

Assess the Knowledge and Practice of Mothers Regarding Kangaroo Care with a View to Develop Health Education Module on Kangaroo Care

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Abstract: *The Kangaroo Mother Care (KMC) method is a humane, low cost, standardized, protocol predicated care system for preterm and / or Low Birth Weight (LBW) infants and is predicated on skin-to-skin contact between the preterm baby and the mother and exclusive breast feeding. The psychosocial effects of KMC include reduced stress and enhanced mother-infant bonding, with positive effects on the family environment and the infant's cognitive development. The benefits for all babies on Kangaroo Mother Care are that they stabilize faster on skin to skin care than in the incubator. They do not stabilize in the incubator in the first six hour of life. then KMC babies have stable oxygen rates and breathing. The heart rate is stable. The temperature is most stable on the mother in skin to skin care the mother's chest automatically warms a cold baby.*

MATERIALS AND METHODS: *A descriptive survey design was used to assess the knowledge and practice of mothers regarding kangaroo care with a view to develop health education module on kangaroo care. The study conducted on 80samples. Data was collected using structured questionnaire on knowledge and practice. Health education module is use as an information.*

RESULTS: *The knowledge related data revealed that, Majority of the respondents 86.25 % (69) was belongs to inadequate level, 13.75% (11) of respondents belongs to moderate level and none of them had adequate level of knowledge regarding Kangaroo care. The Practice related data revealed that 77.25% of respondents belongs to inadequate level, 22.75% of respondents belongs to moderate level and none of them had adequate level of Practice regarding Kangaroo care. The correlation coefficient ($r=0.496$) between knowledge and practice was positive and statistically significant at 5% level. The null hypothesis is rejected and the research hypothesis is accepted. Hence, there is a significant correlation between knowledge and practice regarding Kangaroo care among post-natal mothers at 5% level. It evidence that higher the knowledge results in higher the practice, i.e., higher the knowledge leads to more in practice towards Kangaroo care among the post-natal mothers.*

Conclusion: *From the findings of present study, it was concluded that the overall knowledge and practice of mothers regarding Kangaroo care is poor. It implied that increase in knowledge will result in increase in practice among the sampled post-natal mothers. There is significant association between knowledge score of mothers and selected demographic variables.*

Keywords: KC- Kangaroo Care, LBW Baby- Low Birth Weight baby, Mothers.

I. INTRODUCTION

The birth of a baby is one of the most awe-inspiring and emotional events that can occur in one's lifetime. After nine months of anticipation and preparation, the neonate arrives amid of flurry of excitement. Immediately after birth, the new born make rapid adjustment to successfully adapt to life outside the womb.¹

Attachment is a strong and permanent socio-emotional relation between the mother and infant which keeps the infant close to mother and increases the possibility of infant's survival. The basis of the attachment theory is that mothers who are close to their babies and meet their needs, form a sense of security in them which gives the baby the opportunity to discover the world under the shadow of this attention. Failure in attachment formation and/or attachment disorders during early months of life may leave negative behavioural effects on the baby throughout life.²

This lack of attachment formation may result from mother-infant separation, or lack of mother care or interaction with the baby, which means that the baby could not form a normal relationship with mother. Many infants are socially isolated; they are emotionally restricted and cannot enjoy the social interactions or playing, and gradually show aggressive behaviours during the toddler age. Growth failure, separation anxiety disorder, avoidance personality disorder, delinquency, learning problems and/or borderline IQ are among other side effects of this disorder.³

In 1979, Dr. Martinoz and Rey of the maternal and child institute in Bogota, Colombia developed a simple method for care of Low Birth-Weight infants called "The Kangaroo Mother Care (KMC)" to overcome the inadequacies of the neonatal care in developing countries. Kangaroo Mother Care was designed to reduce hypothermia- a drop in body temperature, which poses a serious risk to newborn even in warmest climates. When a baby is born, its temperature drops because babies are born wet and room temperature air is cold on their skin.⁴

The Kangaroo Mother Care (KMC) method is a humane, low cost, standardized, protocol predicated care system for preterm and/or Low Birth Weight (LBW) infants and is predicated on skin-to-skin contact between the preterm baby and the mother and exclusive breastfeeding. The point is to engage the mother by continuously exchanging the aptitudes and responsibility regarding turning into the child's essential parental figure and meeting each physical and emotional need.⁵

