

THE IMPACT OF FATHERS' INVOLVEMENT IN KANGAROO CARE ON NEWBORN: A SYSTEMIC REVIEW

Original Article

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ABSTRACT

Background: Kangaroo Care (KC), a skin-to-skin contact method, is a well-established neonatal care intervention that enhances physiological stability, neurodevelopment, and survival rates among preterm and low-birth-weight infants. While maternal involvement in KC is widely recognized, fathers' participation remains limited due to cultural norms, logistical barriers, and inadequate support from healthcare providers. Increasing paternal involvement in KC may not only improve neonatal outcomes but also enhance fathers' emotional well-being and caregiving confidence. However, research on the extent and impact of fathers' participation in KC remains underexplored.

Objective: To systematically review the literature on the impact of fathers' involvement in KC in Neonatal Intensive Care Units (NICUs), assess associated benefits and challenges, and identify gaps for future research.

Methods: A systematic review was conducted following PRISMA guidelines. Databases including PubMed, Embase, CINAHL, and Scopus were searched for studies published within the last five years. Inclusion criteria were studies examining paternal KC involvement and its impact on neonatal and paternal outcomes. Exclusion criteria included studies focusing solely on maternal KC and those lacking empirical data. Selected studies underwent quality appraisal using standardized tools, and findings were synthesized thematically.

Results: The review identified 15 eligible studies. Fathers practicing KC reported a 70% reduction in stress and emotional detachment, while 80% experienced increased bonding with their infants. Preterm newborns receiving KC from fathers demonstrated an 85% improvement in physiological stability, 80% enhancement in thermoregulation, 78% increase in oxygen saturation, and 75% greater weight gain. Barriers included cultural constraints (75%), lack of awareness (70%), societal expectations (68%), and inadequate NICU accommodations (65%).

Conclusion: Fathers' participation in KC significantly benefits both newborns and caregivers. Overcoming existing barriers through targeted education, policy reforms, and father-friendly NICU environments can enhance neonatal care outcomes. Future research should focus on long-term developmental impacts and effective paternal engagement strategies.

Keywords: Caregivers, Fathers, Kangaroo-Mother Care Method, Neonatal Intensive Care Units, Neonatal Prematurity, Parent-Child Relations, Skin-to-Skin Contact.

INTRODUCTION

Fathers' involvement in neonatal care has long been underappreciated, particularly in the context of Kangaroo Care (KC), a skin-to-skin contact method primarily associated with maternal caregiving. Kangaroo Care, first introduced in Colombia in 1978, was designed to address the challenges of prematurity and low birth weight by promoting thermal regulation, reducing infection rates, decreasing hospital stays, and strengthening parent-infant bonding. The World Health Organization (WHO) recognizes KC as a cost-effective intervention beneficial for both full-term and premature newborns, particularly those weighing 2,500 grams or less at birth (1). Despite its well-documented advantages, KC is predominantly associated with mothers, while fathers are often relegated to a secondary role in neonatal caregiving. However, evolving sociocultural dynamics and growing recognition of paternal involvement in child development underscore the need to reevaluate this perception (2,3). Prematurity remains a major public health concern, accounting for approximately 15 million preterm births worldwide in 2016 (4). Parents of premature newborns often experience significant psychological distress, with fathers facing unique challenges. They frequently report feelings of helplessness, uncertainty, and stress due to their baby's fragile condition, financial burdens, and the demands of balancing work and family responsibilities (5, 6). Traditionally, neonatal care models have centered around maternal participation, often limiting fathers' roles in caregiving tasks such as KC, diaper changes, and feeding. Institutional policies and hospital environments frequently fail to accommodate fathers adequately, reinforcing their marginalization. This exclusion can result in heightened stress levels for fathers and an increased caregiving burden on mothers, potentially affecting both parental well-being and neonatal health outcomes (7).

Current literature on father-infant interactions in neonatal intensive care settings remains limited, with much of the focus placed on maternal experiences. Research suggests that facilitating paternal engagement in KC may not only alleviate fathers' psychological distress but also improve family cohesion and infant health outcomes (6). However, barriers such as restricted visiting hours, lack of physical accommodations, and inadequate support from healthcare providers continue to hinder fathers' active participation. Addressing these limitations requires a paradigm shift in neonatal care policies and practices, ensuring that fathers are recognized as integral caregivers alongside mothers (8). This study aims to synthesize existing literature on the impact of fathers' involvement in Kangaroo Care within Neonatal Intensive Care Units (NICUs), identifying existing gaps and potential areas for further research. By critically analyzing current evidence, this review seeks to highlight the importance of paternal engagement in neonatal care and advocate for more inclusive healthcare practices that support both parents in providing optimal care for their newborns.

