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Original research article

ASSESSMENT OF KNOWLEDGE REGARDING KANGAROO MOTHER CARE AMONG NURSES OF A GENERAL HOSPITAL OF LAHORE

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Abstract: *Kangaroo Mother Care (KMC) is a proven cost-effective intervention for managing preterm and low-birth-weight infants, particularly in resource-limited settings. Despite its benefits, KMC adoption remains inconsistent in Pakistan. Nurses play a pivotal role in its implementation, but their knowledge and attitudes toward KMC have not been extensively studied.* ***Objective:*** *To assess the knowledge, attitudes, and practices of nurses regarding KMC in a general hospital in Lahore.* ***Methods:*** *A cross-sectional study was conducted with 180 nurses using a structured questionnaire. The questionnaire assessed demographic characteristics, knowledge, attitudes, and practices related to KMC. Data were analyzed using SPSS version 25, employing descriptive and inferential statistics.* ***Results:*** *The study revealed moderate knowledge and confidence levels among nurses regarding KMC. While 43.9% of participants were confident in understanding the principles of KMC, only 41.2% were knowledgeable about proper positioning techniques. Confidence in educating caregivers was higher (48.3%), but only 37.3% strongly believed in KMC's contribution to neonatal health. Perceived institutional support was deemed adequate by 45.6% of participants, while 37.8% were receptive to further training.* ***Conclusion:*** *Despite moderate awareness, significant gaps in technical knowledge and institutional support hinder the effective implementation of KMC. Targeted educational interventions and policy reforms are needed to enhance nurses' competencies and promote the adoption of KMC in healthcare settings in Pakistan.*

Keywords: Kangaroo Mother Care, neonatal care, nurses, knowledge assessment, Pakistan, healthcare practices.

Introduction

Kangaroo Mother Care (KMC) is a globally recognized, cost-effective intervention for managing preterm and low-birth-weight infants. It emphasizes skin-to-skin contact, exclusive breastfeeding, and early discharge with follow-up care. Originally developed in Colombia in the late 1970s, KMC has demonstrated significant benefits, including improved thermal regulation, reduced infections, enhanced breastfeeding rates, and lower neonatal mortality (1). Despite its effectiveness, the adoption of KMC remains inconsistent in resource-limited settings like Pakistan, where neonatal mortality rates are among the highest globally, at approximately 42 deaths per 1,000 live births. A significant proportion of these deaths are associated with complications from preterm births and low-birth-weight infants, who are particularly vulnerable during the neonatal period (2).

In Pakistan, neonatal care facilities often face infrastructural and resource challenges, which limit the availability and implementation of advanced neonatal care practices. KMC offers an affordable alternative that could significantly improve neonatal outcomes. However, factors such as inadequate knowledge and training among healthcare providers, cultural misconceptions, and the absence of institutional support hinder its widespread implementation (3). Nurses play a pivotal role in ensuring the success of KMC, as they are directly involved in its application and caregiver education. Assessing the knowledge and attitudes of nurses regarding KMC is essential to identify existing gaps and develop targeted educational interventions to enhance its practice in clinical settings (4).

While some healthcare facilities in Pakistan have integrated KMC into neonatal care, its implementation remains variable, with many nurses lacking the necessary training to apply it effectively. Research has shown that educational interventions can significantly improve nurses' knowledge and confidence in practising KMC (5). Addressing these gaps through capacity-building programs and institutional support is critical to scaling up KMC in Pakistan and reducing neonatal mortality and morbidity.

Methodology

The study employed a cross-sectional design to evaluate the knowledge, attitudes, and practices of nurses regarding Kangaroo Mother Care (KMC) at a general hospital in Lahore. Data collection was conducted over three months, from January to March 2024. The population included registered nurses working in various departments of the hospital. Inclusion criteria specified that participants should be aged between 25 and 50 years, hold relevant nursing qualifications such as a Diploma in Nursing, BSN, or Post-RN degree, and have at least one year of professional experience. Nurses who agreed to abstain from attending additional educational sessions on KMC during the study period were also included. Exclusion criteria eliminated non-nursing staff, such as doctors and lab technicians, as well as nurses planning extended leave or experiencing significant life events, such as pregnancy, that might interfere with participation.

