

Does Kangaroo Mother Care Reduce Anxiety in Postnatal Mothers of Preterm Babies? - A Descriptive Study from a Tertiary Care Centre in South India

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ABSTRACT

Background: To assess anxiety and depression among postnatal mothers of preterm babies and to evaluate whether Kangaroo mother care reduces their anxiety.

Methods: This descriptive study was conducted in a tertiary care teaching hospital in south India. Anxiety and depression was assessed using Hospital Anxiety and Depression Scale in 2 groups of postnatal mothers (Pre Kangaroo mother care and post Kangaroo mother care) with 50 participants each and compared.

Results: In the pre Kangaroo mother care group, abnormal sub scale scores were noted in 27 (54%) and 21 (42%) for anxiety and depression respectively. The mean Hospital Anxiety and Depression Scale anxiety subscale score was 10.1 (± 4.5) and mean depression subscale score was 9.15 (± 4.3) in the pre Kangaroo mother care group compared to 7.76 (± 4.8) and 7.24 (± 5.15) respectively in the post Kangaroo mother care group. The mean total Hospital Anxiety and Depression Scale score was significantly less in the post Kangaroo mother care group compared to pre Kangaroo mother care group.

Conclusions: Mothers of preterm neonates experience significant anxiety and depression during the immediate postnatal period and Kangaroo mother care can reduce their stress.

Keywords: Anxiety; depression; kangaroo mother care; newborn; preterm.

INTRODUCTION

Mothers of preterm neonates experience multiple stressors in the post natal period related to preterm birth, medical condition of the baby and complexity of the Neonatal Intensive Care Unit (NICU) environment.¹ It is very crucial for NICU staff and doctors to understand maternal anxiety to develop appropriate intervention strategies that can reduce the mothers' fear and stress and enhance their ability to understand and cope up with the complex NICU environment.² An important intervention that is likely to decrease maternal anxiety in the NICU setting is Kangaroo mother care (KMC). It includes skin-to-skin contact and exclusive breastfeeding.^{3,4} Though the beneficial effects of KMC on preterm babies are well established, there is paucity of Indian literature regarding its role in maternal anxiety. This study was done to assess anxiety and depression among postnatal mothers of preterm babies and evaluate whether KMC reduces their anxiety.

METHODS

This descriptive study was conducted in JIPMER, a tertiary care teaching hospital in South India after due approval from Institute Ethics Committee. In our Institute, on an average 1500 deliveries are conducted every month and 30% of the neonates delivered have low birth weight and are mostly preterm. Mothers of preterm and low birth weight infants are provided hands on training in KMC during their hospital stay in a dedicated KMC ward adjacent to the NICU by trained nursing personnel. All postnatal mothers of preterm babies (birth weight 1800-2500 g) admitted in NICU during the study period (July - August 2016) were considered for the study. However, mothers whose babies were on mechanical ventilation or had major congenital / surgical problems were excluded.

The sociodemographic details, obstetric and neonatal information of the study participants were collected using a proforma. Maternal anxiety and depression was assessed using Hospital Anxiety and Depression Scale

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(HADS) in the local language Tamil.^{5,6} It is an investigation tool consisting of 14 questions- 7 related to anxiety and 7 to depression. Each question was answered on a scale of 0 to 3, with 0 indicating the least or no anxiety/depression, and 3 indicating the most anxiety/depression. A subscale score of 0-7 was considered normal while 8-10 was borderline abnormal and 11- 21 was abnormal.⁵

Considering the short study period, a convenient sample size including 100 postnatal mothers were administered the tool. Fifty mothers were evaluated for anxiety and depression before they started practising KMC (Pre KMC group) and 50 were evaluated after practising KMC for a week with a minimum duration of 4 hrs per day (Post KMC group). HADS scoring was done by the first author who was not involved in the KMC training or clinical management of the neonates between 24 - 48 hrs after delivery for the mothers in pre KMC group and on 8th day after delivery for those in the post KMC group. Mothers were allowed to cross over from pre KMC to post KMC group. The baseline demographic details and subscale scores for anxiety and depression for both the groups were compared.

Data analysis was done using SPSS version 17. Descriptive statistics were used to represent the demographic and clinical variables. The total and subscale HADS scores were expressed as mean and standard deviation and chi square test was used to compare the scores between the two groups. A p value <0.05 was considered statistically significant.

RESULTS

There were 50 post natal mothers in each group. Thirty eight mothers had crossed over from pre KMC to post KMC group. The baseline characteristics of the study participants is described in Table 1. In the pre KMC group, abnormal sub scale scores (i.e score of 11-21) were noted in 27 (54%) and 21 (42%) for anxiety and depression respectively. However, in the post KMC group, abnormal sub scale scores (i.e score of 11-21) were noted in 17 (34%) and 15 (30%) for anxiety and depression respectively. The total and subscale HADS scores for both the groups is depicted in Table 2.