A study was conducted in Rural Centres, Tamil Nādu to determine the level of knowledge and practices regarding KMC among the mothers with preterm babies. Descriptive survey approach was adopted, where the structured interview schedule was conducted. Purposive sampling Technique was used for this study where 60 postnatal mothers with pre-term babies were included in the research. Results revealed that majority of the mothers had inadequate knowledge (65%), none of them had adequate knowledge. The mothers who belonged to moderate practices of KMC were 76.66%, in comparison with 23.33% of mothers with adequate practices. There was a positive correlation between knowledge and practices of postnatal mothers regarding KMC. There was a positive association found between level of knowledge and practices with demographic variables such as age, education and parity. It was concluded that there is a need to improve the knowledge and the practices with regard to KMC, hence the self- instructional module was developed for the maternity centre's to promote the wellbeing of neonatal care of preterm babies.⁶

The benefits for all babies on Kangaroo Mother Care are that they stabilize faster on skin to skin care than in the incubator. They do not stabilize in the incubator in the first six hour of life. then KMC babies have stable oxygen rates and breathing. The heart rate is stable. The temperature is most stable on the mother in skin to skin care the mothers chest automatically warms a cold baby, and the mothers core temperature can drop if her baby has a temperature. Another of the essential factors of Kangaroo Mother Care is breast feeding, breast milk production is stimulated by skin to skin care so baby gets all the benefits of breast milk including the correct milk for human.⁷

The mother should be explained how to breastfeed while the baby is in Kangaroo Mother Care position. Holding the baby near the breast stimulates milk production. She may express milk while the baby is still in Kangaroo Mother Care position. The baby could be fed with paladai; spoon or tube, depending on the condition of the baby Kangaroo Mother Care unavoidably requires some exposure on the part of the mother. This can make her nervous and could be deactivating. The staff must respect mother's sensitivities in this regard and ensure culturally acceptable privacy standards in the nursery and the wards where Kangaroo Mother Care is practiced.⁸

Kangaroo Mother Care can be started as soon as the baby is stable. Babies with severe illnesses or requiring special treatment should be managed according to the unit protocol: short Kangaroo Mother Care sessions can be initiated during recovery with ongoing medical treatment (intravenous fluids, oxygen therapy). Kangaroo Mother Care can be provided while the baby is being fed via orogastric tube or on oxygen therapy.⁹

The psychosocial effects of KMC include reduced stress and enhanced mother-infant bonding, with positive effects on the family environment and the infant's cognitive development. Mothers were significantly more involved in care taking activities like bathing, diapering, sleeping with their babies and spent more time beyond usual care taking. They

went out without their babies less often and only for unavoidable reasons. They derived greater pleasure from their babies. It was found that KMC can improve negative maternal mood [e.g., anxiety or depression] and promote more positive parent-child interactions.¹⁰

II. OBJECTIVES OF STUDY

1. To assess the knowledge and Practice of mothers regarding Kangaroo Care.
2. To correlate mothers knowledge and Practice regarding Kangaroo Care
3. To associate mothers knowledge regarding Kangaroo Care with their selected demographic variables
4. To prepare a Health Educational Module regarding Kangaroo Care.

III. MATERIALS AND METHODS

A descriptive survey design was used to assess the knowledge and practice of mothers regarding kangaroo care with a view to develop health education module on kangaroo care.. The study conducted on 80samples. Data was collected using structured questionnaire on knowledge and practice. Health education module is use as an information. Data was collected with following structured tool –

Section I: Consist of demographic data.

It includes 11 demographic characteristics of mothers and 3 demographic characters of newborn.

Section II: Consist of the questions on knowledge regarding KC.

25 objective type questions with three responses in each and only one was the correct response. The correct response was rated with score one. So, the maximum possible score for the knowledge was 25.

Section III: Consisted of the questions on practice of KC.

25 questions with 'yes' or 'no' type responses in each and only one was the correct response. The correct response was rated with score one (1). So, the maximum possible score for the practice was 25.

The content validity of questionnaire was established by experts. The experts were selected on the basis of their expertise, experience and interest in the problem being studied. They were from different specialties i.e. Paediatric Nursing, Medical Surgical Health Nursing, Education, Research, and Statistics. They were requested to give their opinions on the appropriateness and relevance of the items in the tool. Necessary modifications were made as per the expert's advice. The reliability of tool was 0.92.

Final study was conducted on 80 samples. The sample for the study comprised of postnatal mother having LBW babies, who met the designated criteria were selected through simple random sampling technique. Objectives of study was discussed and obtained consent for participation in study. Base line data was assessed by administering a structured assessment questionnaire. Based on the objective and the hypothesis the data was analysed by using various statistical tests i.e. percentage, mean, SD, Correlation (r) and chi square test.

