

THE EFFECT OF BIRTH KANGAROO CARE ON MATERNAL AND NEONATAL OUTCOME: A RANDOMIZED, CONTROLLED TRIAL

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Abstract

The study was conducted in Dr. D. Y. Patil hospital and Jijamata Hospital on 60 selected postnatal mothers and newborn. Randomization was accomplished by using a table of random numbers. The generator of the study was a different person than executor of group assignment. Mothers were blind to each other's group assignments, because they spent all delivery stages time in separate delivery rooms. The group was divided in 30 experimental and 30 control group. Investigator had prepared Observation Checklist for assessing maternal and neonatal outcome.

On analysis finding showed that Birth Kangaroo Care (BKC) help mother for better outcome in experimental group in terms of height of uterus, hardness of uterus pain after BKC. Finding also shows that BKC improves neonatal outcome in experimental group all samples slept well, they had flexed arm and flexed legs, and had normal temperature. Most of neonates initiation of Breast Feed was

achieved within 1hr and five neonates showed breast crawl. Whereas in control group there not much changes were observed.

Introduction:

Human newborns, even at full term, are extremely immature. Thus, newborns need a habitat where they can thrive and grow. Similar to the marsupials, which keep their infants in a pouch for sometime after birth, the habitat for human newborns is skin-to-skin on their mother's chest. In this position newborns have easy access to food, remain warm, and the newborns' actions initiate maternal care taking responses. However, the current paradigm of care separates infants and their mothers at birth and during the early postpartum period. Parents loved Kangaroo Care; they felt excitement and happiness, were no longer afraid of their infant's small size and fragility, and demonstrated a range of behaviors, such as looking at, talking to and touching their infants *Anderson, 1991; Hosseini, Hashemi, & Lundington-Hoe, 1992.*

The study was done on effect birth kangaroo care on neurobehavioral responses of the term newborn. The method of skin-to-skin contact (kangaroo care [KC]) has shown physiologic, cognitive, and emotional gains for preterm infants; however, KC has not been studied adequately in term newborns. The Study Design was a randomized, controlled trial using a table of random numbers. After consent, the mothers were assigned to 1 of 2 groups: KC shortly after delivery or a no-treatment standard care (control group). The samples were included were 47 healthy mother-infant pairs. KC began at 15 to 20 minutes after delivery and lasted for 1 hour. Control infants and KC infants were brought to the nursery 15 to 20 and 75 to 80 minutes after birth, respectively. The result was during a 1-hour-long observation, starting at 4 hours postnatally, the KC infants slept longer, were mostly in a quiet sleep state, exhibited more flexor movements and postures, and showed less extensor movements. The conclusions was *KC* seems to influence state organization and motor system modulation of the newborn infant shortly after delivery. *Sari Goldstein Feber 2004*



Self-regulation the index for differences in the level of the neurobehavioral organization in newborns is expressed in the observable strategies the infant appears to use. This is aimed to maintain a balanced, relatively effective equilibrium of subsystem integration; otherwise, the infant persists in more labile

subsystem imbalance and fluctuation that is considered more costly both autonomically and interactively. The term “self-regulation” is widely used to identify infant adaptation to various internal and external stimuli and to unstable situations. The development of infant self-regulation involves the regulation of physiologic systems, information processes, and the formation of attachment bonds and ultimately determines how the infant responds cognitively and social-affectively to the environment. Self-regulation develops in the newborn within the womb and throughout the birth process, and it is especially challenged during the first hours and days after delivery. *Sari Goldstein Feber 2004*

The study done on ‘To determine whether breastfeeding behaviors, skin temperature, and blood glucose values could be influenced through the use of kangaroo care at the time of birth in healthy full term infants. Infant skin temperature was taken at 1 and 5 minutes after birth and every 15 minutes thereafter. Blood glucose level was taken 60 minutes after birth, the time at which the infant latched onto the breast was recorded, and breastfeeding behaviors were observed during the first breastfeeding. The result of study was skin temperature rose during birth kangaroo care in eight of the nine infants, and temperature remained within neutral thermal zone for all infants. Blood glucose levels varied between 43 and 85 mg/dl for infants who had not already fed and between 43 and 118 mg/dl for those who had fed. All but one infant spontaneously

crawled to and latched onto a breast by 74 minutes after birth. Physicians noted that mothers were distracted from episiotomy or laceration repair discomfort during birth kangaroo care. *Waltres Mary 2007*.

The above studies shows that birth kangaroo care will neonate in adjusting extra uterine environment. Hence, the investigator felt the need to take up this study.

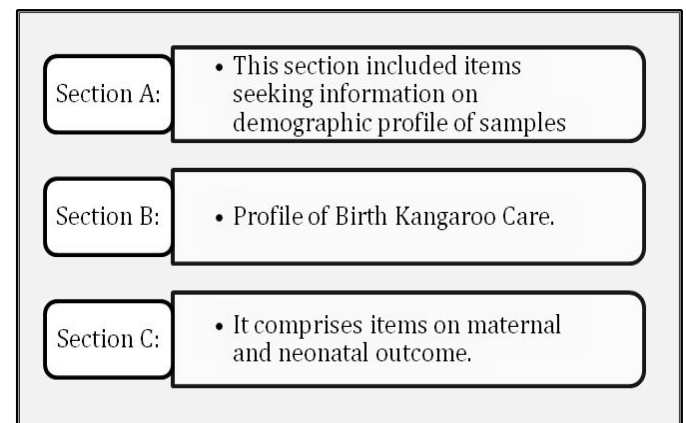
Objectives of the study

1. To execute Birth Kangaroo Care.
2. To assess the effect of BKC on Maternal outcome & Neonatal Outcome in experimental group.
3. To assess the post observation of Maternal outcome & Neonatal Outcome in control group.

