

Factors that Contributing to the Implementation of Kangaroo Mother Care by Midwives in Kirkuk City Hospitals

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Abstract :

Background: Kangaroo Mother Care (KMC) is an evidence-based technique that significantly decreases newborn mortality and morbidity, especially in LBW and preterm newborns. Direct skin-to-skin contact between the mother or caregiver and the baby is made possible by this efficient, straightforward, culturally acceptable, and emotionally helpful newborn care technique. Despite its proven effectiveness, the implementation of the KMC is influenced by several institutional factors, such as the availability of resources, infrastructure, and the existence of explicit clinical protocols and standards. **Aim:** This study aimed to identify the factors contributing to the implementation of Kangaroo Mother Care among nurses and midwives in hospitals in Kirkuk City. **Methods:** A cross-sectional descriptive study was carried out. The study was carried out in Kirkuk City's hospitals. The method employed was non-probability purposive sampling. 163 nurses and midwives participated in the study. A standardized questionnaire that was self-administered was used to gather data. Both descriptive and inferential statistics were used in the analysis of the data using SPSS version 26. **Results:** The results indicate the important factors that facilitate the successful utilization of KMC. One of the most consistently rated items was mentorship and supervision by experienced clinicians (95.7%). Other key factors mentioned were administrative support (91.4%), in-service training (91.4%), and the personal belief in KMC's clinical value on the part of staff (91.4%). In addition, a moderate positive association between nurse midwives' knowledge and perceiving contributing factors in KMC ($r = .491, P = .000$). **Conclusion:** The study concludes that there are contributing factors. The factors mentioned were administrative support, in-service training, and the personal belief in KMC's clinical value on the part of staff. The findings also underscore structural factors and incorporating KMC into hospital policies as important elements for successful implementation.

Keywords: Contributing factors, Kangaroo Mother Care, Midwives.

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Introduction

Preterm birth and low birth weight (PBLBW) continue to be significant public health issues globally, playing a major role in the overall disease burden (Liu et al., 2024). Premature infants, underweight infants, and medically weakened infants are usually at the highest risk of death or disability. Approximately 2.5 million infants may die during their first 28 days of life each year. Approximately 80% of these infants are considered to have low birth weight, and almost two-thirds are born prematurely (UNICEF, 2022; WHO, 2019). The transfer from intrauterine life to the outer world is one of the most significant physiological changes. The newborn needs continuous, intimate touch with the mother as it acclimates to the external world to foster bonding, support neurological and physiological development, and enhance the mother's confidence in caring for the infant. (Ekholuenetale et al., 2020). Kangaroo mother care is an established evidence-based practice and method for premature and low-birth-weight infants that significantly reduces neonatal mortality and morbidity. The infants are placed directly on the caregiver's chest to ensure continuous skin contact throughout the early postnatal period (Cai et al., 2022). The essential elements of kangaroo mother care include early hospital discharge, continuous exclusive breastfeeding with adequate family and community support, and direct skin contact (Lewis et al., 2019). Mothers who participate in Kangaroo Mother Care experience such improvements as improved mood, reduced discomfort, increased milk supply, greater empowerment, and a stronger sense of parental identity. Its safety and cost-effectiveness have been demonstrated (Kwesiga et al., 2022). Newborns' thermoregulation, cardiorespiratory adaptation, breastfeeding start, and early mother-infant bonding have all been demonstrated to improve with this approach (Liu et al., 2025). The healthcare team performs a vital supportive role by offering culturally relevant information regarding KMC. They are responsible for outlining the benefits of KMC and promoting its use for every infant (Altit et al., 2024). To reduce infant mortality, nurses and midwives who work in maternity and neonatal settings—including neonatal intensive care are essential (Esewe, Roselynd E.; Phetlhu, Rene D., 2022). Despite the fact that these concepts are widely accepted in clinical settings, there remain administrative and professional barriers to their actual policy implementation (Maniago et al., 2020). Numerous studies on knowledge and practice have shown how important it is to involve all pertinent parties in order to establish clear standards for KMC and to support it by increasing the number of nurses and offering training. Despite the fact that a study carried out in Jordan showed favorable views and comprehension of KMC, the authors pointed out that the practice was affected by a lack of organizational support, explicit policies, and training (Al Mutair et al., 2023). Numerous studies have shown that a range of factors, such as awareness and acceptability, preparation, sociocultural settings, hospital policies, advocacy for KMC, and an individual's intention to do KMC, aid in the implementation of KMC (Foong et al., 2023). However, the factors that contribute to the implementation of Kangaroo Mother Care (KMC) in Kirkuk City have not yet been adequately explored

