

“A Descriptive Study to Assess Awareness and Application of Kangaroo Mother Care for Preterm and Low Birth Weight Babies Among Mothers in Secondary Neonatal Care Units.”

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Abstract

Introduction: Kangaroo Mother care is a evidence based approach for survival of Low birth weight babies born in preterm as regulation of temperature to prevent hypothermia, sustenance with breast feeding to gain optimal weight gain.

Objectives: To determine the awareness of Mothers who delivered Preterm and Low birth weight babies and to encourage for effective application of Kangaroo Mother care

Methods: Randomised Controlled trials (RCT) of 100 Mothers are selected in secondary level Neonatal care unit to assess awareness about Kangaroo Mother care and its application. Selected Mothers are assessed about their knowledge regarding Kangaroo Mother care by asking questions.

Results:

Respondents who are giving Kangaroo mother care for their Preterm and low birth weight babies are having awareness with inadequate knowledge of 17%, 72% of moderate knowledge and 9% of adequate knowledge. Overall mean% is 67.7 and SD is 2.16 among Mothers

Conclusion: With descriptive study mothers are aware moderately about Kangaroo Mother care and with discussions mothers are more aware and willing to applicate kangaroo mother care for preterm and low birth weight babies to enhance growth and prevent Neurodevelopmental complications.

Keywords: Kangaroo mother care, preterm, low birth weight, descriptive study

ARTICLE

Introduction: Kangaroo Mother care is a evidence based approach for survival of Low birth weight babies born in preterm as regulation of temperature to prevent hypothermia, sustenance with breast feeding to gain optimal weight gain.¹This exploratory descriptive study focuses on scrutinize levels of realization among mothers to analyze the extend of application of Kangaroo Mother care with awareness. Kangaroo Mother care is vital procedure especially to decline neonatal mortality and many morbidity in preterm and Low Birth weight babies. On an average 1 million infants including all age group children die each year dueto complications of preterm birth with associated morbidities.²Kangaroo Mother care is most effective and economical procedure by placing preterm and /or Low birth weight babyin contact with mother’s chest (skin to skin contact) which enhances baby for warmth and effective neuro stimulant with overcome from associted complications like hypothermia and other neuro developmental complications. Once Mother confident with Kangaroo Mother care she can achieve best care for her baby with effective breast feeding and protection from coplications.³

Literature Review:

Gopi Krishna Muddu 1, Sangeetha Lakshmi Boju 2013 A study conducted on knowledge and awareness about benefit of Kangaroo Mother care, Eligible Mothers were selected with sample size of 46 from teaching hospital and study conucted from June to august 2009. This study maily focused on knowledge and awareness of mothers about Kangaroo Mother care. Related questions were asked to mothers regarding KMC again to determine their knowledge and difficulties about KMC. Results: Most of the Mothers understood what discussed with them about KMC. Positive feelings Although the difference was not statistically significant, a notable proportion of mothers (39.1%, 95% CI: 25.1–54.6%) felt that **breastfeeding during KMC was impractical**. In contrast, 60.9% (95% CI: 45.4–74.9%) reported **no difficulty**

breastfeeding while practicing KMC. When asked about the **feasible duration** for providing KMC, mothers gave varying responses: **52%** felt that **1 hour** was manageable, **19.6%** preferred **2 hours**, and only **6.5%** felt that **12 hours** of KMC was practical.¹

Olubukola Olawuyi 1, Beatrice Nkolika Ezenwa et al (2021) a study conducted on Knowledge, attitude and practice of Kangaroo Mother care on mothers in the neonatal wards of a tertiary care center. This study focused on prevention complications related to preterm and low birth weight babies admitted in tertiary care center. Preterm and low birth weight lead to hypothermia. As preterm babies underdeveloped needs warm chain to be continue. KMC is best method for protection of preterm and low birth weight babies from cold injury. This study had objective to determine the knowledge, attitude and practice of kangaroo mother care on mothers in the newborn care wards of the tertiary care center in Nigeria. This was a descriptive cross sectional study on sixty mothers randomly selected from the Neonatal wards of the Lagos University Teaching Hospital (LUTH), Idi-araba using convenient sampling technique. **Results:** The findings of the study indicates that 80% of mothers had heard of kangaroo mother care with 66.6% having good knowledge about KMC. 65% of the Mothers had a better attitude about the use of KMC with 71.7% feeling happy when mother's babies in kangaroo position. The knowledge of mothers significantly influenced their attitude and practice of KMC $p < 0.05$.²