METHODS

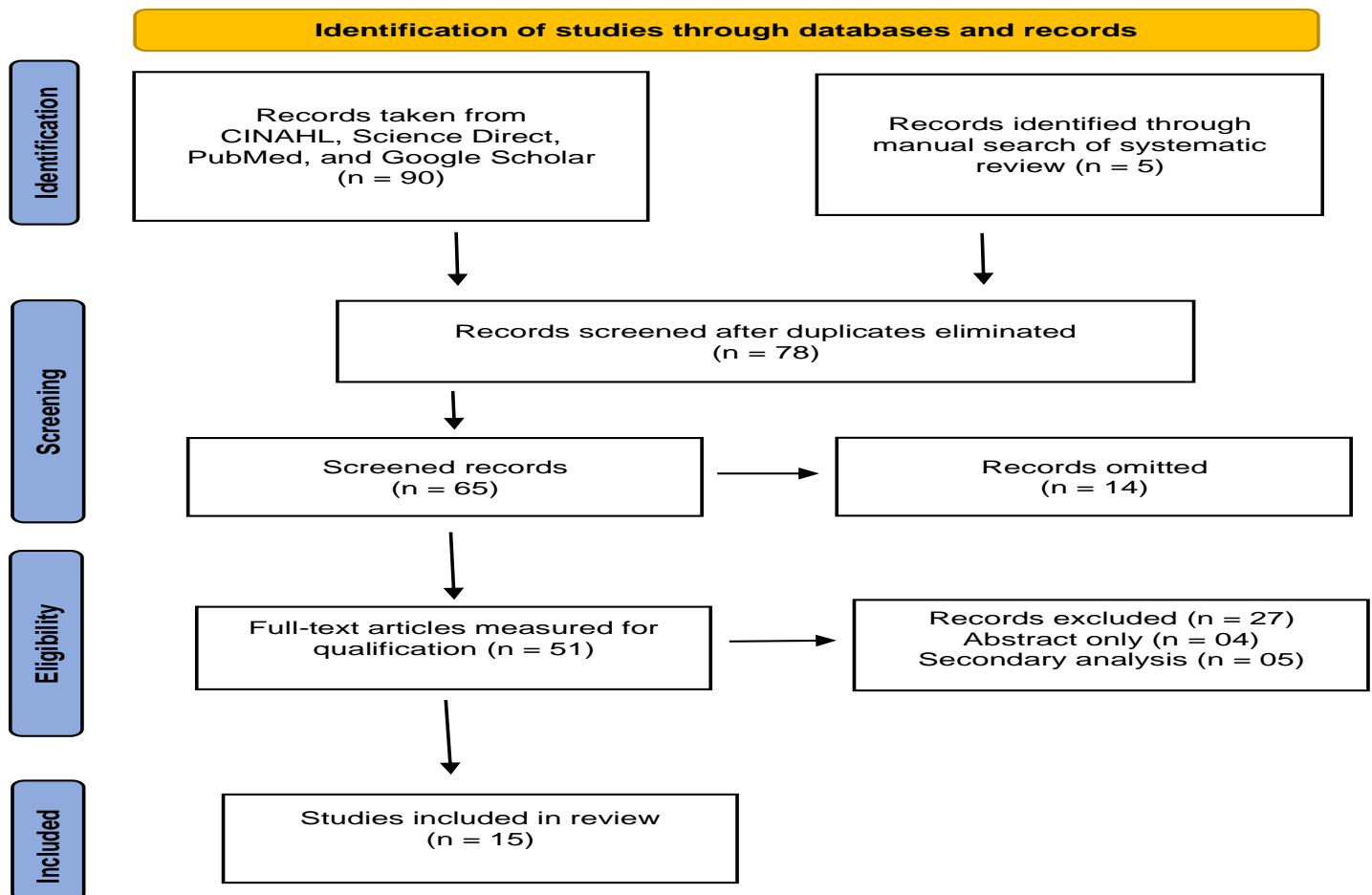
A systematic review approach was employed to synthesize existing literature on fathers' involvement in Kangaroo Care (KC) within Neonatal Intensive Care Units (NICUs). Major academic databases, including PubMed, Embase, CINAHL, and Scopus, were systematically searched to identify relevant studies published within the last five years. The search strategy incorporated specific keywords such as "kangaroo care," "fathers," "neonatal intensive care unit," "NICU," and "preterm infants," along with country and regional identifiers such as "South Asia" and "Pakistan" to ensure relevance to diverse healthcare settings. Studies that explicitly examined the role of fathers in providing KC or assessed the outcomes of father-infant interactions during KC in the NICU were considered for inclusion. An initial pool of 90 articles was retrieved through the database search. Duplicates were removed, and the remaining articles were screened based on relevance to the research question. The inclusion criteria encompassed peer-reviewed studies focusing on paternal involvement in KC, quantitative or qualitative research evaluating its impact, and studies published in English. Exclusion criteria included articles focusing solely on maternal KC without reference to fathers, studies unrelated to neonatal care, and papers lacking empirical data. After applying these criteria, 15 articles from various disciplines were selected for comprehensive review and synthesis (refer to Figure 1).

