

Survival of Premature Babies with the Revolutionary Kangaroo Mother Care Technique at a Tertiary Care Center, Sindh, Pakistan

BAKHTIAR AHMED BHAMBRHO¹, NISAR AHMED SHAR², AMJAD ALI MUGHAL³, FARUKH IMTIAZ⁴, PARDEEP KUMAR⁵, RABIA PARVEEN⁶

¹Associate Professor Pediatric Pir Abdul Qadir Shah Jeelani Institute of Medical Sciences Gambat Khairpur Mirs Sindh

²Associate Professor (Bioinformatics) Department of Biomedical Engineering, NED University (L.E.J. Campus) Karachi

³Senior Technologist Microbiology Institute of Microbiology, Shah Abdul Latif University, Khairpur Sindh Pakistan

⁴Assistant professor Community Medicine Khairpur Medical college, Khairpur Mirs

⁵Assistant Prof Paediatric Pir Abdul Qadir Shah Jeelani Institute of Medical Sciences Gambat Khairpur Mirs Sindh

⁶Gynae Unit-III civil hospital karachi

Corresponding author: Amjad Ali Mughal, Email: amjad.mughal@salu.edu.pk

ABSTRACT

Background: Kangaroo mother care (KMC) is a resource-limited method for low-birth-weight babies that seeks to mitigate mortality rates by thermoregulation, breastfeeding assistance, and early hospital discharge.

Methods: This study was carried out at GIMS hospital Khairpur Kangaroo Mother Care Unit at PAQSJIMS between August 2019 to September 2020. A total of hundred mothers and their infants were enrolled in the study. A non-probability convenience sampling technique was employed. A Questionnaire filled with the permission of admitted mother and primary data collected as per proforma i.e. date of admission, mother name, address, age, parity, gravida, date of delivery, place of delivery, Type of delivery, gestation at birth (weeks), birth weight, gender, Date of KMS admission, weight at KMC, discharge date of KMC, weight of Discharge KMC, status at the time of discharge and cause of death (if any). All mothers used KMC kits and the infant weight at admission and discharge were documented.

Results: The average age (Figure 1) of mothers was recorded as 31.69 (20-40 years). The babies weight at the time of KMC unit admission was recorded as 0.7 – 1.8 grams and after 3-4 weeks admission the babies survived and gained weight recorded at time of discharge was 0.8 to 2.2 grams which showed that all mothers used kits properly, and all babies survived.

Conclusions: All mothers were pleased to operate KMC kits. KMC is a very innovative technique to save the lives of premature newborns. This therapy emphasizes mothers for continuous skin-to-skin touch with infants, as well as wrapping the child in a warm blanket. The availability of space facilities and capacity building for health workers are therefore the fundamental requirements that must be funded by international aid agencies in order to scale up the initiative in these environments.

Keywords: Neonatal survival, KMC, care, breastfeeding.

INTRODUCTION

Pakistan keeps on having one of the most astounding maternal, neonatal and kid death rates on the planet¹. In spite of the perceptible advancement in enhancing youngster survival in the previous decade, infant mortality keeps on slacking considerably. In Pakistan, 46 babies for every 1,000 live beyond words in the first 28 days of their lives². While 16 percent of the all out children conceived in the nation have preterm births, 32 percent are brought into the world with low birth weight, which contribute as the main sources of passings among babies^{3,4,5}. Rashness and low birth weight can likewise prompt handicap and sick wellbeing sometime down the road⁶.

Kangaroo Maternal Care (KMC) is a skin-to-skin touch technique that involves placing a preterm/low birth weight (LBW) newborn infant vertically between the mother's bosoms to provide closeness between the baby and the mother^{7,8}. It has proven to be effective in meeting an infant's needs for food, breastfeeding, pollution protection, incitement, wellbeing, and affection^{9,10,11}.

Despite the fact that, for quite a long time, ladies of numerous societies have conveyed babies. In 1984, neonatologists Edgar Rey and Hector Martinez¹² rediscovered KMC against their bosoms in Bogota, Columbia.¹² They obtained KMC for preterm and LBW

babies who were relatively stable and only needed bolstering and development due to hatcheries' inaccessibility. KMC is now well-connected in a number of developed and low-wage countries, including North America, the United Kingdom, Ethiopia, Indonesia, Madagascar, the Netherlands, Vietnam, and South Africa^{13,14}. They practice this notwithstanding or rather than ordinary strategies for LBW baby care. The World Wellbeing Association has as of late distributed viable rules for KMC¹⁵.

