

JIMMA UNIVERSITY INSTITUTE OF HEALTH SCIENCE, SCHOOL OF MEDICINE

DEPARTMENT OF PEDIATRICS AND CHILD HEALTH



KNOWLEDGE, ATTITUDE AND PRACTICE OF KANGARO MOTHER CARE AND
ASSOCIATED FACTORS AMONG HEALTH CARE PROFESSIONALS WORKING IN
NICU, JUMC, JIMMA ,SOUTHWEST ETHIOPIA

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A RESEARCH THESIS SUBMITTED TO THE DEPARTMENT OF PEDIATRICS AND
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JIMMA, ETHIOPIA

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AUGUST, 2024

JIMMA, ETHIOPIA

DECLARATION

Assurance of principal investigator

I agree to accept responsibility for the scientific, ethical and technical conduct of the research project and for the provision of the required progress report as per terms and conditions of the college of health science in effect at the time of grant is forwarded as the result of this application.

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APPROVAL OF THE ADVISOR

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ABSTRACT

Background: KMC is a method invented by Dr. Rey in 1978 and developed by Dr. Martinez and Dr. Navarrete until 1994 defined as an early, uninterrupted, and prolonged skin-to-skin contact between mother and until the baby doesn't remain in that position and the only breast nourishes child. Various works of literature also reported KMC as cost-effective intervention in reducing mortality and morbidity of preterm infants as well as affecting maternal health positively in low, middle, and high-income countries. Most studies on KAP of KMC focused on the perspective of preterm infant parents, while neglecting the perspective of healthcare providers, who played a critical role in guiding KMC practice. So, this study aimed to explore knowledge, attitude and practice of kangaroo mother care among health care providers in NICU.

Objective: This study aimed to assess knowledge, attitude and practice of kangaroo mother care among health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

Methods: An institution based cross-sectional study was conducted among health care professional's working in NICU, JUMC, Jimma, southwest Ethiopia from September 20, 2024 to December 20, 2024. 100 Study participants were selected by using stratified random sampling method. Data was collected using pretested structured self-administered questionnaires prepared in English language divided to 4 sub-sections Sociodemographic, knowledge, and attitude and practice part. Collected data was entered into EpiData 3.1 analyzed using SPSS version 25. Descriptive analysis was performed and ordinal logistic regression analyses were used to find out the association of independent variables. Statistical significance was considered at a p-value of less than 0.05.

Results: A total of 99 participants were included in the study making response rate of 99%. Majority 94% had good knowledge, while 6% had a medium knowledge. Regarding overall attitude majority 72 % had positive attitude, while 25% showed a medium attitude and 4% had negative attitude towards KMC. In respect to practice 39% participants had good practice, 46% participants had medium practice and 14% had poor practice. Being BSC nurse, neonatal nurse, medical intern and work experience less than five years is negatively associated with knowledge towards KMC ($p=.0, .001, .001, .002$ and 0.003 respectively). Having work experience of less than 5 years is strongly associated with poor practice towards KMC ($P=0.001$)

Conclusion and recommendation: *From the above results, it is apparent that knowledge, attitude and practice among health-care professionals, is optimum. However, there are lots of gaps to be filled, especially practice related needs trainings and further interventional studies are recommended.*

Keywords: *knowledge, attitude, practice, Kangaroo mother care, neonatal intensive care unit, health care providers, preterm.*

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ABBREVIATIONS AND ACRONYMS

KMC- kangaro mother care

WHO –world health organization

LBW- low birth weight

NICU- neonatal intensive care unit

JUMC- Jimma university medical center

SPSS- Statistical Package for Social Sciences

IRB- Institutional Review Board

MD- Medical doctor

SSC- skin to skin contact

CHAPTER ONE: INRODUCTION

1.1 BACK GROUND

Globally 25 million infants (17%) are born with a low birth weight (LBW) and most of these occur in low-income countries (1). These low birth weight infants suffer from high rates of morbidity and mortality and often remain underweight, stunted or wasted from the neonatal period through childhood (2). Therefore low-income countries have recognised kangaroo mother care (KMC) as a necessity to promote positive neonatal health under adverse conditions (3). KMC is a method invented by Dr. Rey in 1978 and developed by Dr. Martinez and Dr. Navarrete until 1994. As defined by the world health organization kangaroo mother care is an early, uninterrupted, and prolonged skin-to-skin contact between mother and until the baby doesn't remain in that position and the only breast nourishes child (4). At first it was developed to alleviate overcrowding, and insufficient resources in neonatal intensive care units. But today it is formally approved by WHO (5).

Low birth weight and preterm birth are the major public health challenges within the neonatal period (6). During this period, 36% of passing happens promptly on the day of birth and 73% happen inside the primary week (7). More than 80% of neonatal passing happen in low birth weight neonates of which two-thirds of them are born preterm (8). Complications related to prematurity are the major cause of neonatal mortality (9). Around the world, low birth weight accounts for 25 million, and preterm birth accounts for 15 million of the 96% of were in developing countries (10). In Ethiopia, systematic review and meta-analysis studies reported pooled prevalence of preterm birth (10.8%), and low birth weight (17.3%) (11). Various works of literature also reported that kangaroo mother care is a cost-effective intervention in reducing mortality and morbidity of preterm infants as well as affecting maternal health positively in low, middle, and high-income countries (12). The finding of the Cochrane review and a meta-analysis showed that kangaroo mother care diminished neonatal mortality, sepsis, hypothermia, hypoglycemia, and length of stay, compared to conventional care (13). Several systematic review studies indicated that kangaroo mother care increased the success, initiation, and duration of breast milk (14), and improved maternal anxiety and stress, enhanced cognitive and motor development, diminished hospital readmission and lowered premature infant profile (15).

Another study reported that Kangaroo mother care improves the growth of low birth weight and preterm infants.

Previous studies on KMC for preterm infants primarily focused on parents' experiences of participation and the influencing factors to its implementation from their perspective (16). However, participants in these studies indicated that the information provided by healthcare professionals significantly influenced their experiences of engaging in KMC with their preterm infants. Therefore, it was crucial for healthcare providers to recognize the value of KMC and to establish strong relationships with parents to effectively explain the necessity and effectiveness of KMC, which would potentially enhance parents' adherence to KMC implementation (17). A study on the barriers and facilitators to KMC revealed that KMC implementation was not running optimally due to inconsistent local leadership, heavy workload, and the knowledge and attitudes of health workers (18). Directly pointed out the importance of research conducted from the perspective of healthcare professionals and recommended exploring their views and suggestions on KMC to facilitate its implementation (19). It was evident that gaining insights into healthcare providers' cognitive and practical experiences of KMC, using a qualitative approach, was crucial in advancing the implementation of KMC. Therefore, this study aimed to explore pooled prevalence of knowledge, attitude and practice of kangaroo mother care among health care providers in NICU.

1.2 STATEMENT OF THE PROBLEM

The worldwide prevalence of kangaroo mother care practice ranged from 1% in Tanzania to 96% in Denmark among postnatal mothers (20) . In Ethiopia, the findings of knowledge of kangaroo mother care ranged from 35.5–82.53% (21), attitude ranged from 50–82.53% and practice ranged from 23–83% across the nation among postnatal women in different health care facilities (22). A study done in India among doctors working in tertiary hospital on KAP towards KMC showed Knowledge related to KMC was poor 60% among doctors (23). A similar study done in Indonesia Kangaroo mother care knowledge, attitude, and practice among nursing staff in a hospital in Jakarta, showed similar results 63.2% (24). In Ethiopia there are no published literatures on KAP towards KMC among health care providers and this study will be as base line for future studies.

