

## Fathers' Experiences in Providing Kangaroo Mother Care for Premature Infants

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### ABSTRACT

Kangaroo Mother Care (KMC) is traditionally performed by mothers, while fathers' involvement often remains overlooked. Understanding fathers' experiences is essential to promote their participation and strengthen their role in caring for premature infants. This study aimed to explore fathers' lived experiences and inner perceptions regarding their involvement in providing Kangaroo Mother Care for premature infants, and to generate evidence supporting the promotion of father-led KMC as part of shared parenting. This qualitative study employed a descriptive phenomenological approach. Participants were selected using purposive sampling. Data were collected through in-depth interviews and direct observation, and analyzed using Colaizzi's method. Six major themes emerged: (1) fathers' awareness and knowledge of KMC; (2) fathers' motivations and expectations; (3) emotional experiences during KMC; (4) strengthening of the paternal role through KMC; (5) barriers and challenges to father involvement; and (6) strategies and support needed to enhance fathers' participation. In conclusion, fathers' engagement in KMC enhances emotional bonding with their infants and reinforces their caregiving role. However, involvement is hindered by privacy concerns, gender role norms, and limited hospital facilities. Institutional policies and healthcare provider support are needed to encourage father participation and create a father-friendly care environment to optimize KMC implementation.

**Keywords:** Kangaroo Mother Care; fathers; premature infants; paternal involvement

### INTRODUCTION

The incidence of premature birth and low birth weight (LBW) in Indonesia remains high. Premature birth is consistently associated with LBW. The prevalence of preterm birth in Indonesia ranges from 7–14%, and in several districts it reaches 16%. This prevalence is higher than in some developing countries (5–9%) and also exceeds the rate in the United States (12–13%). The national prevalence of LBW is 11.5%. Sixteen provinces report LBW prevalence above the national average, including South Sumatra, Bangka Belitung, West Java, Yogyakarta, Banten, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, Central Kalimantan, South Kalimantan, Central Sulawesi, South Sulawesi, Maluku, North Maluku, West Papua, and Papua [1]. Preterm birth may occur due to spontaneous preterm labor or because of medical indications requiring early induction or caesarean delivery. An estimated 13.4 million babies were born too early in 2020, and approximately 900,000 children died in 2019 due to complications of prematurity [2].

Many survivors face lifelong disabilities, including learning difficulties and visual or hearing impairments. Globally, prematurity is the leading cause of death among children under five years of age. Inequalities in survival rates are striking. In low-income countries, half of babies born at or below 32 weeks (two months early) die due to inadequate care, including challenges related to hypothermia, breastfeeding support, infection prevention, and respiratory management. In high-income countries, nearly all of these infants survive. Suboptimal use of technology in middle-income countries also contributes to increased disability among premature infants who survive the neonatal period [3].

Approximately 45% of all deaths among children under five occur in the neonatal period, and 60–80% of neonatal deaths involve preterm or small-for-gestational-age infants. Preterm and LBW infants have a 2- to 10-fold higher risk of death compared with term infants with normal birth weight. Despite progress over the past decade, the survival, health, growth, and neurodevelopment of preterm and LBW infants remain concerning in many countries due to the complexity of caring for these vulnerable newborns and preventing complications [3].

Preterm infants are physiologically fragile because they are born before 37 weeks of gestation, with mortality risk reaching up to 86% when born before 28 weeks. They are often separated from their mothers because their organs are immature and highly susceptible to infectious diseases. Parents must also cope with early separation, and many experience a decline in quality of life [4]. Most deaths among preterm and LBW infants are preventable. Evidence shows that Kangaroo Mother Care (KMC), compared with conventional neonatal care in resource-limited settings, significantly reduces mortality among clinically stable infants weighing less than 2,000 grams at birth [5]. KMC also reduces the risk of hypothermia, severe illness, nosocomial infection, and length of hospital stay, while improving growth, breastfeeding, and mother–infant bonding [5,6].