3.1 Statistical methods

The data collected from the participants was planned to be analysed on the basis of the objectives of the study using descriptive and inferential statistics. Data was organized data in a master data sheet.

Data analysis is the systematic organization of research data and the testing of research hypothes is using that data.

The plan of data analysis was as follows

- Demographic variables would be analysed in terms of frequency and percentage.
- Assessment of knowledge and practice regarding kangaroo care would be analysed by mean, SD, Range and mean score.
- Correlation between knowledge and practice regarding kangaroo care among sampled mothers.
- The association of knowledge with demographic variables would be assessed by using chi- square test.

IV. RESULTS

Section I: Description of Socio demographic data

Table 1: N = 80

Variable	Frequency	Percentage
Age		
< 25 year	14	17.50 %
26-30 years	42	52.50 %
31-35 years	19	23.75 %
36-40 year	3	3.75 %
>40 year	2	2.50 %
Religion		
Hindu	58	72.5 %
Christian	10	12.5 %
Muslim	12	15 %
Education		
Illiterate	14	17.5 %
Primary School	21	26.25 %
Secondary	27	33.75 %
Higher Secondary	10	12.5 %
Graduate	8	10.0 %
Occupation		
Housewife	19	23.75 %
Govt./Pvt. Employee	13	16.25 %
Business	28	35.00 %
Labour	20	25.00 %
Family income / Month		
≤1000	22	27.5 %
1001-2000	22	27.5 %
2001-3000	32	40.0 %
>3000	4	5.0 %
Place of Residence (Locality)		
Rural	27	33.75 %
Urban	53	66.25%
Number of Pregnancy		
One	26	32.5 %
Two	40	50.0 %
Three	11	13.75 %
Above three	3	3.75 %
Number of deliveries		
One	27	33.75 %
Two	41	51.25 %
Three	10	12.5 %
Above three	2	2.5 %
Antenatal checkup during pregnancy		
Yes	78	97.5 %
No	2	2.5 %
Illness during pregnancy		

Yes	19	23.75 %
No	61	76.25 %
Sex of the baby		
Male	46	57.5 %
Female	34	42.5 %
Birth weight of the baby		
1-1.5	4	5.0 %
1.5-2.0	32	40.0 %
2-2.5	44	55.0 %

Findings of section I table no. 1 shows that, 52.5% (42) were within the age of 26-30 years, 23.75%(19) were within 31-35 years, 17.5% were within ≤ 25 years, 3.75%(3) were within the age of 36-40 years and the rest of 2.5% (2) of the subjects were above 40 years of age among them 72.5% (58) were Hindus, 12.5% (10) were Christians and the rest of 15.0% (12) were Muslims. 17.5% (14) subjects were illiterates, 26.25% (21) were having primary education, 33.75% (27) were educated up to secondary level, 12.5%(10) were educated up to higher secondary and the rest were 10.0% (8) were graduates. Among the subjects chosen, 23.75% (19) were house wives, 16.25% (13) were government or private employees, 35.0% (28) were engaged in business and the rest of 25% (20) were labours. Majority of subjects under the study, 40.0% (32) were in the family with income of 2001-3000 Rupees/month, an equal proportion 27.5% (22) of sampled post-natal mothers were found both in 1001-2000 Rupees/ month and below 1000 Rupees/month and the rest 5.0% (4) of mothers were above the family income of 3000 Rupees/month. Among the subjects chosen, 66.25% (53) were coming form urban and the rest 33.75% (27) were from rural area of residence. It is observed that 32.5% (26) of the sampled post-natal mothers were primi mothers, 50.0% (40) were in second pregnancy and 13.75%(11) were in third pregnancy and 3.75% (3) were above third pregnancy, 33.75% (26) of the sampled mothers had one delivery, 51.25% (41) had two deliveries and 12.5%(10) had three deliveries and 2.5% (3) had more than three deliveries. Majority of subjects under the study, 97.5% (78) of the mothers had antenatal check-up and 2.5% (2) had no antenatal check-up during pregnancy. It is observed that 23.75% (19) of the mothers had illness during pregnancy and 76.25% (61) had no illness during pregnancy. Mainly 57.5% (46) of the mothers had male babies and 42.5 % (61) had female babies among them 55.0% (44) of the mothers had babies with birth weight of 2.0-2.5 Kg, 40.0% (32) of their babies within the weight of 1.5-2.0 Kg and 5.0 % (4) were within the birth weight of 1-1.5 Kg.

