



Supportive Factors and Barriers to the Implementation of Kangaroo Mother Care in Zaria: Midwives and Nursing Mothers' Perspective

Musa HA, Salihu A.A, Ladan MA, Abubakar I, Farooq MA, Olufemi YD

Department of Nursing Sciences, ABU Zaria

*Corresponding Author: Halima Musa Abdul

Corresponding Email: hmabdul @abu.edu.ng, musaabdulh@cardiff.ac.uk

Abstract:

Background: Kangaroo Mother Care (KMC) is an evidence based, high impact intervention and standardised care for low birth weight infants. The impact of KMC in newborn care is expected to be greatest in Africa due to ill equipped health facilities. **Aim:** The study was to assess the knowledge and perception of midwives and nursing mothers on KMC; supportive factors and barriers to the implementation of KMC in some selected secondary care facilities in Zaria. **Methods:** A descriptive survey design was utilized. The questionnaire was used as an instrument for data collection across the total population (91) 50 Nursing mothers and 41 midwives with 88% return rate from 50 Nursing mothers and 30 midwives across the two selected secondary care facilities. A purposive sampling technique was used. **Results:** Findings showed that 80% of the midwives have a high level of knowledge of KMC, while more than a half (58%) of the mothers have a low level of knowledge. Both mothers and midwives have a positive perception with a mean aggregate of 2.9 and 3.42 points respectively. Also the midwives and Nursing mothers agree with perceived supportive factors to the implementation of KMC with an aggregate mean of 3.24 and 3.07 points respectively. The nursing mothers and midwives also agree to all the perceived factors that act as barriers to the implementation of KMC with a mean aggregate of 2.88 and 2.64 points. **Conclusion:** The study concluded that the level of knowledge of KMC was high among the midwives but appeared low among mothers. The lack of implementation of KMC in these settings were due to prevalence of factors that act as barriers and lack of the supportive factors. Therefore, it is recommended that educational programs on KMC be available to mothers during antenatal counselling. Training of more paediatric Nurses and midwives should be made mandatory for all Primary and secondary health care centres.

Keywords: Knowledge, Perception, Kangaroo Mother Care, Midwives, Supportive Factors,

Introduction

Globally, premature delivery or preterm birth is known to be the leading cause of death among children of under 5 years of age (World Health Organisation, WHO, 2018). Every year, 15 million preterm births occur globally, and over 1 million of these preterm infants die each year as a result of preterm complications (WHO, 2018). Preterm birth complications

directly account for greater than 35% of all neonatal deaths each year (Siedman, *et al* 2015). However, the rise in preterm births are not only confined to low-income countries but are also found in high-income countries. The 10 countries with highest rates of preterm births include those that are high-income, such as the USA, middle-income such as India, China, the Philippines, Indonesia and Brazil,

and low-income such as Nigeria, Pakistan, Bangladesh, Democratic Republic of Congo (WHO, 2018). Thus interventions that are cost-effective and applicable in both high- and low-income settings are highly needed.

At the country level, the Nigeria Demographic and Health Survey (NDHS) 2013 estimated its Neonatal Mortality Rate (NMR) as 37 per 1000 live births, which constitutes about 54% of the infant mortality rate. Also, a recent UNICEF report puts Nigeria as the 11th country with highest neonatal death (UNICEF, 2018). According to this report, premature births contribute to 80% of these neonatal deaths. Preterm births expose mothers and babies to a host of potentially fatal complications, infections, including low birth weight. Also, preterm babies who survive the newborn phase often endure life-long complications, including stunted growth and learning disabilities (UNICEF, 2018). Data from around the world have shown a strong correlation between the quality of postnatal care and the survival of high-risk newborns.

A frequently mentioned example of an intervention that improves survival is the Kangaroo Mother Care (KMC), or early and regular skin-to-skin contact between mother and baby (UNICEF, 2018).

The KMC is an evidence-based, high impact intervention and standardised care for low birth weight infants which was first developed in Bogotá Colombia (Raajashri *et al*, 2018). KMC has been proven to significantly improve growth, reduce mortality and morbidity particularly from hypothermia, hypoglycemia and nosocomial sepsis in neonates with a birth weight of <2000g (Suman, Udani, and Nanavati, 2008). A meta-analysis of three randomised control trial studies reported that KMC decreased mortality in neonates with a birth weight of <2000 g by 51% (Lawn *et al*, 2010). KMC is the early, prolonged and continuous skin – to – skin contact between the mother (or substitute) and her low birth weight infant, both in hospital and after early discharge, until

at least the 40th week of postnatal gestation age (Cattaneo, Davanzo and Uxa, 1998). There are four components of KMC including 1) early, continuous, and prolonged skin-to-skin contact between infant and caregiver, 2) exclusive breastfeeding, 3) early discharge from hospital, and 4) adequate support for caregiver and infant at home (WHO, 2003). The WHO (2003) also recommends that KMC should be done immediately after delivery for every baby as part of routine care to ensure that all babies stay warm in the first two hours of life, and for sick newborns during transport for a referral.