WHO guidelines emphasize the importance of ensuring that mothers and families play a central role in newborn care. Mothers and newborns should remain together from birth and should not be separated unless the infant is critically ill. The recommendations further highlight the need for improved family support, including education and counseling, peer support, and home visits by trained healthcare providers [7].

Because many causes and determinants of prematurity remain unknown, effective interventions are still limited. Moreover, modern technology is often unavailable or poorly utilized due to shortages of skilled staff. Incubators, when available, may be insufficient in number or inadequately cleaned. Procurement of equipment and spare parts, maintenance, and repair are difficult and costly; power supply interruptions further compromise equipment function. Under such conditions, providing optimal care for preterm and LBW infants becomes challenging: hypothermia and nosocomial infections are common, worsening the already fragile condition caused by prematurity. Incubators also frequently, and unnecessarily separate infants from their mothers, preventing essential contact. Unfortunately, no simple solution exists, as newborn health is closely linked to maternal health and the care received during pregnancy and childbirth. For many small preterm infants, long-term medical care is essential. However, Kangaroo Mother Care offers an effective means of meeting infants' needs for warmth, breastfeeding, infection protection, stimulation, safety, and affection [8].

Kangaroo Care is a method that simulates the nurturing behavior of marsupials, in which a premature infant is placed prone on the bare chest of the mother or father to ensure skin-to-skin contact, wearing only a diaper [9]. The World Health Organization strongly recommends KMC as part of routine care for newborns weighing up to 2,000 grams at birth and advises that it be initiated in health facilities as soon as the infant is clinically stable. WHO further recommends continuing KMC until the infant's condition improves or until the preterm infant reaches 40 weeks of gestational age [10,11].

Initially, KMC was used to maintain warmth in premature infants, but extensive implementation and numerous studies have shown that KMC also stabilizes physiological indicators, reduces pain and stress, increases breastfeeding rates, and supports neurological development in preterm infants [12–15]. KMC can be performed by mothers, fathers, and other family members. However, because parents are the primary caregivers of preterm infants, KMC is ideally performed by them [16]. When mothers are unable to provide KMC due to postpartum fatigue, complications, caesarean section pain, or the need for rest, fathers become essential substitute caregivers and primary candidates for providing KMC [17].

Shared parental caregiving offers many benefits for both infants and parents. In efforts to make neonatal care more family-centered, fathers should be encouraged to provide KMC. However, few studies have reported fathers performing KMC, and these studies indicate that infants' clinical parameters do not differ between father-provided and mother-provided KMC [18].

In the local context, Manggarai District in East Nusa Tenggara (NTT) faces significant newborn health challenges. According to the Manggarai District Health Profile 2022, one of the leading causes of infant mortality is prematurity and LBW [19]. Furthermore, the NTT Provincial Health Profile 2023 reports that 7.86% of weighed newborns were classified as LBW [20]. Local research also identifies gestational age as a dominant risk factor for LBW in NTT, underscoring the relevance of prematurity in the region [21]. Social and cultural factors, such as gender norms limiting fathers' caregiving roles combined with limited health facility resources, hinder fathers' involvement in Kangaroo Mother Care. This study aimed to explore fathers' lived experiences and inner perceptions regarding their participation in providing Kangaroo Mother Care, to generate evidence supporting the promotion of father-led KMC, and to create opportunities for greater paternal involvement in newborn care.

## METHODS

This study was conducted in Manggarai District, East Nusa Tenggara Province, Indonesia, from January to April 2024, following ethical approval from the Research and Community Service Ethics Committee of the Santu Paulus Ruteng Catholic University. A qualitative research design with a descriptive phenomenological approach was employed to explore fathers' lived experiences in providing Kangaroo Mother Care for their premature infants.