Section II - Assessing knowledge and practice of post-natal mothers regarding Kangaroo care

Table 2: N = 80

S. No.	Study Variables	Statements	Max Score	Mean Score	Ranges core	Mean(%)	SD
1	Knowledge	25	25	11.4	2-16	45.6	12.1
2	Practice	25	25	10.8	4-18	43.2	14.1

Table no. 2 shows the mean score percentage of knowledge and practice of sampled mothers regarding Kangaroo care. The knowledge was rated over the maximum possible score of 25. The data showed that meanscore percent of knowledge was more (45.6%) and practice was 43.2%. This shows that sampled post-natal mothers were having inadequate knowledge and less in practice regarding Kangaroo care.

Knowledge level of mothers regarding Kangaroo care

Table 2.1: N = 80

Knowledge level	Respondents	
	Freq.	%
Inadequate(<50%)	69	86.25
Moderate (51-75%)	11	13.75
Adequate(>75%)	0	0.0

The knowledge level reveals Inadequate, Moderate and Adequate level. Table no. 2.1 depicts that 86.25 % (69) of respondents belongs to inadequate level, 13.75% (11) of respondents belongs to moderate level and none of them had adequate level of knowledge regarding Kangaroo care.

Practice level of mothers regarding Kangaroo care

Table 2.2: N = 80

Practice level	Respondents	
	Freq.	%
Inadequate(<50%)	62	77.25
Moderate (51-75%)	18	22.25
Adequate(>75%)	0	0.0

Table no- 2.2 depicts that 77.25% of respondents belongs to inadequate level, 22.75% of respondents belongs to moderate level and none of them had adequate level of Practice regarding Kangaroo care. The Practice level reveals Inadequate, Moderate and Adequate level.

Section III - Correlation between knowledge and practice

Table 3: N = 80

Variables	Knowledge	Practice
Knowledge	1	-0.496**
Practice	0.496**	1

Note : '**' – Significant at 0.01 level. 'NS' – Not significant at 5% level.

The above table no.3 showed the results on linear relationship between the study variables. The correlation coefficient (r=0.496) between knowledge and practice was positive and statistically significant at 5% level. The null hypothesis is rejected and the research hypothesis is accepted. Hence, there is a significant correlation between knowledge and practice regarding Kangaroo care among post-natal mothers at 5% level. It evidence that higher the knowledge results in higher the practice, i.e., higher the knowledge leads to more in practice towards Kangaroo care among the post-natal mothers.

Section IV - Association of knowledge regarding Kangaroo care among post-natal mothers with the selected demographic characters.

The table no. 4 presents the statistical outcomes of association between demographic variables with knowledge among post-natal mothers. In order to examine the association between these variables the chi-square test was worked out. Among these variables accounted for association, the variables age (χ^2 value = 16.31, df=1), educational status (χ^2 value = 18.80, df=1), occupation (χ^2 value = 16.89, df=1) and number of deliveries (χ^2 value = 3.87, df=1) were found to be invariably significant in association with knowledge regarding Kangaroo care among post-natal mothers at 5% level i.e., P<0.05. It evidenced that these selected demographic variables are significantly associated with knowledge.

Table 4: N = 80

Demographic Characteristics	Knowledge				Total(80) No&%	χ^2 value	P-Value
	Inadequate		Moderate				
	No.(69)	%	No.(11)	%			
Age							
≤30years	54	78.2	2	18.2	56	16.31*	P<0.05
>30years	15	21.9	9	81.8	24		
Religion							
Hindu	52	75.4	6	54.5	58	2.06 ^{ns}	P>0.05
Others	17	24.6	5	45.5	22		



Educational Status							
Illiterate	7	10.1	7	63.7	14	18.80*	P<0.05
Literate	62	81.9	4	36.3	66		
Occupation							
Housewife	11	15.9	8	72.7	19	16.89*	P<0.05
Others	58	84.1	3	27.3	61		
Family income in Rs.							
≤2000	37	53.6	7	63.7	44	0.38 ^{ns}	P>0.05
>2000	32	46.4	4	36.3	36		
Place of residence							
Urban	25	36.2	2	18.2	27	1.38 ^{ns}	P>0.05
Rural	44	63.8	9	81.8	53		
Number of pregnancy							
One	25	27.5	1	9.1	26	3.19 ^{ns}	P<0.05
>One	44	63.8	10	90.9	54		
Number of deliveries							
One	26	37.6	1	9.1	27	3.87*	P<0.05
>One	43	62.3	10	90.9	53		
Antenatal check-up							
Yes	67	97.1	11	100	78	0.33 ^{ns}	P>0.05
No	2	2.9	0	0	2		
Illness during Pregnancy							
Yes	17	24.6	2	18.2	19	0.22 ^{ns}	p>0.05
No	52	75.3	9	81.8	61		