Paqsjims: was a Dispensary of only OPD services from 1934 to 1980. The Dispensary was renamed Taluka Hospital in 1980. In 1997, Taluka Head Quarter (THQ) was designated as a MODEL TALUKA HOSPITAL by MSU World Bank, thanks to the efforts and dedication of Dr. Rahim Bux Bhatti, Medical Superintendent.

Gambat THQ was upgraded to PIR ABDUL QADIR SHAH JEELANI INSTITUTE OF MEDICAL SCIENCES on September 10, 2003, and came under the administrative jurisdiction of Sindh Province. The project to improve PAQSJIMS and establish a Medical College was approved in 2005.

Kangaroo Mother Care Unit at PAQSJIMS: In 2017 with the collaboration of USAID they established a specialized KMC unit at GIMS Hospital as the first KMC facility.

METHODS AND MATERIALS

This study was carried out at GIMS hospital Khairpur Kangaroo Mother Care Unit at PAQSJIMS between August 2019 to September 2020. A total of hundred mothers and their infants were enrolled in the study. A non-probability convenience sampling technique was employed.

A Questionnaire filled with the permission of admitted mother and primary data collected as per proforma i.e. date of admission, mother name, address, age, parity, grvida, date of delivery, place of delivery, Type of delivery, gestation at birth (weeks), birth weight, gender, Date of KMS admission, weight at KMC, discharge date of KMC, weight of Discharge KMC, status at the time of discharge and cause of death (if any). All parameters are filled carefully and data entry in the computer for further study.

Pretty much every LBW child can be thought about with KMC when they are medicinally steady¹⁶. It tends to be polished consistently or irregularly. Short sessions can start at first in the recuperation time frame and bit by bit advancement to ceaseless consideration when the child is increasingly steady. Non-occupant moms should rehearse KMC for at any rate 30 minutes for the newborn child to profit completely^{17,18}.

KMC does not require extraordinary hardware or offices. Infant, wearing a nappy, is set up standing against the mother's exposed chest, between her bosoms and inside her shirt (figure 1). Infant's head is swung to the side with the goal that the ear is at an indistinguishable dimension from the mother's heart¹⁹. Both mother and the infant ought to be shrouded in with cover in the event that it is cold.

Children can be bosom bolstered while in kangaroo care. In the event that a child is not developed enough to suck from bosom elective strategies, for example, tube encouraging, and container sustaining can be rehearsed in this position. Checking of temperature, breathing, and shading is imperative till KMC is entrenched and mother is sure.

The idea of KMC ought to be disclosed and shown to mothers. Staff at all dimensions of neonatal consideration ought to probably instruct guardians, help with nourishing and talk about any questions they may have. When the child is encouraged, keeping a stable body temperature in KMC position and putting on weight, mother and infant can return home. KMC at home is especially imperative in virus atmospheres.

RESULTS

During the current study, all mothers were admitted in the KMC special ward at PAQS JIMS. At the time of admission all medical checkups of mothers and children are done by specialist doctors. The KMC kits sponsored by UNICEF were provided to the mothers and properly trained to mothers how to wear and use the KMC kit. The average age (Figure 1) of mothers was recorded as 31.69% (20-40 years).

The babies weight (Figure 2) at the time of KMC unit admission was recorded as 0.7 – 1.8 grams and after 3-4 weeks admission the babies survived and gained weight and recorded at time of discharged was 0.8 to 2.2 grams (Figure 3) which showed that all mothers used kits proper, and all babies survived.

It is pointed out that all babies were alive at the time of discharge from the KMC special unit of Pir Abdul Qadir Shah Jeelani Institute of Medical Science Gambat.