1.3 SIGNIFICANCE OF THE STUDY

This study helps us:

- To know knowledge of health care providers towards KMC.
- To know perception of health care providers towards KMC.
- To know practice of health care providers towards KMC.
- Fundamental data for clinicians and concerned stakeholders to enhance KMC.
- A baseline for future studies.

CHAPTER TWO: LITRATURE REVIEW

Kangaroo mother care (KMC) is a method of care that can be used for all new-born, but it is often used as a strategy to ensure optimal care for LBW infants. This method involves placing the infant wearing only a diaper and a cap on the mother's chest. The infant is placed in an upright position between the breasts of the mother, under her clothes. This position ensures skin-to-skin contact (SSC). For KMC to be most effective it is recommended that the infant must have skin-to-skin contact for 24 hours of the day (25). By practicing this SSC the mother produce large volumes of breast milk and can lactate for a longer period (26)

Premature infants (when an infant is born before 37 weeks gestational age and low birth weight infants (infants with a birth weight below 2500g, are usually managed by placing the infant in an incubator immediately after birth (27). This implies that the infant is separated from the mother. The early separation from the mother results in damage to the infants' system of arousal, stress reactivity, attention and learning (28). When infants are placed in incubators, the exposure to continuous light and non-stop noise results in damage to their biological clock (28). The traditional alternative to incubators requires that infants are well-covered in blankets and warm clothing, but this method (28) is less effective to maintain the body temperature of the infants than incubators (29) of the benefits of implementing KMC at facilities is that it prevents prolonged separation of mother and her LBW (30). This separation was found to contribute to morbidity, insufficient breast milk volume, poor growth and poor mother-to-infant bonding (31) Low birth weight infants were found to stabilize faster when the skin-to-skin contact with the mother was practiced (32)) as well as (33) reported that when implementing skin-to-skin contact the LBW infants were found to spend more time in quiet sleep, their heart rate was lower and more stable, apnea decreased, the body temperature was maintained better and the infants' oxygenation and gas exchange improved.

Another benefit of KMC is the increased stimulation of breast milk production that facilitates more frequent breastfeeding (34). This is a very important benefit in developing countries where malnutrition and gastro-intestinal infections cause the death of a large percentage of infants. The infants receiving kangaroo care also tend to cry less and therefore the stress hormones in their blood are reduced. As a result of all these factors KMC was found to improve weight gain of

infants, decrease the duration of stay in hospital, decrease the severity of infections, provide infants with physiologic stability, and more organized sleep/ wakefulness behaviors (35). KMC also offers benefits to the health care system. It eliminates the need for expensive equipment in resource poor areas and during crisis situations (e.g. power failure) and reduces the need for highly skilled staff usually required in a neonatal unit. The health facility also benefit in terms of shorter hospital stay and reduced bed occupancy. The reduction of the use of skilled staff has financial benefits for the institution and additionally contributes to a decrease in infection rate because the number of care providers handling the infant is reduced (36). KMC is a benefit to the mother by allowing her to be more actively involved and competent in caring for her LBW infant which contributes to bonding (36) the parents can do kangaroo care. This empowers them through gaining confidence in handling their infant resulting in better bonding and a decrease in the chances of child neglect (37). One disadvantage of KMC is that the mothers with other siblings have to leave them at home to care for her new-born infant in hospital (38). In this case the support of the family is very important, because the mother must have the confidence that her children are well cared for at home. In the case of multiple births the twenty four hour skin-to-skin contact also becomes difficult to apply (39). Here it might be beneficial to the infant if the father can be involved as well, but due to the long hospital stay this can be a problem. Another disadvantage of KMC is as the baby grow bigger the extra weight might be a problem for some mothers who wish to continue KMC at home (40). Since the KMC policy specify the provision of appropriate facilities, implementation of KMC might not be possible at facilities that lack adequate space and resources.

For successful implementation of KMC the nursing staffs need to be knowledgeable about the strategy in order to convince the mother of the importance of KMC for her infant's well-being. KMC has the potential to improve the survival of infants but there must be a mutual agreement between the mother and the nursing (and other health care) staff about this caring method (Wallin, et al., 2005; Nirmala & Rekha, 2006). KMC will not be effective when the mothers are not committed, or do not agree with it. Therefore face-to-face facilitation between the mother and the nursing staff is needed for the effective implementation of KMC at a health facility. (41) Recommends that education of both mothers and nursing staff is important to ensure a decrease in infant mortality through KMC.

Attitudes of the nursing staff and of the mother are also important for successful implementation of KMC as it contributes to the mother's commitment. A study conducted in Harare Central Hospital (42) demonstrated mothers positive attitude towards KMC in their recommendation that KMC should be promoted country wide through the media (television and radio). Although KMC can be practiced at home and mothers was willing to do , it has been reported that mothers experience discomfort when the infant grows bigger (43). These factors may negatively influence the mother's attitude towards the continuation of KMC at home.

In a kangaroo mother care ward enough staff who were trained in KMC should be available to give support to the mothers. The availability of a protocol on KMC and continuous education for all nursing staff can facilitate the successful implementation of KMC. Nursing staff who are less experienced are less likely to implement KMC. According to (44) nursing staff who worked longer than five (5) years with kangaroo mothers or mothers with LBW infants were more likely to institute KMC, whilst those with less than five (5) years' experience needed continuous monitoring. A staff mix of experienced and less experienced nursing staff is therefore essential to complement the less experienced ones on the same shift at health facilities. Entry level nurses would need constant information sessions about KMC and monitoring to ensure effective implementation of KMC. If a good monitoring tool is put in place, the effect of poor nursing experience on the implementation of KMC could be limited (45).

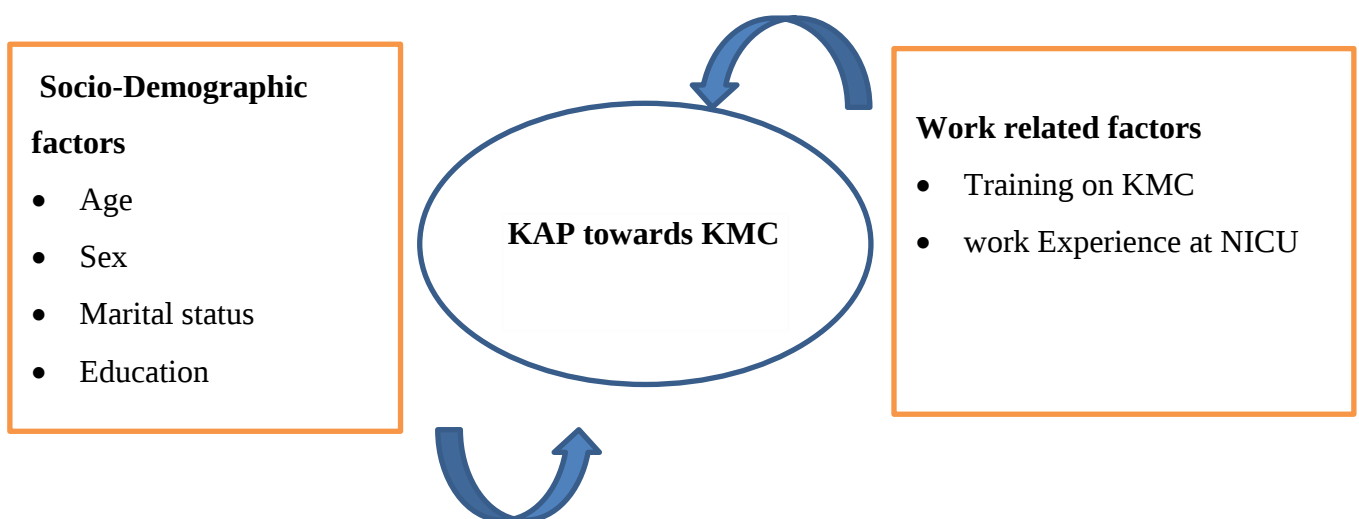
(29) established that even if nursing staff do understand and support of KMC, certain practical constraints beyond their control have a negative impact on KMC. These constraints include: a busy environment, lack of leadership, resources, colleague attitude, and shortage of continuous education of nursing staff and patient feedback, the number of staff, staff skill mix and support of managers. In health facilities where constraints are identified strategies need to be developed to overcome these constraints. A step-down unit may be useful as it can provide a better home-like environment for mothers to practice KMC and may help mothers to become more familiar with child care and breastfeeding skills (46). Studies done (46) on step-down units revealed a reduction in infections among infants, which may attributed to reduced congestion and reduced handling of infants by multiple care providers. It is, however, important that nursing staff and mothers are involved in providing input in these developments (47) suggested that all level two

