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KNOWLEDGE, ATTITUDE, AND PRACTICE OF KANGAROO MOTHER CARE AMONG NEONATAL NURSING STAFF AT OLA DURING CHILDREN'S HOSPITAL, FREETOWN, SIERRA LEONE.

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ABSTRACT

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Background: Kangaroo mother care (KMC) has been proven to decrease rates of morbidity and mortality among premature and low-birth-weight infants. Thus, this study aimed to obtain baseline data regarding KMC knowledge, attitudes, and practices (KAP) among nursing staff caring for newborns in a tertiary hospital in Sierra Leone.

Methods: This cross-sectional study included 32 participants from the neonatal unit at the Ola During Children Hospital, Freetown, Sierra Leone. Participants included 17 State Enrolled Community Health Nurses, 10 State Registered Nurses, 2 with Bachelor of Science in Nursing, 2 Nursing aid, and a midwife. The nursing staffs were interviewed face-to-face to gather the data using standardized questionnaires. Their knowledge was assessed through open-ended questions, while close-ended questions were used to assess their attitude and practices of KMC.

Results: Among the included nursing staff, 65.6% (21/32) had received KMC training. About 75% of the nursing staff had positive attitude towards KMC, 87.5% had good KMC practices and most nursing staff could mention the two most commonly cited advantages of KMC. Their unawareness of other benefits of KMC, and even potential disadvantages, resulted in an overall low assessment of their knowledge on KMC

Conclusions: The majority of neonatal nursing staff at ODCH, had received training on KMC and demonstrated good attitude and practice towards implementing KMC, but their knowledge was generally poor. Expanding and equipping the KMC unit, encouraging and educating mothers on KMC, and training and retraining nurses on KMC, were among the factors listed to strengthen and enhance KMC implementation.

Keywords: Prematurity, Low-Birthweight, KMC, Knowledge, Attitude, Practice.

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INTRODUCTION

Globally, 25 million infants are born with low birth weight (LBW) and 15 million are premature, primarily in low-income countries (Cattaneo et al. 1998). LBW contributes to 60-80% of neonatal deaths, with prematurity causing 29% of the annual 3.6 million neonatal deaths (Lawn et al. 2010). One of the main reasons that LBW/premature babies are at greater risk of illness and death is that they lack the ability to control their body temperature. (Kramer 1987)

In most countries, the use of incubators is standard for thermal care of LBW babies. However, "incubator care" is not widely available in developing countries, due to problems as poor maintenance, power outages, untrained or poorly trained health personnel or insufficient staff available on a 24-hour basis. (MCHIP and USAID, 2012). Given the cost of incubators and the operational and programmatic challenges, making incubator care available and accessible to the majority of LBW babies is simply not an option in most developing countries. Fortunately, there is an alternative approach for providing thermal care for and improving survival of LBW infants that is both effective and affordable—namely, Kangaroo Mother Care, or KMC (MCHIP and USAID, 2012).

Available evidence of the effectiveness and safety of KMC show that KMC is at least equivalent to conventional care (incubators), in terms of safety and thermal protection, if measured by mortality. (WHO 2003) But despite the recognition, benefits and longevity of KMC, few developing countries have made the intervention available and accessible to LBW babies. Within the sub-region, there is still a lack of awareness and poor implementation techniques related to Kangaroo Mother Care attributable to multiple factors including the inadequate KAP of KMC among nurses and other health workers (MCHIP and USAID, 2012).

In 2018, the Government of Sierra Leone through the Ministry of Health and Sanitation, with support from development partners, established a KMC unit in the only Tertiary Paediatric hospital- Ola During Children's Hospital. As part of the inaugural events, staff of the neonatal unit received KMC training, and to date, information on KAP of KMC among nursing staff remains uncertain. This study therefore aimed to describe the KAP of nursing staff concerning KMC at Ola During Children's Hospital; serving as a baseline for larger intervention studies as part of efforts to improve the implementation of KMC in the country.