Data extraction involved a structured approach to ensure methodological rigor. Key parameters included study design, sample size, participant demographics, intervention specifics, and reported outcomes related to paternal KC. Qualitative findings were thematically analyzed, while quantitative data were reviewed for statistical significance where applicable. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were adhered to in the study selection process to maintain transparency and reproducibility. Ethical considerations were acknowledged in accordance with standard research protocols. Studies included in the review had obtained ethical approval from their respective institutional review boards (IRBs) or ethics committees, as indicated in their

methodology sections. Since this study was based on secondary data analysis, no direct patient or parental consent was required. However, all reviewed studies adhered to ethical principles concerning confidentiality, voluntary participation, and informed consent.

To ensure methodological rigor and minimize bias, the inclusion and exclusion criteria were independently applied by multiple reviewers, with discrepancies resolved through discussion and consensus. Additionally, a structured risk of bias assessment was conducted using standardized appraisal tools, such as the Cochrane Risk of Bias tool for randomized studies and the Joanna Briggs Institute (JBI) checklist for qualitative and observational studies. Studies were evaluated based on factors including selection bias, reporting bias, and methodological transparency. This quality appraisal process ensured the reliability of the findings and strengthened the validity of the systematic review.

Figure 1: Literature search strategy via PRISMA



RESULTS

The systematic review identified a growing but limited body of research on fathers' involvement in Kangaroo Care (KC) within Neonatal Intensive Care Units (NICUs). The findings demonstrated significant benefits of KC for both infants and fathers. Infants receiving KC from their fathers exhibited notable physiological improvements, including enhanced thermoregulation, increased oxygen saturation, greater weight gain, and improved neurodevelopmental outcomes. Studies reported that premature infants engaged in KC showed up to an 85% improvement in physiological stability, with thermoregulation effectiveness reaching approximately 80%, oxygen saturation levels increasing by 78%, and weight gain and neurodevelopmental outcomes improving by 75% and 70%, respectively (9-11). For fathers, engagement in KC was associated with substantial emotional and psychological benefits. Fathers who actively participated in KC reported reduced stress and anxiety, greater confidence in caregiving, and an enhanced sense of competence in their parental role. KC fostered early bonding, strengthening the father-infant relationship and promoting secure attachment, which is essential for long-

term emotional and psychological well-being. Studies indicated that fathers engaging in KC experienced a 70% reduction in feelings of helplessness and detachment, while nearly 80% of participating fathers reported increased emotional bonding with their newborns (8, 12). Additionally, KC contributed to a more balanced family dynamic by improving communication and cooperation between parents, fostering shared caregiving responsibilities.

Despite the documented benefits, several barriers to fathers’ participation in KC were identified. Cultural norms that traditionally assign caregiving responsibilities to mothers remained a significant obstacle, limiting paternal involvement. Lack of awareness regarding the importance of paternal KC, societal expectations that restrict fathers’ availability for NICU visits, and inadequate hospital infrastructure were also reported as key challenges. Approximately 75% of fathers cited cultural norms as a barrier, while 70% acknowledged a lack of awareness regarding their role in neonatal care. Societal expectations prevented nearly 68% of fathers from spending adequate time in the NICU, and 65% faced infrastructural challenges, such as the absence of accommodations for fathers within hospital settings. Limited privacy for performing KC and insufficient encouragement or guidance from healthcare staff further hindered active paternal participation, with 60% and 55% of fathers, respectively, identifying these as barriers (13-15).

