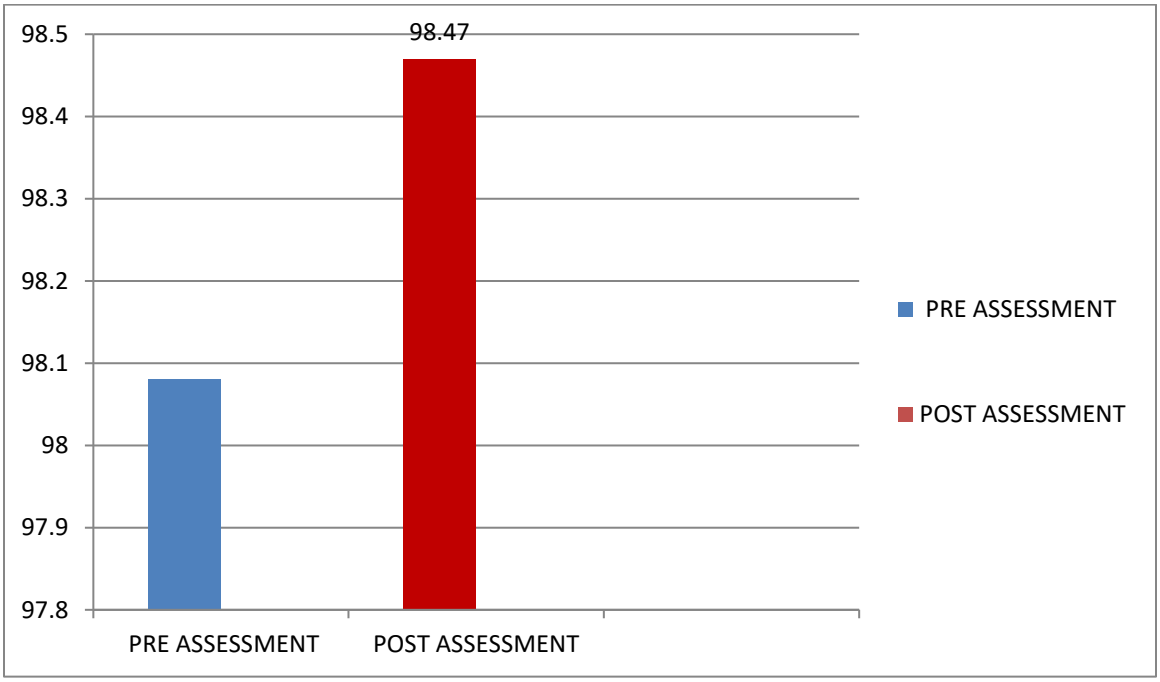
Pre assessment	Experimental	98.07			
	Control	98.05	0.02	0.07	0.45^{NS}
Post assessment	Experimental	98.47			
	Control	98.08	0.39	0.08	4.51^{NS}

t' (29) = 2.04,($p<0.05$), NS- not significant at 0.05 level of significance.

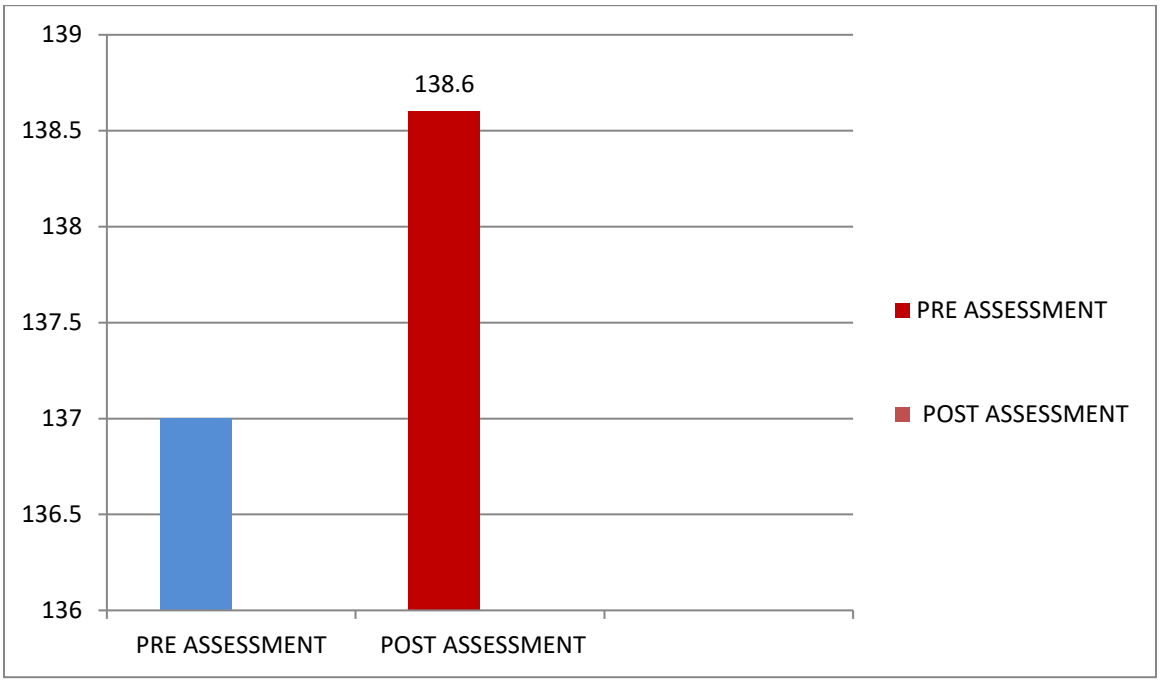
The data shows Table 7 that the mean difference of temperature between experimental and control group is (0.02) preassessment mean difference of temperature between experimental and control group is (0.39) at post assessment . preassessment ' t' value is 0.45. and in post test 't' value is 4.51 .To find the significance of difference in mean temperature among experimental and control group an independent 't' test was computed and the obtained value of independent 't' is found not significant. Hence, it is inferred that there is no difference between temperature of neonates among experimental and control group.