The development of the KMC in early 1970s was prompted by challenges arising from shortage of incubators, overcrowding and the impact of mother and newborn separation in hospitals caring for low birth weight infants (Cattaneo, Davanzo and Uxa, 1998). It is expected that the impact of KMC in newborn care would be greatest in Africa where there is a significant number of low-income countries. This is because of the limited options for care for preterm babies with few neonatal care units, located often in distant referral hospitals which are understaffed and poorly-equipped (Onugbogu and Okoh, 2016). The implementation of KMC on an appreciable level in some of the few health facilities in low-income countries is the only way this strategy can make a significant impact in reducing the high neonatal mortality. (Onugbogu and Okoh, 2016).

KMC was first introduced in Nigeria in the late 1990s through a resident pediatrician at the University of Lagos Teaching Hospital following a month-long training in Bogotá, Colombia (Aboda and Williams, 2012). Thereafter, KMC was later declared as the best option of practice in 1998 during the 29th annual general and scientific conference of the paediatric association of Nigeria (Onugbogu and Okoh, 2016). However, after two decades following the adoption of KMC in Nigeria, with various training programs organized by the Ministry of Health and a number of Non-Governmental Organisations at different

levels of health care systems, a number of secondary health care institutions are yet to implement KMC in their facilities. Victora *et al* (2010) argue that one of the reasons for the poor utilisation of KMC can be attributed to the poor expansion of KMC practice on a large scale in most low- and middle-income countries. In addition, KMC implementation is often concentrated in the teaching or other tertiary hospitals, with little or no expansion to the district hospitals.

In order to mediate the problem of neonatal mortality, midwives are of immense value. This is because they play a key role in terms of the facilitation of KMC, providing information, constant reassurance as well as the provision of a comfortable environment and privacy to the parents of preterm infants (Nyqvist *et al.*, 2010). The knowledge and facilitation provided by the midwives, enable the parents especially the mothers to develop bonding relationships with their infants (Bergh *et al.*, 2012). Notwithstanding, the roles of the mothers, need to be recognised as well as barriers and supportive factors to the implementation of KMC. The success of KMC implementation depends to a large extent on parents, especially mothers. Therefore, mothers' Knowledge and perception are key to KMC implementation since they are determining factors as to whether or not parents perceive KMC as a positive experience or not. Some reasons for resistance to KMC implementation globally has been attributed to health workers' attitude and perception of KMC as an additional task. Also, parents especially mothers have not been sufficiently mobilised for the task, bearing in mind the different cultural perspectives and hindrances (Nyqvist *et al.*, 2010). However, the reason for the poor implementation of KMC in some secondary care facilities in Kaduna State despite its incorporation in some of its infant health policies by the Federal Government Nigeria is not well understood. The study location, Zaria, is situated in the highly populated Northwest region of Nigeria. It forms a considerable part of the region with high neonatal mortality

(NDHS, 2013), therefore the need to assess midwives' and mothers' knowledge, perception as well as perceived barriers and facilitators to KMC implementation will inform an understanding of potentials barriers for practising KMC in secondary care facilities. This may be critical for the effective implementation of the intervention. Hence, this study was carried out to assess the level of knowledge of midwives and mothers on KMC in two secondary health care facilities in Zaria, Nigeria; determine their perception; and identify supportive factors and barriers to the implementation of KMC among midwives and nursing mothers in these hospitals.

Methods and Materials

A descriptive survey design was used to assess the level of knowledge of midwives and nursing mothers as well as their perception regarding the practice of KMC. The study population comprised of the midwives and nursing mothers in the labour ward, maternity ward and paediatric units of the two high volume secondary health care facilities in Zaria. Based on records available in the hospitals, the total number of midwives working in these units of the two hospitals were 16 and 25 respectively. The number of nursing mothers was based on the number of beds available for admission in each of these wards. The number of nursing mothers in two hospitals at the time of the study were 12 and 38, respectively. The population for both the midwives and nursing mothers made up a total of 91.

