Kangaroo Care and Improved Physiological Status in Preterm Infants: An Integrative Review

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Abstract

Background: Preterm births worldwide continue to cause long term sequelae for infants. Interventions such as kangaroo care (KC) in the Neonatal Intensive Care Unit (NICU) can promote better outcomes on preterm infants' futures.
Purpose: This integrative literature review aims to determine if KC has positive physiological effects on preterm infants in the NICU.
Methods: Search terms such as neonatal intensive care unit, NICU, kangaroo care, benefits, preterm infant, and physiological status were used to retrieve peer reviewed publications.
Results: Seventeen peer reviewed publications were included in the review. Evidence indicates that KC has positive effects on neonates' growth, vital signs, stress outcomes, and pain. Five themes were identified from the ILR. The first four themes discussed include KC and pain, KC and growth, KC and oxytocin, and KC and heartrate. The remaining theme will focus on the efforts to improve KC use in the NICU by examining barriers.
Implications: KC can be widely used for preterm infants in the NICU. Strategies to implement KC can be taught to staff and future caregivers so that they will be equipped to support parents.
Limitations: This review included 17 articles in English; therefore, it is not comprehensive.
Conclusion: Studies showed that KC led to reduced pain, higher weight gain, increased oxytocin, improved cardiorespiratory stress, lowered heart rate, higher oxygen saturation, and increased temperature. Reducing barriers like staff misconceptions, parental presence, and lack of access due to medical complexity can enhance KC.

Introduction and/or Research Question

Introduction: According to the World Health Organization, every year an estimated 15 million babies are born preterm. Complications from preterm births are the leading cause of death among children under 5 years of age, resulting in approximately 1 million deaths. Three quarters of these deaths could be prevented with current interventions. KC is a cost-effective intervention that has been shown to improve physiological outcomes for preterm infants.
Purpose: The purpose of this ILR was to examine the association between KC and improved physiological status in preterm infants, less than 34 weeks gestational age. Another goal of this review is to examine the barriers to implementing KC and ways to overcome these barriers.
Research Question: Does KC have positive physiological effects on preterm infants, less than 34 weeks gestational age, in the NICU?

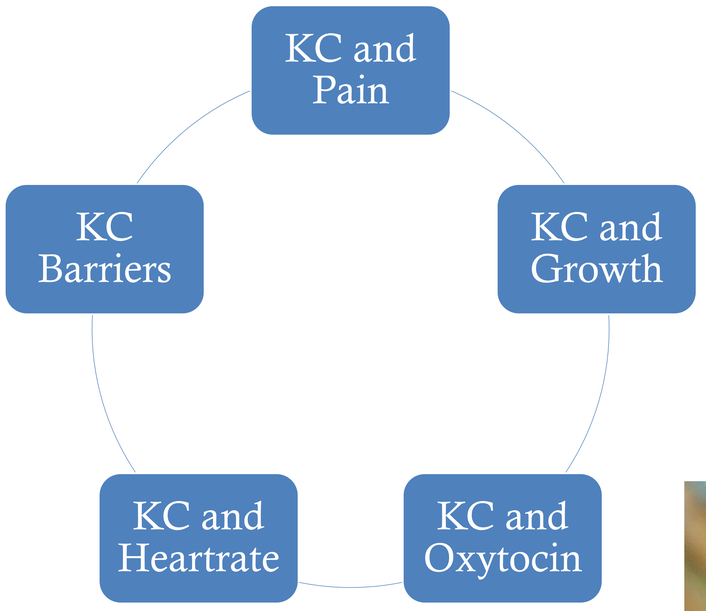
Methods

Search terms used: neonatal intensive care unit, NICU, kangaroo care, benefits, preterm infant, and physiological status.
Databases used: Medline, BioMed, and Pro Quest.
Number of articles reviewed: 17

- five are Melnyk's Level 1 (systematic reviews)
- two are Melnyk's Level 2 (RCT)
- one is Melnyk's level 4 (cohort study)
- four are Melnyk's Level 5 (review of qualitative studies)
- three are Melnyk's Level 6 (single descriptive)
- two are Melnyk's Level 7 (expert opinion)

Inclusion criteria:

