

# A CROSS-SECTIONAL STUDY ON KNOWLEDGE AND ATTITUDE REGARDING KANGAROO MOTHER CARE PRACTICE AMONG HEALTH CARE PROVIDERS IN AHMEDABAD DISTRICT

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## ABSTRACT

**Background:** One of the main reasons that Low Birth Weight (LBW) babies are at greater risk of illness and death is that they lack ability to control their body temperature. Kangaroo Mother Care (KMC) is a powerful method to promote the health and well-being of LBW babies.

**Aims & Objective:** To assess the knowledge and attitude of Health care providers (HCPs) regarding practice of KMC.

**Material and Methods:** A cross-sectional study was conducted in 7 health centres located in Ahmedabad district during February, 2012-May, 2012 among 145 HCPs.

**Results:** Mean age and work experience of HCPs was  $37.83 \pm 7.09$  years and  $7.09 \pm 2.13$  years respectively. A total of 47 (32.4%) HCPs had knowledge regarding LBW babies. When enquired about the components of KMC, 48 (33.1%) could correctly enlist all components. Only 20 (13.8%) HCPs could correctly answer that KMC can be given by any family member. A total of 107 (73.8%) HCPs replied that KMC should be given while transporting the baby to a higher centre and for prevention of hypothermia. KMC is beneficial both to mother as well as baby and it increases bonding between mother and baby was believed by 46 (31.7%) HCPs. A statistically significant association was observed between training status of the HCPs and their total score regarding knowledge related to KMC ( $p < 0.001$ ) as well as their age and total score ( $p < 0.01$ ).

**Conclusion:** Knowledge related to KMC was poor among HCPs, although a statistically significant association was observed between their knowledge and training status. Hence, training opportunities should be created and regular training should be conducted to enhance their knowledge.

**Key-Words:** Kangaroo Mother Care; Low Birth Weight; Health Care Providers; Knowledge

## Introduction

Newborn deaths currently account for approximately 40% of all deaths of children under five years of age in developing countries – the three major causes being birth asphyxia, infections, and complications due to prematurity and low birth weight (LBW).<sup>[1]</sup> Birth weight is a significant determinant of newborn survival. LBW is an underlying factor in 60–80% of all neonatal deaths. LBW infants are approximately 20 times more likely to die, compared with heavier babies.<sup>[2]</sup> One-third of LBW babies die within the first 12 hours after delivery. One of the main reasons that LBW/premature babies are at greater risk of illness and death is that they lack the ability to control their body temperature, i.e., they get cold or hypothermic very quickly. A cold newborn stops feeding and is more susceptible to infection.<sup>[1]</sup>

In most countries, the use of incubators is standard for thermal care of LBW babies. However, “incubator care” is not widely available in developing countries. Even in the limited cases where incubator care is available, the use of this method can be very challenging. Problems such as

poor maintenance, power outages and lack of replacement parts reduce the number of available, functional incubators. In addition, excess demand resulting from too many LBW/preterm newborns and insufficient machines results in many babies sharing an incubator. This practice, along with inadequate disinfection of incubators, can lead to increased infection rates. Since it largely excludes the participation of the mother, incubator care can also lead to decreased breastfeeding and maternal-newborn bonding. Fortunately, there is an alternative approach for providing thermal care for and improving survival of LBW infants that is both effective and affordable - namely, Kangaroo Mother Care (KMC).<sup>[1]</sup>

KMC is “the early, prolonged, and continuous skin-to skin contact between the mother (or substitute) and her low birth weight infant, both in hospital and after early discharge, until at least the 40th week of postnatal gestation age, with ideally exclusive breastfeeding and proper follow-up”.<sup>[3]</sup> KMC is a powerful and easy to use method to promote the health and well-being of Low birth weight (LBW) - infants with birth weight below 2500 g, Preterm infants i.e. infants with gestational age less than

37 weeks and also term infants.

Attitudes strongly influence action.<sup>[4]</sup> Even if Health Care Providers (HCPs) are aware of research literature, their own personal knowledge and beliefs influence their encouragement or discouragement for KMC.<sup>[5]</sup> Therefore, the study was aimed to assess the knowledge and attitude of Health Care Providers regarding practice of KMC where neonatal intensive care was not available and also in such settings KMC before stabilisation may represent the best chance of newborn survival.

**Objectives:** (1) To assess the knowledge regarding KMC among the HCPs; (2) To identify their attitude regarding practice of KMC; and (3) To correlate their training status, experience, education and age with their knowledge.