The study involved ten fathers who had previously performed Kangaroo Mother Care with their infants. Participants were selected using purposive sampling until data saturation was achieved. Recruitment began by tracing premature infants who had received care in Manggarai District. After identifying eligible infants, the researcher contacted their families to request permission. Fathers who agreed to participate were provided with an information sheet explaining the study. Those who consented signed an informed consent form and subsequently participated in in-depth interviews. Participants were informed about the sensitive nature of the interview questions and were allowed to withdraw at any stage. Interviews were conducted at the participants' homes based on their preference. Prior to each interview, the researcher allocated sufficient time to build rapport and trust.

Data were collected through in-depth semi-structured interviews and direct observation, accompanied by field notes. Each interview lasted approximately 60 minutes. Although an interview guide was used, the researcher allowed participants to elaborate freely on their experiences and the meanings they attributed to providing Kangaroo Mother Care. Interview questions explored dimensions of the lived body, lived time, lived space, and lived human relations to understand the fathers' experiential world.

Data were analyzed using Colaizzi's phenomenological method. Audio recordings were listened to repeatedly and transcribed verbatim. Significant statements were identified and coded, followed by the development of categories. These categories were then organized into subthemes, which were subsequently synthesized into overarching themes.

## RESULTS

A total of 10 participants aged 25–36 years voluntarily agreed to participate in this study. All participants had diverse educational and occupational backgrounds, and the ages of their infants ranged from 0 to 3 months (Table 1).

Table 1. Participant characteristics

Respondents	Respondents' age	Respondents' education	Respondents' occupation	Index Child age (months)
R1	28	First degree	Health officer	0
R2	30	First degree	Teacher	2
R3	34	First degree	Government employee	3
R4	35	First degree	Accountant	1
R5	26	First degree	Teacher	0
R6	34	Master's degree	Private employee	2
R7	29	First degree	Government employee	1
R8	27	First degree	Teacher	2
R9	27	First degree	Driver	1
R10	32	Diploma	Businessman	1

This study identified six major themes related to fathers' experiences in providing kangaroo mother care for premature infants, namely fathers' awareness and knowledge of kangaroo care; fathers' motivation and expectations; fathers' emotional experiences; strengthening of the paternal role; barriers and challenges; and strategies and support to enhance paternal involvement.

### Theme 1: Fathers' awareness and knowledge of kangaroo care

#### Sub-theme 1: Awareness of the importance of kangaroo care

All fathers recognized that Kangaroo Care is beneficial for their infants. This awareness was reflected in their statements:

Original: *"Saya tahu perawatan kanguru itu penting karena membantu bayi merasa aman dan nyaman. Saya mendengar ini dari dokter di rumah sakit"* (P5)

English: *"I know kangaroo care is important because it helps the baby feel safe and comfortable. I heard this from the doctor at the hospital."*

Original: *"Bidan menjelaskan bahwa kontak kulit ke kulit bisa meningkatkan berat badan bayi lebih cepat, jadi saya sangat ingin mencobanya."* (P2)

English: *"The midwife explained that skin-to-skin contact can help the baby gain weight faster, so I really wanted to try it."*

#### Sub-theme 2: Knowledge of the benefits of kangaroo care

Fathers gained knowledge from reading, health workers, and media:

Original: *"Sebelumnya saya tidak tahu banyak, tapi setelah diberi penjelasan, saya paham bahwa ini sangat bermanfaat untuk bayi."* (P1)

English: *"I didn't know much before, but after receiving an explanation, I understood that this is very beneficial for the baby."*

Original: *"saya tahu kalau perawatan kanguru ini mentransfer panas dari tubuh orang tua ke anak melalui kulit, saya pernah menonton di TV, manfaatnya juga bagus"* (P4)

English: "I know kangaroo care transfers warmth from the parent's body to the baby through the skin. I saw it on TV, and the benefits are good."  
Original: "Ketika kulit kita bersentuhan dengan kulit bayi maka panas tubuh kita akan pindah ke bayi, dan itu bagus untuk menjaga suhu tubuhnya, itu yang saya tahu" (P9)

English: "When our skin touches the baby's skin, our body heat transfers to the baby, and that helps maintain their temperature—that's what I know."