Prior to the commencement of the study procedure, ethical clearance was obtained from the health research ethical committee of Ahmadu Bello University Teaching Hospital, Shika-Zaria with the reference number of ABUTH/HREC/TRG/36. Thereafter, a purposive sampling technique was used to recruit the participants in this study. The instrument used for data collection was a self-administered questionnaire. For the purpose of this study, the knowledge of the respondents was categorized into two levels (high and low). To achieve this, a scoring system was

developed. There were a total of 15 questions on knowledge of KMC, and each correct response was scored 6.7 points, making a total of 100%. Respondents scoring between 67-100 points were graded as having a high level of knowledge while those scoring 66 points and below were classified as having a low level of knowledge. Four-point Likert scale was used to assess perception on, barriers and supporting factors to the practice of KMC. An aggregate mean of 2.5 points and above was considered as positive (in agreement with statements), while below 2.5 was considered as negative.. All respondents were provided with the participants' information sheet and those who indicated interest to participate were given the consent form to sign before participation.

Results/Discussion

Descriptive statistics were employed to summarize the data collected from the study

sample. Frequency, percentage and standard deviation of the obtained responses were presented in frequency tables. A total of 91 questionnaires were administered to the respondents, 41 to the midwives while 50 questionnaires were distributed to the nursing mothers. Thirty questionnaires were retrieved from the midwives and 50 from the nursing mothers, giving an 88% response rate.

Table 1a below presents the Socio-Demographic data collected. It shows that a slight majority of the mothers (54%) are between the ages of 20–29, of which the majority of these (36%) are Hausa by the tribe. Majority (74%) of the mothers are Muslims, and the highest number of birth was 4, occurring in 28% of the respondents.

Table 1 Socio - Demographic Data of the Respondents

Table 1a: Socio–Demographic Data of Respondent Mothers.N= 50

Variables	Frequency	Percentage (%)
Age (Years)		
20 – 29	27	54
30 – 39	20	40
40 – 49	3	6
Religion		
Christian	13	26
Islam	37	74
Tribe		
Hausa	18	36
Yoruba	10	20
Igbo	2	4
Fulani	13	26
Others	7	14
Births		
1	1	2
2	3	6
3	15	30
4	14	28
5 and above	11	22

While table 1b shows that close to half (43.3%) of the midwives have a working experience of 5 years or above. In general,

only about 46.7% of the midwives were formally trained in KMC application.

Table 1b: Socio-Demographic Data of Respondent Midwives. N=30

Variables	Frequency	Percentage (%)
Rank		
CNO	4	13.3
ACNO	3	10
PNO	4	13.3
SNO	7	23.3
NO	12	40
Name of Hospital		
Gambo Sawaba Hospital	10	33.3
MIBA Hospital	20	66.7
Working experience (years)		
1	4	13.3
2	5	16.7
3	3	10
4	5	16.7
5 and above	13	43.3
KMC training		
Trained	14	46.7
Untrained	16	53.3

Table 2a below showed that the level of knowledge of mothers about KMC was low (42%). This finding could be as a result of low education among the mothers because the study settings is located in the Northwest geopolitical region of the country that recorded 60% of females having no western education (NDHS 2013). A similar finding was reported by Kavitha, Aroun, Prasath and Krishnaraj (2014) in their study, which assessed the knowledge of KMC among post-natal mothers in Kadapa, Eritrea. They revealed that out of 20 participants, only

48.15 % of postnatal mothers had good knowledge and 51.85% had poor knowledge regarding KMC. This study findings also lend support to what was reported by Solomon and Rosant (2012) in cross-sectional study carried out in eastern sub-district of Cape Town to determine the knowledge and attitude of nursing staffs and mothers towards KMC which revealed that 83.3% of the mothers did not have a prior knowledge of KMC until their infants were being admitted into the wards.

Table 2a: Level of Knowledge of KMC among Mothers N=50

Level of knowledge	Frequency	Percentage%
High	21	42
Low	29	58

Also, Table 2b below reveal a high level of knowledge of KMC among the midwives. This could be as a result of educational programs as well as interaction with

colleagues or from work experience (Solomon and Rosant, 2012). Nevertheless, more formal awareness and training are warranted.

Table 2b: Level of Knowledge of KMC among Midwives

Level of knowledge	Frequency	Percentage%
High	24	80
Low	6	20

Table 3a below revealed that majority of the mothers have a positive perception about KMC with a mean aggregate of 2.9. Therefore, knowledge is believed to have a positive

impact on perception, and the positive perception of mothers despite their poor knowledge could be a function of chance or lack of understanding of the questions.