Nathalie Charpak, Adriana Montealegre-Pomar (2021) A systemic review and meta analysis suggest continuous KMC has direct impact on neonatal growth. This study systemic review and meta analytic study highlighting new evidence of KMC especially duration of KMC improving newborn stability. Randomised controlled trials (RCT) of preterm and low birth weight babies were considered for comparison between conventional care and KMC. **Results:** Researchers identified 1368 papers, and 13 RCTs including 743 KMC babies and 718 controls met the criteria of selection. Duration of KMC fixed for babies of at least 6 hours in a day which showed improvement in weight gain compared to controls with mean difference of 8.99 gm/day. This difference persisted between 2 and 6 h/d and disappeared with 2 hours or less. When we used g/kg/d, the weight gain was higher when the duration was at least 8 h/d. Only babies who received 6 h/d gained more length and head circumference.³

Natnael Atnafu Gebeyehu 1, Kelemu Abebe Gelaw 1 et al (2022) A systemic review and meta analysis on Knowledge, attitude and practice towards kangaroo mother care among postnatal women in Ethiopia. **Kangaroo mother care is a vital procedure in reducing neonatal mortality and morbidity associated with preterm and LBW in Ethiopia. Neonatal death is remain a serious problem and this study focused on determine the prevalence of the knowledge, attitude and practice of kangaroo mother care among Ethiopia mothers.** **Results:** Out of 273 articles retrieved, 16 studies met the eligibility criteria and are thus included in this study. Those 16 studies had a total of 12,345 respondents who reported kangaroo mother practice, with five (comprising 1,232 participants combined) reporting that both knowledge and attitude were used to determine the overall estimation. The pooled estimates of good knowledge, positive attitude and poor practice of kangaroo mother care were found to be 64.62% (95% CI: 47.15%-82.09%; $I^2 = 97.8%$), 61.55% (49.73%-73.38%; $I^2 = 94.8%$) and 45.7% (95% CI: 37.23%-54.09%; $I^2 = 98.5%$), respectively.⁴

Mithila Koreti 1, Pramita Muntode Gharde et al (2022) A narrative review study conducted on kangaroo mother care and its effects and its benefits or low birth weight babies. Kangaroo mother care is a preventive, economical method for babies with low birth weight. KMC benefits LBW infants in a number of ways. This review stands the effect of KMC on the weight gain of LBW neonates. KMC also improves breastfeeding rates during the hospital stay as well as at home. A thorough literature search was conducted using key databases like PubMed and Google Scholar, as well as Medical Subject Heading (MeSH) terms and related keywords. Clinical health experts also believed that implementing KMC would

assist mothers in developing more solid emotional bonds with their newborns. As a result, both mothers and their newborns felt more secure, and the babies were more relaxed. KMC was also seen to support the infants' growth and development, which improved the mothers' sense of connection. It is crucial to remember that KMC works better for babies with very low birth weight (VLBW). The mother-child relationship enhances sucking-feeding, and KMC infants have higher means of growth parameters.⁵

Qian Cai, Dan-Qi Chen et al (2022) A umbrella review on what influences the implementation of kangaroo mother care? This study mainly concentrate on reviewing existing reviews related KMC which studied and analysed on KMC Digital data base including many platforms like PubMed, Embase, CINAHL and Cochrane Library were searched and collected reviews from inception to 1 July 2022. In results of this study researchers generated 531 studies and after disqualification of ineligible studies, six eligible studies were reviews and analysed Many factors were identified and analysed under suitable circumferences.⁶

Vaishnavi D Dhage 1, Asmita Rannaware et al (2023) A narrative study conducted on Kangaroo Mother Care for Low-Birth-Weight Babies in Low and Middle-Income Countries. In underdeveloped and developing countries the Infant mortality rate is high than developed countries. The higher infant mortality is due to low birth weight (LBW) a combination of intra-uterine growth retardation (IUGR) and prematurity, which are risk factors for acquiring infectious diseases amongst newborns. Kangaroo mother care (KMC) is a neonatal procedure that is carried out in newborn infants, especially in preterm babies and LBW babies. It is skin-to-skin contact between a mother's bare chest and a stable infant. KMC is an important intervention in reducing infant mortality rates in LMICs. A comprehensive literature and data search was done using key databases like PubMed and Google Scholar. A total of 42 articles out of 1,168 articles were selected for review after screening and elimination of the repeated articles.⁷