Material and Methods:

The researcher has adopted quasi-experimental post test, two group research design. The independent variable is Birth Kangaroo Care and the dependent variable is Maternal and Neonatal outcome. The null Hypothesis of the study was there will be no statistically significant effect of BKC on Maternal and Neonatal Outcome. The settings for this study are the selected hospitals Pimpri, Pune city. Those include Bhosari hospital for pilot study, and Dr. D. Y. Patil hospital and Jijamata hospital for actual study. The researcher took the samples from these selected hospitals. In this study samples are healthy mother-neonate pair delivered in selected hospitals of PCMC, Pune city.

The sample size selected for this study was 60. Sample size of 30 mother-infant pair is sufficient to show a significant effect of the intervention with a power of 80% and 5% risk of type1 error. This calculation was based on the effect size found in temperature regulation between term infants held in KC post birth. Investigator opted to increase the sample size to 60 by taking into consideration a possible refusal rate, exclusion of subjects due to cases of developing fetal distress. The researcher prepared observation checklist as the tool for study. The observation checklist included three sections. The observation checklist included three sections:-



Demographic profile of sample

Gender of the baby,
 Mother's age,
 Education,
 Occupation,
 Types of family,
 Economical status,
 Gravity,
 Parity,
 Gestational age,
 APGAR score,
 Birth weight.

Items on maternal and neonatal outcome

Height of Uterus, Hardness of uterus, Amount of Bleeding, Pain.

Temperature, Sleep State, Crying, Position, Initiation of Breast Feeding.

The *content validity* of the tool was done.

The *reliability* was done by *test- retest method*.

The reliability coefficient (r_{11}) was calculated and the score is equal to 0.89.

A formal permission was obtained from authorities of selected hospitals Pimpri, Pune. Actual data collection was done on 60 postnatal mothers and neonates meeting the criteria for the study and gave consent.

Results of the study:

Demographic Data

In experimental group, most of the neonates were male 18(60%). The most of mothers 14(47%) were in the age group 22 - 24 yrs.

Majority of the mothers (50%) were below 10th std and very few 2(7%) were graduate.

In the samples 2(7%) were working.

Most of the samples 17(57%) were having monthly income in Rs. 5,001 - 10,000.

Most of the mothers were multipara 17(57%).

Most of mothers 21 (70%) complemented Gestational weeks 37- 38wks.

The maximum 22 (73%) mothers had 1-4hrs labour period.

Most of 27 (91%) neonates' weight was 2.5 - 3kg.

In control group most of the samples had same demographic variations.

Table: Description of maternal outcome in relation of hardness of uterus and number of pads used.

Sr. No.	Maternal Outcome	Experimental		Control	
		1hr	2hr	1hr	2hrs
1	Hardness of Uterus				
1.1	Soft	3	0	28	3
1.2	Hard	27	30	2	27
2	Number of Pads	1day	2day	1day	2day
2.1	2	0	3	0	0
2.2	3	5	24	0	23
2.3	4	22	3	23	7
2.4	5	3	0	7	0

Above Table shows that in experimental group most of samples (27) hardness of uterus after 1hr was hard, after 2hrs all 30 samples had hard uterus. But in control group most of samples (28) had soft uterus after 1hr and after 2hrs most of them (27) had hard uterus. Most number of Pads used in experimental group after one day 4 and after 2 days 3.

Whereas there not much change in control group.

Table showing Description of neonatal outcome in relation with Sleep state, Crying, Position and initiation of breast feed.

Sr. No.	Fetal Outcome	Experimental				Control			
		1hr		2 hrs		1hr		2hrs	
1	Sleep State								
1.1	Slept Well	30	30	30	30	30	30	2	2
1.2	Drowsy	0	0	0	0	0	0	24	24
1.3	Didn't Sleep	0	0	0	0	0	0	6	6
2	Crying	30 min	1 hr	1.30 min	2 hrs	30 min	1 hr	1.30 min	2 hrs
2.1	Didn't Cry	30	30	30	30	0	0	8	27
2.2	Cried more than 5min	0	0	0	0	30	30	22	3
3	Position	1 hr		2 hrs		1hr		2 hrs	
3.1	Extended arm & Flexed legs	0		0		30		1	
3.2	Flexed arm & Flexed legs	30		30		0		29	
4	Initiation of Breast Feed	30 min	1 hr	1.30 min	2 hrs	30 min	1 hr	1.30 min	2 hrs
4.1	Initiated	5	22	3	0	0	0	6	22

Above Table shows that Sleep state all 30 samples slept well after one hr & also after 2hrs, but in control group 30 (100%) did not sleep after one hr and most of neonates (22)

were drowsy. In experimental group all 30 neonates did not cry after 30min, 1hr, 1.30min, 2hrs and in control group all 30 cried after 30min, 1hr, 22 neonates cried after 1.30min, after 2hrs 27 neonates did not cry. In experimental group 30 neonates had Flexed arm and Flexed legs after 1hr, 2hr. Whereas in control group 30 neonates had Flexed arm and extended legs after 1hr and after 2hrs only 1 had Flexed arm and Flexed legs position. In experimental group most of neonates (22) initiation of Breast Feed was achieved within 1hr and five neonates showed breast crawl. However, in control group most of neonates initiation of Breast Feed was after 2hrs and two neonates initiation of Breast Feed was after 2.30min.

Conclusion:

This study finding showed that BKC is helpful in improving neonatal outcome in relation with thermoregulation, sleep pattern, cry and initiation of breastfeeding. This study finding also showed that BKC is helpful in improving maternal outcome in relation with uterine involution, bleeding and pain level.

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