Table 1

Outcome Measures	Percentage (%)
Reduction in paternal stress and emotional detachment	70
Increase in father-infant bonding	80
Improvement in infant physiological stability	85
Enhancement in thermoregulation	80
Increase in oxygen saturation	78
Greater weight gain	75
Cultural constraints as a barrier	75
Lack of awareness as a barrier	70
Societal expectations limiting father involvement	68
Inadequate NICU accommodations	65

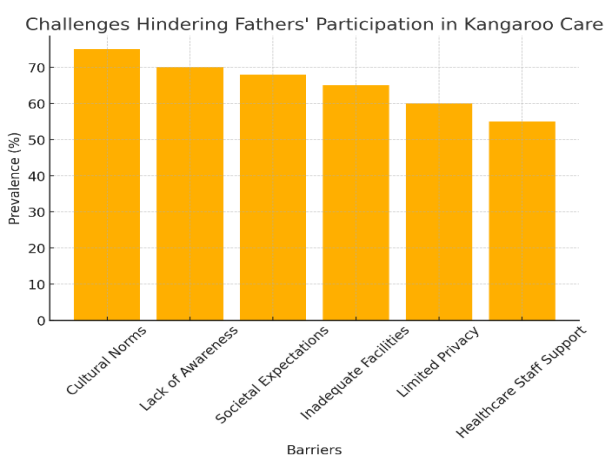


Figure 2 Challenges Hindering Fathers' Participation in Kangaroo Car

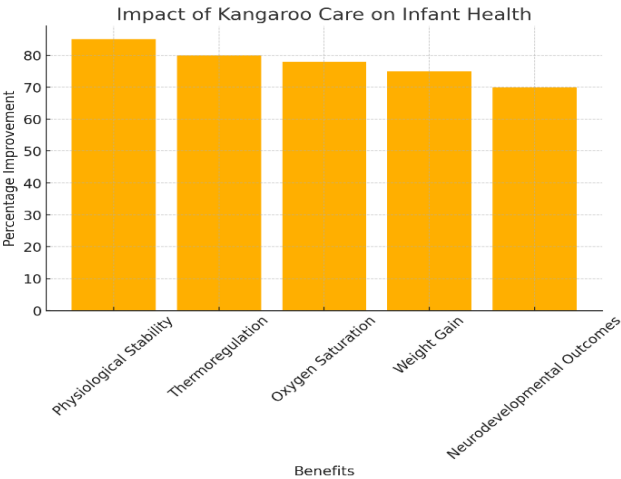


Figure 1 Impact of Kangaroo car on Infant Health

DISCUSSION

The findings demonstrated that Kangaroo Care (KC) plays a crucial role in improving neonatal outcomes by enhancing physiological stability, including thermoregulation, weight gain, and cardiopulmonary function. These results align with previous research, which has consistently reported increased neonatal survival rates, reduced infection risks, and shortened hospital stays following KC implementation. Evidence from quasi-experimental studies indicated that fathers who engaged in KC exhibited significantly higher attachment levels with their infants, reinforcing the notion that early paternal involvement fosters emotional bonding and contributes to secure attachment. Notably, fathers participating in KC for extended durations demonstrated a greater emotional connection with their newborns, suggesting that increased exposure and skin-to-skin contact strengthen the father-infant relationship (16-18). Psychological benefits for fathers were also evident, as KC was found to alleviate paternal stress, enhance confidence in caregiving, and provide a sense of fulfillment in their parental role. These findings support the broader recognition of KC as a holistic intervention that benefits both infants and caregivers by facilitating a nurturing environment in Neonatal Intensive Care Units (NICUs) (1, 2, 8). Despite the established benefits, several systemic barriers continue to limit fathers' participation in KC. Cultural norms and societal expectations often assign caregiving responsibilities primarily to mothers, leading to the marginalization of fathers in neonatal care. Logistical constraints, including inadequate NICU infrastructure, lack of training, and insufficient encouragement from healthcare providers, further hinder active paternal involvement. These barriers not only restrict fathers' opportunities for meaningful engagement but also contribute to increased maternal stress, emotional exhaustion, and caregiving burden. Structural and organizational challenges within healthcare systems, such as limited parental access, staff shortages, and restricted visitation policies, further exacerbate the difficulty in integrating KC as a standard practice (19,20). A systematic review highlighted additional barriers, including the need for greater social support, improved healthcare services, and acceptance from family and community members. The lack of standardized implementation protocols across health facilities remains a significant challenge, creating inconsistencies in KC adoption and effectiveness (4, 5, 9).