and three hospitals in South Africa which implement KMC must be able to refer stable infants to a step down facility for continuous KMC.

The strategies mentioned above together with a monitoring tool which can identify and overcome (45), may also help addressing the constraints related to KMC at health facilities. (48) Developed a face-to-face educational package, which was evaluated in hospitals in Kwa-Zulu Natal and found it to be very successful. The cost of such an intensive education will be outweighed by the benefits of improved care for low birth weight infants.

For the successful implementation of KMC, it is important that the family is involved and support the mothers, especially those with multiple births (39). The nursing staff should educate the mothers adequately to enhance their caring capacity. Continuous education and monitoring is required to ensure that nursing staff are knowledgeable about KMC. It is also important that the nursing staff on duty during each shift have varying levels of skills and experience to ensure the success of KMC. For the implementation of KMC, institution specific strategies need to be developed to overcome institution specific barriers (45). Regular visits of pregnant females to the antenatal clinic are also important, because the patient at risk for preterm delivery can be identified earlier and the necessary preparation procedures can be followed (49). Regular attendance at antenatal facilities is important. This may allow early identification of mothers at risk of preterm delivery and facilitate effective preparation procedures and intervention (49) and better LBW infant outcomes.

Figure 1: conceptual framework developed after reviewing different literatures



CHAPTER THREE: OBJECTIVES

3.1 General objective

To assess knowledge, attitude and practice of kangaroo mother care and associated factors among health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

3.2 Specific objectives

To assess knowledge of kangaroo mother care among health care professionals working in NICU, JUMC, Jimma, and southwest Ethiopia.

To assess attitude of kangaroo mother care among health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

To assess practice of kangaroo mother care among health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

To identify factors associated with KAP of KMC among health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

CHAPTER FOUR: METHODOLOGY

4.1 study area

The study was conducted in Jimma University medical center, Jimma, South-west Ethiopia. Jimma town is located in south western part of Ethiopia, Oromia region, 352km from Addis Ababa. JUMC serve about 20million catchment population from Jimma zone, Ilu Aba Bore, Buno-Bedele, Gambela and Southern nation nationality population. JUMC is the teaching and referral hospital in southwest Ethiopia with 800 bed capacity. It gives service in different specialty and subspecialty fields. NICU in pediatrics and child health department of JUMC gives service to neonates aged up to 14 days of life and health care providers at NICU are composed of nurses, medical interns, pediatrics and child health residents and pediatricians.

4.2 study period

- The study was conducted from September 20, 2024 to December 20, 2024

4.3 study design

- Institution-based Cross-sectional study design was employed.

4.4 population

4.4.1 Source population

- All health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

4.4.2 Study population

- All health care providers in NICU, JUMC, Jimma, southwest Ethiopia who meet the inclusion criteria.

4.4.3 Inclusion and exclusion criteria

4.4.3.1 Inclusion criteria

- All health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia.

4.4.3.2 Exclusion criteria

- Those health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia were not willing to participate in the study.
- Those health care professionals working in NICU, JUMC, Jimma, southwest Ethiopia who were not available during study period.

4.5 sample size determination and sampling method

4.5.1 Sample size

Sample size for this study was determined by using formula for single population proportion by considering the following assumption; a 95% confidence level, 5% margin of error and P value of 0.65 taken similar study done in India.

$$n = \frac{\left(Z_{\frac{\alpha}{2}}\right)^2 P(1 - P)}{d^2} = \frac{(1.96)^2 0.65(1 - 0.65)}{(0.05)^2} = 350$$

Since the total population is 138 which are less than 10,000 the sample size was corrected using the following correction formula:

$$nadj = \frac{n}{1 + \frac{(n - 1)}{N}}$$

Where: **nadj**-is adjusted sample size, **n**-initial sample size (350) and **N**- Population size (138)

$$\mathbf{Nadj=100}$$

4.5.2 Sampling technique

Since study population is not uniform stratified sampling technique was employed as follows and Individuals were selected randomly by lottery method form each stratum.

Table 1: sample stratification for study sample

Strata	Proportion of each strata	Sample size for each strata
Medical interns	68	49
Pediatrics residents	32	23
Nurses	24	18
Pediatricians	14	10

Stratified Random sample = $\frac{\text{stratum size} * \text{total sample size}}{\text{Entire population}}$

Entire population

4.6 Variables

4.6.1 Dependent variables

- KAP towards KMC

4.6.2 Independent Variables

- Socio-Demographic factors
 - Age
 - Sex
 - Marital status
 - Education
- Work related factors
 - Training on KMC
 - work Experience at NICU

4.7. Data collection tools and procedures

Data was collected using online questionnaires Google form prepared in English language. The questionnaires were divided into 4 sub-sections. The first part of the questionnaire contains items for socio demographic characteristics of study participants which were obtained from the literature reviews and conceptual framework and suited to the local socio demographic characteristics. The second, third and fourth part of the questionnaire contained Knowledge, attitude, and practice questions respectively adopted from a study done in India on Knowledge, attitude, and practice of kangaroo mother care among doctors in a tertiary care hospital from North India (50) with modification to context. Knowledge questions contained 11 items, attitude questions contained 10 items and practice questions contained 9 items respectively. Questionnaire was shared online through email and telegram. A short explanation and consent form were included at the beginning of the survey. Participants completed the survey at their own convenience. All responses were automatically saved and kept confidential.

4.8. Data quality control

Pretest was done one week before actual data collection on 5% of the total sample size to check reliability and internal consistency of the tool. After reviewing the result of the pretest, modification of the questionnaire was performed for clarity, sensitivity, and completeness of the questionnaire.

4.9 Data processing and analysis

The data collected was checked for completeness and consistency and then was cleaned, coded, and imported into EpiData version 3.1 and exported, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics was carried to determine the proportion, median and the interquartile range. Cross-tabulation was carried out for dependent and independent variables. Ordinal logistic regression analyses were performed to examine the association between the explanatory variables and the outcome variable. The Significance level for each analysis was taken as $p < 0.05$.

4.10 Operational definitions

Kangaro mother care (KMC) - is a method, which involves placing the infant with a hat and diaper on the mother's chest between her breasts'

Good Knowledge towards KMC- Those participants who scored who scored point's more than 75% out of prepared questionnaires.

Medium knowledge towards KMC - Those participants who scored who scored point's 50 %-75% out of prepared questionnaires

Poor knowledge towards KMC - Those participants who scored who scored point's <50% out of prepared questionnaires.