METHODS

Study Design

A single-centre cross-sectional study was carried out between May and July 2023, in the neonatal unit of ODCH located in the Eastern part of the Western Area Urban, Freetown, Sierra Leone. ODCH is the only tertiary referral paediatric hospital in Sierra Leone, and is part of the University of Sierra Leone Teaching Hospital Complex, comprising six hospitals. The neonatal unit, ODCH is a 35-bed unit and has a designated section for KMC. The KMC unit consists of eight (8) beds and three (3) couches. According to the statistics for 2022, 2,292 babies were admitted into the neonatal unit of which 431 were LBW.

Participants

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The study participants were all thirty-two nursing staff at ODCH who provides in-hospital neonatal care, after signing a written informed consent form prior to study enrollment. These included 17 State Enrolled Community Health Nurses, 10 State Registered Nurses, 2 with Bachelor of Science in Nursing, 2 Nursing aid, and a midwife.

Data collection

The nursing staff were interviewed face-to-face to gather the data using standardized questionnaires. The purpose of the questionnaire was to learn more about their KAP regarding KMC. Close-ended questions were used to assess KMC practices in the nurses. The knowledge of the nurses was assessed through open-ended questions in the questionnaire about the advantages and disadvantages of KMC. A correct response scored as 1 and incorrect as 0 (adapted from Celeste Rosant, 2009; El-Nagar et al 2013). To measure attitude toward KMC, a 5-point Likert scale (ranging from "strongly disagree" to "strongly agree") was used. During analysis, the Likert scale was converted to scores, with 40 being the highest and 8 being the lowest (based on 8 questions and a 5-point Likert scale). Final scores in percentages were grouped into four categories (scores 0 to 25 = very low, 25 to below 50 = low, 50 to below 75 = moderate, and 75 to 100 = good/high) (adapted from Celeste Rosant, 2009; El-Nagar et al 2013).

Statistical analysis

Prior to using the statistical package for the social sciences (SPSS) version 28.0 for analysis, data were gathered and entered into a Microsoft Excel worksheet. Once the data has undergone statistical analysis, the information was condensed and displayed in tables and figures.

Ethics and consent

Informed consent to participate in the study was obtained from all participants after explanation of the study objectives and relevance, risks, and benefits. Permission was obtained from the hospital's authority and from the Department of community medicine at the college of medicine and allied health sciences. Participation in the study was entirely voluntary and participants were advised that they could withdraw from the study at any point.

RESULTS

Demographic characteristics of study population

All thirty-two nurses were females, and 53.1% (17/32) were State Enrolled Community Health Nurses (SECHN) with ages mostly between 30-39 years. Among the included nursing staff, 65.6% (21/32) had received KMC training, and the majority (76.1%; 16/21) had their training done at ODCH. (Figure 1)

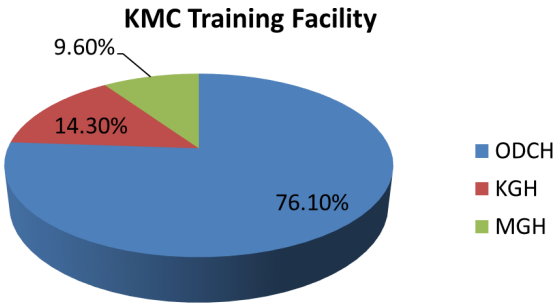

Figure 1: KMC training facility of nursing staff at ODCH

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Abbreviations: ODCH= Ola During Children's Hospital, KGH= Kenema Government Hospital, MGH= Makeni Government Hospital

Knowledge of nursing staff on KMC

Table 1 indicates the knowledge of the nursing staff, showing the advantages and disadvantages of KMC as reported during the interviews.

The nursing staffs were all able to mention six advantages of KMC, but 87.5% knew no disadvantages. Three percent indicated that KMC might be hazardous for the infants, as the mother might forget about the infant and could accidentally hurt the infant when turning around while sleeping. Nine percent reported that overcrowded wards were not hygienically safe for mother and baby, as these could increase the risk for cross infection.