## Materials and Methods

A cross-sectional study was conducted in 2 Primary Health Centres in Ahmedabad district and 5 Urban Health Centres located in Ahmedabad Municipal Corporation. All these centres offered facilities like out-patient care, in-patient care, maternity, paediatric and newborn care services. Each of these centres had maternity wards. The centres were purposively selected since such studies evaluating knowledge and attitude of the health care providers especially grass-root workers working in the community in low income countries<sup>[6]</sup> regarding KMC were not conducted before especially in Ahmedabad, Gujarat where Infant mortality rate is 48 per 1000 live birth according to census, 2011. So, this was a baseline study to evaluate the knowledge and attitude of the study subjects. The study subjects included nurses, link workers and Anganwadi workers. As these health care providers were involved in handling and care of newborn infants in the facility as well as in the community, they were selected to study their knowledge and attitude regarding KMC. A total of 145 HCPs were studied. The study was conducted during February, 2012 to May, 2012. Study tool included field tested questionnaire. Study variables were what is KMC, benefits of KMC, who can give KMC, etc. Survey was administered to HCPs. Both open and closed ended questions were used to evaluate their knowledge and attitudes. Answers related to knowledge were evaluated as correct and incorrect. The questions related to knowledge made a total score of 11.

**Ethical Considerations:** Informed verbal consent was taken from all the participants prior to the study after explaining the purpose of the study and maintaining confidentiality. Ethical approval was obtained from the

Institutional Review Board of Smt. NHL Municipal Medical College, Ahmedabad prior to the study.

**Statistical Analysis:** The results were expressed as mean and percentages. To correlate various factors, Chi-square test was used with 95% Confidence interval and P value <0.05 was taken as statistically significant. Data was analyzed using SPSS 20.0.

## Results

Mean age of the HCPs was  $37.83 \pm 7.09$  years. Mean work experience was  $7.09 \pm 2.13$  years. Out of the total 145 HCPs, 115 (79.3) were Anganwadi workers, 23 (15.9) were Link workers and 7 (4.8) were staff nurses. A total of 15 (10.3%) HCPs had primary education, 51 (35.2%) HCPs had secondary education, 35 (24.1%) had higher secondary education and rest were graduate and above. Fifty five (37.9%) HCPs had less than 5 years of experience, 72 (49.7%) had 6-9 years' experience and 18 (12.5%) had over 10 years' experience. Only 66 (45.5%) HCPs had received KMC training prior to the present study.

**Knowledge related to KMC:** A total of 47 (32.4%) HCPs had knowledge regarding low birth weight babies. When enquired about the components of KMC, 48 (33.1%) could correctly enlist all the components i.e. skin to skin contact, exclusive breastfeeding, early discharge and support to the mother in practicing KMC. When asked regarding who needs KMC the most, 43 (29.7%) replied correctly that LBW babies require it the most. Only 20 (13.8%) HCPs could correctly answer that KMC can be given by any member of the family while majority 114 (78.6%) answered that KMC can be given by mother only. A total of 18 (12.4%) HCPs replied that KMC should be given while transporting the baby to a higher centre for prevention of hypothermia. When enquired whether KMC can be given at home, 46 (31.7%) HCPs replied affirmatively that it can be given at home. Only 40 (27.6%) HCPs had the knowledge that even HIV positive mother can safely give KMC to her baby. (Table 1)

**Attitude regarding KMC Practice:** A total of 46 (31.7%) HCPs each believed that KMC is beneficial both to the mother as well as baby and it increases bonding between mother and baby respectively. Only 40 (27.6%) HCPs thought that it enhances breastfeeding while 9 (6.2%) didn't responded to the question. Regarding KMC to be given immediately after birth, only 41 (28.3%) HCPs had positive belief that it should be started immediately while 7 (4.8%) did not respond to the question. Thirty six (24.8%) HCPs thought that family should support mother

while providing KMC, though 8 (5.5%) HCPs did not opt to answer the question. About 44 (30.3%) HCPs believed that KMC increases growth and development of the baby while 36 (24.8%) thought that it leads to reduce infection rate in the newborn babies. Regarding cost cutting, 42 (29.0%) HCPs thought that KMC leads to early discharge and hence reduces the costs of hospital stay. Only 18 (12.4%) HCPs believed that KMC is beneficial to all the newborn babies irrespective of their weight during winter season. Nearly one third [46 (31.1%)] HCPs believed that it increases self-confidence of the mother. (Table 1)

**Correlation between Knowledge related to KMC & Various Variables:** A statistically significant association was observed between training status of the HCPs and their total score regarding knowledge related to KMC ( $p < 0.0001$ ) as well as their age (41 and above) and total score ( $p < 0.004$ ). While association between their education & total score and experience & total score was statistically insignificant. (Table 2)