Positive attitude towards KMC- Those study participants who have negative outlooks towards KMC who scored points >75% from prepared questions.

Medium attitude towards KMC– Those respondents who scored points 50% to 75% from prepared questions.

Negative attitude towards KMC- Those study participants who have negative outlooks towards KMC who scored points <50% from prepared questions

Good practice towards KMC- Those participants who scored who scored point's more than >75% out of prepared questionnaires

Medium practice towards KMC - Those respondents who scored points 50% to 75% from prepared questions.

Poor practice towards KMC - Those participants who scored who scored point's more than < 60% out of prepared questionnaire.

Training on KMC- Any on job training on KMC.

4.11 Ethical Consideration

Ethical clearance was obtained from Institutional Review Board (IRB) of Institute of Health of Jimma University. Before beginning the survey, all participants were presented with a clear information sheet explaining the purpose of the research, the voluntary nature of their involvement, and their right to withdraw at any time without penalty. Informed consent was obtained via a mandatory “I agree” checkbox in the Google Form, and no personally identifying information (such as names, email addresses, or IP addresses) was requested. All responses were stored securely on Google’s encrypted servers and subsequently downloaded to a password-protected computer; only the principal investigator had access to the raw data. To preserve anonymity, quantitative responses were analyzed in aggregate, and any illustrative quotes or open-ended answers have been paraphrased to ensure that individual participants cannot be identified.

4.12 Dissemination of results

The result of the study is presented to the department of pediatrics and child health, Jimma University. The final result from the study is submitted to the Research and Postgraduate Office, Jimma University in a form of written report. Subsequently, the study result will be published on peer reviewed journal.

CHAPTER FIVE: RESULT

5. 1 Sociodemographic characteristic of study participants

A total of 99 participants were included in the study making response rate of 99%. Among them, 65 (66%) were male and 34 (34%) were female. The majority of participants (40%) were aged 26–30 years, followed by 32% in the 25–25 year's age group, 26% aged 31–35 years, and 1% aged 36–40 years. In terms of marital status, 67% of participants were single, while 33% were married. No respondents reported being widowed or divorced. Regarding professional background, the largest group were medical interns (49%), followed by BSc nurses and Year I residents (11% each), Year II residents (7%), Year III residents (5%), clinical nurses and neonatal nurses (3% each), and pediatricians (9%). Only 1% identified as having other professions. When asked about prior training on Kangaroo Mother Care (KMC), only 27% of the respondents had received training, whereas 73% had not. In terms of work experience in the Neonatal Intensive Care Unit (NICU), a significant majority of the participants (85%) had worked for less than five years, 13% had 5–10 years of experience, and only 1% had worked for 11–15 years.

Table 2: socio-demographic characteristics and associated factors of study participants

Variable	Socio-demography	Frequency	Percentage
Sex of participants	Male	65	66%
	Female	34	34%
Age of study participants	25-25years	32	32%
	26-30years	40	40%
	31-35years	26	26%
	36-40years	1	1%
Marital status of respondents	Single	66	67%
	Married	33	33%
	Widowed	0	0
	Divorced	0	0

Profession of respondents	Clinical nurse	3	3%
	BSC nurse	11	11%
	Neonatal nurse	3	3%
	Year I resident	11	11%
	Year II resident	7	7%
	Year III resident	5	5%
	Medical intern	49	49%
	Pediatrician	9	9%
	Other	1	1%
Do you have training on KMC?	Yes	27	27%
	No	73	73%
How long you worked in NICU?	<5years	85	85%
	5-10years	13	13%
	11-15years	1	1%

5.2. Knowledge characteristics of study participants towards KMC

The study assessed participants' knowledge regarding Kangaroo Mother Care (KMC) through a series of knowledge-based statements. The results revealed a high level of awareness of the benefits and core principles of KMC among the respondents.

A total of **97%** correctly identified that KMC helps to make breastfeeding more effective, while 100% recognized that it ensures close contact between parents and the child. Additionally, 98% acknowledged that KMC helps maintain the neonate's body temperature, heart rate, and respiration. A large majority (91%) also agreed that KMC should be initiated as early as possible after birth.

In terms of maternal outcomes, 98% of respondents stated that KMC improves a mother's confidence in handling her baby. Knowledge was similarly high regarding KMC's role in promoting infant growth (97%) and mental development of premature babies (90%).

Despite the overall high awareness, some misconceptions remain. Only 61% correctly disagreed with the belief that KMC is only useful for infants weighing less than 2500 grams. Furthermore, 64% correctly denied that KMC carries a risk of neonatal injuries and infections. Knowledge was relatively lower regarding the applicability of KMC in intubated babies (62% correct) and in infants weighing less than 1000 grams (66% correct).

Table 3: The knowledge characteristics of study participants towards KMC

Knowledge based variable	Correct response	Frequency	Percent
KMC helps to make breast feeding more effective	YES	96	97%
KMC keeps close contact between parents and child	YES	99	100%
KMC maintains child's temperature, heart beat and respiration	YES	97	98%
KMC is only useful for the infant having low weight, below 2500gm	NO	60	61%
KMC must be initiated as soon as possible after the birth of neonate	YES	90	91%
KMC carries risk of neonatal injuries and infections	NO	63	64%
KMC should not be practiced in intubated babies	YES	61	62%
KMC improves the mother's confidence in handling her baby	YES	97	98%
KMC should not be practiced for infants weighing less than 1000 g	NO	65	66%
KMC promotes baby's growth and development	YES	96	97%
KMC promotes mental development of premature babies.	YES	89	90%

The analysis of participants' overall knowledge reveals that a significant majority possess a good level of understanding. As illustrated in the pie chart, approximately **94%** of the respondents demonstrated **good knowledge**, while only about **6%** showed a **medium level of knowledge**.

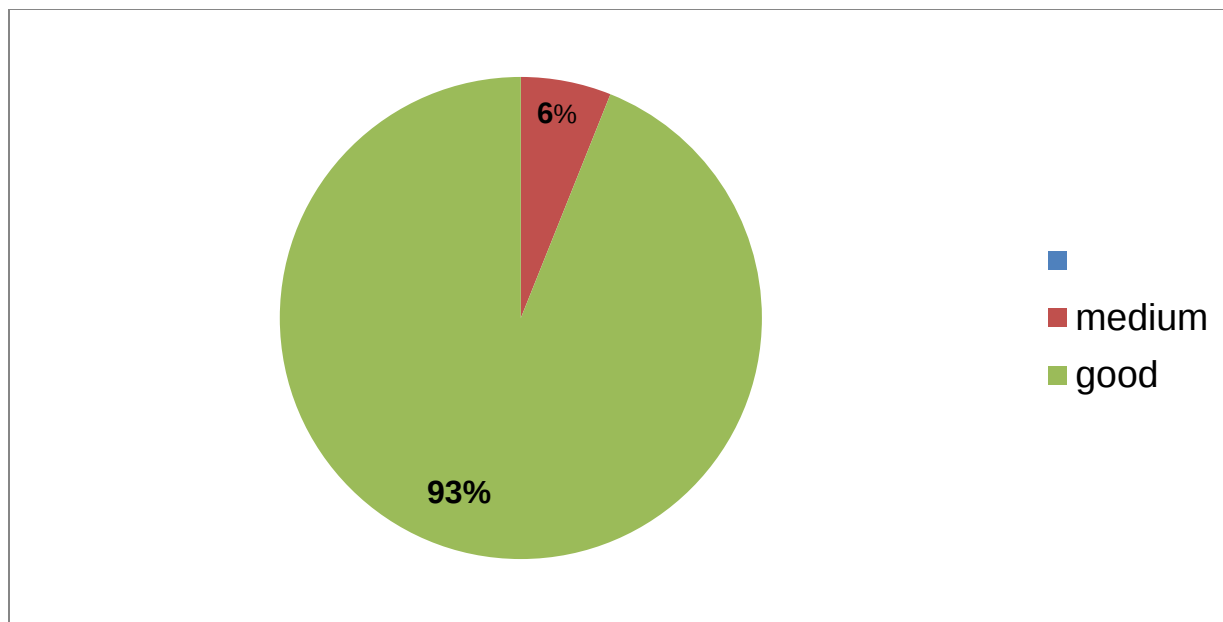


Figure 2: Over all knowledge towards KMC

5.3 Perceptions regarding kangaroo mother care

The study evaluated participants' perceptions of Kangaroo Mother Care (KMC) across ten key statements. Overall, the responses reflected a positive perception of KMC, particularly regarding its benefits for the baby and mother.