Table 1: The advantages & disadvantages of KMC as reported by the nursing staff

Advantage of KMC	**Proportion of nursing staff reported (n=32)**
Promoting bonding	18 (56%)
Increasing growing and weight gain of baby	19 (59%)
Help with temperature regulation	12 (36%)
Decrease infection rate	6 (19%)
Improve breast feeding	4 (13%)
Easy to carry/handle	0
Decrease the use of incubators	0
Prevent accidental falling	0
Decrease the work load of the nurses	0
Power saving method	0
Increase the alertness of the mother to her baby	3 (9%)
Disadvantages of KMC	
None	28 (87.5%)
Overcrowded wards not hygienically safe for mother and baby.	3 (9%)
Too long stay away from other children	0
Accident (e.g. lying on the baby)	1 (3%)

Attitude of nursing staff towards KMC

The attitude of the nursing staff towards KMC was assessed using a set of questions and a five point Likert scale, which they had to respond to. Thus in 3 aspects, that is, KMC promoting bonding; KMC enhancing mother's confidence; and KMC resulting in effective breastfeeding, all nursing staff agreed to the value of KMC, with 64.6% holding a strong conviction on these three aspects (Table 2). The response by nursing staff on when to start KMC, involvement of both parents in KMC and practicing KMC for all infants 1 – 1.8kg, was mixed covering all 5 parts of the Likert scale. It would appear that the majority of nursing staff (87.5%) agreed on KMC being practiced for infants 1 – 1.8 kg, also agreed that both parents should be involved in KMC (62.5%), but they had divided opinions on the time to begin KMC as 53.1% disagreed with starting KMC within a few hours after birth.

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Table 2: The attitude of the nursing staff toward KMC

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Kangaroo care promotes bonding with the infant	0	1 (3.1%)	0	8 (25%)	23 (71.9%)
Kangaroo care enhances the mother's confidence in handling her infant.	0	0	0	9 (28.1%)	23 (71.9%
Kangaroo care results in effective breastfeeding	0	1 (3.1%)	1 (3.1%)	14 (43.8%)	16 (50%)
Kangaroo care should be practice for infants between 1Kg – 1.8Kg	2 (6.3%)	2 (6.3%)	0	10 (31.3%)	18 (56.3%)
kangaroo care should begin within a few hours after birth	5 (15.6%)	12 (37.5%)	0	8 (25%)	7 (21.9%)
All parents should be involve in kangaroo care	4 (12.5%)	7 (21.9%)	1 (3.1%)	8 (25%)	12 (37.5%)
Nursing staff should always facilitate kangaroo care for mothers	0	1 (3.1%)	0	15 (46.9%)	16 (50%)
Facilitation of kangaroo care is a burden to nursing staffs	4 (12.5%)	18 (56.3%)	1 (3.1%)	5 (15.6%)	4 (12.5%)

Practices of nursing staff towards KMC

KMC practices by nursing staff were measured using close-ended questions. Almost all nurses (96.9%) stated that they encouraged, educated and assisted mothers, fathers, and families to implement KMC for their infants. They are also regularly supervised in the information sessions with the mothers.

Scoring the knowledge, Attitude and Practice of KMC among nurses at ODCH

The individual responses toward the knowledge, attitude and practice of KMC were assessed, and scores in percentages were stratified into four categories (scores 0 to 25 = very low, 25 to below 50 = low, 50 to below 75 = moderate, and 75 to 100 = good/high) (adapted from Celeste Rosant, 2009, El-Nagar et al 2013) (Table 3)

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Table 3: Scoring the KAP among nurses at ODCH

	SCORES			
	Very Low	**Low**	**Moderate**	**Good/High**
Knowledge	30 (93.8%)	2 (6.2%)	0	0
Attitude	0	0	8 (25%)	24 (75%)
Practice	0	1 (3.1%)	3 (9.4))	28 (87.5%)

All nurses had moderate to good/high attitude towards KMC, and the majority (96.9%) also had moderate to good/high scores regarding the practice of KMC. They all however scored very low or low with the assessment of their knowledge of KMC.

Barriers and facilitating factors in the implementation of KMC

Critically ill babies and unavailability of mothers were the leading barriers to the implementation of KMC at the neonatal unit of ODCH; whilst expanding and equipping the KMC unit, encouraging and educating mothers on KMC, and training and retraining nurses on KMC, were among the factors listed to strengthen and enhance KMC implementation.