Sindhu Sivanandan , Mari Jeeva Sankar (2023) A systemic review and meta analysis done on Kangaroo mother care for preterm and low birth weight babies. According to this study there was reduction in mortality of low birth weight babies. In this study researchers selected eight digital dabases for analysis. They searchd study related contents including PubMed, Embase, Cochrane CENTRAL for generating contents until March 2022, were searched. Data Extraction and Synthesis: Preferred reporting data reviewed for systemic review and Meta analysis guidelines(PRISMA). Results: in this study researchers selected 31 trials with comparision of 27 studies on KMC done with conventional care. According to this study on practice of KMC the risk of mortality reduced to 0.68;95%. with continue care on KMC babies were protected from infection even on longaer hospitalization.⁸

Research Methodology:

Study Design: This study employed a descriptive cross-sectional design to assess the awareness and application of KMC among mothers.

Study Setting: The study was conducted at Secondary level helth care center, located in Vijayapura, Karnataka, over a period of one month in August 2025.

Study Population: The study included mothersof preterm and low birth weight babies

Inclusion Criteria

- **Mothers who had initiated KMC for their babies**
- **Mothers who gave informed consent**

Exclusion Criteria

- **Mothers with critically ill babies**
- **Mothers who declined participation**

Sample Size: A total of 100 mothers were included in the study. The sample size was determined based on availability.

Sampling Technique: A convinience sampling method was used.

Data Collection Tool: Data was collected using a pre-tested, semi-structured questionnaire developed based on literature review and expert validation. The questionnaire consisted of sections on: Demographic details, General information about kangaroo mother care, Advantages of kangaroo mother care, Criteria for eligibility of Kangaroo Mother Care, Practices of Kangaroo Mother Care, Kangaroo Mother Care in the nursery, Dont's of Kangaroo Mother Care.

Data Collection Procedure:

Eligible participants were approached after they had initiated KMC. The purpose of the study was explained, and written informed consent was obtained. The questionnaire was administered through face-to-face interviews by the primary investigator. Anonymity and confidentiality were ensured.

Results:

This study mainly focuses on awareness and application of KMC among Mothers who have preterm and low birthweight babies for their better outcome in next developmental periods. Based on Demographic data I collected respondents awareness in this study.

Table No:01 Demographic variables of Respondents

| S. No | Demographic variables | No | % |
|-------|-----------------------|----|----|
| 1 | Age in years | | |
| | a. 18-24 years | 24 | 24 |
| | b. 25-32 years | 53 | 53 |
| | c. 33-40 years | 18 | 18 |
| | d. 40 years and above | 5 | 5 |
| 2 | Education | | |
| | a. Primary | 20 | 20 |
| | b. High school | 28 | 28 |
| | c. PUC | 36 | 36 |
| | d. Degree | 16 | 16 |
| 3 | Type of family | | |
| | a. Nuclear family | 48 | 48 |
| | b. Joint family | 30 | 30 |
| | c. Extended family | 22 | 22 |
| 4 | Occupation | | |
| | a. House wife | 55 | 55 |
| | b. Govt Employee | 18 | 18 |
| | c. Private Employee | 10 | 10 |
| | d. Business | 17 | 17 |
| 5 | Income (in Rs) | | |
| | a. 3001--5000 | 48 | 48 |
| | b. 5001-7000 | 21 | 21 |
| | c. 7001-9000 | 18 | 18 |
| | d. 9001 and above | 13 | 13 |
| 6 | Religion | | |
| | a. Hindu | 62 | 62 |
| | b. Muslim | 27 | 27 |
| | c. Christian | 11 | 11 |

| | | | |
|---|---|----|----|
| | d. Others | 0 | 0 |
| 7 | Do you have any early information regarding kangaroo mother care? | | |
| | a. Yes | 26 | 26 |
| | b. No | 74 | 74 |
| 8 | Source of Information | | |
| | a. Mass media | 5 | 5 |
| | b. Friends and relatives | 8 | 8 |
| | c. Health personnel | 4 | 4 |
| | d. Others | 9 | 9 |

n=100

Table No.:02. To assess the knowledge of mothers regarding kangaroo mother care.