A majority of participants strongly agreed that KMC is beneficial to the baby (73%) and the mother (65%), with high mean scores of 4.41 and 4.30, respectively. The highest level of agreement was observed for the statement that KMC promotes the baby's growth and development (mean = 4.46), followed closely by the belief that KMC supports breastfeeding (mean = 4.34) and leads to early discharge (mean = 4.28).

More than half (52%) strongly agreed that KMC should be initiated as early as possible (mean = 4.25). While 42% strongly agreed that KMC can be provided by anyone, the overall agreement was moderate (mean = 3.80), indicating varied opinions on caregiver inclusivity.

In terms of clinical applicability, lower agreement was observed for providing KMC during respiratory support. Only 16% strongly agreed that KMC can be given on oxygen or non-

invasive ventilation (mean = 3.11), and perceptions were more negative regarding its use during invasive ventilation, which had a low mean score of 2.19.

Regarding safety perceptions, responses were mixed. While 29% strongly agreed that KMC does not have associated risks, 29% remained neutral, resulting in a moderate mean score of 3.52

Table 4: Perceptions of study participants towards KMC

Variable	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean
Do you agree that KMC is beneficial to baby	73(73%)	15(15%)	0	1(1%)	10(10%)	4.41
Do you agree that KMC is beneficial to mother	65(65%)	20(20%)	3(3%)	1(1%)	10(10%)	4.3
Do you agree that KMC can be given by anyone	42(42%)	22(22%)	16(16%)	13(13%)	6(6%)	3.8
Do you agree that KMC can be started at the early as possible	52(52%)	35(35%)	4(4%)	1(1%)	7(7%)	4.25
Do you agree that baby can be breastfed during KMC	55(55%)	34(34%)	4(4%)	1(1%)	5(5%)	4.34

Do you agree that KMC can be given on oxygen/non-invasive ventilation support	16(16%)	32(32%)	18(18%)	13(13%)	20(20%)	3.11
Do you agree that KMC can be given on invasive ventilation support	35(35%)	8(8%)	20(20%)	35(35%)	1(1%)	2.19
Do you agree that KMC does not have any associated risks	29	20(20%)	29(29%)	15(15%)	6(6%)	3.52
Do you agree that KMC promotes baby's growth and development	64(64%)	27(27%)	0	3(3%)	5(5%)	4.46
Do you agree that KMC leads to early discharge	52(52%)	36(36%)	3(3%)	3(3%)	5(5%)	4.28

The distribution of overall attitudes among respondents was categorized into three levels: negative, medium, and high/positive. As illustrated in the pie chart, the majority of participants (71%) reported a high or positive attitude. This indicates a predominantly favorable outlook within the sample population. A medium level of attitude was recorded in 25% of the responses, reflecting a neutral or balanced perspective. Meanwhile, only 4% of participants expressed a negative attitude, suggesting that unfavorable sentiments were minimal.

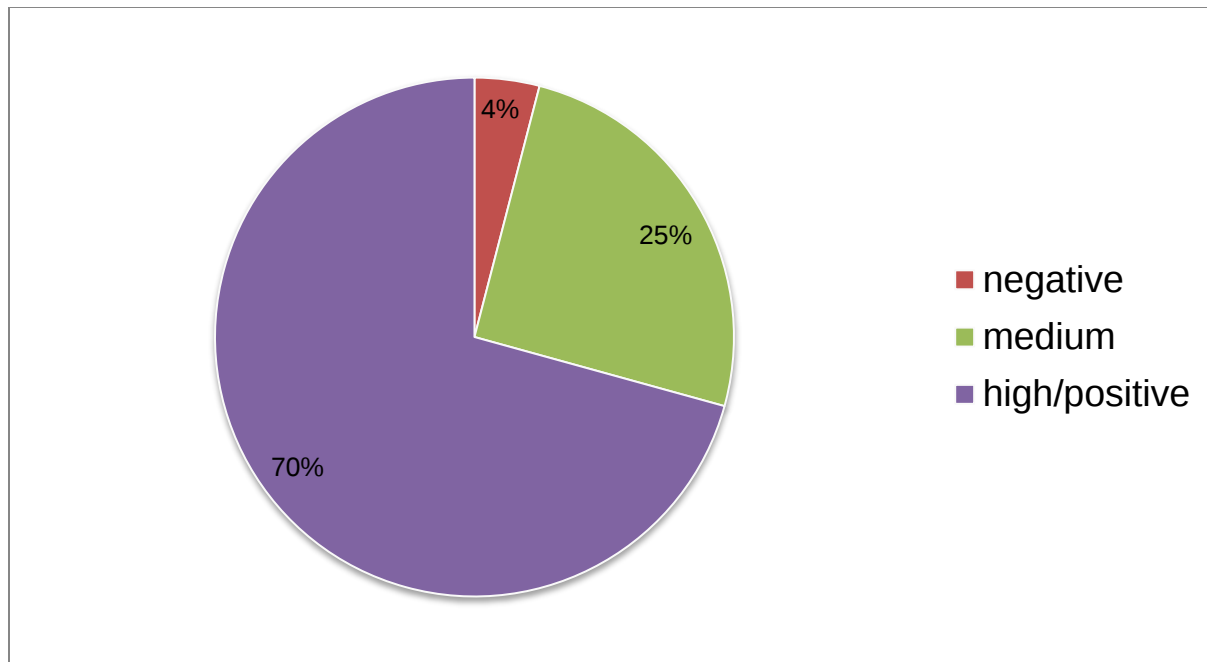


Figure 3: Over all attitudes towards KMC

5.4 Practice characteristics of study participants towards KMC

The study assessed the frequency of various supportive behaviors practiced by healthcare providers during the implementation of Kangaroo Mother Care (KMC). Table: 5 presents the frequency distribution and mean scores of each behavior based on a five-point Likert scale (1 = Never, 5 = Always).

The highest mean score was recorded for encouraging mothers to provide breast milk while on KMC ($M = 4.23$), indicating this is a consistently practiced behavior among providers. This was followed closely by appreciating the mother after implementation based on observation ($M = 4.07$) and advising on the benefits, duration, and requirements of KMC ($M = 4.02$). Greeting the mother or family member before initiating KMC ($M = 3.96$) and discussing discharge criteria ($M = 3.94$) also showed high frequency.

Moderately practiced behaviors included demonstrating how to position the baby in KMC ($M = 3.83$), asking the mother/family about their existing knowledge of KMC ($M = 3.68$), and encouraging the use of a KMC bag ($M = 3.46$).