Note: *-Significant at 0.05 level(P<0.05)&^{ns}– Not significant at0.05level(P>0.05)

V. DISCUSSION

Section I: Description of Socio demographic data

Majority of subjects i.e.52.5%(42) were within the age groupbetween26-30years, among them72.5% (58) were Hindus. Majority of subjects under the study,33.75%(27) were educated upto secondary level standards, 35% subjects (28) we reengaged in business and40.0%(32)wereinthefamilywithincomeof2001-3000Rupees/month,66.25% (53) were staying in urban areas, 50.0% (40)of the sampled post-natal mothers were in second pregnancy, 51.25%(41)had two deliveries. Majority of subjects under the study, 97.5% (78) of the mothers had antenatal check-up. It is observed that76.25% (61)of the mothers had no illness during pregnancy. Mainly 57.5% (46) of the mothers had male babies among them 55.0% (44) of the mothers had babies with birth weight of 2.0-2.5 Kg.

Section II :Assessing knowledge and practice of post-natal mothers regarding Kangaroo care

The knowledge and practice level reveals Inadequate, Moderate and Adequate level.86.25 % (69) of respondents belongs to inadequate level, 13.75% (11) of respondents belongs to moderate level and none of them had adequate level of knowledge regarding Kangaroo care.77.25% of respondents belongs to inadequate level, 22.75% of respondents belongs to moderate level and none of them had adequate level of Practice regarding Kangaroo care.

Section III: Correlation between knowledge and practice

The correlation coefficient (r=0.496) between knowledge and practice was positive and statistically significant at 5% level. The null hypothesis is rejected and the research hypothesis is accepted. Hence, there is a significant correlation between knowledge and practice regarding Kangaroo care among post-natal mothers at 5% level. It evidence that higher the knowledge results in higher the practice, i.e., higher the knowledge leads to more in practice towards Kangaroo care among the post-natal mothers.



Section IV :Association of knowledge regarding Kangaroo care among post-natal mothers with the selected demographic characters

There was significant association between the knowledge regarding kangaroo care among post-natal mothers with selected demographic variables like age, educational status, occupation and number of deliveries. Hence the hypothesis “there will be significant association between knowledge of mothers regarding Kangaroo care with their demographic variables” was accepted.

VI. CONCLUSION

The conclusions were drawn on the basis of the findings of the study that knowledge and practice level regarding kangaroo care among post-natal mothers are inadequate (poor).

- **Implications:** The findings of the study have certain important implications for the nursing profession in the field of Nursing Practice, Nursing Education, Nursing Administration, Nursing Research.
- **Nursing Education:** Education is the key component to update and improve the knowledge of an individual. Thus the study results can be used as an informative illustration for students who can effectively use kangaroo care and let the low birth weight babies avail of the benefits. Nurse educators should emphasize the concept of involvement of the family in the case of low birth weight babies and encourage student nurses to appreciate their role. The institutes of nursing education should play an active role in conducting in-service education programme, workshops and continuing education programmes to educate nursing personnel of the hospital regarding kangaroo care.
- **Nursing Administration:** Health personnel are playing vital role in the improvement of practices in nursing. Nursing personnel should be prepared to take leadership role in educating the nurses. Nurses have to provide health education and make mothers of low birth-weight babies practice kangaroo care. Kangaroo care can be brought about with out any additional budget or special instruments or other resources and with existing number of personnel. Nurse administrators can make a policy decision to use kangaroo care for therapeutic purpose. Staff development programme regarding kangaroo care can be conducted for staff nurses posted in NICU, Post natal wards..
- **Nursing Practice:** Its an effective intervention which can be safely included in the management of low birth-weight babies. Kangaroo care gives importance in promoting the health of low birth-weight babies. The practice of kangaroo care needs to be encouraged in all postnatal wards, NICU and can be continued by the mother at home. The Nurses in Premature Unit can use kangaroo care as a nursing intervention to prevent hypothermia and enhance bonding.
- **Nursing Research:** The study revealed that there is lack of knowledge regarding kangaroo care. The findings of the present study are helpful for the nursing professionals, Researchers and Investigators to conduct further studies to find out the effectiveness of various methods of providing education on improving the Knowledge and practice regarding Kangaroo Care among mothers of LBW children. It will in turn strengthen nursing research pertaining to the nursing. It emphasizes a great need for research in awareness and practice.

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