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### The Role of Knowledge and Family Support in the Success of Kangaroo Mother Care

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#### Abstract

##### Background

Kangaroo Mother Care (KMC) is a crucial neonatal intervention that involves skin to skin contact between a mother and her preterm or low birth weight infant. However, the success of KMC is significantly influenced by maternal knowledge and family support.

##### Aim

This study to examine the impact of maternal knowledge and family support in the success of KMC.

##### Methods

A *cross-sectional* survey was conducted with 120 mothers and their families, who were enrolled in a KMC program at a regional hospital in Semarang, Indonesia. Data were collected using questionnaires assessing maternal knowledge of KMC practices and the perceived level of family support. The success of KMC was evaluated by measuring the frequency and duration of skin to skin contact during the first month postpartum.

##### Results

The study revealed that mothers with higher levels of KMC were significantly more likely to practice it correctly. Specifically, 83.3% of mothers with adequate knowledge adhered to the recommended KMC practices, compared to only 55% of mothers with limited knowledge ( $p < 0.01$ ). Family support was shown to have a strong influence on the success of KMC. Mothers who received strong family support were 77.8% practiced KMC consistently for at least 6 hours a day, compared to only 45% of mothers who lacked family support ( $p < 0.05$ ).

##### Conclusion

These results highlight the importance of educating mother and involving family in the KMC process to improve the intervention's success. Educational programs and family engagement strategies are essential for maximizing the effectiveness of KMC.

**Keywords:** Knowledge, Family Support, Success, Kangaroo Mother Care

#### Introduction

Kangaroo Mother Care (KMC) is a globally recognized intervention aimed at improving the health outcomes of preterm and low birth weight infants. KMC emphasizes skin to skin contact between the infant and caregiver, which has been shown to promote infant weight gain, regulate body temperature, enhance breastfeeding, and improve overall survival rates. Despite its proven benefits, the success of KMC is not solely dependent on medical factors; it is significantly influenced by the knowledge of the caregivers and the level of family support available <sup>[1]</sup>.

Maternal knowledge plays a crucial role in the correct and consistent implementation of KMC practices. When mothers are well-informed about the benefits and proper techniques of KMC, they are more likely to engage in the practice regularly, resulting in better outcomes for the infant. However, in many low-resource settings, caregivers may lack sufficient education or face barriers in accessing the necessary information to implement KMC effectively <sup>[2]</sup>.

The prevalence of adequate knowledge about KMC among caregivers varies widely, particularly in resource-constrained settings. In many regions, maternal knowledge about KMC is insufficient, with studies showing that less than 50% of caregivers in some areas are fully informed about the technique's benefits and how to carry it out effectively. This lack of knowledge often results in suboptimal care practices, including inconsistent or improper application of KMC. For example, a study in sub-Saharan Africa found that only 42% of mothers reported receiving sufficient information about KMC from healthcare providers, which directly impacted the practice's success <sup>[3]</sup>.

In addition to maternal knowledge, family support is a critical determinant of KMC success. Active involvement from family members particularly partners and extended family can provide emotional, physical, and logistical support that is essential for the mother's well-being and the infant's care. Families who are engaged in KMC are more likely to facilitate prolonged and consistent skin to skin contact, contributing to improved health outcomes for the infant [4]. A study in South Asia demonstrated that when families were actively involved, 75% of mothers reported practicing KMC consistently for more than 6 hours per day. In contrast, only 45% of mothers without family support adhered to recommended KMC practices [2].

**Methods**

The *cross-sectional* survey was done on 120 mothers and their families, who were enrolled in a KMC program at a regional hospital in Semarang, Indonesia. The inclusion criteria were mothers of preterm (gestational age less than 37 weeks) or low birth weight (less than 2500 grams), have enrolled in the KMC program within the past 2 weeks, provide informed consent and participate in the study, and families who are actively engaged in supporting the practice of KMC. The exclusion criteria were Mothers with severe medical conditions that prevent them from engaging in KMC, unable to provide informed consent, enrolled in other clinical studies, not planning to continue KMC beyond the first two weeks of the infant's life, no family member is present to support the KMC process.