TABLE 3

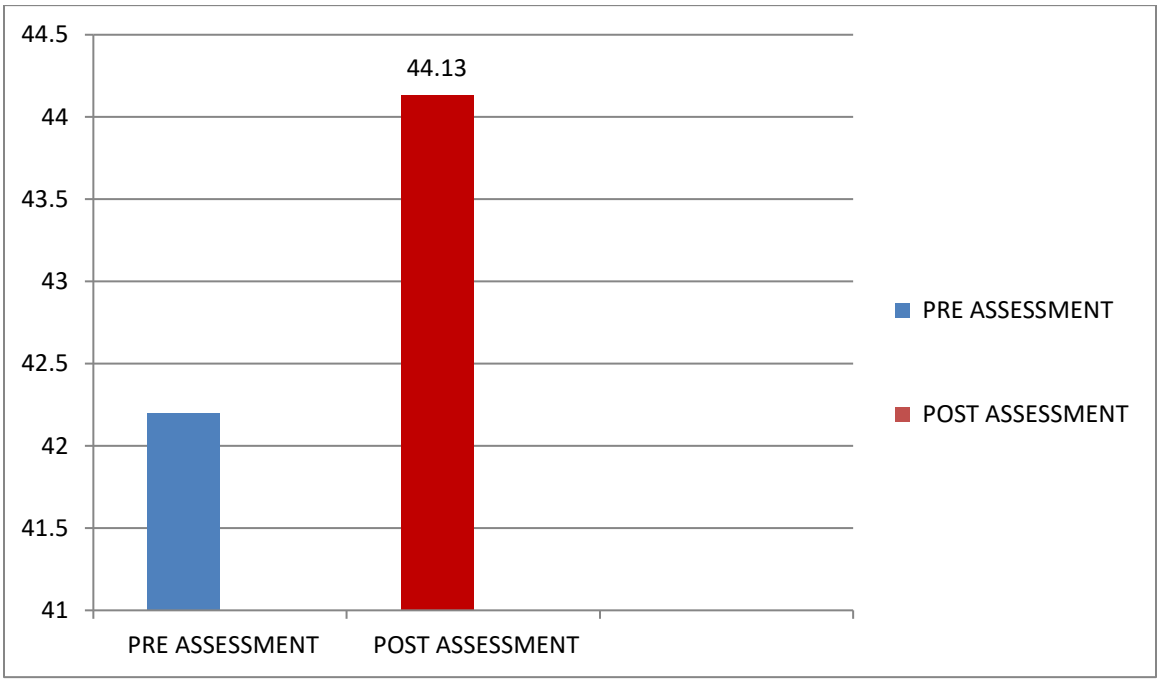
TEMPERATURE(Experimental Group)



HEART RATE



RESPIRATORY RATE



OXYGEN SATURATION LEVEL (%)