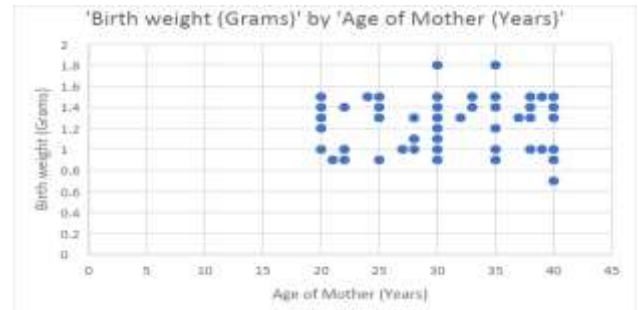


Figure 1. Infant Birth weight (in grams) with respect to the Age of Mother

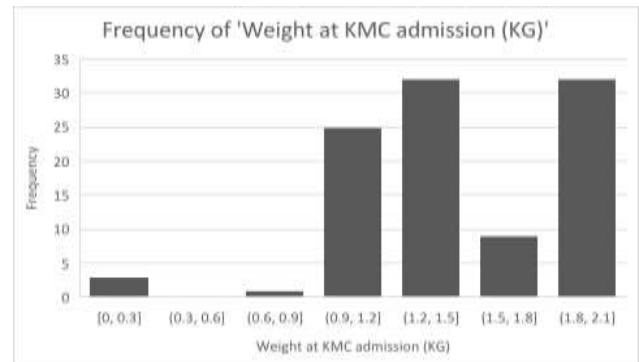


Figure 2. Distribution of Weight (in Kg) at Admission to the KMC

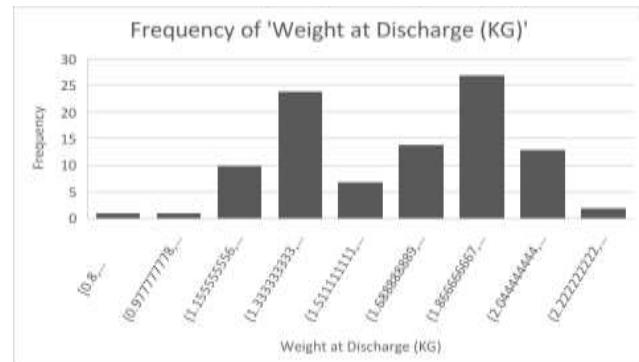


Figure 3. Distribution of Weight (in Kg) at Discharge

DISCUSSION

For premature newborns, KMC is a different solution. This therapy emphasises continuous skin-to-skin touch linking the mother and the infant, as well as wrapping the child in a warm blanket. This helps babies to begin regulating their own body temperature and warmth, as well as strengthening the mother-child relationship^{20,21}.

Methodologically sound studies are expected to comprehensively explore the efficacy of administering kangaroo mother care in low birth weight infants in resource-constrained areas. The techniques used to establish and cover allotment aggregation, the measures

used to dazzle result assessors to allotment of candidates, and the completeness of result data for each primary²².

Overall, continuous KMC resulted in a decrease in mortality as well as a reduction in nosocomial infection or sepsis, serious illness, and upper or lower respiratory tract diseases, a significant improvement in weight of the infant, maternal satisfaction with the healthcare provided, and certain indicators of bonding between the mother and the child.^{23,24} Fluctuant KMC, on the other hand, was linked to a lower likelihood of severe infections and drop in body temperature, and an improvement in weight, and size of the head circumference, and improved bonding between the child and the mother.

It is witnessed in many studies that KMC protects against a wide range of negative neonatal effects without any damage. This low-cost effective technique may eliminate many of the risks that come with preterm delivery as well as will benefit full-term babies. The accuracy of these results across research settings and baby demographics bolsters the case for KMC as the gold standard of newborn treatment. Still, there is a need to assess the optimal length and components of KMC in studies. Clinicians and politicians can play pivotal roles in implementation of the KMC model to reduce morbidity and mortality.

In pediatric medicine, KMC is used as a modern modality that needs separation between mother and the child. It should be noted that the supportive modalities such as incubator and other measures can be offered to the infant in conjunction with KMC thus producing better outcomes with respect to the infant mortality and morbidity. It is recommended that KMC should be provided as early as possible to avoid side effects from maternal separation.

Ensuring that obstructive apnea does not occur during KMC and the mother should also be able to get a full 8 hours of sleep in order for her to provide adequate dose, this requires keeping the airway safely open, and close containment to the mother's bare chest using a garment. Both mother and the father should provide skin to skin contact to the infant. Further large scale studies are required to ascertain and replicate the current findings.

CONCLUSION

All mothers were pleased to operate KMC kits. KMC is a very innovative technique to save the lives of premature newborns. This therapy emphasizes mothers for continuous skin-to-skin touch with infants, as well as wrapping the child in a warm blanket. This allows the babies to begin regulating their own body temperature and warmth, as well as strengthening the emotional connection between the mother and the child.

The availability of space facilities and capacity building for health workers are therefore the fundamental requirements that must be funded by international aid agencies in order to scale up the initiative in these environments.

Conflicts of Interest: None

Acknowledged: The authors are grateful and acknowledged UNICEF for providing KMS kits and Dr. Abdul Rahmeem Bhatti Director Pir Abdul Qadir Shah Jeelani Institute of Medical Science gambat.