The least frequently practiced behavior was **the use of posters and videos for KMC implementation** (M = 2.96), indicating limited incorporation of visual aids in routine practice.

Table 5: practice characteristics of study participants towards KMC

Variable	Never	Rarely	Sometimes	Often	Always	Mean
How often do you greet mother/family member before KMC?	2(2%)	6(6%)	20(20%)	37(37%)	34(34%)	3.96
How often do you ask family/mother what they know about KMC?	3(3%)	9(9%)	32(32%)	28(28%)	27(27%)	3.68
How often do you advice on benefits,duration,requirements and benefits of KMC?	1(1%)	7(7%)	18(18%)	36(36%)	37(37%)	4.02
How often do you demonstrate how to put baby in KMC position?	4(4%)	5(5%)	23(23%)	39(39%)	28(28%)	3.83
How often do you appreciate mother after implementation based on observation?	1%	7(7%)	18(18%)	31(31%)	42(42%)	4.07
How often do you use posters and videos for KMC implementation?	15(15%)	24(24%)	25(25%)	20(20%)	15(15%)	2.96
How often do you encourage mother to give breast milk while on KMC?	1(1%)	3(3%)	12(12%)	39(39%)	44(44%)	4.23

How often do you encourage mother to use KMC bag while on KMC?	14(14%)	9(9%)	21(21%)	27(27%)	28(28%)	3.46
How often do you discuss with the mother about discharge criteria?	5(5%)	7(7%)	19(19%)	26(26%)	42(42%)	3.94

The assessment of overall practice among participants was categorized into three levels: poor practice, medium, and good practice. As illustrated in pie chart, the majority of participants (46%) demonstrated a medium level of practice. This was followed by 39% who exhibited good practice, while a smaller proportion (14%) fell into the poor practice category.

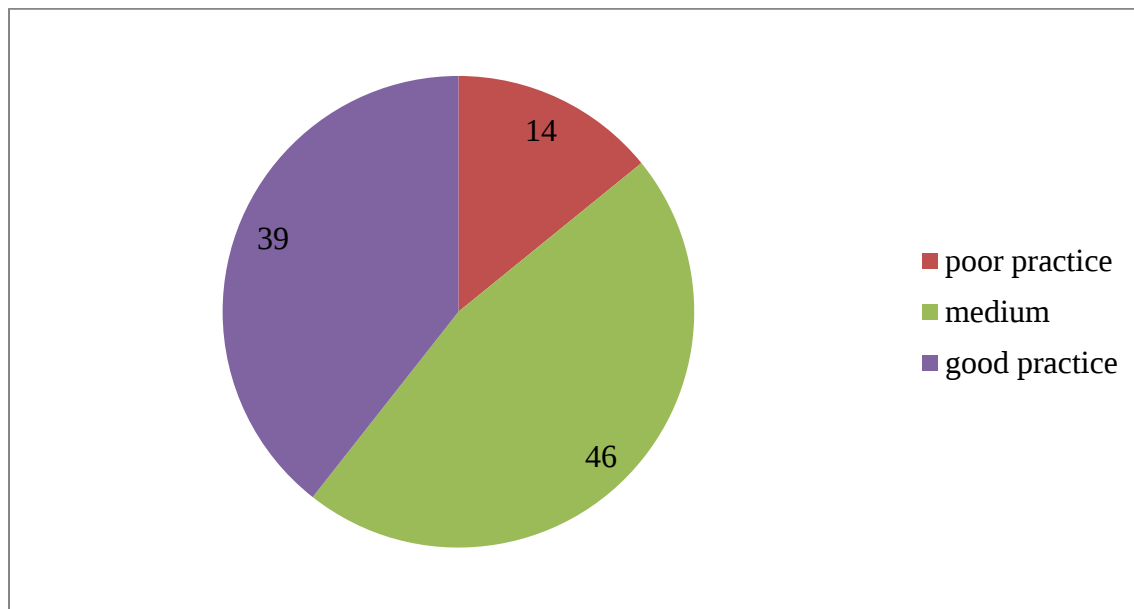


Figure 4: Over all practice towards KMC

5.5 Determinant of participant's knowledge about KMC

An ordinal logistic regression model was used to examine the factors associated with the knowledge of participants towards KMC. Among the predictors, **Profession** and **Marital Status** emerged as notable variables:

Respondents in **Profession categories BSC nurse, neonatal nurse, and medical intern** had significantly negative associations with the outcome compared to the reference group.

Specifically, Profession BSC nurses had a coefficient of -17.029 ($p < .001$), suggesting a strong inverse relationship.

Marital status showed a positive but not statistically significant effect for married individuals (Estimate = 2.408, $p = .124$).

Other variables, such as Age, KMC training, Work experience, and Gender, did not exhibit statistically significant effects (all $p > .05$).

Table 6: ordinal multi logistic regression tables for factors associated with knowledge towards KMC

		Estimate	Std. Error	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	Medium knowledge	-37.67	21306.21	1	.999	-41797.083	41721.74
Location	Male	0 ^a	.	0	.	.	.
	20-25years	-2.456	21306.21	1	1.00	-41761.868	41756.95
	26-30years	-1.612	21306.21	1	1.00	-41761.024	41757.800
	31-35years	-.802	21351.9	1	1.00	-41849.86	41848.25
	Single	2.408	1.564	1	.124	-.657	5.474
	Clinical nurse	-.237	.000	1	0.002	-.237	-.237
	BSC nurse	-17.029	1.505	1	0.001	-19.978	-14.079
	Neonatal nurse	-15.479	.000	1	0.001	-15.479	-15.479
	Year I resident	-.048	6358.419	1	1.000	-12462.321	12462.22
	Year II	-1.342	9061.069	1	1.000	-17760.710	17758.02

	resident						
	Year III resident	-.561	9896.370	1	1.000	-19397.089	19395.96
	Medical intern	-17.739	.000	1	0.001	-17.739	-17.739
	Pediatrician	.036	7179.382	1	1.000	-14071.294	14071.36
	Has KMC training	.000	1.251	1	1.000	-2.452	2.452
	<5years	-17.783	.000	1	.	-17.783	-17.783
	5-10years	-1.236	4551.043	1	1.000	-8921.117	8918.644

5.6 Determinant of attitude of study participants towards KMC

An ordinal regression analysis was conducted to examine the influence of demographic and professional characteristics on overall attitude. The outcome variable, *overall attitude*, was treated as ordinal with multiple thresholds, and predictors included gender, age, marital status, profession, KMC training, and work experience.

None of the predictor variables were found to be statistically significant ($p > .05$)

Table 7: Ordinal multi logistic regression models for factors associated with attitude towards KMC

		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	Negative attitude	-3.36	10031.74	1	1.000	-19665.230	19658.5
	Medium attitude	-.506	10031.74	1	1.000	-19662.372	19661.3
Location	Male	0 ^a	.	0	.	.	.
	20-25years	-17.8	10031.7	1	.999	-19679.729	19644.0
	26-30years	-18.7	10031.7	1	.999	-19680.626	19643.1
	31-35years	15.5	10375.52	1	.999	-20320.062	20351.2
	Single	.408	.830	1	.623	-1.219	2.036
	Clinical nurse	2.6	2.479	1	.279	-2.177	7.541

	BSC nurse	2.12	2.318	1	.359	-2.417	6.668
	Neonatal nurse	-13.6	5265.918	1	.998	-10334.703	10307.3
	Year I resident	2.6	2.294	1	.256	-1.891	7.102
	Year II resident	-30.3	2648.687	1	.991	-5221.702	5160.9
	Year III resident	-13.5	4937.899	1	.998	-9691.647	9664.5
	Medical intern	2.62	2.131	1	.219	-1.556	6.796
	Pediatrician	-14.0	1748.791	1	.993	-3442.450	3412.6
	Has KMC training	.203	.616	1	.741	-1.004	1.410
	<5years	15.3	.000	1	.	15.316	15.316
	5-10years	48.544	2823.107	1	.986	-5484.645	5581.7

5.7 Determinant of practice of study participants towards KMC

An ordinal logistic regression analysis was performed to determine the influence of demographic and professional variables on practice of study participants towards KMC. The model included predictors such as gender, age, marital status, profession, KMC training, and work experience.