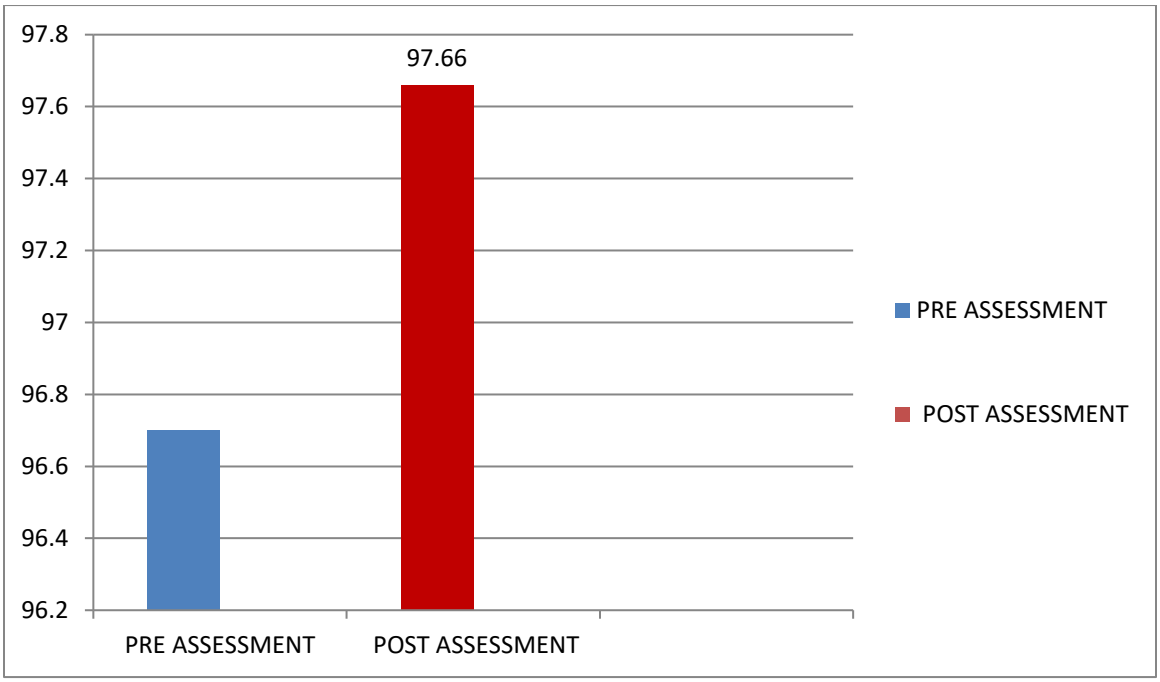
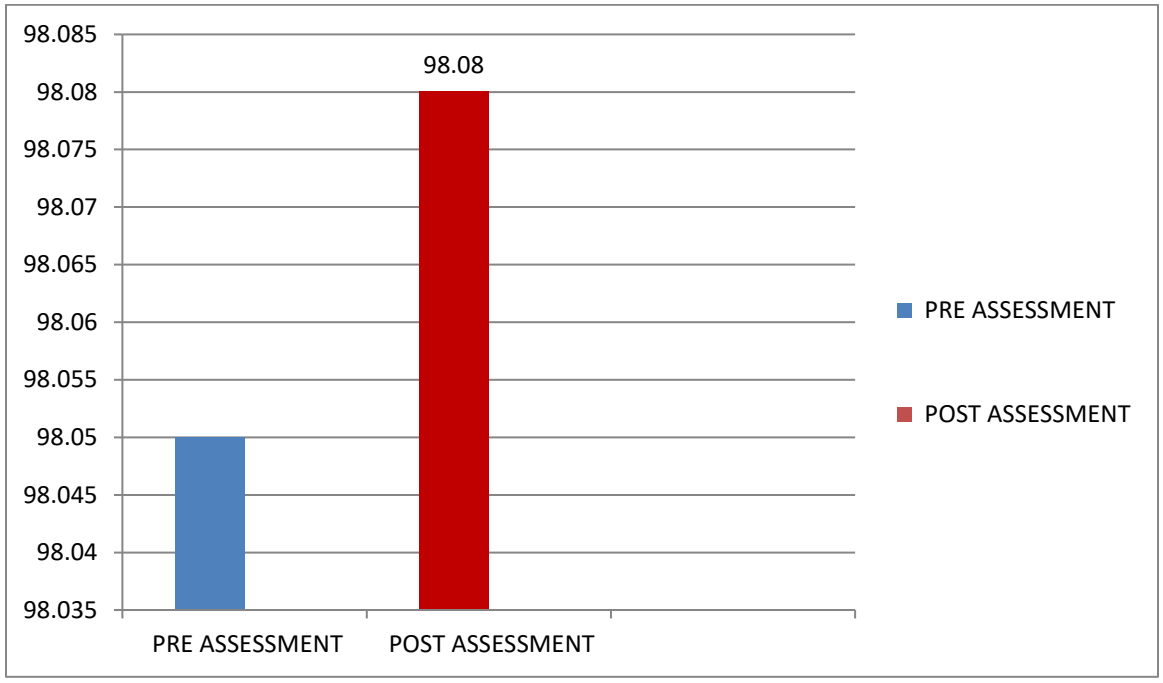
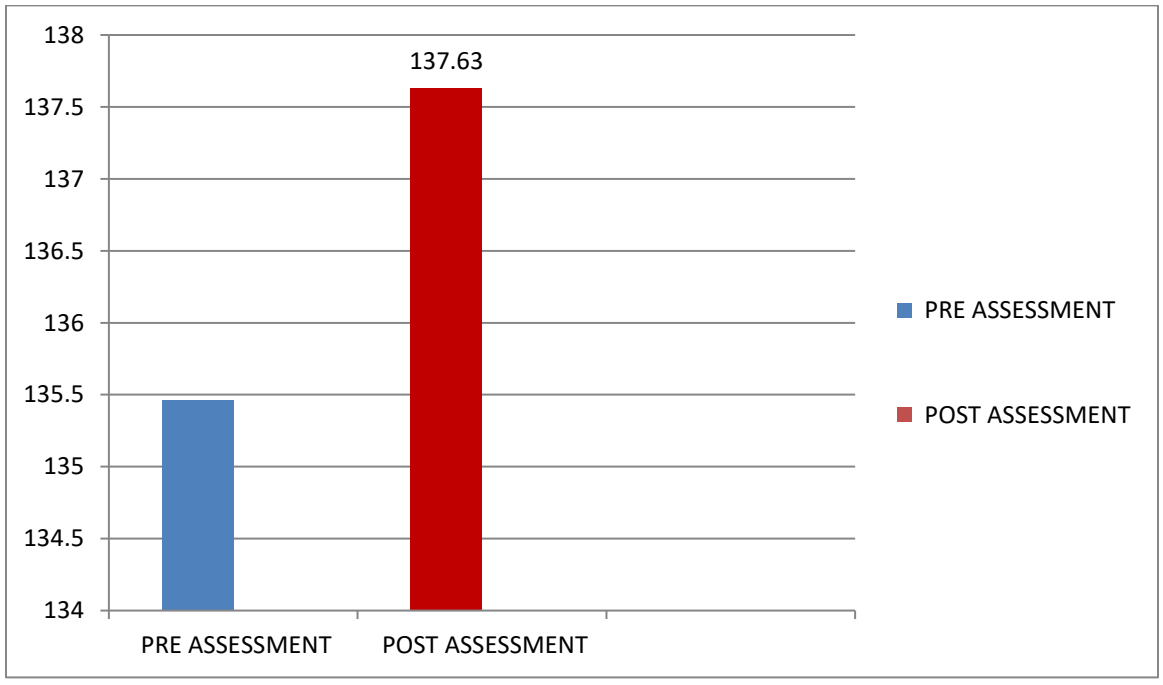