REFERENCES

1. Bibi TA, Ahmad MU, Ahmadbaloch IF, Muhammad SH, Manzoor RA. 2017. Ethnomedicinal uses of plants for child birth and postpartum recovery in District Pishin, Northern Balochistan, Pakistan. *Int J Biol Pharm Allied Sci.* 6(9):1730-60.
2. Dol, J., Campbell-Yeo, M., Murphy, G.T., Aston, M., McMillan, D. and Richardson, B., 2018. The impact of the Helping Babies Survive program on neonatal outcomes and health provider skills: a systematic review. *JBHI Evidence Synthesis*, 16(3), pp.701-737.
3. Bansal, P., Garg, S. and Upadhyay, H.P., 2019. Prevalence of low birth weight babies and its association with socio-cultural and maternal risk factors among the institutional deliveries in Bharatpur, Nepal. *Asian Journal of Medical Sciences*, 10(1), pp.77-85.
4. Currie, J., Mueller-Smith, M. and Rossin-Slater, M., 2018. Violence while in utero: The impact of assaults during pregnancy on birth outcomes. *Review of Economics and Statistics*, pp.1-46.
5. Wang, X.L., Wang, J., Yuan, L., Shi, W.J., Cao, Y. and Chen, C., 2018. Trend and causes of neonatal mortality in a level III Children's Hospital in Shanghai: A 15-year retrospective study. *World journal of pediatrics*, 14(1), pp.44-51.
6. Noushad, M.A., 2018. Adherence and Treatment Outcomes among Patients of Depression with Co-Morbidity from Kandahar, Afghanistan.
7. Gakuna, M.N., 2017. Experiences of Parents on Kangaroo Mother Care in the Neonatal Clinic at Kenyatta National Hospital (Doctoral dissertation, University of Nairobi).
8. Katide, G., 2019. An exploration of the psycho-social experience of mothers who gave birth prematurely in a low socio-economic context in North West (Doctoral dissertation, North-West University (South-Africa)).
9. Joseph, J., Liamputtong, P. and Brodribb, W., 2020. From liminality to vitality: infant feeding beliefs among refugee mothers from Vietnam and Myanmar. *Qualitative health research*, 30(8), pp.1171-1182.
10. Dettwyler, K.A., 2017. Beauty and the breast: The cultural context of breastfeeding in the United States. In *Breastfeeding* (pp. 167-216). Routledge.
11. Foster, W.G., Evans, J.A., Little, J., Arbour, L., Moore, A., Sauve, R., Andrés León, J. and Luo, W., 2017. Human exposure to environmental contaminants and congenital anomalies: a critical review. *Critical reviews in toxicology*, 47(1), pp.59-84.
12. Swade, T., 2020. *The Touch Taboo in Psychotherapy and Everyday Life*. Routledge.
13. Uwaezuoke, S.N., 2017. Kangaroo mother care in resource-limited settings: implementation, health benefits, and cost-effectiveness. *Research and Reports in Neonatology*, 7, pp.11-18.
14. Chan, G.J., Labar, A.S., Wall, S. and Atun, R., 2016. Kangaroo mother care: a systematic review of barriers and enablers. *Bulletin of the World Health Organization*, 94(2), p.130.
15. Ani-Amponsah, M., 2016. Experiences of midwives who are faced with newborns affected by birth asphyxia in rural birth settings, southern Ghana.
16. Weaver, I.C., 2011. Epigenetic programming of stress responses and trans-generational inheritance through natural variations in maternal care. In *Genomics, Proteomics, and the Nervous System* (pp. 87-112). Springer, New York, NY.
17. Kain, V. and Mannix, T., 2018. *Neonatal Nursing in Australia and New Zealand: Principles for Practice*. Elsevier Health Sciences.
18. Donovan, R.J., 2000. *Boxing the Kangaroo: A Reporter's Memoir*. University of Missouri Press.
19. Van Blarcom, C.C., 2019. *Obstetrical Nursing: A Text-book on the Nursing Care of the Expectant Mother, the Woman in Labor, the Young Mother and Her Baby*. Good Press.
20. Moore, E.R., Bergman, N., Anderson, G.C. and Medley, N., 2016. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane database of systematic Reviews*, (11).
21. Conde-Agudelo, A. and Díaz-Rossello, J.L., 2016. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane database of systematic reviews*, (8).
22. Acharya, N., Singh, R.R., Bhatta, N.K. and Poudel, P., 2014. Randomized control trial of kangaroo mother care in low birth weight babies at a tertiary level hospital. *Journal of Nepal Paediatric Society*, 34(1), pp.18-23.
23. Charpak, N., Ruiz-Peláez, J.G. and Charpak, Y., 2001. A randomized, controlled trial of kangaroo mother care: results of follow-up at 1 year of corrected age. *Pediatrics*, 108(5), pp.1072-1079.
24. Tessier, R., Cristo, M., Velez, S., Girón, M., de Calume, Z.F., Ruiz-Paláez, J.G., Charpak, Y. and Charpak, N., 1998. Kangaroo mother care and the bonding hypothesis. *Pediatrics*, 102(2), pp.e17-e17.