DISCUSSION

Studies have shown that formal and informal KMC education among nursing staff can substantially increase the success of KMC implementation (Adisasmita et al, 2021). Findings from this study showed that the majority of nurses (65.6%) had attended KMC training. The proximity to the training center (been within ODCH), may have accounted for the high participation during the training program. Zhang et al found that KMC-specific training increased the confidence of neonatal nurses in KMC, thus promoting its implementation (Zhang et al, 2018), and the lack of training could result in conflicting knowledge on the timing and duration of KMC (Chia P, 2006 & Chan G, 2017), which could lead to adverse consequences such as mortality (WHO, 2020) especially among less stable infants. It is therefore essential for all nurses working at the neonatal unit to receive KMC training organized within the facility, to increase their knowledge and confidence in implementing KMC.

This present study also showed that most nursing staff could mention the two most commonly cited advantages of KMC. Although this information about the advantages corresponds with previous studies (White-Traut, 2004 & Furman & Kennel, 2000), their unawareness of other benefits of KMC, and even potential disadvantages, resulted in an overall low assessment of their knowledge on KMC. A single KMC training conducted four years ago at ODCH may have contributed to this finding, as the majority of the nursing staff felt that there were no disadvantages to KMC, but some felt that accidents might occur while asleep such as lying on the baby resulting in harm, and overcrowded wards were not hygienically safe for mother and baby. Nursing staff knowledge could be improved through regular information / training sessions focusing on all the advantages of KMC for the infant besides bonding and improvement in weight gain. During these sessions the consultation procedures and type of

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information given to the mothers could be addressed.

Responses to the questionnaire indicated a good attitude and practice towards KMC implementation. This could be attributed to the supportive supervision and assistance nursing staff receive during first time information session with kangaroo mothers from senior colleagues. The collaboration among healthcare workers with shared goals and team commitments in which inexperienced nurses are partnered with those experienced in KMC can also be helpful (DiMenna L, 2006; Chan GJ, 2016; Lee HC, 2016).

The nursing staff also felt that the involvement of the family will help the mother emotionally and serve as an encouragement to continue KMC. A step-down facility or upgrading of the existing hospital ward to create a facility which is more homelike but still provide adequate medical and nursing care for the infants, might facilitate the practice of KMC when mothers feel more at home and comfortable, with better-equipped rooms, bathrooms, laundry and leisure facilities for the mothers (Celeste Rosant, 2009). The nursing staff required support from the mothers by being more dedicated to their infants. They reported that some of the young mothers were not cooperative, as they were not dedicated enough in caring for their infants and did not want to stay in hospital for long. Research done by Davanzo (2004); Bhutta, et al., (2004); Pattinson, et al., (2006) & Cattaneo, et al., (1998) concluded that mentor moms (moms who had done KMC previously) and nursing staff can be available to support and motivate these young mothers.

This present study clearly showed that training opportunities should be created to tackle misconceptions and gaps in knowledge of KMC. All nursing staff involved in the care of small and sick newborns, should receive adequate training on KMC. Despite being a single-center study, our results could be generalized to the status of KAP of KMC among all neonatal nursing staff in Sierra Leone, where such data remain scarce.

The successful implementation of KMC requires relevant education and mentoring of nurses, education and support of mothers by nursing staff, monitoring of KMC implementation by nurses, identification of institution-specific barriers, and implementation of institution-specific strategies to overcome these barriers.

CONCLUSIONS

The majority of neonatal nursing staff at ODCH, had received training on KMC and demonstrated good attitude and practice towards implementing KMC, but their knowledge was generally poor.

Expanding and equipping the KMC unit, encouraging and educating mothers on KMC, and training and retraining nurses on KMC, were among the factors listed to strengthen and enhance KMC implementation.

RECOMMENDATIONS

To improve KMC implementation in hospitals, effective interventions are needed. These should include training that incorporates KMC content into the nurse/midwife curriculum, extracurricular training, coupled with on-site training and clear guidelines. Also the provision of facilities that support KMC such as an expanded unit with more couches or beds and

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a home-like environment that encourages zero separation between mother and child, should be taken into consideration. The engagement of key stakeholders (including the hospital management), in strengthening and promoting the implementation of KMC is recommended.

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