TABLE 4

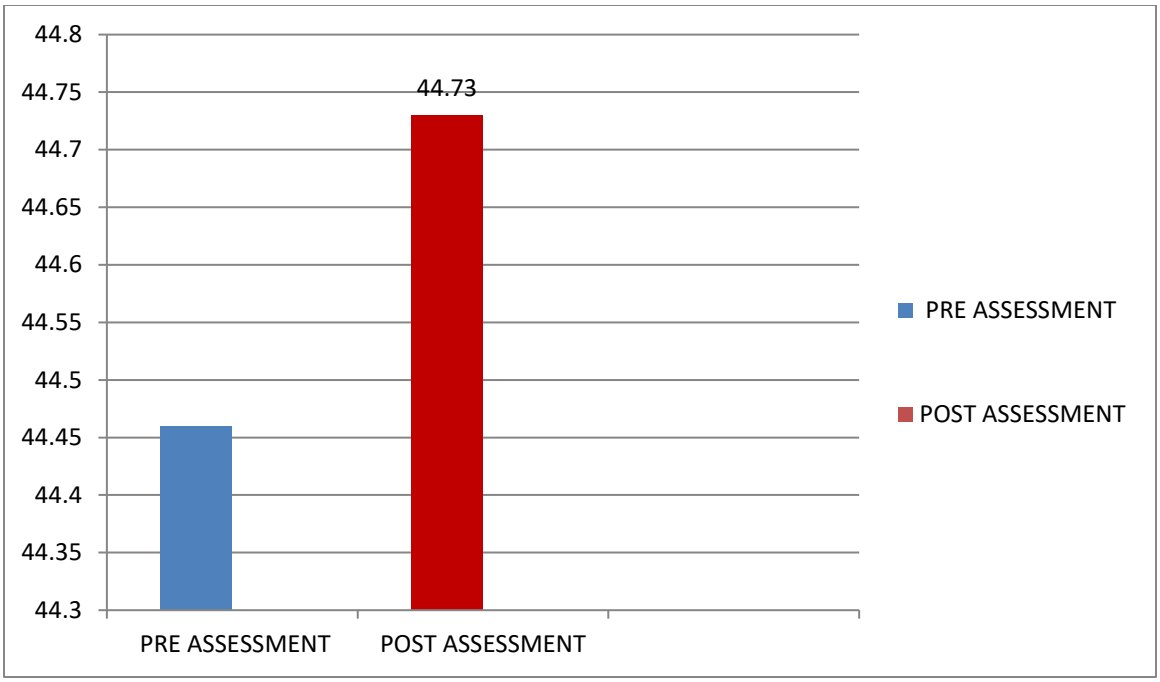
TEMPERATURE (Control group)



