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Research Article

KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING KANGAROO MOTHER CARE AMONG HEALTH CARE PROVIDERS: A SINGLE-CENTER STUDY AT VASHI GENERAL HOSPITAL, NAVI MUMBAI

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ABSTRACT:
Background: Kangaroo Mother Care (KMC) is an evidence-based, cost-effective intervention that significantly improves outcomes in preterm and low-birth-weight infants. Despite national and international recommendations, implementation remains limited due to knowledge gaps and systemic barriers.
Objective: To assess the knowledge, attitudes, and practices (KAP) regarding KMC among healthcare providers in a secondary-level hospital and to evaluate the effect of a structured training session.
Methods: A cross-sectional study was conducted among 52 healthcare workers at Vashi General Hospital, Navi Mumbai. A validated, self-administered questionnaire assessed baseline knowledge, practices, and perceived barriers related to KMC. A structured training module was implemented, followed by a post-test among 48 participants. Statistical analysis was performed using paired t-tests and chi-square tests.
Results: The mean pre-test score was 18.1 ± 2.6, which significantly improved to 21.8 ± 2.3 post-training ($p = 0.03$). The percentage of participants scoring >20 rose from 25% pre-training to 75% post-training. Major barriers cited included lack of training (64%), staff shortages (38%), and inadequate infrastructure (33%).
Conclusion: Structured training significantly improved KMC-related knowledge and attitudes among healthcare workers. Institutional support and repeated sensitization sessions are essential to sustain practice-level change.
Keywords: Kangaroo Mother Care, preterm infants, neonatal care, healthcare workers, structured training, India

INTRODUCTION

Kangaroo Mother Care (KMC) is a globally recognized, evidence-based intervention for the care of preterm and low birth weight (LBW) infants. It involves early, continuous, and prolonged skin-to-skin contact between the mother (or other caregiver) and the newborn, along with exclusive breastfeeding. Initially developed in 1978 in Bogotá, Colombia, KMC was introduced as a low-cost alternative to conventional neonatal care where incubators were either unavailable or insufficient[1]. Since then, multiple studies have confirmed its effectiveness in reducing neonatal morbidity and mortality, promoting breastfeeding, enhancing thermal regulation, and improving maternal–infant bonding[2].

In India, where approximately 3.5 million LBW infants are born annually, the need for effective and scalable interventions like KMC is especially urgent. The practice was first introduced in the country in the mid-1990s at BJ Medical College, Ahmedabad [3]. Recognizing its life-saving potential, several tertiary care hospitals and teaching institutions, such as AIIMS New Delhi and PGI Chandigarh, established Centers of Excellence in KMC during the early 2000s[4]. Subsequently, the Ministry of Health and Family Welfare (MoHFW) included KMC as a key strategy under the India Newborn Action Plan (INAP) and the National Health Mission (NHM)[5].

In 2014, national operational guidelines for KMC and Optimal Feeding of Low Birth Weight Infants were released, further emphasizing the government's commitment to improving neonatal outcomes through community- and facility-based KMC programs. The establishment of dedicated KMC spaces within Special Newborn Care Units (SNCUs), along with capacity-building initiatives and behavior change communication, has significantly expanded KMC adoption in both urban and rural settings[5].

Despite these advancements, challenges such as inconsistent implementation, inadequate staff training, limited awareness among caregivers, and cultural barriers continue to affect optimal KMC coverage and sustainability. Therefore, understanding the current knowledge, attitudes, and practices among healthcare providers is essential for improving service delivery and achieving universal KMC implementation across India.

This study aimed to assess baseline KAP related to KMC among health workers and to evaluate the effect of a structured training session.

MATERIALS AND METHODS

Study Design and Setting: Cross-sectional study conducted at Vashi General Hospital, Navi Mumbai (April 2025).

Inclusion criteria: Healthcare providers working in the neonatal care area but have not undergone the structured training in KMC.

Exclusion criteria: HCW not willing to participate or undergo the training activity.

Participants: Total of 52 healthcare providers that included 4 doctors, 46 nurses (43 were GNM and 3 B.Sc. Nurses) and 2 multipurpose workers.