Methodology

Study design and setting

A cross-sectional descriptive study was carried out. The Kirkuk Health Directorate has three hospitals: Kirkuk Teaching Hospital, Azadi Teaching Hospital, and AL-Naser Maternity and Child Hospital. The study focused on the nurses and midwives who work in the maternity department (delivery rooms) and the intensive care unit.

Sample

A study sample of 163 nurses and midwives from the maternity unit (delivery room) and the intensive care unit was selected using a purposive non-probability sampling technique.

Inclusion Criteria

Nurses and midwives are responsible for providing direct care in the delivery room and in the Neonatal Intensive Care Unit (NICU). Nurses and midwives from all educational levels, nurses and midwives with at least six months of experience in the delivery room, and Neonatal Intensive Care (NICU).

Exclusion Criteria

Nurses and midwives who held administrative positions only, such as head nurses, nurses and midwives, were not present or on leave during the data collection period, nurses and midwives who refused to participate in the study

Method of Data Collection

The data were gathered using a structured questionnaire.

The questionnaire was developed based on a comprehensive review of the literature and previous studies relevant to the study topic (Al-Shehri & Binmanee, 2021; Chan et al., 2017).

The questionnaire consisted of four parts:

Part (1): Sociodemographic Characteristics of Nurses and Midwives.

It included five questions regarding the sociodemographic details of the research participants, such as their age, marital status, socioeconomic status, place of residence, and degree of education.

Part (2): Professional Characteristics:

It was established with five questions that focused on the professional traits of nurses and midwives. These included their duration of service, the number of years they spent working in the birthing room and intensive care unit, their work area, their work shift, and their involvement in Kangaroo Mother Care training.

Part (3): Knowledge of Nurses and Midwives Regarding Kangaroo Mother Care: It consisted of sixteen questions that covered physiological regulation in neonates, breastfeeding, immunity, and the clinical benefits of KMC.

Part (4): Contributing Factors to the Implementation of Kangaroo Mother Care: It consisted of fifteen items focusing on education and training, institutional and administrative support, the availability of policies and protocols, collaboration among healthcare workers, provision of appropriate environment and resources, as well as supervision, incentives, and awareness in facilitating the implementation of Kangaroo Mother Care.

The Tool of Validity and Reliability

The instructional questionnaire's content validity was evaluated by a panel of ten specialists. Three faculty members from the University of Kirkuk's College of Nursing, two from the University of Mosul's College of Nursing, two from the University of Baghdad, two pediatricians from hospitals in Kirkuk and Tikrit, and one from Hawler Medical University's College of Health Sciences comprised the panel. Internal consistency was evaluated using Cronbach's alpha, while item correlations were examined using Pearson's correlation coefficient.

Data Analysis

Data and results were analyzed and interpreted using the Statistical Software for Social Sciences (SPSS), version 26.0.

The computation of mean (M), standard deviation (SD), frequency (f), and percentage (%) is a basic component of descriptive data analysis. Statistical methodologies utilized in inferential data analysis include Cronbach's alpha (α), the Pearson correlation coefficient, Spearman's rank correlation coefficient, the Wilcoxon signed-rank test, and the Shapiro-Wilk test.