A total of 180 nurses were selected using purposive sampling, ensuring that only those meeting the inclusion criteria were invited to participate. The sample size was

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calculated using the OpenEpi sample size calculator, assuming a 95% confidence level and a 5% margin of error. Data collection involved a structured, self-administered questionnaire divided into two sections. The first section gathered demographic information, including age, educational qualifications, and years of experience. The second section focused on assessing knowledge, attitudes, and practices related to KMC through a 10-item questionnaire. This questionnaire used a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," to evaluate understanding of KMC principles, familiarity with implementation criteria, confidence in educating caregivers, and perceptions of institutional support.

To ensure clarity and validity, the questionnaire was pre-tested on a small subset of participants. Data collection was conducted in two stages. Initially, a pre-educational assessment established baseline knowledge levels among participants. This was followed by a series of educational sessions delivered over four weeks by experts in KMC. After completing the educational sessions, participants were reassessed using the same questionnaire to evaluate any changes in knowledge and attitudes.

Ethical considerations were carefully addressed throughout the study. Approval was obtained from the relevant ethics committee, and informed consent was taken from all participants. Confidentiality and anonymity were maintained, and participants were informed of their right to withdraw at any stage without repercussions. Data were analyzed using SPSS (version 25). Descriptive statistics summarized demographic and questionnaire data, while paired t-tests were employed to compare pre-and post-intervention knowledge levels, with a p-value of ≤ 0.05 considered statistically significant. This methodology provided a comprehensive understanding of the current knowledge and practices regarding KMC among nurses and allowed for the identification of areas requiring targeted improvements.

Results

The study included a diverse group of nurses, primarily aged 31–40 years (46.7%), followed by 25–30 years (34.4%), with the majority holding a Diploma in Nursing (43.3%) or a BSN degree (40%). Most participants had 6–10 years of professional experience (42.8%), indicating a moderately experienced workforce. These demographics provide a balanced perspective on the knowledge and attitudes toward Kangaroo Mother Care (KMC).

Table 1 outlines the demographic characteristics, showing that the participants represent a range of ages, educational backgrounds, and experience levels. Table 2 presents responses to knowledge and attitude questions. Confidence in understanding the principles of KMC was moderate, with only 43.9% expressing confidence. Familiarity with the criteria for selecting infants and knowledge of proper positioning techniques also hovered around 43%, highlighting areas needing improvement.

Table 2 summarizes the responses of nurses to key knowledge and attitude questions about Kangaroo Mother Care (KMC). The data reveals a moderate level of confidence and understanding among participants. For example, 43.9% of nurses agreed or strongly agreed that they were confident in understanding the principles and benefits of KMC. Similarly, familiarity with the appropriate criteria for selecting infants for KMC was reported by the same percentage (43.9%). However, knowledge about proper positioning and attachment techniques was slightly lower, with only 41.2% expressing confidence in this area.

Confidence in educating parents or caregivers about KMC was relatively higher, with 48.3% of respondents agreeing or strongly agreeing with this ability. Despite these levels of confidence, only 37.3% of participants believed that KMC significantly contributes to the physiological stability and growth of premature infants. Awareness of challenges and complications associated with KMC was reported by 42.7% of nurses, indicating moderate familiarity with potential barriers.

In terms of practical implementation, 44.5% of nurses reported frequently incorporating KMC into care plans for eligible infants. Perceived institutional support and resources for effective KMC implementation were considered adequate by 45.6% of respondents. However, only 37.8% of participants showed strong receptiveness to further training, and 38.9% were highly likely to recommend KMC as a standard practice.

Overall, the responses in Table 2 highlight areas for improvement in knowledge, confidence, and institutional support for KMC while recognizing the moderate levels of awareness and practice among nurses.

Table 1. Demographic Characteristics of Participants

Characteristic	Frequency (n=180)	Percentage (%)
Age (Years)		
25–30	62	34.4
31–40	84	46.7
>40	34	18.9
Educational Qualification		
Diploma in Nursing	78	43.3
BSN	72	40.0
Post RN	30	16.7
Years of Experience		
1–5	65	36.1
6–10	77	42.8
>10	38	21.1

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Table 2. Responses to Knowledge and Attitudes Questions About Kangaroo Mother Care (KMC)