These findings indicate that fathers' awareness of the physiological benefits of Kangaroo Care (such as thermoregulation) is strongly shaped by health education. This aligns with literature showing that Kangaroo Care stabilizes infants' physiological parameters and strengthens parent–infant bonding [22–25].

## Theme 2: Fathers' motivation and expectations in kangaroo care

### Sub-theme 1: Motivation to Participate

Original: "Saya ingin terlibat karena saya merasa ini salah satu cara saya bisa membantu bayi kami." (P3)

English: "I wanted to be involved because I felt this was one way I could help our baby."

Original: "saya ingin ikut terlibat memegang sendiri bayi kami, agar dia tau saya ada untuk dia" (P7)

English: "I wanted to be involved and hold our baby myself so that he knows I am there for him."

### Sub-theme 2: Expectations for the Outcome of Kangaroo Care

Original: "Harapan saya, bayi saya bisa cepat sehat dan pulang ke rumah." (P10)

English: "My hope is that my baby will recover quickly and come home."

Original: "Semoga dengan melakukan perawatan ini, kondisi bayi kami stabil" (P8)

English: "I hope that by doing this care, our baby's condition will stabilize."

### Sub-theme 3: Family Support

Original: "Istri saya sangat mendukung saya untuk terlibat dalam perawatan kanguru." (P5)

English: "My wife strongly supports me in participating in kangaroo care."

Original: "Jika bukan karena dukungan keluarga yang kami dapatkan, mungkin sudah lama kami menyerah..." (P4)

English: "If not for the support from our family, we might have given up long ago..."

These findings show that paternal involvement is driven by emotional commitment and strengthened by family support, consistent with studies highlighting the role of family systems in Kangaroo Care [22].

## Theme 3: Fathers' Emotional Experiences

### Sub-theme 1: Emotional Closeness

Original: "Saya merasa sangat dekat dengan bayi saya setiap kali melakukan perawatan kanguru. Ini momen yang sangat emosional bagi saya." (P6)

English: "I feel very close to my baby every time I do kangaroo care. It is a very emotional moment for me."

### Sub-theme 2: Changes in Emotional Bonding

Original: "Saya merasakan ketenangan dan kebahagiaan ketika melakukan perawatan kanguru, seperti ada ikatan khusus yang terbentuk." (P8)

English: "I feel calm and happy when doing kangaroo care, as if a special bond is forming."

### Sub-theme 3: Positive Experiences

Original: "Perasaan bahagia dan damai selalu muncul setiap kali saya melakukan perawatan kanguru." (P1)

English: "Feelings of happiness and peace always arise whenever I do kangaroo care."

These emotional experiences show that Kangaroo Care is transformative for fathers, reducing stress and enhancing bonding, consistent with scoping review findings [22,24].

## Theme 4: Strengthening the Paternal Role

### Sub-theme 1: Increased Confidence as a Father

Original: "Setelah melakukan perawatan kanguru, saya merasa lebih percaya diri sebagai ayah." (P10)

English: "After doing kangaroo care, I feel more confident as a father."

Original: "Keterlibatan dalam perawatan kanguru membuat saya merasa lebih berperan..." (P6)

English: "Being involved in kangaroo care makes me feel more responsible in caring for our baby."

### Sub-theme 2: Improved Relationship with Wife

Original: "Kegiatan ini membuat saya lebih dekat dengan istri saya, kami berbagi tanggung jawab bersama." (P5)

English: "This activity brings me closer to my wife; we share responsibilities together."

These findings show that Kangaroo Care empowers fathers and strengthens family dynamics, consistent with literature on paternal identity in KMC [22].

## Theme 5: Barriers and Challenges

### Sub-theme 1: Time Constraints Due to Work

Original: "Kadang saya sulit menemukan waktu karena pekerjaan yang padat." (P8)

English: "Sometimes I struggle to find time because of my busy work schedule."

Original: "Tanggung jawab lain di rumah membuat saya tidak selalu bisa hadir di rumah sakit." (P9)

English: "Other responsibilities at home make it difficult for me to always be at the hospital."