Data Collection: 52 Participants completed a structured self-administered questionnaire before and 48 completed after a training session. The questionnaire included 25 questions that covered:

- Demographics: Age, gender, role, years of experience.
- KMC awareness: Definition, components,steps, recommended duration.
- Benefits: Hypothermia prevention, breastfeeding support, infection reduction.
- Practices: Frequency of KMC counseling and facilitation.
- Barriers: Checklist of potential institutional and personal obstacles.

Statistical Analysis: Paired t-tests compared pre- and post-test scores. Frequencies and percentages described categorical variables.Data were analyzed using SPSS version 12. Analytical tests: Chi-square for categorical variables; p-value < 0.05 considered significant.

RESULTS

A total of 52 participants were included in the study. 92 % participants were females . The average experience was 12.8 years. This is reflected in Table no.1

Graph 1: Pie diagram summarizes percentage wise distribution of cadre-wise demographics.

Table 1: Demographic details of participants

Sr. no	Participants	Number	Sex		Age in Years				Experience in months			
			Male	Female	Mean	Median	Min	Max	Mean	Median	Min	Max
1	Doctors	4	1	3	51.5	56.5	29	64	161.7	167.5	12	300
2	GNM Nursing	43	1	42	45.2	48	28	56	231	264	6	396
3	B.sc Nursing	3	0	3	39.0	33	28	56	168	222	60	384
4	MPW	2	0	2	43.6	47	35	49	35	25	20	30
Total		**52**	2	50								

Table 2: Comparison of Pre & Post Test Score

Sr No	Participants	% Improvement n	Pre Test Score(N= 52)				Post Test Score (N=48)			
			Mean	Median	Min	Max	Mean	Median	Min	Max
1	Doctors	21.9	21.7	22	21	22	0	0	0	0
2	GNM	21.5	17.8	19	12	23	21.7	22	15	25
3	B.sc Nursing	38.2	18.6	19	18	19	22.6	23	21	24
4	MPW	20.4	17	17	12	22	23.5	23.5	23	24
Total		P value	18.1	19	12	23	21.8	22	15	25

	(0.03 significant)								

The mean pre-test score was 18.1 ± 2.6, and the post-test mean was 21.8 ± 2.3 (p = 0.03). Improvement was observed across all cadres but much more evident in MPW cadre.The comparison of percentage improvement is depicted in table no.3.MPW cadre had the maximum improvement in the score.

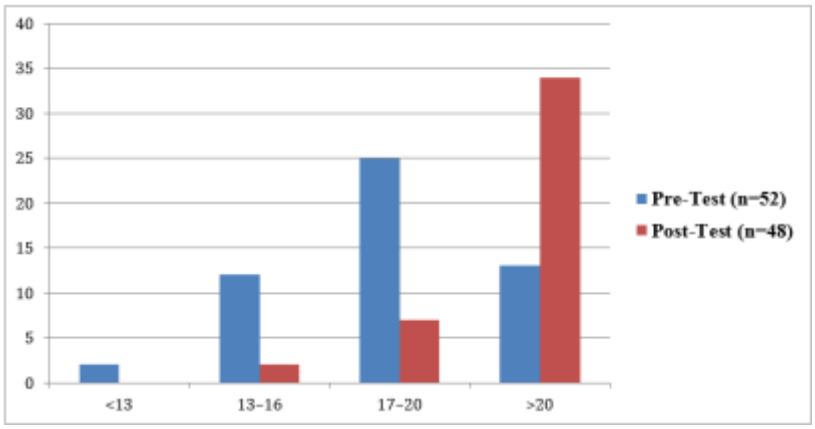
Table 3: Comparison of Mean Scores by Cadres and percentage improvement

Cadre	Pre-Test	Post-Test	% Improvement
GNM Nurses	17.8	21.7	21.9%
B.Sc. Nurses	18.6	22.6	21.5%
MPWs	17.0	23.5	38.2%
Overall	18.1	21.8	20.4%

Score Distribution: Only 25% of participants scored >20 on the pre-test, increasing to 75% post-training.