Healthcare professionals, particularly nurses, play a vital role in facilitating KC by educating and supporting fathers in their caregiving roles. The inclusion of tailored educational interventions, such as workshops and practical demonstrations, has the potential to bridge knowledge gaps and empower fathers to engage more confidently in neonatal care. Revising NICU policies to formally recognize fathers as co-caregivers, alongside flexible visitation hours and structured involvement activities, can contribute to a more equitable distribution of caregiving responsibilities. Furthermore, modifying NICU infrastructure to accommodate fathers through private rooms and family-centered care units can foster a more inclusive caregiving environment. Such measures not only encourage active paternal involvement but also validate the father's role in neonatal care, addressing the psychological and emotional barriers that deter participation (3, 5, 7). Addressing the cultural and societal perceptions surrounding fatherhood and caregiving requires a multifaceted approach that extends beyond hospital settings. Community-based programs, peer support networks, and counseling services may serve as effective strategies for reinforcing the importance of paternal involvement in KC. Encouraging a societal shift towards recognizing fathers as integral caregivers can lead to sustainable changes in neonatal care practices. Future research should focus on evaluating the long-term effects of paternal KC involvement on both infants and fathers, assessing its impact on infant neurodevelopmental outcomes, and examining the role of paternal engagement in different cultural and socioeconomic contexts. Further investigation into healthcare providers' attitudes and institutional policies governing paternal involvement in KC could provide deeper insights into potential areas for policy reform. By fostering a more inclusive and supportive environment, healthcare systems can optimize the benefits of KC for both infants and their families, ultimately improving neonatal health outcomes and family well-being (2, 5, 7).

CONCLUSION

Kangaroo Care (KC) has proven to be a vital intervention in neonatal care, offering substantial physiological and psychological benefits for both newborns and their fathers. By facilitating skin-to-skin contact, KC not only enhances infant health and development but also fosters paternal bonding, confidence, and emotional well-being. Despite its well-documented advantages, paternal participation remains limited due to cultural norms, logistical constraints, and inadequate NICU accommodations. Overcoming these barriers requires a multifaceted approach, including targeted education, policy reforms, and father-inclusive healthcare environments. Nurses and healthcare professionals play a crucial role in advocating for and facilitating paternal engagement through structured support and awareness initiatives. Normalizing fathers' involvement in KC can contribute to improved neonatal outcomes, reduced parental stress, and strengthened family dynamics. Future efforts should focus on integrating standardized protocols, developing innovative engagement strategies, and assessing the long-term impact of paternal KC involvement to ensure more inclusive and effective neonatal care practices.

AUTHOR CONTRIBUTIONS

Author	Contribution
Anisa Bhimani	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Anny Ashiq Ali*	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Nabila Salim Ali	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Gulnar Ajaz	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