### Sub-theme 2: Lack of Institutional Support

Original: "Dukungan praktis dari rumah sakit sangat kurang, sehingga kadang saya ragu." (P3)

English: "Practical support from the hospital is lacking, which sometimes makes me hesitant."

These barriers highlight the need for father-friendly hospital policies, consistent with previous reviews [22].

## Theme 6: Strategies and Support to Enhance Paternal Involvement

### Sub-theme 1: Education and Socialization for Fathers

Original: "Edukasi lebih lanjut akan sangat membantu kami memahami pentingnya perawatan kanguru." (P3)

English: "Further education would greatly help us understand the importance of kangaroo care."

### Sub-theme 2: Flexible Scheduling

Original: "sebaiknya memberi jadwal yang lebih fleksibel untuk ayah yang bekerja." (P5)

English: "There should be more flexible schedules for working fathers."

### Sub-theme 3: Support from Health Workers

Original: "Dukungan dan bimbingan dari perawat sangat membantu saya..." (P7)

English: "Support and guidance from nurses really helped me understand how to perform kangaroo care correctly."

These strategies emphasize the need for systemic support and father-inclusive NICU policies [22].

## DISCUSSION

Fathers' awareness of the importance of KMC represents a crucial initial step in fostering their involvement in neonatal care. The interviews revealed that many fathers only began to recognize the significance of KMC after receiving information from healthcare professionals. This awareness was primarily driven by their understanding that KMC provides warmth, comfort, and a sense of security to the infant, while also supporting faster physiological stabilization and developmental progress. Such findings align with previous research demonstrating that fathers who engage with their newborns during the early hours after birth develop a deeper understanding of their infants' early life experiences, which subsequently enhances their involvement and responsiveness as caregivers [26]. Awareness, therefore, serves not merely as cognitive acknowledgment but as an emotional and motivational foundation that shapes paternal engagement in KMC.

A deeper understanding of the benefits of KMC further strengthens fathers' willingness to participate. Many fathers reported that they only fully grasped the advantages of KMC after receiving explanations from healthcare workers or reading relevant materials. Commonly recognized benefits included improved weight gain, enhanced emotional bonding, and greater physiological stability. These perceptions are consistent with evidence showing that mothers, fathers, and extended family members often serve as the primary caregivers of premature infants and play a central role in decision-making and daily care practices [27]. Knowledge, therefore, functions as an enabling factor that transforms initial awareness into sustained involvement. When fathers understand the scientific rationale behind KMC, they are more likely to perceive themselves as competent caregivers and to engage more confidently in the care process.

Fathers' motivation to participate in KMC is frequently rooted in their desire to provide the best possible care for their infants. Many fathers expressed that performing KMC allowed them to contribute directly to their baby's health and comfort. They hoped that the practice would accelerate the infant's recovery and facilitate earlier discharge from the hospital. Beyond physical health outcomes, fathers also anticipated that KMC would strengthen their emotional connection with their infants and support overall developmental progress. This aligns with literature suggesting that through KMC, fathers transition from being distant observers to active caregivers who experience themselves as "real fathers" through skin-to-skin contact. Such intimate interactions lay the foundation for secure father–infant attachment [28]. Fathers also reported positive emotional experiences during KMC, including warmth, closeness, and a heightened sense of presence with their infants. These emotional responses reinforce their belief in their ability to fulfill parental responsibilities and contribute meaningfully to their infant's well-being [29].

The emotional experiences of fathers caring for premature infants are often complex, involving sadness, fear, and uncertainty regarding their infant's health status [30]. However, KMC provides a contrasting emotional experience, one characterized by joy, love, and a sense of purpose. Skin-to-skin contact is described as deeply meaningful, offering fathers a moment of emotional grounding and connection with their infants [31]. Through KMC, fathers begin to embody their parental role more fully, gaining confidence in their caregiving abilities. Studies have shown that fathers experience happiness and form strong emotional bonds with their infants through KMC, which contributes to their overall sense of parental identity [32].