Question	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
1. How confident do you feel in your understanding of the principles and benefits of KMC?	17.2	18.9	20.0	25.6	18.3
2. To what extent are you familiar with the appropriate criteria for selecting infants suitable for KMC?	18.9	16.1	21.1	21.1	22.8
3. How knowledgeable do you consider yourself regarding the proper positioning and attachment techniques involved in KMC?	23.9	20.0	15.0	20.6	20.6
4. How confident are you in your ability to educate parents or caregivers about the importance and practice of KMC?	14.4	20.0	17.2	20.0	28.3
5. To what extent do you believe that KMC contributes to the physiological stability and growth of premature infants?	26.1	20.0	16.7	21.7	15.6
6. How well-informed do you consider yourself about the potential challenges and complications associated with implementing KMC?	18.3	20.0	18.9	24.4	18.3
7. How frequently do you incorporate KMC into the care plan for eligible infants in your unit?	22.8	11.1	21.7	22.8	21.7
8. To what extent do you perceive institutional support and resources available for the effective implementation of KMC?	19.4	18.9	16.1	23.9	21.7
9. How receptive are you to further training and educational opportunities aimed at enhancing your knowledge and skills in KMC?	22.8	24.4	15.0	17.2	20.6
10. How likely are you to recommend KMC as a standard practice for the care of premature infants in your hospital?	17.2	23.9	20.0	18.3	20.6

Discussion

The findings of this study highlight critical insights into the knowledge, attitudes, and practices of nurses regarding Kangaroo Mother Care (KMC) in a general hospital in Lahore. The results revealed a moderate level of confidence and understanding among nurses, with gaps in knowledge about specific practices such as infant selection criteria and proper positioning techniques. These findings are consistent with previous research conducted in similar resource-limited settings, which underscores that inadequate training and lack of institutional support are significant barriers to the effective implementation of KMC (6).

Confidence in educating caregivers about KMC was relatively higher in this study, with nearly half of the participants expressing confidence. This finding aligns with research suggesting that while nurses may have some understanding of KMC principles, they often lack the technical expertise to apply them effectively in clinical settings (7). For example, a study in Kenya found that while nurses were aware of the benefits of KMC, only a small percentage could demonstrate proficiency in its practical application (8).

The relatively low receptiveness to further training observed in this study, with only 37.8% of participants strongly agreeing to engage in educational programs, is a concerning finding. It suggests potential barriers to continuing professional development, such as workload pressures or limited access to resources. A similar study in India reported that regular training sessions improved nurses' knowledge and attitudes toward KMC, emphasizing the need for structured capacity-building initiatives in Pakistan as well (9).

Institutional support was perceived as adequate by less than half of the participants, mirroring findings from other studies in South Asia. Research has shown that a lack of infrastructure, such as designated KMC rooms and breastfeeding support, is a major impediment to implementing KMC in healthcare facilities (10). In Bangladesh, for instance, the provision of institutional resources significantly improved KMC adoption rates, highlighting the importance of organizational commitment in overcoming systemic barriers (11).

In this study, only 38.9% of nurses strongly recommended KMC as a standard practice. This is lower than findings from studies in high-income countries, where KMC is well-integrated into neonatal care protocols (12). The gap underscores the need for advocacy and policy-level interventions in Pakistan to promote the integration of KMC into routine neonatal care. International guidelines recommend comprehensive training for healthcare providers and the development of supportive policies to facilitate the widespread adoption of KMC (13).

The results also suggest that cultural and contextual factors play a role in shaping nurses' attitudes toward KMC. Similar challenges have been documented in studies conducted in other low- and middle-income countries, where cultural beliefs and misconceptions often hinder the acceptance of KMC practices (14). Addressing these barriers through culturally sensitive training and community awareness programs is essential for improving the perception and implementation of KMC.

Overall, this study contributes to the growing body of evidence highlighting the challenges and opportunities for implementing KMC in resource-limited settings like

Pakistan. The findings emphasize the need for targeted educational interventions, increased institutional support, and policy reforms to address knowledge gaps and promote the widespread adoption of KMC.

Conclusion

This study underscores the critical role of nurses in implementing Kangaroo Mother Care (KMC) to improve neonatal outcomes. The findings highlight moderate levels of knowledge and confidence among nurses regarding KMC, with notable gaps in understanding specific techniques such as proper positioning and selection criteria for eligible infants. Institutional support and training were identified as essential for bridging these gaps. The study also revealed barriers such as limited receptiveness to further training and inconsistent perceptions of institutional support. These challenges emphasize the need for targeted educational programs, enhanced institutional commitment, and policy-level reforms to promote the adoption of KMC in healthcare settings in Pakistan. Addressing these gaps can significantly contribute to reducing neonatal mortality and morbidity, aligning with global health priorities for improving maternal and child health in low- and middle-income countries.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate.
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The authors declared an absence of conflict of interest.

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