HEART RATE



RESPIRATORY RATE



OXYGEN SATURATION LEVEL (%)

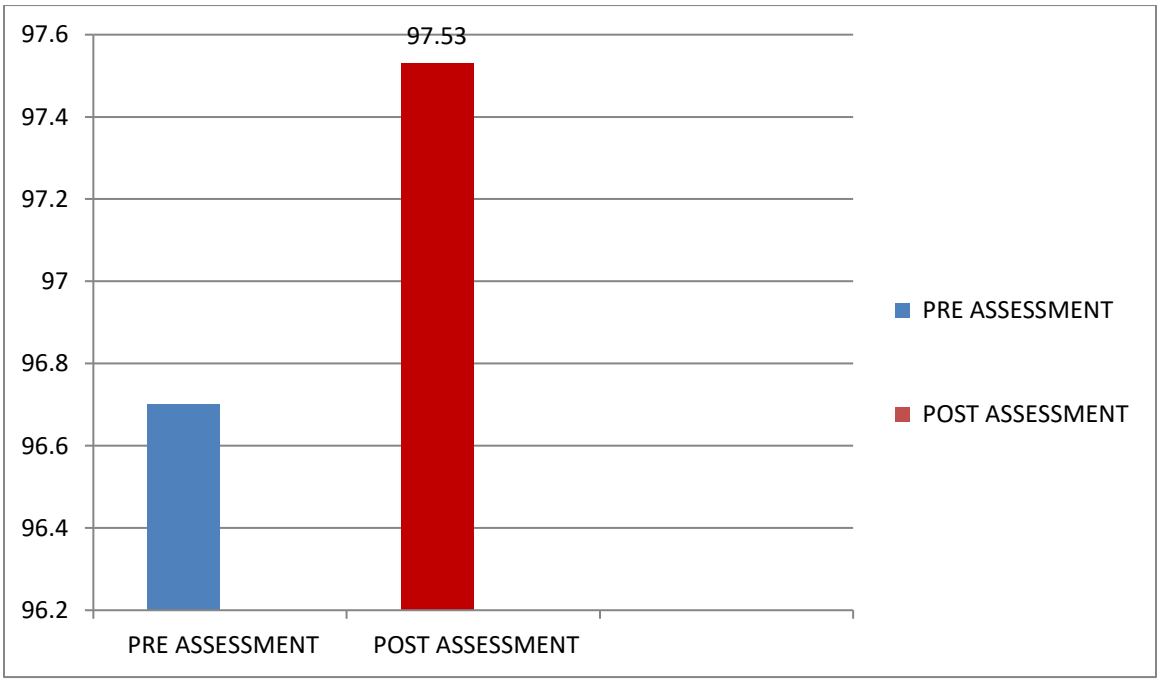


TABLE 5Mean, Mean difference, Standard error and 't' value of respiration rate /min) of neonates pre assessment and post assessment in experimental & control group.

N=60

Time	Groups	mean	mean Difference	SE	't'
pre Assessment	Experimental	42.20			
	Control	44.46	2.267	1.272	1.78NS
post Assessment	Experimental	44.13			
	Control	44.73	0.600	1.203	0.49NS

t' (29) = 2.04,($p<0.05$), NS- not significant at 0.05 level of significance

The data shown on Table 5 that the mean difference of respiration rate between experimental and control group is (2.267) pre assessment mean difference of respiratory rate between experimental and control group is (0.600). preassessment 't, value is (1.78). post assessment 't' value is 0.49. To find the no significance of difference in mean respiratory rate of neonates among experimental and control group an independent 't' test was computed and the obtained value of independent 't' is found no significant. Hence, it is inferred that there is no difference between respiration rate of neonates among experimental and control group.