n=100

| Level of Knowledge | Score | No of Respondents | |
|--------------------|---------|-------------------|----|
| | | No | % |
| Inadequate | > 50% | 19 | 19 |
| Moderate | 50--75% | 72 | 72 |
| Adequate | >75% | 9 | 9 |

Table No.02 implies Knowledge of mothers regarding kangaroo mother care. In this table 19(19%) of mothers were having inadequate knowledge about kangaroo mother care, 72(72%) of them were having moderate knowledge about kangaroo mother care and only 9(9%) of mothers have adequate knowledge about kangaroo mother care.

Figure No.01: To assess the knowledge of mothers regarding kangaroo mother care.

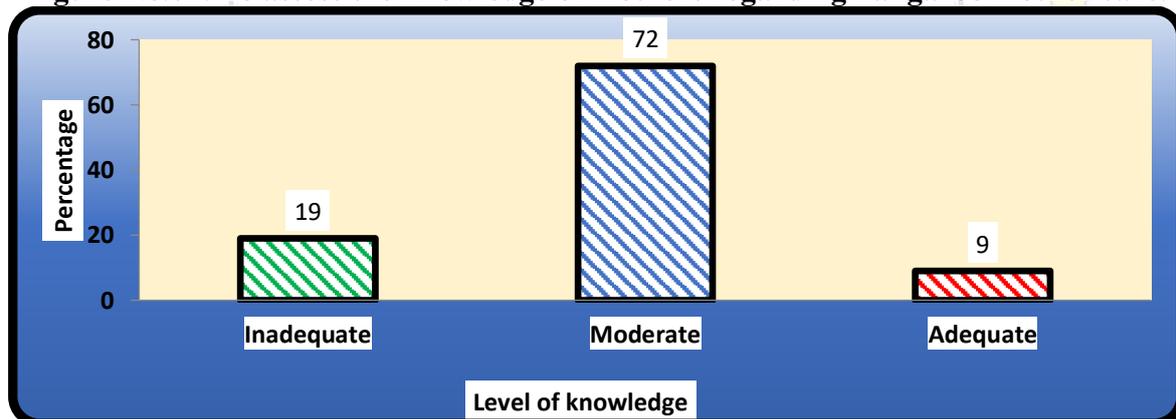


Table No.03 Aspects wise knowledge regarding kangaroo mother care among mothers

| Aspects wise Knowledge | Level of Knowledge | | | | | |
|------------------------|--------------------|----|--------------------|----|-----------------|----|
| | Inadequate (> 50%) | | Moderate (50--75%) | | Adequate (>75%) | |
| General Information | 17 | 17 | 78 | 78 | 5 | 5 |
| Advantages | 19 | 19 | 79 | 79 | 2 | 2 |
| Eligibility of KMC | 21 | 21 | 76 | 76 | 3 | 3 |
| Practice | 14 | 14 | 82 | 82 | 4 | 4 |
| KMC in Nursery | 15 | 15 | 74 | 74 | 11 | 11 |
| Do not of KMC | 16 | 16 | 75 | 75 | 9 | 9 |
| Overall | 19 | 19 | 72 | 72 | 9 | 9 |

Table No.03 revealing aspectwise knowledge regarding kangaroo mother care among mothers. In that overall 19(19%) of mothers were having inadequate knowledge about kangaroo mother care, 72(72%) of them were having moderate knowledge about kangaroo mother care and only 9(9%) of mothers have adequate knowledge about kangaroo mother care.

Figure No.02: Aspects wise knowledge regarding kangaroo mother care among mothers