Among the predictor variables, **work experience** emerged as a significant factor influencing the outcome. Respondents categorized under work experience less than 5years had a significantly reduced likelihood of being in higher outcome categories compared to the reference group Work experience 11-15years, with a regression coefficient of **B = -19.496 (SE = 0.980, $p < .001$)**.

On the other hand, no statistically significant effects were observed for the remaining predictors. Age categories, marital status, profession, gender, and participation in KMC training all yielded p-values above the 0.05 threshold..

Table 8: ordinal multi logistic regression model for factors associated with practice

		Estimate	Std. Error	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	Poor practice	-21.2	3.267	1	.000	-27.655	-14.849
	Medium practice	-18.2	3.250	1	.000	-24.572	-11.832
Location	Male	0 ^a	.	0	.	.	.
	20-25years	-1.76	2.376	1	.457	-6.425	2.888
	26-30years	-.342	2.262	1	.880	-4.775	4.091
	31-35years	-.429	2.258	1	.849	-4.854	3.996
	Single	1.124	.780	1	.150	-.406	2.653
	Clinical nurse	2.296	2.477	1	.354	-2.559	7.151
	BSC nurse	.799	2.253	1	.723	-3.616	5.215
	Neonatal nurse	19.628	7627.8	1	.998	-14930.6	14969.85
	Year I resident	-.230	2.287	1	.920	-4.713	4.253
	Year II resident	.524	2.587	1	.840	-4.546	5.594
	Year III resident	20.170	5805.2	1	.997	-11357.9	11398.254
	Medical intern	-.441	2.123	1	.835	-4.602	3.720
	Pediatrician	3.292	2.564	1	.199	-1.733	8.317
	HasKMC training	.415	.533	1	.436	-.630	1.459
	<5years	-19.4	.980	1	0.001	-21.417	-17.576
	5-10years	-18.56	.000	1	.	-18.564	-18.564

CHAPTER SIX: DISCUSSION AND LIMITATION

6.1 Discussion

This is the first study investigating the knowledge, attitude and practice of health professionals working in NICU towards KMC in JUMC. Results revealed a high level of awareness of the benefits and core principles of KMC among the respondents.

A total of 97% correctly identified that KMC helps to make breastfeeding more effective, while 100% recognized that it ensures close contact between parents and the child and this finding was similar to a study done in north Indian tertiary hospital done by Anita singh et.al (10).

Additionally, 98% acknowledged that KMC helps maintain the neonate's body temperature, heart rate, and respiration. A large majority (91%) also agreed that KMC should be initiated as early as possible after birth. This is also in line with the findings by Chisenga et al. 2021(45) where healthcare providers described KMC as essential for neonatal thermal regulation, bonding, and breastfeeding support. This

In terms of maternal outcomes, 98% of respondents stated that KMC improves a mother's confidence in handling her baby. Knowledge was similarly high regarding KMC's role in promoting infant growth (97%) and mental development of premature babies (90%).

In the study by Dalal *et al.*, it was observed that 33.1% of the doctors knew about a different component of KMC and 29.7% of doctors had the correct knowledge about eligible babies for KMC [8]. While in a study conducted in Kenya, 87.5% of health-care professionals had knowledge regarding the need of KMC for LBW babies and 94.3% knew that KMC involves skin-to-skin contact (10). In another study from Africa by Solomons and Rosant, it was observed that the majority of nursing staff had some knowledge of the advantages of KMC (9).

Therefore, it is apparent that the findings of our study are almost similar to other studies regarding baseline knowledge about KMC and its benefits which can be explained with uniform study population and studies being done in tertiary hospital setting in all studies.

Studies from low-income countries have shown that KMC provides effective thermal control and may be associated with a reduced risk of hypothermia. KMC has also been found to facilitate the initiation and establishment of breastfeeding in small babies [7]. In the present study, though the

majority of the doctors did not have any formal training in KMC, almost all doctors believed that KMC is beneficial for a baby for preventing hypothermia, promoting breastfeeding, and bonding between mother and baby. In a study by Dalal *et al.*, 73.8% health-care professional knew that KMC is effective in preventing hypothermia and 27.6% of doctors believed that KMC increases breastfeeding [8]. In the study from Kenya, 38.6% health-care professional believed that KMC leads to more effective breastfeeding [9].

Despite the overall high awareness, some misconceptions remain. Only 61% correctly disagreed with the belief that KMC is only useful for infants weighing less than 2500 grams. Furthermore, 64% correctly denied that KMC carries a risk of neonatal injuries and infections. Knowledge was relatively lower regarding the applicability of KMC in intubated babies (62% correct) and in infants weighing less than 1000 grams (66% correct).

Chisenga et al 2021(45) also reported that some healthcare providers lacked clarity regarding the full scope of KMC, particularly in cases of severely ill or extremely low birth weight babies. This aligns with the present study's conclusion that while general knowledge is strong, targeted interventions are necessary to address these clinical uncertainties.

In this study majority of participants strongly agreed that KMC is beneficial to the baby (73%) and the mother (65%), with high mean scores of 4.41 and 4.30, respectively. The highest level of agreement was observed for the statement that KMC promotes the baby's growth and development (mean = 4.46), followed closely by the belief that KMC supports breastfeeding (mean = 4.34) and leads to early discharge (mean = 4.28). These results are in line with Sreerekha et al.2020 (34) where 90% of participants exhibited a positive attitude toward KMC. Participants in both studies viewed KMC as beneficial for emotional connection, warmth, and early development.

More than half (52%) strongly agreed that KMC should be initiated as early as possible (mean = 4.25). While 42% strongly agreed that KMC can be provided by anyone, the overall agreement was moderate (mean = 3.80), indicating varied opinions on caregiver inclusivity.

In terms of clinical applicability, lower agreement was observed for providing KMC during respiratory support. Only 16% strongly agreed that KMC can be given on oxygen or non-

invasive ventilation (mean = 3.11), and perceptions were more negative regarding its use during invasive ventilation, which had a low mean score of 2.19.

Overall majority of participants (71%) reported a high or positive attitude. This indicates a predominantly favorable outlook within the sample population. A medium level of attitude was recorded in 25% of the responses, reflecting a neutral or balanced perspective. Meanwhile, only 4% of participants expressed a negative attitude, suggesting that unfavorable sentiments were minimal and this finding is also in line with a study done in north Indian tertiary hospital done by anita singh et.al (10).

In this study highest mean score was recorded for encouraging mothers to provide breast milk while on KMC (M = 4.23), indicating this is a consistently practiced behavior among providers. This was followed closely by appreciating the mother after implementation based on observation (M = 4.07) and advising on the benefits, duration, and requirements of KMC (M = 4.02). Greeting the mother or family member before initiating KMC (M = 3.96) and discussing discharge criteria (M = 3.94) also showed high frequency.

Moderately practiced behaviors included demonstrating how to position the baby in KMC (M = 3.83), asking the mother/family about their existing knowledge of KMC (M = 3.68), and encouraging the use of a KMC bag (M = 3.46).