Result

Table 1: Description of Participants' Sociodemographic Variables (SDVs) (N = 163)

List	SDVs	No	%	
1	Age (Years) M±SD= 30 ± 9.8	20 – 29	94	57.7
		30 – 39	51	31.3
		40 – 49	12	7.3
		50 +	6	3.7
2	Marital status	Single	52	31.9
		Married	106	65
		Divorced	3	1.8
		Widowed	2	1.2
3	Level of education in nursing	Secondary school	10	6.1
		Midwifery Secondary sch.	22	13.4
		High Health Institution	93	57.1
		Diploma	26	16
		Bachelor	12	7.4
4	Residency	Urban	156	95.7
		Rural	7	4.3
5	Perceived Socioeconomic status	Sufficient	86	52.8
		Barely sufficient	59	36.2
		Insufficient	18	11

No: Number, %: Percentage, M: Mean, SD: Standard deviation

The finding reveals that the highest percentage of nurses and midwives is young. More than half of the nurse-midwives (57.7%) fell within the 20–29 age group, Regarding marital status, nurses and midwives showed that nearly two-thirds were married (65%), while 31.9% were single. Only a small proportion were divorced (1.8%) or widowed (1.2%). Regarding the level of education, more than half (57.4%) of nurses and midwives, graduated from higher health institutions, while 13.4% graduated from midwifery secondary schools. Only 7.4% of participants held a bachelor's degree. Residency indicates that the majority (95.7%) of nurses and midwives reside in urban areas, while only 4.3% reside in rural areas.

Table 2: Description of Participants' Professional Variables (N = 163)

List	Variables	No	%	
1	Years of experience M±SD= 7 ± 6	1 – 5	80	49.1
		6 – 10	50	30.7
		11 – 15	24	14.7
		16 – 20	2	1.2
		21 +	7	4.3
2	Current unit years of experience M±SD= 5 ± 5.5	> 1	6	3.7
		1 – 5	100	61.3
		6 – 10	33	20.2
		11 – 15	18	11
		16 – 20	2	1.2
3	Participation in training courses	21 +	4	2.5
		None	90	55.2
		1 – 3	55	33.7
		4 – 6	14	8.6
		7 – 10	4	2.5
4	Current workplace	Delivery room	106	65
		NICU	57	35
5	Duty shift	Morning	57	35
		Evening	44	27
		Night	62	38

No: Number, %: Percentage, M: Mean, SD: Standard deviation.

The findings reveal a range of years of experience as a general; 49.1% have 1 – 5 years. of experience. The years of experience in the current unit are as follows: 61.3% have 1–5 years, indicating that nurse midwives have moderate experience. Regarding participation in Kangaroo Mother Care training courses, less than half of the participants reported attending such programs, with most of them having participated in only one to three training sessions. Surveying the current workplace reveals that 65% of nurses and midwives work in the delivery room, and 35% work in the Neonatal

Intensive Care Unit (NICU). Regarding duty shift, 38% of nurse midwives work during the night, 35% work during the day (morning), and 27% work during the day (evening).

Table 3: Assessment of Nurses and Midwives' Knowledge Items about Implementation of Kangaroo Mother Care (KMC) (N=163)

List	Knowledge	Don't know f (%)	Know f (%)	Mean score	Assess.
1	KMC promotes emotional bonding between the mother and the newborn	12(7.4)	151(92.6)	.93	Good
2	KMC facilitates the stabilization of the newborn's body temperature (thermoregulation)	12(7.4)	151(92.6)	.93	Good
3	The application of skin-to-skin contact (SSC) helps stabilize the newborn's oxygen saturation levels	19(11.7)	144(88.3)	.88	Good
4	KMC promotes and supports exclusive breastfeeding	19(11.7)	144(88.3)	.88	Good
5	KMC enhances the newborn's immunity and reduces the risk of neonatal morbidity	33(20.2)	130(79.8)	.80	Good
6	It is preferable to defer KMC if the newborn is connected to mechanical ventilation	60(36.8)	103(63.2)	.63	Moderate
7	It is preferable to delay KMC for newborns weighing less than 1,000 grams until clinical stability is achieved.	56(34.4)	107(65.6)	.66	Moderate
8	Newborns exhibit signs of comfort and satisfaction during the practice of KMC.	19(11.7)	144(88.3)	.88	Good
9	KMC can be implemented for newborns undergoing phototherapy.	63(38.7)	100(61.3)	.61	Moderate
10	KMC assists in stabilizing the newborn's heart rate and regulating cardiac rhythm.	21(12.9)	142(87.1)	.87	Good
11	KMC can be safely applied to newborns with intravenous (IV) infusion sets.	43(26.4)	120(73.6)	.74	Good
12	The application of KMC regulates the respiratory rate of the neonate.	27(16.2)	136(83.4)	.83	Good
13	It is preferable to avoid KMC for neonates born at less than 28 weeks' gestation until their health status stabilizes.	55(33.7)	108(66.3)	.66	Moderate
14	KMC is safe for medically stable preterm infants	31(19)	132(81)	.81	Good
15	KMC contributes to the reduction of stress and infant crying.	17(10.4)	146(89.6)	.90	Good
16	KMC promotes physiological weight gain in preterm infants.	35(21.5)	128(78.5)	.79	Good