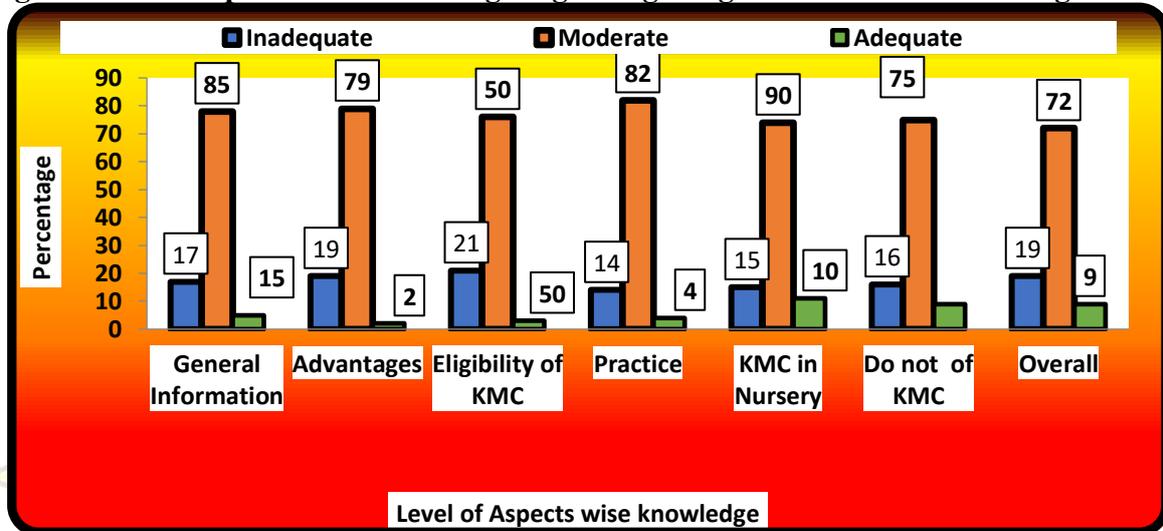


Table No.04: Aspects wise mean, SD and Mean% of knowledge regarding kangaroo mother care among mothers

| Aspects wise Knowledge | Max Statements | Max Score | Range | Mean | SD | Mean% |
|------------------------|----------------|-----------|-------|------|------|-------|
| General Information | 6 | 6 | 0--5 | 4.2 | 1.89 | 70.0 |
| Advantages | 6 | 6 | 0--4 | 3.3 | 1.08 | 55.0 |
| Eligibility of KMC | 7 | 7 | 1--6 | 4.6 | 1.58 | 65.7 |
| Practice | 3 | 3 | 1--3 | 2.2 | 1.34 | 73.3 |
| KMC in Nursery | 4 | 4 | 0--4 | 3.2 | 1.3 | 80.0 |
| Do not of KMC | 4 | 4 | 1--3 | 2.8 | 1.62 | 70.0 |
| Overall | 30 | 30 | 4--25 | 20.3 | 2.16 | 67.7 |

Table No. 04 revealing about aspect wise mean, SD and mean% of knowledge regarding kangaroo mother care among mothers. Overall mean% is 67.7 and SD is 2.16.

Figure No.03: Aspects wise knowledge regarding kangaroo mother care among mothers

