

Original Research

Assessment of effect of Kangaroo Mother Care on neonatal outcome

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ABSTRACT

Background: Premature newborns from all over the world spend the first few weeks of their lives in the neonatal intensive care unit (NICU), where they endure numerous intrusive treatments and an unnatural atmosphere. The present study was conducted to assess effect of Kangaroo Mother Care (KMC) on neonatal outcome.

Materials & Methods: 70 preterm neonates with gestational age between 28 - 37 weeks and hypotrophic newborns with a birth weight < 10th percentile for gestational age were selected. Socio-demographic characteristics of mothers, and characteristics of newborns were recorded.

Results: Out of 70 neonates, 42 were male and 28 females. Marital status was married in 54 and single in 16. Level of education was primary in 45, secondary in 17 and graduate in 8. Parity was primiparous in 32, pauciparous in 31 and multiparous in 7 cases. Number of newborns were unique in 65, and twins in 5. The difference was significant ($P < 0.05$). Delivery was caesarean section in 18 and through lower track in 52 cases. Outcome was stop of tracking in 14, follow-up to 24 months in 36, lost to follow-up in 11, abandonment of care in 2, deaths in 2 and ongoing monitoring in 5 cases.

Conclusion: An alternate strategy for increasing the survival of preterm and underweight babies is the mother-kangaroo approach.

Key words: Kangaroo mother care, neonatal intensive care unit, caesarean section

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Introduction

Premature newborns from all over the world spend the first few weeks of their lives in the neonatal intensive care unit (NICU), where they endure numerous intrusive treatments and an unnatural atmosphere.¹

Kangaroo Mother Care (KMC), originally defined as skin-to-skin contact between mother and newborn, frequent exclusive or almost exclusive breastfeeding, and early discharge, has been proposed as an alternative to traditional interventions of care for low birthweight (LBW) infants^{2, 3} and is a multifaceted intervention for LBW infants, preterm infants and their parents⁴. In the early 1970s, researchers studied the impact of extra contact between mothers and babies in the early stages of life. This entailed skin-to-skin contact with the mother's bare chest as quickly as possible after birth⁵. This became known as "Kangaroo Care" (KC)⁵. KC, is known as KMC or skin-to-skin contact⁵. As a human-centered care intervention⁶, KMC is effective in improving the survival of LBW and premature infants⁷, whether KMC is initiated after the LBW infant's vital signs (34038632) are stabilized or is received prior to stabilization^{3,7}. WHO has recommended that health

facilities use KMC for LBW infants for more than a decade, and some studies have shown that in low- and middle-income countries, KMC for all LBW infants, regardless of birthplace, can significantly reduce neonatal mortality^{8,9}. In addition, Chorpak et al. found that KMC still had significant, enduring social and behavioral protective effects 20 years after the intervention, indicating that KMC was effective in promoting neurological development in newborn⁴. KMC has many benefits not only for the newborns, but also for the mothers. In low- and middle-income countries, approximately 1 in 5 women experience postpartum depression, and mothers of LBW infants are at higher risk¹⁰. Through a randomized clinical trial, Sinha et al. discovered that KMC significantly reduced the risk of moderate to severe depressive symptoms in the postpartum period¹⁰. Based on this, this study attempted to evaluate the benefits of KMC systematically and intuitively from the effectiveness of KMC on the clinical outcomes (mortality, hospital stay, sepsis, hypothermia and exclusive breastfeeding) of LBW and preterm infants in the first 28 days, aiming to make it more widely used in clinical practice.

The crucial time for brain development and maturation is during the newborn period.¹¹ Because of their underdeveloped cerebral vasculature and poor cerebral autoregulation, which cause a noticeable variation in cerebral blood flow, preterm infants are particularly vulnerable to brain injury.¹² There are long-term negative neurodevelopmental issues in the cognitive, motor, and behavioral domains as a result of cerebrovascular events such as intraventricular hemorrhage and ischemia injury to periventricular white matter.¹³

The technique known as "kangaroo mother care" (KMC) involves holding a little newborn in a diaper prone upright on the mother's bosom, skin-to-skin contact. KMC encourages a number of positive health outcomes for both mother and child, such as increased breastfeeding, weight gain, and mother-child bonding, as well as a reduction in morbidity and mortality.¹⁴ The kangaroo method is mainly used for newborns with a birth weight of less than 2000 grams

and for premature babies. It helps the premature child to integrate more quickly into his family, with social, psycho-emotional and economic benefits.¹⁵ The present study was conducted to assess effect of Kangaroo Mother Care (KMC) on neonatal outcome.