TABLE 6 Mean, Mean difference, Standard error and 't' value of oxygen saturation level of neonates pre assessment and post assessment in experimental & control group.

N=60

Time	Groups	mean	mean difference	SE	't'
Pre Assessment	Experimental	96.70			
	Control	96.70	0.000	0.480	0.00NS
Post Assessment	Experimental	97.66			
	Control	97.53	0.133	0.336	0.39NS

t' (29) = 2.04, NS- not significant at 0.05 level.

The data shown on Table 6 that the mean difference of oxygen saturation level between experimental and control group is (0.480) at pre assessment mean difference of temperature between experimental and control group is (0.336) at post assessment. Pre assessment 't' value is 0.00. and post assessment't' value is 0.39. To find the significance of difference in mean of neonates among experimental and control group an independent 't' test was computed and the obtained value of independent 't' is found no significant. Hence, it is

inferred that there is no difference between oxygen saturation level of neonates among experimental and control group at pre assessment and post assessment.

Table 7 Mean ,Mean difference, Standard error and 't' value of heart rate (beats/min) of neonates pre assessment and post assessment in experimental & control group.

N=60

Time	Groups	mean	mean difference	SE	't'
pre Assessment	Experimental	137.00			
	Control	135.46	1.533	2.295	0.66
post Assessment	Experimental	138.06			
	Control	137.63	0.433	1.962	0.22

t' (29) = 2.04,($p<0.05$), NS- not significant at 0.05 level of significance

The data shown on Table 7 that the mean difference of heart rate between experimental and control group is (1.53) at pre assessment and mean difference of heart rate between experimental and control group is (0.43) at post assessment. Pre assessment 't' value is 0.66. and post assessment 't' value is(0.22) . To find the significance of difference in mean heart rate of neonates among experimental and control group an independent't' test was computed and the obtained value of independent 't' is not found significant. Therefore, the researcher does not reject the null hypothesis (H_{02}). Hence, it is inferred that there is no difference between heart rate of neonates among experimental and control group in pre assessment and post assessment.

TABLE 8 F Ratio of temperature within and between the group pre assessment and post assessment of KMC in experimental group.

N=30

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	4.64	2	2.32	19.56*
Within Group	10.33	87	0.11	
Total	14.97	89		

F ratio is significant at 1% (p=0.01) level of significance

The table 8 shows that F ratio of temperature within and between the group before and after KMC in experimental group is as follow:- (19.56*). It inferred that there is a significance difference of temperature within and between the groups before and after administration of KMC in experimental group.

TABLE 9 F Ratio of temperature within and between the group pre assessment and post assessment of physiological parameters in control group.

N=30

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	0.40	2	0.20	1.92NS
Within Group	9.25	87	0.10	
Total	9.66	89		

NS – Not significant (p>0.05)

The table shows that F ratio of temperature within and between the group pre assessment and post assessment of KMC in control group is as follow:- (1.92). It inferred that there is a no significance difference of temperature within and between the groups pre assessment and post assessment in control group.

TABLE 10 F Ratio of respiratory rate within and between the group pre assessment and post assessment of KMC in experimental group .

N=30

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	80.26	2	40.13	1.88NS
Within Group	1849.13	87	21.24	
Total	1928.40	89		

NS – Not significant (p>0.05)

The table shows that F ratio of respiratory rate within and between the group pre assessment and post assessment in experimental group is as follow: (1.88). It inferred that there is a not significant difference of respiratory rate value within and between the groups pre assessment and post assessment administration of KMC in experimental group.

TABLE 11 F Ratio of respiratory rate within and between the group pre assessment and post assessment of physiological parameters in control group.

N=30

	Source of Variation	Sum of square	df	Mean sum of square	'f' value
Day 1	Between Group	1.15	2	0.57	0.02NS
	Within Group	2404.00	87	27.63	
	Total	2405.15	89		

conclusion insignificant

The table shows that F ratio of respiratory rate within and between the group pre assessment and post assessment in control group is as follow:- (0.02). It inferred that there is a difference of respiratory rate value within and between the groups pre assessment and post assessment in control group.

TABLE 12 F Ratio of heart rate within and between the group pre assessment and post assessment of KMC in experimental group.

N=30

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	42.75	2	21.37	0.37NS
Within Group	4909.06	87	56.42	
Total	4951.82	89		

NS – Not significant (p>0.05)

The table shows that F ratio of heart rate within and between the group in pre assessment and post assessment after KMC in experimental group is as follow: (0.37). . It inferred that there is a not significant difference of heart rate value within and between the groups preassessment and post assessment administration of KMC in experimental group.