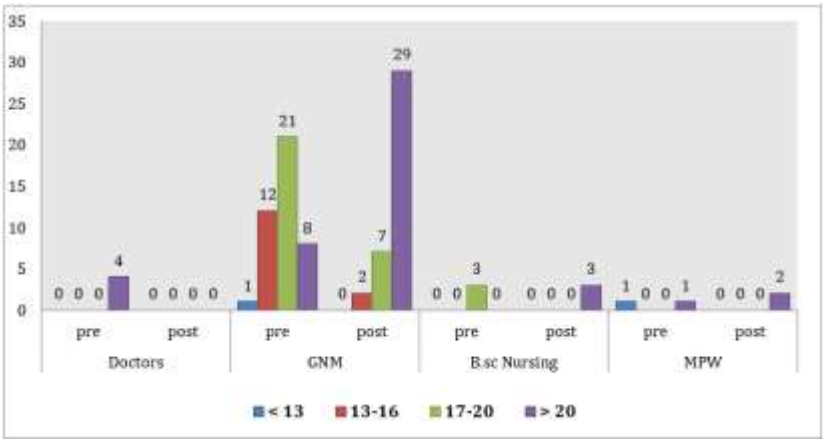
Table 4: Range of Score Distribution in the participants

Score Range	Pre-Test (n=52)	%age	Post-Test (n=48)	%age
<13	2	3.8	0	0
13–16	12	23.07	2	4.1
17–20	25	48	7	14.5
>20	13	25	34	70.8



Graph 2: Comparison of Range of Pre & Post Test Individual Score

The score range improved from only 3.8 % participants with pretest score of less than 13 where as 23.07 % had a pretest score between 13 - 16 and 48 % had a pretest score between 17-20 and 25% had pretest score > 20. This rose to 0%,4.1%,14.5%, 70.8 %respectively. Same thing is depicted in the graph 2.



Graph 3: Comparison of Range of Pre & Post Test Individual Score as per cadre.

Perceived Barriers: For effective implementation of KMC,the following were the perceived barriers in percentage format.

- Lack of training: 64%
- Staff/time constraints: 38%
- No designated KMC space: 33%
- Cultural/parental reluctance: 21%

DISCUSSION

Our study demonstrated that structured training significantly improved knowledge and attitudes toward KMC among nurses and multipurpose workers. The mean post-test score showed a statistically significant increase ($p = 0.03$), consistent with previous reports that training is pivotal in enhancing provider competencies in KMC[10,13,14].

At baseline, awareness about core components of KMC was moderate, with only 25% of participants scoring above 20 in the pre-test. This is comparable to the findings by Choudhary *et al.*[10], who noted similar knowledge gaps among nurses in a tertiary care hospital. Post-training, 75% scored above 20, suggesting rapid knowledge acquisition when structured programs are implemented.

The low participation in post-testing among doctors may reflect lower engagement or scheduling constraints—a limitation also noted in studies by Sharma *et al.*[12] and Patel *et al.*[11]. This highlights the need to integrate such training into routine continuing medical education to ensure full team participation.

Barriers such as insufficient staff time, lack of space, and parental reluctance were frequently reported. These findings are echoed by Deshpande *et al.*[9], who emphasized that institutional-level readiness—including designated KMC areas and supportive policies—is crucial for successful KMC scale-up.

Studies have shown that KMC not only improves thermoregulation and breastfeeding outcomes but also significantly enhances neurodevelopment and bonding [2,3,15]. Charpak *et al.*[15] demonstrated long-term cognitive and behavioral benefits in infants exposed to KMC. Hence, scaling up KMC through staff sensitization, infrastructure improvement, and community engagement aligns with the goals of the India Newborn Action Plan and WHO's "Every Newborn" initiative [5,16].

Our study's strength lies in its pre-post intervention design and focus on a district-level hospital, making findings relevant for scalable government health programs. However, being a single-center study with limited post-test data from doctors, generalizability is limited.

CONCLUSION

Targeted training programs can effectively bridge knowledge gaps in KMC implementation. Repeated trainings, combined with system-level changes such as staffing, space, and policy support, are needed to institutionalize KMC as routine neonatal care in resource-limited settings.

LIMITATIONS

Includes only single-center, incomplete post-test data, and limited participation from doctors.
Suggestions: Scaling similar interventions and removing operational barriers are key to advancing neonatal survival goals.

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