**Table-1: Knowledge and attitude of HCPs regarding KMC**

No.	Variables	Correct		Incorrect	
		No.	%	No.	%
<b>Responses related to Knowledge</b>					
1	Which babies are referred to as LBW babies	47	32.4	98	67.6
2	What are the different components of KMC	48	33.1	97	66.9
3	KMC is a method of caring LBW babies	43	29.7	102	70.3
4	KMC helps in preventing hypothermia in newborns while transporting to higher centres	18	12.4	127	87.6
5	KMC can also be given at home	46	31.7	99	68.3
6	HIV +ve mother can safely give KMC to her baby	40	27.6	105	72.4
7	KMC can be given by any of the family members	20	13.8	125	86.2
<b>Responses related to attitude (Do you agree that)</b>					
1	KMC is beneficial to mother and baby	46	31.7	99	68.3
2	KMC increases bonding between mother and baby	46	31.7	99	68.3
3*	KMC enhances breastfeeding	40	27.6	96	66.2
4*	KMC should be initiated immediately after birth	41	28.3	97	66.9
5*	Family should support mother while giving KMC	36	24.8	101	69.7
6	KMC enhances growth & development of baby	44	30.3	101	69.7
7*	KMC leads to reduce infection rate	36	24.8	98	67.6
8*	KMC decreases hospital stay and reduces cost	42	29.0	96	66.2
9	KMC should be given to all newborns irrespective of their weight during winter season	18	12.4	127	87.6
10	KMC increases self-confidence of the mother	46	31.7	99	68.3

\* Some participants didn't attempted the questions

**Table-2: Association between total knowledge score and various variables**

Variables	Total score			Chi-square	P-value	DF
	0-5	6-11	Total			
Age	20-30	21	8	11.147	0.004	2
	31-40	52	14			
	41 and above	25	25			
Experience	0-10	85	42	0.201	0.653	1
	11-20	13	5			
	Primary	10	5			
Education	Secondary	31	20	1.850	0.604	3
	Higher secondary	25	10			
	Graduate & above	32	12			
Training	Taken	32	34	20.176	0.0001	1
	Not taken	66	13			

## Discussion

Kangaroo Mother Care has consistently been shown to be safe and effective low-cost intervention in the care of low-birth weight infants.<sup>[7]</sup> KMC is largely a nursing procedure and is usually conducted and supervised by the nursing staff in most centres where it is being practiced. But for the promotion of kangaroo mother, knowledge and attitude of even grass root workers like link workers and Anganwadi workers who are closer to the community is also important.

In the present study, 29.7% HCPs had the correct knowledge regarding LBW babies requiring KMC the most and 33.1% knew about different components of KMC like skin to skin contact, exclusive breastfeeding, initiated at hospital and continued at home and early discharge and follow-up.<sup>[8]</sup> While in a study conducted in Kenya on HCPs, 87.5% HCPs had knowledge regarding LBW babies requiring KMC and 94.3% knew that KMC involves skin to skin contact.<sup>[9]</sup>

Studies carried out in low-income countries show that prolonged skin-to-skin contact between the mother and her LBW infant, as in KMC, provides effective thermal control and may be associated with a reduced risk of hypothermia.<sup>[8]</sup> In the present study, 73.8% HCPs knew that KMC is effective in preventing hypothermia especially while transporting the baby.

KMC facilitates the initiation and establishment of breastfeeding in small infants.<sup>[8]</sup> In the present study, 27.6% HCPs believed that KMC increases breastfeeding. In a study conducted in Kenya on HCPs, 38.6% HCPs believed that KMC leads to more effective breastfeeding. Kangaroo care is a beneficial method for bonding, breast-feeding and temperature control of all new-born infants, regardless of weight, gestational age and clinical condition.<sup>[7]</sup> In the same study in Kenya, 74.7% HCPs believed that KMC increases bonding between mother and baby and 22.7% believed that it increases confidence while in the present study, 31.7% HCPs thought that KMC leads to increase bonding and 31.1% HCPs believed that it increases confidence of the mother.

Infants on KMC have better weight gain and therefore are discharged early. This also translates to reduced cost of health care especially to the mother.<sup>[7]</sup> In the present study, 24.8% HCPs believed that KMC reduces infection rate and 29% thought it reduces cost while in a study conducted in Kenya, 53.4% agreed that KMC reduces infection while 34.1% HCPs thought it leads to reduce

hospital stay and hence reduces the cost.

There was statistically insignificant association between knowledge score and education. This shows that even if the HCPs are less educated, we can enhance their skill by imparting training since a statistically significant association was observed between knowledge score and training status of the HCPs.

**Limitations of the Study:** We conducted a cross-sectional study; rather an interventional study to evaluate knowledge, attitude and practice after imparting HCPs training would have been more appropriate to generalize the findings. Other limitation was less sample size.

## Conclusion

Knowledge related to KMC was poor among HCPs, although a statistically significant association was observed between their knowledge and training status. Hence, training opportunities should be created and regular training should be conducted to enhance their knowledge. A statistically insignificant association was observed between education and total score of HCPs which implies that their skills can be enhanced by intensive training despite of their low education level.

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