TABLE 13 F Ratio of heart rate within and between the group pre assessment and post assessment in control group

N=30

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	93.88	2	46.94	0.46NS
Within Group	8863.90	87	101.88	
Total	8.88	89		

NS – Not significant (p>0.05)

The table shows that F ratio of heart rate within and between the group pre assessment and post assessment in control group is as follow: (0.46).It inferred that there is a not significant difference of heart rate value within and between the groups pre assessment and post assessment in control group.

TABLE 14 F Ratio of oxygen saturation level within and between the group pre assessment and post assessment of administration of KMC in experimental group.

N=60

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	16.46	2	8.23	2.68NS
Within Group	267.13	87	3.07	
Total	283.60	89		

NS – Not significant (p>0.05)

The table shows that F ratio of oxygen saturation level within and between the group pre assessment and post assessment in experimental group is as follow:(2.68). It inferred that there is a not significant difference of oxygen saturation level within and between the groups pre assessment and post assessment administration of KMC in experimental group.

TABLE 15 F Ratio of oxygen saturation level within and between the group pre assessment and post assessment in control group.

N=30

Source of Variation	Sum of square	df	Mean sum of square	'f' value
Between Group	18.02	2	9.01	2.56NS
Within Group	305.26	87	3.50	
Total	323.28	89		

NS – Not significant (p>0.05)

The table shows that F ratio of oxygen saturation level within and between the group pre assessment and post assessment in control group is as follow:(2.56). It inferred that there is a not significant difference of oxygen saturation level within and between the groups pre assessment and post assessment in control group.

DISCUSSION

The purpose of the present study was to assess & evaluate the effect of KMC on physiological parameters (temperature, respiratory rate, heart rate & oxygen saturation level). A many studies have been conducted to assess the effect of KMC on physiological parameters of neonates.

Analysis of this study indicated the significant effect of 'KMC' on physiological parameters of neonates. The result of present study showed that 'KMC' is effective in significantly raising & stabilizing the temperature of neonates and KMC is also effective in lowering & stabilizing the mean respiratory rate & mean heart rate of neonates. Findings further revealed that the KMC has no significant effect on mean oxygen saturation level of neonates which are partially consisted with the findings of the study conducted by Davanzo R[19] which shows the KMC resulted in increased skin temperature & higher mean oxygen saturation level but no effect on mean respiratory rate and mean heart rate of neonates.

SUMMARY OF THE FINDINGS

Majority of subject (99.33% were in birth weight between (1500-1600 gms)

The mean temperature, heart rate, respiratory rate & oxygen saturation level of neonates was significantly higher after the process of KMC.

SUMMARY

The present study aimed prilimarily to evaluate the effectiveness of KMC on the physiological parameters of neonates in selected hospital of Haryana and Punjab.

The objective of the study was:-

2. To evaluate the effect of KMC on physiological parameters (temperature, heart rate, respiratory rate, and oxygen saturation level) of neonates in control group and experimental group.

The study also attempt to examine the following hypothesis

H_1: The mean physiological parameters in neonates who were exposed to KMC in experimental group will be significantly higher than those who were not exposed to KMC in control group as evidence from the physiological parameters at 0.05 level of significance.

The conceptual framework adopted for study was based on system model. It provides a comprehensive systematic ongoing framework for KMC administered evaluation.

A review of related research and non research literature helped the investigator to develop tools. The literature further enabled investigator to develop a conceptual framework, methodology and decide to plan for analysis.

The research approach adopted for study was experimental, with pretest post-test control group design. The independent variable in the study was Kangaroo Mother Care and independent variable in the study was physiological parameters. The study was conducted in neonatal intensive care unit of Dr. Bharti Children Hospital Patiala, Punjab and M.M.I.M.S.R &H, Mullana, Ambala,Haryana.the simple random sampling method was adopted in selecting samples. The sample comprise of 60 neonates (experimental group=30, control group=30).

The tool developed and used for data collection were physiological parameters sheet. The physiological parameters have two record sheets 1. Record sheet of physiological parameters of neonates for experimental and control group. The physiological parameters were (temperature, heart rate, respiratory rate, and oxygen saturation level)

Temperature was monitored through digital thermometer. And heart rate, respiratory rate, and oxygen saturation level was monitored through cardiac monitor.