M: Mean, f: Frequency, %: Percentage assessment: Assess

Poor= 0.00 – 0.33, Moderate = 0.34 – 0.67, Good = 0.68 – 1.00

Assessment of knowledge items among nurses and midwives regarding Kangaroo Mother Care (KMC) revealed that nurses and midwives demonstrate a good level of knowledge regarding its implementation, with a highly significant result reported for understanding emotional bonding and thermoregulation. Overall, the basic physiological and psychological advantages of KMC are well recognized.

Table 4: Assessment of Contributing Factors in Implementation of Kangaroo Mother Care (KMC) among Nurses and Midwives (N=163)

List	Contributing Factors	No f (%)	Yes f (%)	Mean score	Assess.
1	Administrative support from hospital management for nurse-midwives during and after KMC implementation	14(8.6)	149(91.4)	.91	High
2	Intensive training courses, seminars, and workshops focused on the KMC application.	14(8.6)	149(91.4)	.91	High
3	Collaboration and multidisciplinary teamwork between nurse-midwives and healthcare staff in delivery suites and the NICU	17(10.4)	146(89.6)	.90	High
4	The conviction of nurses and midwives regarding the clinical benefits of KMC	14(8.6)	149(91.4)	.91	High
5	Availability of a dedicated space within the delivery room or NICU for KMC sessions	25(15.3)	138(84.7)	.85	High
6	Utilization of posters, clinical guidelines, and educational materials to raise awareness among parents and staff.	23(14.1)	140(85.9)	.86	High
7	Ensuring absolute maternal and neonatal privacy during the practice of KMC	19(11.7)	144(88.3)	.88	High
8	Emotional and professional support from family and healthcare staff to increase maternal acceptance of KMC.	18(11)	145(89)	.89	High
9	Maintaining a quiet, clean environment with appropriate lighting to enhance KMC implementation.	23(14.1)	140(85.9)	.86	High
10	Maintaining an ambient room temperature between 25°C and 27°C to support KMC	26(16)	137(84)	.84	High
11	Mentorship and supervision by experienced nurse-midwives to assist junior staff in adopting KMC.	7(4.3)	156(95.7)	.96	High
12	Integrating KMC into official hospital policies and medical records to support standardized practice.	22(13.5)	141(86.5)	.87	High
13	Providing incentives, rewards, and letters of appreciation to motivate nurse-midwives to implement KMC.	22(13.5)	141(86.5)	.87	High
14	Continuous professional development through seminars to increase staff motivation for KMC.	23(14.1)	140(85.9)	.86	High
15	Hospital regulations that restrict formula feeding, thereby promoting the practice of KMC.	17(10.4)	146(89.6)	.90	High

One of the most consistently rated items was mentorship and supervision by experienced clinicians (95.7%), focusing on the importance of peer-to-peer clinical leadership. Other key factors mentioned were administrative support, in-service training, and the personal belief in KMC's clinical value on the part of staff, all with a level of agreement at 91.4% among participants.