Materials & Methods

The present study comprised of 70 pretermneonates with gestational age between 28 - 37 weeks and hypotrophic newborns with a birth weight < 10th percentile for gestational age admitted to the neonatal intensive care unit of both genders. Parents gave their written consent to participate in the study.

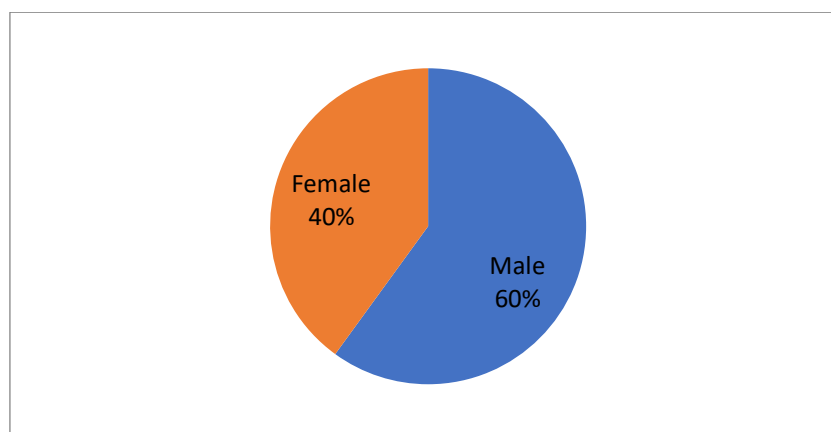
Socio-demographic characteristics of mothers, and characteristics of newborns were recorded.

Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table: I Distribution of patients

Total- 70		
Gender	Male	Female
Number	42(60%)	28(40%)



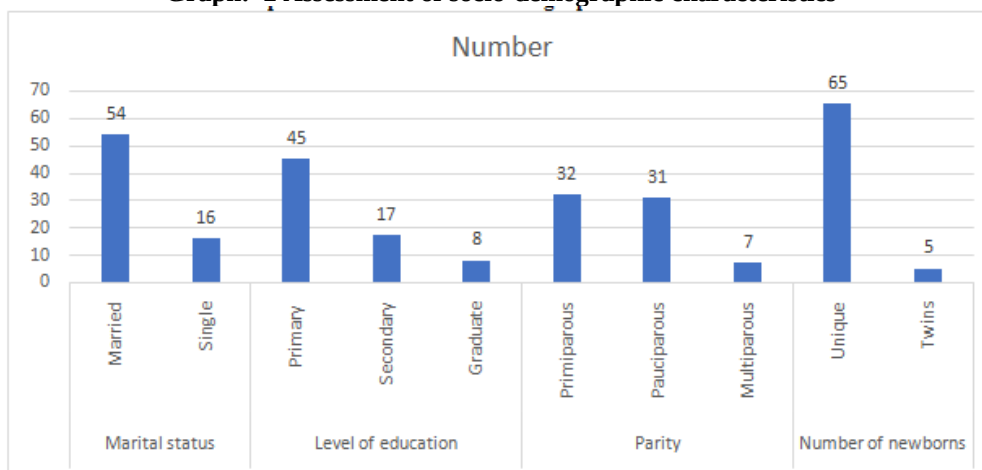
Graph-1-Gender Distribution

Table I and Graph 1 shows that out of 70 neonates, 42 were male and 28 females.

Table: II Assessment of socio-demographic characteristics

Parameters	Variables	Number	P value
Marital status	Married	54	0.01
	Single	16	
Level of education	Primary	45	0.02
	Secondary	17	
	Graduate	8	
Parity	Primiparous	32	0.36
	Pauciparous	31	
	Multiparous	7	
Number of newborns	Unique	65	0.01
	Twins	5	

Table II, graph 2 shows that marital status was married in 54 and single in 16. Level of education was primary in 45, secondary in 17 and graduate in 8. Parity was primiparous in 32, pauciparous in 31 and multiparous in 7 cases. Number of newborns were unique in 65, and twins in 5. The difference was significant ($P < 0.05$).