The content validity of the toots was established by 8 experts from the field of pediatric nursing., obstetric and gynaecological nursing, community health nursing and neotology. The try out was conducted on ten neonates to test the reliability of tools. The reliability

coefficient for assessing heart rate, respiratory rate & oxygen saturation level on cardiac monitor was calculated using simple Kappa formula which was found to be 1.
Pilot study was conducted from 18-12-2011-31-12-2011 in Rajindra Hospital Patiala, Punjab, on 10 neonates to check the feasibility of study.
The data was collected in the month of December 2010 to February 2010 from 30 neonates. The observation of temperature, heart rate,respiratory rate & oxygen saturation level were made before and after administration of KMC in experimental group & before &after in control group. The data were analyzed and interpreted in terms of research hypothesis. Descriptive and inferential statistics were utilized for data analysis.

FINDINGS

Majority of subject (99.33%) were in birth weight between (1500-1600 gms)

The mean temperature, heart rate, respiratory rate & oxygen saturation level of neonates was significantly higher after the process of KMC.

The mean differences between experimental and control group is very different, the mean difference in experimental group is high than post mean difference it shows that there is significant effect of KMC on the physiological parameters of neonates.
The f value of temperature 19.56^{*} in experimental group is higher than the f ratio of temperature 1.92NS in control group .

CONCLUSIONS
The following conclusions can be drawn from the study:

- The Kangaroo Mother Care was effective in significantly raising and stabilizing the temperature of neonates.
- The Kangaroo Mother Care was effective in significantly lowering and stabilizing the respiratory rate and heart rate of neonates.

IMPLICATIONS

- Several implications derived based on the findings of the study for nursing practice, nursing administration, nursing education and community health nursing.

Implications for Nursing practice

- The incidence of preterm infants is still high in developed as well as developing countries .Although the advancement in technology has taken place , but the quality of life for these neonates despite survival still remains a big issue to be confronted.

- Neonatal nurses are the main health care personnel who spend most of the time with preterm neonates admitted in the peadiatric wards and NICU. The vast majority of

harmful effects of WARDS &NICU environment can be prevented by using appropriate nursing measures

Implications for Nursing Administration

A continuing education department in the hospital should be established to conduct regular in-service education programmes to nurses to update their knowledge and skill regarding the procedure of Kangaroo Mother care

The Nurses administrators are in a key position to prepare policies and protocols to provide quality care. They should develop policy and protocol for wards &NICU about the use of KMC(Kangaroo Mother care.) The protocol must be comprehensive and should include the indications for KMC articles required for KMC (Kangaroo Mother Care) steps of procedure and contraindications for KMC Kangaroo Mother care

- The nursing administrator must equip the NICU with the provision of equipment and facilities for performing Kangaroo Mother Care to Neonates.

Implications For Community Health Nursing

- The community health nurse is in the most advantageous position to identify preterm infants. she should be well equipped with advanced knowledge and skill in care
- In India, preterm neonate is often sent home with parents if neonate is stable. So there should be a link between hospital and community health nursing agencies to follow up the preterm infants after discharge from the NICU
- Hence community health nurse should be sensitive to this concept , be well equipped with the current evidence based practice regarding the Kangaroo Mother Care till they reach the full term and she should also teach and encourage the parents to provide 'nesting' to their preterm infants.
- Community health nurses should evaluate the long term outcomes in terms of physical , mental and psychosocial development of preterm infants
- Hence they should be given the opportunity to learn this new concept and incorporate into practice by means of workshops, seminars, in-service education programmes.

Implications for Nursing Education

- Although neonatal nursing content and experience is incorporated into the pediatric nursing and midwifery nursing curriculum of the basic nursing programme, yet there is need to emphasize on developing a knowledge and skill regarding the various evidence based practices like Kangaroo Mother Care

- Analysis of the syllabi of different nursing programmes reflects that although neonatal nursing content and experience are incorporated in bsic and post basic nursing programmes. But there is need to inculcate the evidence based practices like Kangaroo Mother Care.
- The students should not be just make aware in these evidence based practices theoretically.
- They must be provided with learning experience of these practices in clinical areas as well as community setting and the effect of these practices should be shown to students so that they must develop a positive attitude towards adoption of evidence based practices in their professional life.
- There must be adequate guidance , supervision and evaluation of nursing students to ensure the proper implementation of Kangaroo Mother Care to neonates.

Recommendations

- The study can be replicated on a larger sample of preterm infants for the generalizations of the findings.
- A similar study can be done with an experimental research approach .
- A study can be done to compare the effect of kangaroo mother care and incubator on preterm infants.
- A study can be done to assess the effect of 'nesting' along with other components of developmentally supportive care.

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SUMMARY OF THE CHAPTER

This chapter dealt with the analysis & interpretation of data collected to assess & evaluate the effect of KMC on physiological parameters of neonates. Descriptive & inferential statistical were used to analyze the data. The analyzed data was interpreted and presented in the form of table, bar graphs.

The KMC was found to be effective in stabilizing the physiological parameters of neonates.