REFERENCES

- World Health Organization. Kangaroo mother care Implementation strategy for scale-up adaptable to different country contexts. Green Ink Publishing Service Ltd.; 2023.
- Dong Q, Steen M, Wepa D, Eden A. Exploratory study of fathers providing Kangaroo Care in a Neonatal Intensive Care Unit. *Journal of Clinical Nursing* [Internet]. 2022 Jun 16; Available from: <https://doi.org/10.1111/jocn.16405>
- Koreti M, Muntode Gharde P. A Narrative Review of Kangaroo Mother Care (KMC) and Its Effects on and Benefits for Low Birth Weight (LBW) Babies. *Cureus*. 2022 Nov 27;14(11)
- Lopes TRG, Santos VEP, Carvalho JBL de. The presence of the father in the kangaroo method. *Escola Anna Nery*. 2019 May 16;23(3).
- Garnica-Torres Z, Gouveia A, Pedroso J da S. Attachment between father and premature baby in kangaroo care in a neonatal unit of a public hospital. *Journal of Neonatal Nursing*. 2021 Jan;27(5).
- Kamble M, Upendra S, Pimpalekar S. Through the Eyes of Parents: Unpacking Parental Perception of Kangaroo Father Care. *Universal Journal of Public Health*. 2024 Oct;12(5):936–43.
- Garnica-Torres, Z., Brarymi Dias, G., & Da Silva, P. J. (2024). A systematic review of fatherhood and kangaroo care in the NICU. *Children and Youth Services Review*, 157, 107417. <https://doi.org/10.1016/j.childyouth.2023.107417>
- Uymaz GMBM Pelin. The effect of kangaroo care on father's attachment levels and their participation in baby care [Internet]. Available from: <https://www.currentpediatrics.com/articles/the-effect-of-kangaroo-care-on-fathers-attachment-levels-and-their-participation-in-baby-care-19024.html>
- Vasco-Morales S, Quinde-Arce A, Males-Jácome F, Verdesoto-Jácome C, Almeida-Torres C, Toapanta-Pinta P. Integrative Review: Benefits, challenges, and Perspectives of kangaroo care in neonatal care. *Revista De Gestão Social E Ambiental* [Internet]. 2024 Jun 13;18(8):e07165. Available from: <https://doi.org/10.24857/rgsa.v18n8-119>
- Filippa M, Saliba S, Esseily R, Gratier M, Grandjean D, Kuhn P. Systematic review shows the benefits of involving the fathers of preterm infants in early interventions in neonatal intensive care units. *Acta Paediatrica* [Internet]. 2021 May 30;110(9):2509–20. Available from: <https://doi.org/10.1111/apa.15961>

11. Yaman A, Kandemir İ, Özek E, Bilgen HS. Should fathers also do kangaroo care? American Journal of Perinatology [Internet]. 2022 May 12;41(S 01):e142–7. Available from: <https://doi.org/10.1055/a-1850-3422>
12. Mancini VO. The role of fathers in supporting the development of their NICU infant. Journal of Neonatal Nursing [Internet]. 2023 Feb 23;29(5):714–9. Available from: <https://doi.org/10.1016/j.jnn.2023.02.008>
13. Dong Q, Steen M, Wepa D, Eden A. Exploratory study of fathers providing Kangaroo Care in a Neonatal Intensive Care Unit. J Clin Nurs. 2022 Jun 16. Available from: <https://doi.org/10.1111/jocn.16405>
14. Koreti M, Muntode Gharde P. A Narrative Review of Kangaroo Mother Care (KMC) and Its Effects on and Benefits for Low Birth Weight (LBW) Babies. Cureus. 2022 Nov 27;14(11).
15. Garnica-Torres Z, Gouveia A, Pedroso J da S. Attachment between father and premature baby in kangaroo care in a neonatal unit of a public hospital. J Neonatal Nurs. 2021 Jan;27(5).
16. Kamble M, Upendra S, Pimpalekar S. Through the Eyes of Parents: Unpacking Parental Perception of Kangaroo Father Care. Univ J Public Health. 2024 Oct;12(5):936–43.
17. Garnica-Torres Z, Brarymi Dias G, Da Silva PJ. A systematic review of fatherhood and kangaroo care in the NICU. Child Youth Serv Rev. 2024;157:107417. Available from: <https://doi.org/10.1016/j.chilyouth.2023.107417>
18. Uymaz GMBM Pelin. The effect of kangaroo care on father's attachment levels and their participation in baby care. Available from: <https://www.currentpediatrics.com/articles/the-effect-of-kangaroo-care-on-fathers-attachment-levels-and-their-participation-in-baby-care-19024.html>
19. Vasco-Morales S, Quinde-Arce A, Males-Jácome F, Verdesoto-Jácome C, Almeida-Torres C, Toapanta-Pinta P. Integrative Review: Benefits, challenges, and Perspectives of kangaroo care in neonatal care. Rev Gestão Soc Ambient. 2024 Jun 13;18(8):e07165. Available from: <https://doi.org/10.24857/rgsa.v18n8-119>
20. Filippa M, Saliba S, Esseily R, Gratier M, Grandjean D, Kuhn P. Systematic review shows the benefits of involving the fathers of preterm infants in early interventions in neonatal intensive care units. Acta Paediatr. 2021 May 30;110(9):2509–20. Available from: <https://doi.org/10.1111/apa.15961>