Table 1. Baseline characteristics of the study participants.

Characteristics	Pre KMC group	Post KMC group
Maternal age (in years)	25.68±4.98	25.04±3.78
Maternal education n (%)		
1. Illiterate	3 (6%)	2 (4%)

2. Primary/ Secondary/ high school	23 (46%)	21 (42%)
3. Higher secondary	8 (16%)	9 (18%)
4. Graduate	16 (32%)	18 (36%)
Maternal occupation n (%)		
1. Housewife	38 (76%)	40 (80%)
2. Employed	12 (24%)	10 (20%)
Family type (%)		
1. Joint	32% (64%)	34 (68%)
2. Nuclear	18% (36%)	16 (32%)
Obstetric complications n (%)		
1. None	35 (70%)	36 (72%)
2. Present	15 (30%)	14 (28%)
Type of delivery (%)		
1. Vaginal	38 (76%)	40 (80%)
2. LSCS	12 (24%)	10 (20%)
Mean period of gestation (in weeks)	35.52±3.67	35.6±2.55
Mean Birth weight (in kg)	1.94±0.39	1.96±0.36
Sex of baby n (%)		
1. Male	27 (54%)	26 (52%)
2. Female	23 (46%)	24 (48%)

Table 2. Hospital Anxiety and Depression Scale (HADS) scores.

	Pre KMC group	Post KMC group	p value
Mean Anxiety score	10.1±4.52	7.76±4.87	0.0144
Mean Depression score	9.1±4.36	7.24±5.15	0.0543
Total score	19.2±7.79	15±8.66	0.0123

DISCUSSION

Every year, about 15 million babies are born prematurely. More than 1 in 10 babies are born preterm, affecting families all around the world and preterm birth rates are increasing in almost all countries.⁷ Apart from the issues of survival, complications and long term neurodevelopmental outcome of these preterm neonates, their mothers also experience significant psychological distress, with elevated levels of inter-correlated depressive symptoms, stress, anxiety and post-traumatic stress symptoms.⁸ Postnatal mothers are influenced by several conditions including the severity of their baby's diagnosis, the baby's appearance and level of functioning, and the duration of their baby's

length of stay. Environmental factors that can influence the parents' unique reaction to having an infant in the NICU might include difficulty fulfilling their parental role, the medical equipment used for intervention, and the communication patterns and behaviours of the staff.^{2,9} KMC is a novel package with proven benefits for the preterm neonate but its potential role in alleviating maternal stress is yet to be explored in detail.

In our study, the mean age of the mothers was 25 years and majority of them were literate housewives and belonged to joint families. The clinico demographic parameters in both the groups were comparable. As expected in the pre KMC group, abnormal sub scale scores were noted in 54% and 42% mothers for anxiety and depression respectively. The timing of HADS scoring i.e. 24 - 48 hrs after delivery for the mothers in pre KMC group could be the reason for the higher proportions with abnormal subscale scores. In the post KMC group, mothers with abnormal subscales were relatively less (34% and 30% for anxiety and depression respectively). Similarly mean anxiety, mean depression and total scores were significantly less in the post KMC group compared to pre KMC group. Hence, KMC can reduce anxiety and depression among postnatal mothers of preterm neonates. Similar studies from Iran and South Korea using Parental Stress Scale showed similar effect of KMC on maternal stress.^{10,11} In clinical trials, mothers who provided KMC had less anxiety and fewer depressive symptoms and more positive interactions with their infants in the first 6 months than other mothers.^{12,13} Several neurohormonal mechanisms including oxytocin release may be involved in reducing maternal anxiety during KMC.¹⁴ It would have been ideal if the same set of mothers were evaluated pre and post KMC. Owing to the crossover study design, the same set of mothers constituted 76% of each group.

Apart from the postpartum period, maternal depression can also have long lasting effect on the preterm neonate. A study from Beijing has shown that preterm infants of depressed mothers are at high risks of poor growth and development delay¹⁵. However, the investigators of this study had used a different scale to quantify maternal depression and not HADS score. Previous studies^{16,17} have shown that depressed mothers provide less cognitive stimulation and less interaction to their infants than non-depressed mothers.

KMC should therefore be encouraged for all mothers of pre term infants, especially in resource limited countries like India. Due importance must be given to maternal stress, and efforts should be made to reduce the stressful

factors. Adequate counselling should be given to all mothers whose babies are admitted in the NICU and they should be made aware of the exact nature of their baby's condition, what is required from them, and how to cope with their feeling of anxiety and depression.¹⁸ The importance of KMC to reduce their stress, as well as its beneficial effects on the baby's health must be emphasised.

CONCLUSIONS

In the population studied, anxiety and depression experienced by mothers of preterm neonates during the immediate postnatal period is likely to be reduced by encouraging them to practice KMC.

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