- KC and preterm infants
- published within the last 7 years



Harkonen, 2023

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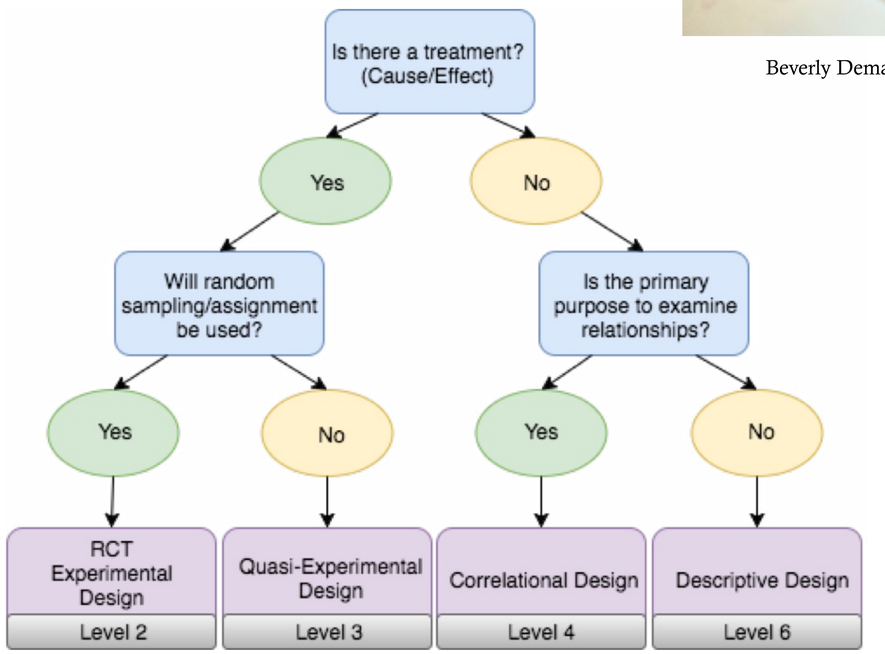

Melnyk, B.M. & Fineout-Overholt, E. (2015). "Box 1.3: Rating system for the hierarchy of evidence for intervention/treatment questions" in *Evidence-based practice in nursing & healthcare: A guide to best practice (3rd ed.)* (pp. 11). Philadelphia, PA: Wolters Kluwer Health.

Results and/or Conclusion

Results: The themes identified to support KC in preterm infants included reducing pain, improving growth, increasing oxytocin, and lowering heart rate. Barriers to implementing KC were also explored.
KC and Pain: KC can reduce neonatal pain and is as effective in reducing pain in preterm neonates as 24% sucrose is during painful procedures (Hurley & Harrison, 2020).
KC and growth: Preterm infant growth can be affected by KC and its duration of use and weight gain was higher when the duration of KC was at least 8 hours per day (Charpak et al., 2021).
KC and oxytocin: Skin to skin contact (SSC) can raise oxytocin levels in infants and in parents. Salivary oxytocin levels increased significantly during SSC for mothers, fathers, and infants (Vittner et al., 2018).
KC and heartrate: Preterm infant heartrates during SSC consisting of four 1-hour sessions per week showed a lower heartrate (Ludwig et al., 2021).
KC barriers Themes emerged as barriers to providing KC and those included environment, provider beliefs, practice variation, and parent preference.
Conclusions: In conclusion, there is a positive correlation between KC and neonatal physiological outcomes. This is evidenced through the examination of 17 journal articles included in this integrative review. Studies showed that KC led to reduced pain, higher weight gain, increased oxytocin, improved cardiorespiratory stress, lowered heart rate, higher oxygen saturation, and increased temperature. The results support the use of KC in the NICU for preterm infants and addresses ways to overcome barriers to implementing this care.

Future Work

1. The findings in this literature review can potentially impact outcomes for preterm infants and improved physiological status while in the NICU.
2. Education is needed for NICU staff and providers as well as for parents. This can be accomplished by utilizing quality improvement projects and interventions.
3. To increase the use of KC in the NICU, parental presence must be increased. NICUs can provide better opportunities for privacy for parents visiting the bedside that would make the environment more comfortable.
4. Determining which preterm infants are good candidates for KC needs to be a joint decision between provider, nurse, and parent. To provide accurate decision making, more research needs to be conducted to evaluate the safety and effectiveness of the use of KC among extremely preterm infants.

References and/or Acknowledgments

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