Data is collected using structured questionnaires. In addition, medical records of the infants are reviewed to track health outcomes, such as weight gain and temperature stability. Surveys are designed to capture the maternal knowledge level about KMC and the perceived level of family support. *Chi-square tests* were used to analyze the correlations between knowledge and family support to the success of kangaroo mother care. Confidence interval 95% is used in this study.

**Results**

This study was done 2023 in Semarang, Central Java, Indonesia. The socio demographic characteristic of the subjects are showed in Table 1. The age of the subjects ranged from 20 to 35 years old, had middle education, married status. Mostly, they work as housewife. The family income ranged from 2.5 to 5 million rupiahs per month. They had extended family.

**Table 1: Characteristics Socio Demographic of the Subjects**

Variables	Frequency	Percentage (%)
<b>Age (years)</b>		
< 20	40	33.3
20 - 35	60	50
> 35	20	16.7
<b>Educational status</b>		
Elementary school	25	20.8
Junior high school	25	20.8
Senior high school	50	41.7
College	20	16.7
<b>Marital Status</b>		
Single	15	12.5
Married	95	79.2
Others	10	8.3
<b>Occupation</b>		
Housewife	40	33.3
Merchant	20	16.7

Government employee	15	12.5
Private employee	20	16.7
Daily labourer	25	20.8
<b>Monthly income (million)</b>		
< 2,5	40	33.3
2,5 - 5	50	41.7
>5 - 7,5	20	16.7
>7,5	10	8.3
<b>Family type</b>		
Nuclear family	10	8.3
Extended family	110	91.7

Table 2 showed the level of maternal knowledge and family support for KMC. Majority, the subjects have a moderate level of knowledge. A larger proportion the subjects received moderate support from their families.

**Table 2: The level of maternal knowledge and family support for KMC**

Variables	Frequency	Percentage (%)
<b>Maternal Knowledge</b>		
Adequate	30	25
Moderate	50	41.7
Lack	40	33.3
<b>Family Support</b>		
Strong	45	37.5
Moderate	55	45.8
Lack	20	16.7

Table 3 presented the correlation between maternal knowledge and family support in the Success of KMC. Mostly, mothers with adequate knowledge succeed to do KMC practices. KMC's success is demonstrated by strong family support.

**Table 3: The level of maternal knowledge and family support on the success of KMC**

Variables	Success		No Success		P-value
	Frequency	Percentage (%)	Frequency	Percentage (%)	
<b>Maternal Knowledge</b>					
Adequate	25	83.3	5	16.7	0.006*
Moderate	35	70	15	30	
Lack	22	55	18	45	
<b>Family Support</b>					
Strong	35	77.8	10	22.2	0.001*
Moderate	34	61.8	21	38.2	
Lack	9	45	11	55	

\* Chi-square test

Studies have shown that mothers with adequate knowledge are significantly more likely to do KMC (*p-value* = 0.006). There was correlation that mothers who receive strong family support are more likely to adhere to KMC (*p-value* = 0.001).

**Discussion**

KMC has proven to be a highly effective practice in improving the survival, growth, and development of low birth weight and preterm infants. The practice involves placing the infant in skin-to-skin contact with the mother or other caregiver, which provides numerous benefits, including thermal regulation, enhanced breastfeeding, and emotional bonding. However, the success of KMC is strongly influenced by maternal knowledge and family support. Both

of them ensuring that KMC is practiced consistently and correctly.

### **The Role of Maternal Knowledge on KMC Success**

Maternal knowledge is essential for the successful implementation of KMC. A mother's understanding of KMC, including the proper technique, duration, and benefits, is a predictor of how effectively she will engage in the practice. Research has consistently shown that mothers with adequate knowledge of KMC are more likely to practice it properly, resulting in better outcomes for their infants<sup>[5, 1]</sup>. Adequate knowledge helps mothers feel confident and empowered to provide the necessary care for their infants, including maintaining skin-to-skin contact for the recommended duration of several hours each day<sup>[6]</sup>.

