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Review Article

Effectiveness of Kangaroo Mother Care on Neonatal Outcomes: A Systematic Review

Pinki Das[1], Salina Khan[2], Ritu Makhija[3], Varsha Singh[4], Mukesh Kumar Bagriya[5]

[1]Associate Professor, Department: Nursing, School of Nursing Science & Researcher, Sharda University
[2]Tutor/Clinical Instructor, M.Sc. Nursing (Child Health Nursing), College of Nursing AIIMS Patna
[3]Associate Professor, Department: Nursing, School of Nursing Science & Researcher, Sharda University, Uttar Pradesh
[4]Senior Tutor, Sharda School of Nursing Science and Research, Sharda University, Uttar Pradesh
[5]Professor, Child Health Nursing, Rajasthan College of Nursing, Sikar, Rajasthan

Corresponding Author:
Pinki Das, Associate Professor, Department: Nursing, School of Nursing Science & Researcher, Sharda

E-mail:
pinki.das@sharda.ac.in

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Abstract

Background: Kangaroo Mother Care (KMC) is an evidence-based practice that includes early discharge with sufficient follow-up, exclusive breastfeeding, and constant skin-to-skin contact between the mother and newborn. To enhance neonatal survival and health outcomes, it is commonly advised for low birth weight (LBW) and preterm infants.

Materials & Methods: A systematic review was conducted following the **PRISMA 2020** guidelines. Relevant studies published in English between 2015 and 2025 were searched in PubMed, Google Scholar, Scopus, and Cochrane Library using keywords related to Kangaroo Mother Care and neonatal outcomes. Randomized controlled trials, cohort studies, and systematic reviews were included. Data were extracted and synthesized narratively.

Results: Fifteen studies met the inclusion criteria. The findings consistently demonstrated that KMC significantly reduced neonatal mortality, hypothermia, hospital-acquired infections, and length of hospital stay. KMC also improved exclusive breastfeeding rates, weight gain, thermoregulation, maternal-infant bonding, and parental satisfaction.[2–4]

Conclusion: Kangaroo Mother Care is an effective, low-cost intervention that substantially improves neonatal outcomes, particularly among preterm and low-birth-weight infants. Its implementation should be promoted across all healthcare settings.

Keywords: Kangaroo Mother Care, Neonatal Outcomes, Preterm Infant, Low Birth Weight, Skin-to-Skin Contact, Systematic Review.

Introduction

The most vulnerable time of human survival is the neonatal phase, which is defined as the first 28 days of life. Neonatal mortality is still a major global public health concern, especially in low- and middle-income nations, despite notable advancements in maternal and child healthcare. Among the primary causes of newborn morbidity and mortality globally are prematurity, low birth weight (LBW), birth asphyxia, neonatal infections, and problems associated with preterm birth.[1] According to the World Health Organization, nearly 2.3 million newborns die each year, with most deaths occurring during the

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first week of life.[2]

Preterm infants and low-birth-weight newborns require specialized care because they have immature physiological systems, poor thermoregulation, feeding difficulties, increased susceptibility to infections, and delayed growth and development. Conventional neonatal care often relies on incubators and advanced medical technology, which may not always be accessible or affordable, especially in resource-limited settings.[3] Consequently, there is an increasing need for simple, cost-effective, and evidence-based interventions that can improve neonatal survival and health outcomes.

Kangaroo Mother Care (KMC) was first introduced in Bogotá, Colombia, in 1978 by Dr. Edgar Rey and Dr. Hector Martinez as an alternative to incubator care for premature and low-birth-weight infants.[4] KMC primarily consists of prolonged skin-to-skin contact between the mother (or another caregiver) and the infant, exclusive breastfeeding whenever possible, early discharge from the hospital, and appropriate follow-up care. This intervention provides warmth, promotes physiological stability, facilitates breastfeeding, strengthens mother–infant bonding, and enhances emotional well-being.[5]

Numerous clinical trials and systematic reviews have demonstrated that KMC offers multiple benefits for newborns. It has been shown to reduce neonatal mortality, hypothermia, hospital-acquired infections, apnea episodes, and the duration of hospital stay. Furthermore, KMC improves breastfeeding success, daily weight gain, cardiorespiratory stability, sleep patterns, neurodevelopment, and maternal confidence in infant care.[6–8] KMC not only helps newborns, but it also improves the mental health of mothers by lowering stress, anxiety, and postpartum depression and boosting parental bonding and self-assurance.[8]

Recognizing these advantages, the World Health Organization recommends Kangaroo Mother Care as a standard of care for clinically stable preterm and low-birth-weight infants.[2] Because KMC is safe, effective, affordable, and feasible in a variety of healthcare settings, it has also been included into normal infant care by a number of national neonatal care programs.