The least frequently practiced behavior was the use of posters and videos for KMC implementation (M = 2.96), indicating limited incorporation of visual aids in routine practice.

The assessment of overall practice among participants was categorized into three levels: poor practice, medium, and good practice. As illustrated in pie chart, the majority of participants (46%) demonstrated a medium level of practice. This was followed by 39% who exhibited good practice, while a smaller proportion (14%) fell into the poor practice category.

6.2 Limitation

The other limitation was absence of plenty of prestigious literatures on the assessment of knowledge, attitude and practice towards KMC especially local studies, which introduce weakness for comparison.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

7.1 Conclusion

Current study revealed overall knowledge of health professionals towards KMC was good approximately 94% of the respondents demonstrated good knowledge, while only about 6% showed a medium level of knowledge. Even though Profession categories BSC nurse, neonatal nurse, and medical intern had significantly negative associations with knowledge towards KMC.

This study also revealed that Overall majority of participants (71%) reported a high or positive attitude. A medium level of attitude was recorded in 25% of the responses, reflecting a neutral or balanced perspective.

It's also illustrated that majority of participants (46%) demonstrated a medium level of practice. This was followed by 39% who exhibited good practice, while a smaller proportion (14%) fell into the poor practice category. It's highlighted that work experience is a key determinant of practice towards KMC among health care professionals working in NICU.

7.2. Recommendations

For pediatrics and child health department

- To facilitate comprehensive training programs on KMC for all NICU staff, mainly those with work experience less than 5 years with a focus on:
 - Eligibility criteria for KMC, including its use in extremely low birth weight and critically ill infants.
 - Safe application of KMC during respiratory support.
 - Proper techniques for positioning and monitoring during KMC.
- Incorporate posters, videos, brochures, and other visual aids within NICU settings to support both healthcare providers and caregivers in understanding and practicing KMC consistently.

- Encourage the involvement of all family members—not just mothers—in the practice of KMC by sensitizing staff and families about the roles other caregivers can play in supporting neonatal care.

For researchers

- To have multicenter interventional studies on KAP towards KMC

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Annex I: Information Sheet, Consent and Assent Form

1.1 Information sheet

Dear Sir, madam

Good morning / afternoon; my name is _____. I am here today to collect data for a study entitled “knowledge, attitude and practice of kangaro mother care among health care in NICU, JUMC, JIMMA, southwest Ethiopia” which is being conducted by Haile Onado (MD, Pediatrics Resident) from department of Pediatrics and Child health, Jimma University Institute of health. The main purpose of this study is to determine the knowledge, attitude and practice of kangaro mother care among health care providers in NICU, JUMC, Jimma, southwest Ethiopia.

In order to attain the goal effectively, I am asking for your generous help. Here is a format for you to complete. What is expected from you is to respond questions which take about 25 minutes. There is no need to put your name on the format. The data you provided will be kept in a highly confidential manner by using only code number which is filled by the principal investigator and locking the data and none of your personal identifiers will be on the questionnaire. No individual response was reported. It is your full right to participate or refuse in the study. However, your honest participation will have a great contribution. So please take a few minutes to answer these questions. If there is anything that clarification, please do not hesitate to ask the facilitator.

Do you wish to participate in the study?

Yes, I want to participate in the study (please go to the next page)

No, I do not want to participate.

Signature_____

Annex II: Questionnaires

This questionnaire is prepared to collect data on knowledge, attitude and practice of kangaroo mother care among health care providers in NICU, JUMC, Jimma, southwest Ethiopia

Part I: socio-demographic characteristics

Please complete the questionnaire by either Circling boxes or writing in the spaces provided

S.NO	QUESTION	RESPONSE
1	What is your age?	1.20 < 25 2.26 < 30 3.31 < 35 4.36 ≤ 40 5.>40
2	What is your sex?	1.Female 2.Male
3	What is your marital status?	1.Single 2.Married 3. Divorced 4.Widowed
4	What is your profession?	1. Clinical nurse 2. BSC nurse 3. Neonatal nurse 4. year I resident 5. year II resident 6. year III resident 7. Medical intern 8. pediatrician 9. other
5	Do you have training on	1.Yes

	KMC?	2.No
6	What is your work experience in NICU?	1. .<5years 2. 6-10years 3. 11-15 years 4. >15years

Part II: questions on knowledge of kangaro mother care among health care providers in NICU, JUMC, Jimma, southwest Ethiopia

S.no	Questions	Response		
1	KMC helps to make breast feeding more effective	Yes	No	Not sure
2	KMC keeps close contact between parents and child	Yes	No	Not sure
3	KMC maintains child's temperature, heart beat and respiration	Yes	No	Not sure
4	KMC is only useful for the infant having low weight, below 2500 gm	Yes	No	Not sure
5	KMC must be initiated as soon as possible after the birth of neonate	Yes	No	Not sure
6	KMC carries risk of neonatal injuries and infections	Yes	No	Not sure
7	KMC should not be practiced in intubated babies	Yes	No	Not sure
8	KMC improves the mother's confidence in handling her baby	Yes	No	Not sure

9	KMC should not be practiced for infants weighing less than 1000 g	Yes	No	Not sure
10	KMC promotes baby's growth and development	Yes	No	Not sure
11	KMC promotes mental development of premature babies.	Yes	No	Not sure

Part III: Questions on attitude of kangaro mother care among health care providers in NICU, JUMC, Jimma, southwest Ethiopia

There are attitude related statements and each statement has five alternatives with five-point scale. 1= strongly disagree, 2= Disagree, 3= neither agree nor disagree (neutral), 4= Agree, 5= Strongly Agree

S.no	Questions	Measurement scale				
1	Do you agree that KMC is beneficial to baby	1	2	3	4	5
2	Do you agree that KMC is beneficial to mother	1	2	3	4	5
3	Do you agree that KMC can be given by anyone	1	2	3	4	5
4	Do you agree that KMC can be started at the early as possible	1	2	3	4	5
5	Do you agree that baby can be breastfed during KMC	1	2	3	4	5
6	Do you agree that KMC can be given on oxygen/non-invasive ventilation support	1	2	3	4	5
7	Do you agree that KMC can be given on invasive ventilation support	1	2	3	4	5

8	Do you agree that KMC does not have any associated risks	1	2	3	4	5
9	Do you agree that KMC promotes baby's growth and development	1	2	3	4	5
10	Do you agree that KMC leads to early discharge	1	2	3	4	5

Part III: questions on practice of kangaro mother care among health care providers in NICU, JUMC, JIMMA, southwest Ethiopia

S.NO	Questions	Response				
1	How often do you greet mother/family member before KMC?	Always	Often	Sometimes	Rarely	Never
2	How often do you ask family/mother what they know about KMC?	Always	Often	Sometimes	Rarely	Never
3	How often do you advice on benefits, duration, requirements and benefits of KMC?	Always	Often	Sometimes	Rarely	Never
4	How often do you demonstrate how to put baby in KMC position?	Always	Often	Sometimes	Rarely	Never
5	How often do you appreciate mother after implementation based on observation?	Always	Often	Sometimes	Rarely	Never
6	How often do you use posters and videos for KMC implementation?	Always	Often	Sometimes	Rarely	Never
7	How often do you encourage mother	Always	Often	Sometimes	Rarely	Never

	to give breast milk while on KMC?					
8	How often do you encourage mother to use KMC bag while on KMC?	Always	Often	Sometimes	Rarely	Never
9	How often do you discuss with the mother about discharge criteria?	Always	Often	Sometimes	Rarely	Never