The paternal role is often disrupted when premature infants are admitted to neonatal units, where the infant's critical condition limits fathers' autonomy in providing care [33]. Yet, paternal participation is highly beneficial for the family system. Mothers frequently report feeling isolated when caring for premature infants, particularly in hospital settings where visiting hours or participation guidelines may inadvertently restrict fathers' involvement. Even when hospitals adopt balanced visitation policies, fathers' roles are often undervalued. Many parents report that healthcare providers, intentionally or unintentionally reinforce maternal dominance in caregiving by encouraging only mothers to perform tasks such as touching, holding, diapering, or feeding the infant. This dynamic places a disproportionate burden on mothers and marginalizes fathers' potential contributions [34,35].

In this study, fathers reported several barriers to providing KMC. A common challenge was the lack of hospital infrastructure that accommodates fathers' presence; facilities often provide beds or chairs exclusively for mothers, limiting fathers' ability to stay close to their infants [36]. Healthcare workers play a critical role in facilitating KMC within hospitals and other health facilities. Their primary responsibility is to educate parents about the principles and benefits of KMC and to guide them in its proper implementation [37]. Another significant barrier identified in this study was the limited time available for fathers to perform KMC due to work obligations. Consistent with previous findings, support from healthcare professionals is essential in encouraging fathers to participate in KMC despite such constraints [38]. Access to accurate, comprehensible information was also highlighted as a crucial factor influencing fathers' confidence and willingness to engage in KMC.

Globally, KMC is predominantly performed by mothers, while fathers rarely engage in the practice. Reported reasons include limited opportunities for fathers, gender-role expectations, lack of awareness, and fear of harming the infant [39]. Many fathers feel that certain healthcare professionals, particularly midwives reinforce traditional gender stereotypes, resulting in fathers being excluded from infant care activities [40–42]. To address these issues, training for healthcare workers is essential to ensure that KMC is implemented inclusively and that fathers are actively encouraged to participate [43–45].

This study has several strengths. First, the descriptive phenomenological design enabled an in-depth exploration of fathers' subjective experiences with KMC, capturing the emotional, cognitive, and relational dimensions of their involvement. Second, the study provides rare empirical insights into paternal participation in KMC in eastern Indonesia, where cultural norms surrounding gender roles may limit fathers' caregiving involvement. The cultural context of Manggarai adds significant value to the findings, offering implications for developing neonatal care policies that are more inclusive of fathers. Third, the study ensured data validity through Colaizzi's rigorous analytical steps and member checking, ensuring that the findings accurately reflect participants' lived experiences. The use of purposive sampling until data saturation further strengthens the credibility of the results.

However, this study also has limitations. The primary limitation lies in the relatively small sample size of only ten fathers from a single district, which restricts the generalizability of the findings to other regions with different sociocultural contexts. Although phenomenological studies do not aim for broad generalization, a more diverse sample could enrich the interpretation of paternal experiences. Additionally, the potential for social desirability bias exists, as interviews were conducted in participants' homes, where fathers may have felt inclined to provide socially acceptable responses. Despite efforts to build rapport and ensure openness, such bias cannot be entirely eliminated.

## CONCLUSION

This study concludes that fathers are aware of the importance of Kangaroo Mother Care and gain confidence in their caregiving abilities through its practice. Fathers also experience happiness and develop emotional bonds with their infants. However, they face significant challenges, particularly limited time due to work obligations. Therefore, equitable paternity leave, strong encouragement and support from healthcare providers, and father-friendly hospital environments—including appropriate room facilities—are essential to optimize fathers' involvement in Kangaroo Mother Care.

## Ethical consideration, competing interest and source of funding

-Throughout the study, ethical principles were strictly upheld. Participants were free to participate or withdraw at any time without consequences; personal identities were anonymized, and all data were used solely for research purposes; interviews were conducted respectfully, ensuring participants' comfort and minimizing distress; and all participants were treated equally without discrimination.

-There is no conflict of interest related to this research,

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