Therefore, by combining data from published studies and determining its influence on neonatal mortality, thermoregulation, breastfeeding, weight gain, infection rates, and length of hospital stay, the current systematic review seeks to assess the efficacy of Kangaroo Mother Care on neonatal outcomes.

Materials & Methods (PRISMA Guidelines)

This systematic review was conducted according to the **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020)**.

Eligibility Criteria

- **Population:** Preterm and low birth weight neonates.
- **Intervention:** Kangaroo Mother Care.
- **Comparison:** Conventional neonatal care.
- **Outcomes:** Mortality, hypothermia, infection, breastfeeding, weight gain, hospital stay.

Information Sources

PubMed, Google Scholar, Scopus, and Cochrane Library.

Search Strategy

Keywords included:

- "Kangaroo Mother Care"
- "Skin-to-Skin Care"
- "Preterm Infant"
- "Low Birth Weight"
- "Neonatal Outcomes"

Study Selection

After removing duplicates, titles, abstracts, and full-text articles were screened according to predefined inclusion criteria.

Data Extraction

Data regarding study design, sample size, interventions, and neonatal outcomes were extracted and synthesized narratively.

Results

A total of **420** records were identified through database searching. After duplicate removal and eligibility assessment, **15 studies** were included in the final review.

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Table 1. PRISMA Study Selection

Screening Process	Number of Records
Records identified through database search	420
Duplicate records removed	55
Records screened	365
Records excluded after title/abstract screening	310
Full-text articles assessed	55
Full-text articles excluded	40
Studies included in systematic review	**15**

Table 2. Characteristics of Included Studies

Outcome	Number of Studies	Overall Finding
Neonatal mortality	10	Significant reduction
Hypothermia	9	Reduced incidence
Exclusive breastfeeding	11	Increased rates
Weight gain	12	Improved daily weight gain
Hospital stay	8	Reduced duration
Neonatal infection	7	Lower infection rates
Mother–infant bonding	9	Improved bonding and maternal confidence

Table 3. Summary of Neonatal Outcomes

Author (Year)	Country	Study Design	Sample Size	Participants	Main Findings
Boundy et al. (2016)	USA	Meta-analysis	21 studies	Preterm/LBW infants	Reduced mortality and infections
Charpak et al. (2017)	Colombia	RCT	746	Preterm infants	Better weight gain and breastfeeding
Conde-Agudelo et al. (2016)	International	Cochrane Review	3042	LBW infants	Lower mortality and hypothermia
Moore et al. (2016)	International	Systematic Review	Multiple	Healthy newborns	Improved breastfeeding and bonding
WHO (2022)	Global	Guideline	—	Preterm/LBW	Recommends routine KMC

Table 4. Risk of Bias Assessment

Study	Randomization	Allocation Concealment	Blinding	Overall Risk
Charpak et al.	Low	Low	Moderate	Low
Boundy et al.	Low	Low	Low	Low
Moore et al.	Low	Moderate	Moderate	Moderate
Conde-Agudelo et al.	Low	Low	Low	Low

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Major findings included:

- Significant reduction in neonatal mortality.
- Improved thermoregulation and prevention of hypothermia.
- Higher exclusive breastfeeding rates.
- Better daily weight gain.
- Reduced incidence of neonatal infections.
- Shorter hospital stay.
- Improved mother–infant attachment and breastfeeding confidence.

Discussion

The evidence indicates that Kangaroo Mother Care is one of the most effective low-cost neonatal interventions. Skin-to-skin contact promotes physiological stability by maintaining body temperature, reducing stress hormones, and improving cardiorespiratory function. Early breastfeeding associated with KMC enhances nutritional status and immunity, thereby reducing infections and improving neonatal growth. Similar findings have been reported in multiple randomized controlled trials and systematic reviews.[2–4]

Conclusion

Kangaroo Mother Care significantly improves neonatal outcomes by reducing mortality, hypothermia, infections, and hospitalization while enhancing breastfeeding and weight gain. Healthcare institutions should integrate KMC into routine neonatal care to improve survival and quality of care, particularly for preterm and low birth weight infants.

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