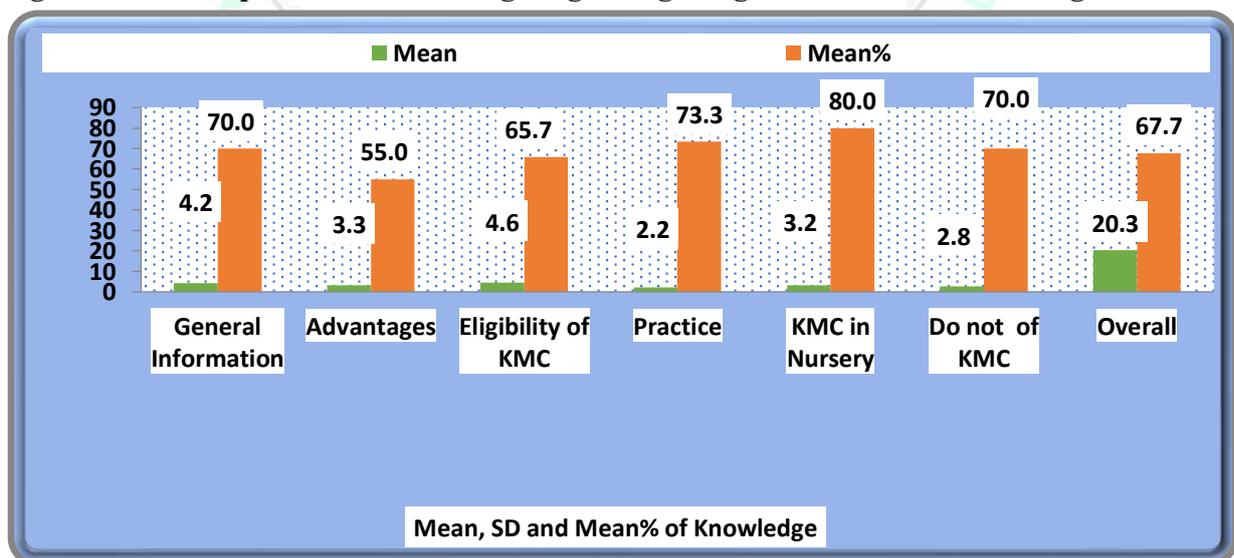


Table No.05: To find out the association between the knowledge of primipara mothers regarding kangaroo mother care with selected demographic variables.

n=60

| S. No | Demographic variables | No | % | Level of Knowledge | | | | Chi square |
|-------|---|----|----|--------------------|----|---------------|----|------------|
| | | | | < Median (53) | | ≥ Median (47) | | |
| | | | | No | % | No | % | |
| 1 | Age in years | | | | | | | |
| | a. 18-24 years | 24 | 24 | 16 | 16 | 8 | 8 | 2.9 |
| | b. 25-32 years | 53 | 53 | 25 | 25 | 28 | 28 | df 3 |
| | c. 33-40 years | 18 | 18 | 10 | 10 | 8 | 8 | N.S |
| | d. 40 years and above | 5 | 5 | 2 | 2 | 3 | 3 | |
| 2 | Education | | | | | | | |
| | a. Primary | 20 | 20 | 10 | 10 | 10 | 10 | 7.8* |
| | b. High school | 28 | 28 | 15 | 15 | 13 | 13 | df 3 |
| | c. PUC | 36 | 36 | 24 | 24 | 12 | 12 | S |
| | d. Degree | 16 | 16 | 4 | 4 | 12 | 12 | |
| 3 | Type of family | | | | | | | |
| | a. Nuclear family | 48 | 48 | 19 | 19 | 29 | 29 | 6.7* |
| | b. Joint family | 30 | 30 | 20 | 20 | 10 | 10 | df 2 |
| | c. Extended family | 22 | 22 | 14 | 14 | 8 | 8 | S |
| 4 | Occupation | | | | | | | |
| | a. House wife | 55 | 55 | 25 | 25 | 30 | 30 | 3.3 |
| | b. Govt Employee | 18 | 18 | 10 | 10 | 8 | 8 | df 3 |
| | c. Private Employee | 10 | 10 | 7 | 7 | 3 | 3 | N.S |
| | d. Business | 17 | 17 | 11 | 11 | 6 | 6 | |
| 5 | Income (in Rs) | | | | | | | |
| | a. 3001--5000 | 48 | 48 | 29 | 29 | 19 | 19 | 3.7 |
| | b. 5001-7000 | 21 | 21 | 11 | 11 | 10 | 10 | df 3 |
| | c. 7001-9000 | 18 | 18 | 9 | 9 | 9 | 9 | N.S |
| | d. 9001 and above | 13 | 13 | 4 | 4 | 9 | 9 | |
| 6 | Religion | | | | | | | |
| | a. Hindu | 62 | 62 | 27 | 27 | 35 | 35 | 7.04* |
| | b. Muslim | 27 | 27 | 20 | 20 | 7 | 7 | df 2 |
| | c. Christian | 11 | 11 | 6 | 6 | 5 | 5 | S |
| | d. Others | 0 | 0 | 0 | 0 | 0 | 0 | |
| 7 | Do you have any early information regarding kangaroo mother care? | | | | | | | |
| | a. Yes | 26 | 26 | 21 | 21 | 5 | 5 | 10.8* |
| | b. No | 74 | 74 | 32 | 32 | 42 | 42 | df 1 S |
| 8 | Source of Information | | | | | | | |
| | a. Mass media | 5 | 5 | 4 | 4 | 1 | 1 | 2.8 |
| | b. Friends and relatives | 8 | 8 | 7 | 7 | 1 | 1 | df 3 |
| | c. Health personnel | 4 | 4 | 2 | 2 | 2 | 2 | N.S |
| | d. Others | 9 | 9 | 8 | 8 | 1 | 1 | |

N.S- Not Significant, *S- Significant at $p < 0.05$ level

Conclusion:

Kangaroo Mother care is a evidence based approach for survival of Low birth weight babies born in preterm as regulation of temperature to prevent hypothermia, sustenance with breast feeding to gain optimal weight gain. This exploratory descriptive study focuses on scrutinize levels of realization among mothers to analyze the extend of application of Kangaroo Mother care with awareness. Randomised Controlled trials (RCT) of 100 Mothers are selected in secondary level Neonatal care unit to assess awareness about Kangaroo Mother care and its application. Selected Mothers are assessed about their knowledge regarding Kangaroo Mother care by asking questions. Respondents who are giving Kangaroo mother care for their Preterm and low birth weight babies are having awareness with inadequate knowledge of 17%, 72% of moderate knowledge and 9% of adequate knowledge. Overall mean% is 67.7 and SD is 2.16 among Mothers.

References:

1. [Gopi Krishna Muddu 1](#), [Sangeetha Lakshmi Boju](#), [Ravikumar Chodavarapu](#) 2013, Knowledge and awareness about benefits of Kangaroo Mother Care, *Indian J Pediatr*. PMID: **23749416** 2013 DOI: [10.1007/s12098-013-1073-0](#).
2. [Olubukola Olawuyi](#), [Beatrice Nkolika Ezenwa](#), [Iretiola Bamikeolu Fajolu](#), [Mercy Onwuama](#), [Chinyere Veronica Ezeaka](#), 2021, Knowledge, attitude and practice of kangaroo mother care among mothers in the neonatal wards of a tertiary care center *Pan Afr Med J*. 2021 Apr 14;38:364. doi: 10.11604/pamj.2021.38.364.22833. eCollection 2021.
3. [Nathalie Charpak](#), [Adriana Montealegre-Pomar](#), [Adriana Bohorquez](#) 2021 Systematic review and meta-analysis suggest that the duration of Kangaroo mother care has a direct impact on neonatal growth *Jan;110(1):45-59*. doi: 10.1111/apa.15489. Epub 2020 Sep 17. Affiliations PMID: **32683720** DOI: [10.1111/apa.15489](#).
- [Natnael Atnafu Gebeyehu](#), [Kelemu Abebe Gelaw](#), [Gedion Asnake Azeze](#), [Biruk Adie Admass](#), [Eyasu Alem Lake](#), [Getachew Asmare Adela](#) 2022, Knowledge, attitude and practice towards kangaroo mother care among postnatal women in Ethiopia: Systematic review and meta-analysis PMID: **35522657** PMCID: [PMC9075620](#) DOI: [10.1371/journal.pone.0265411](#), May 6;17(5):e0265411 doi: 10.1371/journal.pone.0265411. eCollection 2022.
4. [Mithila Koreti](#), [Pramita Muntode Gharde](#) 2022, A Narrative Review of Kangaroo Mother Care (KMC) and Its Effects on and Benefits for Low Birth Weight (LBW) Babies, PMID: 36582577 PMCID: [PMC9794926](#) DOI: [10.7759/cureus.31948](#), doi: 10.7759/cureus.31948. eCollection 2022 Nov.
- [Qian Cai](#), [Dan-Qi Chen](#), [Hua Wang](#), [Yue Zhang](#), [Rui Yang](#), [Wen-Li Xu](#), [Xin-Fen Xu](#), 2022, What influences the implementation of kangaroo mother care? An umbrella review *BMC Pregnancy and Childbirth* volume 22, Article number: 851 (2022) PMID: **36401193** PMCID: [PMC9675107](#) DOI: [10.1186/s12884-022-05163-3](#)
- [Vaishnavi D Dhage](#), [Asmita Rannaware](#), [Sonali G Choudhari](#), 2023, Kangaroo Mother Care for Low-Birth-Weight Babies in Low and Middle-Income Countries: A Narrative Review e38355. PMID: **37274008** PMCID: [PMC10232296](#) doi: 10.7759/cureus.38355. eCollection 2023 Apr.
8. [Sindhu Sivanandan](#), [Mari Jeeva Sankar](#) 2023, Kangaroo mother care for preterm or low birth weight infants: a systematic review and meta-analysis, 2023 *Jun;8(6):e010728* PMID: 37277198 PMCID: [PMC10254798](#) DOI: [10.1136/bmjgh-2022-010728](#)