In contrast, mothers who lack sufficient knowledge about KMC may face difficulties in following the guidelines. They may not understand the significance of prolonged skin to skin contact, which can lead to inconsistencies in practice. A lack of knowledge can also result in concerns about infant safety or discomfort, which might discourage mothers from practicing KMC as advised<sup>[7]</sup>. Therefore, maternal education and training are fundamental to ensuring that KMC is carried out effectively.

### **The Role of Family Support on KMC Success**

Family support is also crucial factor influencing the success of KMC. The involvement of family members in the care of the infant provides emotional, physical, and practical assistance to the mother, facilitating a more consistent practice of KMC. Studies have highlighted that mothers who receive strong support from family members, especially the partner and extended family, are more likely to engage in KMC for the required duration<sup>[8]</sup>. Family members can help by relieving the mother of other household responsibilities, allowing her to focus on the infant. Additionally, emotional support from the family reduces maternal stress, which in turn improves the likelihood of consistent KMC practice<sup>[9]</sup>.

Research<sup>[10]</sup> demonstrated that in settings where family support was limited, mothers faced greater challenges in practicing KMC, leading to less optimal outcomes for the infant<sup>[10]</sup>. Conversely, mothers who were supported by their families were more likely to follow through with KMC guidelines, ensuring that their infants benefited from the skin to skin contact that is so crucial in the early stages of life. Family support can also include assistance in monitoring the infant during KMC to ensure that the infant remains safe and comfortable, further contributing to the success of the practice.

### **The Correlation Between Maternal Knowledge and Family Support**

Maternal knowledge and family support are important for the success of KMC. A mother who is well educated about KMC is more likely to seek and accept support from her family, while family members who understand the importance of KMC are more likely to provide the necessary assistance<sup>[11]</sup>. Knowledge empowers the mother to engage in KMC effectively, while family support ensures that she can do so consistently.

For instance, mothers who are well informed about the benefits of KMC may feel more confident in requesting assistance from family members to maintain prolonged skin

to skin contact. In contrast, a lack of family support might discourage mothers from practicing KMC, even if they possess the necessary knowledge. Therefore, a combination of maternal education and active family involvement is critical to ensuring that KMC is both feasible and sustainable in the long term.

### **Recommendation**

Given the significant role that maternal knowledge and family support play in the success of KMC, healthcare providers and policymakers should focus on strategies that promote both. Maternal education programs should be a central part of antenatal and postnatal care to ensure that mothers are informed about the importance of KMC and how to practice it effectively. Additionally, family-centered care approaches should be encouraged to increase the involvement of family members in the infant's care, ensuring that they understand the benefits of KMC and how they can assist the mother.

Training family members, including fathers, grandparents, and other caregivers, can help create a supportive environment that enables the mother to practice KMC with confidence. Healthcare providers can also work to identify and address barriers to family support, such as socio economic challenges, cultural beliefs, or lack of understanding of KMC, which may prevent effective implementation<sup>[12]</sup>.

### **Conclusion**

In conclusion, the success of KMC is strongly influenced by maternal knowledge and family support. Maternal knowledge enables mothers to understand the importance and proper techniques of KMC, while family support provides the emotional, physical, and practical assistance necessary for the mother to engage in KMC consistently. The combination of these factors is crucial to ensuring optimal outcomes for preterm and low birth weight infants. Healthcare systems should prioritize maternal education and family involvement as key strategies to promote the success of KMC, ensuring that infants receive the full benefits of this life saving practice.

### **Acknowledgment**

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### **Declaration of conflicting interest**

I hereby declare that there are no conflicts of interest regarding the research on the role of knowledge and family support in the success of Kangaroo Mother Care (KMC).

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