Graph: 2 Assessment of socio-demographic characteristics**Table: III Characteristics of newborns**

Parameters	Variables	Number	P value
Delivery	Caesarean section	18	0.01
	Lower track	52	
Outcome	Stop of tracking	14	0.02
	Follow-up to 24 months	36	
	Lost to follow-up	11	
	Abandonment of care	2	
	Deaths	2	
	Ongoing monitoring	5	

Table III shows that delivery was caesarean section in 18 and through lower track in 52 cases. Outcome was stop of tracking in 14, follow-up to 24 months in 36, lost to follow-up in 11, abandonment of care in 2, deaths in 2 and ongoing monitoring in 5 cases. The difference was significant ($P < 0.05$).

Discussion

In developing countries, around 21% of infant mortality is caused by perinatal conditions.¹⁶ Most of the causes of neonatal death can be prevented or treated through simple, effective and low-cost intervention, at home or in the community^{17,18}. Premature infants in the intensive care environment are exposed to an abnormal environment, repeated invasive procedures and prolonged illness.¹⁹ The present study was conducted to assess effect of Kangaroo Mother Care (KMC) on neonatal outcome. We found that out of 70 neonates, 42 were male and 28 females. Traoré, F et al²⁰ evaluated the epidemiological and therapeutic profile of premature/hypotrophic newborns. One thousand and eighty-four patients ($n = 1084$) were included. The sex ratio was 1.2 ($F = 592$; $M = 492$). The mean birth weight was 1300 g (600 g - 2000 g). The mean gestational age was 32.69 (28 - 37). The mean age of the mothers was 24 years (13 - 45 years). Single pregnancies accounted for 85.1%. Discontinuation of care was 56%. Follow-up to 24 months was effective in 14% of patients. Sixteen percent of the patients died ($n = 176$). The mothers' lack of schooling ($p =$

0.03) and birth weight < 1000 g ($p = 0.003$) were the major factors in the patients' mortality.

We found that marital status was married in 54 and single in 16. Level of education was primary in 45, secondary in 17 and graduate in 8. Parity was primiparous in 32, pauciparous in 31 and multiparous in 7 cases. Number of newborns were unique in 65, and twins in 5. We found that delivery was caesarean section in 18 and through lower track in 52 cases. Outcome was stop of tracking in 14, follow-up to 24 months in 36, lost to follow-up in 11, abandonment of care in 2, deaths in 2 and ongoing monitoring in 5 cases. Azeez et al²¹ assessed the effect of kangaroo mother care on the newborns' health outcome. One hundred newborn-mother pairs participated in the Kangaroo mother care procedure. The newborns were physiologically monitored before, in the middle and after the procedure. The highest mean of newborn temperature was 37°C after Kangaroo mother care in the visit three and the lowest mean temperature was 36.1°C before Kangaroo mother care. There were statistically significant differences between the before, middle and after-procedure measurements in temperature, heart rate and respiratory rate on all three visits, while there was no significant difference between the means of the oxygen saturation at all three visits. There was a highly significant association between oxygen saturation and newborn birth weight and gestational age. Individual vital signs abnormalities were often corrected during the Kangaroo mother care sessions. Newborns involved in

the procedure showed steady and statistically significant improvement in vital physiological parameters during three sessions on all three days. KMC was beneficial to the clinical outcomes (mortality, hospital stay, sepsis, hypothermia and exclusive breastfeeding) of LBW and premature infants in the first 28 days. Studies have shown that premature birth was the leading cause for morbidity and mortality in children under five years of age²², and there were approximately 1 million children died of the complications of premature birth such as hypothermia each year²³. Hospital-based KMC could save the lives of LBW and premature infants²⁵. Salim et al. showed that KMC could reduce the mortality of newborns in the stable period²⁴ especially in sanitary environments with limited resources²⁵. KMC has been recommended by the World Health Organization for the care of LBW infants whose weight was 2,000 g or less²⁶. However, KMC has not been integrated into health systems worldwide²⁷, and the implementation of this method has been restricted²⁸. Further research found that medical care, time, social support, and family acceptance were the obstacles to the application of KMC²⁹.

Conclusion

Authors found that an alternate strategy for increasing the survival of preterm and underweight babies is the mother-kangaroo approach. Therefore, this study attempted to evaluate the benefits of KMC systematically and intuitively centering around LBW and preterm infants to make it more widely applied in clinical practice.

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