Discussion

The overall demographic characteristics of the 163 nurses and midwives who participated in the study are presented in the results section. The age group of 20–29 years old accounted for more than half of the nurse-midwives (57.7%), followed by those 30–39 years old (31.3%). The present findings are consistent with those of Ridha and Hanon (2025), who assessed how an educational program affected nurses' and midwives' understanding of the application and obstacles of skin-to-skin contact in Kirkuk City hospitals. According to the survey, more than 40% of nurse-midwives were between the ages of 20 and 29. In terms of marital status, 31.9% of nurses and midwives were single, and nearly two-thirds (65%) were married. The percentage of people who were widowed (1.2%) or divorced (1.8%) was quite low. Regarding residency, it indicates that the majority (95.7%) of nurses and midwives reside in urban areas, while only 4.3% reside in rural areas. Regarding socioeconomic status, more than half of nurses and midwives reported that their income was sufficient, while a considerable proportion reported it as barely sufficient, and a small proportion reported it as insufficient. Regarding participation in Kangaroo Mother Care training courses, less than half of the participants reported attending such programs, with most of them having participated in only one to three training sessions. In contrast, a study conducted in Saudi Arabia by Almutairi (2022) reported that a considerable proportion of nurses did not receive adequate training on skin-to-skin contact during their orientation, and many, 42.5%, perceived existing guidelines as unclear or insufficient. Surveying the current workplace reveals that 65% of nurse midwives work in the delivery room, and 35% work in the Neonatal Intensive Care Unit (NICU). Regarding duty shift, 38% of nurse midwives work during the night, 35% work during the day (morning), and 27% work during the day (evening). The findings reveal a range of years of experience as a general; 49.1% have 1 – 5 years of experience. The years of experience in the current unit are as follows: 61.3% have 1–5 years, indicating that nurse midwives have moderate experience. These findings are in agreement with the study by Kaynat et al. (2024). professional experience (42.8%), indicating a moderately experienced workforce. The assessment of knowledge items among nurses and midwives revealed that they have a decent degree of understanding regarding the use of Kangaroo Mother Care (KMC). Thermoregulation and emotional connection were shown to be highly understood. These findings are consistent with Omer's (2021) research. Al-Shehri & Binmanee (2021) conducted a cross-sectional descriptive study among NICU nurses in Riyadh, Saudi Arabia, to assess the nurses' degree of KMC knowledge at medical institutions. It was discovered that NICU nurses possessed sufficient knowledge. Strong understanding in this area was exhibited by 92.6% of nurse midwives. However, a knowledge gap was found in aspects related to complex clinical scenarios, as indicated by a moderate level of knowledge in items related to implementing KMC during phototherapy (61.3%), managing newborns on mechanical ventilation (63.2%), and the care of extremely low-birth-weight infants under 1,000 grams (65.6%). According to this data, infants who are considered medically susceptible or who depend on technology to acquire completion require specialized instructional programs for the appropriate execution of KMC. All 17 categories had high mean ratings, indicating a high degree of agreement among nurses and midwives about the critical elements that support the effective use of KMC. Mentorship and supervision by seasoned doctors, emphasizing the value of peer-to-peer clinical leadership, was one of the most frequently scored elements. Participants agreed that administrative support, in-service training, and staff members' own confidence in KMC's clinical value were additional important variables. Consistent with our findings, a study carried out in Ethiopia, a country with a widely used healthcare system, found that visual aids like television and posters serve as a facilitator for educational purposes. Another important facilitator was a supportive policy framework, such as hospital promotion and support. (Ireso & Estifanos, 2025) in the range of 25–27°C, ensuring mothers' privacy (88.3%), and KMC in hospital policies, which are seen as key elements for a practice that becomes sustainable. According to clinical research, thermal regulation is crucial to the effective application of KMC because it lowers the risk of hypothermia and helps maintain the infant's body temperature. The effectiveness of KMC is still significantly influenced by the provision of a thermally supportive environment, even though the current implementation literature does not offer compelling evidence in favor of the precise 25–27°C range (Mony et al., 2021). In a particular research project (Nahidi et al., 2014), The majority of nurses and midwives had favorable opinions about the importance of kangaroo mother care.

Conclusion

The finding reveals that the highest percentage of nurses and midwives is young, indicating that nurses and midwives have moderate experience. Nurses and midwives demonstrate a good level of knowledge on the implementation of Kangaroo Mother Care (KMC); a knowledge gap was found in aspects related to complex clinical scenarios. A high level of consensus among nurses and midwives regarding the important factors that facilitate the successful utilization of KMC was obtained. The findings also underscore structural factors.

Recommendation

Facilities must enhance their KMC procedures. KMC should be applied methodically, and checklists for infants and mothers should be started. To ensure that there are always enough competent workers available, "succession planning" should be used.

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