Table 3 The Perception of Nursing Mothers on KMC

Table 3a: Perception of Mothers on KMC N=50

Variables	Mean	S.D	Remark
Kangaroo care promotes bonding.	3.08	0.724	Agree
Kangaroo care has a positive effect on the physical well-being of infant	2.92	0.752	Agree
KMC enhances the parents' Confidence	2.82	0.873	Agree
KMC results in more effective breastfeeding.	2.72	0.904	Agree
KMC should begin within few hours of birth.	2.92	0.812	Agree
All parents should be encouraged to practice KMC.	2.78	0.910	Agree
All parents should be given relevant information on kangaroo care.	2.96	0.807	Agree
Midwives should remain with parents for support & assistance during KMC.	2.88	0.773	Agree
It increases alertness of the mother to her infant	3.02	0.795	Agree
It increases growth and weight of Infant	2.90	0.814	Agree
AGGREGATE	2.9		

Also, Table 3b revealed a positive perception towards KMC among the midwives with an aggregate mean of 3.24.

Table 3b: Perception of Midwives on KMC N= 30

Variables	Mean	S.D	Remark
Kangaroo care promotes bonding	3.80	0.407	Agree
Kangaroo care has a positive effect on the physical well-being of infant	3.63	0.490	Agree
Kangaroo care enhances the parents' Confidence	3.43	0.568	Agree
Kangaroo care results in more effective breastfeeding.	3.55	0.572	Agree
Kangaroo care should begin within a few hours of birth.	3.13	0.629	Agree
All parents should be encouraged to practice kangaroo care	3.33	0.547	Agree
All parents should be given relevant information on kangaroo care.	3.40	0.621	Agree
Midwives should remain with parents for support & assistance during KMC	3.07	0.785	Agree
Facilitating kangaroo care is professionally Satisfying	3.33	0.546	Agree
It increases the alertness of the mother to her infant	3.63	0.490	Agree
It increases growth and weight gain of infant	3.27	0.640	Agree
AGGREGATE	3.42		Agree

This finding could be the result of their work experience as the majority of the midwives reported that they have been employed as midwives for more than 5 years and understand the concepts of KMC. A similar finding was reported by Arthur *et al* (2002) in their survey on barriers and perception of KMC, which revealed 82% of the respondents with a positive perception of KMC in their facilities.

With regards to the issue of supportive factors to KMC implementation among the nursing mothers, table 4a below reveals that factors such as participation of fathers, encouragement by relatives, and provision of adequate information on KMC were of benefit. Other supportive factors included continuing

education program on KMC, support and supervision by midwives, the readiness of midwives and mothers, adequate nursing staffing, encouragement from the government, adequate environment for mothers and other kangaroo caregivers, the closeness of healthcare facility and inclusion of KMC in antenatal counselling. Moreover, a mean aggregate of 3.24 was obtained in relation to midwives perception of supportive factors. They identified factors such as the conducive environment for KMC participation, clear implementation policy, continuing education program on KMC to update knowledge (Johnson, 2007) and reduction of the burden of low birth weight babies on midwives among others (Chia, Sellick and Gan, 2006; Thernström, 2012).

Table 4: Supportive Factors for KMC

Table 4a: Supportive factors for implementation of KMC among midwives N=30

Variables	Mean	SD	Remark
Conducive environment for KMC Participation	3.37	0.615	Agree
Clear implementation policy	3.13	0.776	Agree
Continuous education program on KMC to update knowledge	3.47	0.507	Agree
It reduces the burden of low birth weight babies on midwives	2.93	0.828	Agree
Readiness of midwives and mothers	3.47	0.505	Agree
Adequate nursing staffing	3.00	0.788	Agree
Encouragement and support from Management	3.33	0.547	Agree
In service training of staffs on KMC	3.07	0.785	Agree
Facilitating kangaroo care is professionally satisfying	3.20	0.761	Agree
Inclusion of KMC in antenatal counselling	3.43	0.504	Agree
AGGREGATE	3.24		Agree

Table 4b: Supportive factors for KMC among Mothers N= 50

Variables	Mean	S.D	Remark
Participation of fathers	2.58	0.883	Agree
Encouragement of mothers by Relatives	3.12	0.807	Agree
Provision of adequate information on KMC	3.32	0.794	Agree
Continuous education program on KMC	3.08	0.695	Agree
Support and supervision by midwives	3.18	0.800	Agree
Readiness of midwives and mothers	3.16	0.584	Agree
Adequate nursing staffing	3.12	0.718	Agree
Encouragement from the Government	2.84	0.766	Agree
Adequate environment for mothers and other kangaroo care givers	3.18	0.748	Agree
Closeness of healthcare facility	2.98	0.915	Agree
Inclusion of KMC in antenatal counselling	3.24	0.771	Agree
	3.07		Agree

Furthermore, Table 5a below showed that the mean aggregate of 2.88 points was recorded among mothers, which implies that the factors that are barriers to implementing KMC among mothers include cultural oppositions,

exposure of mother’s body to hospital staff, location of the hospital, perception that KMC is only for the poor, KMC been stressful and overwhelming, and resistance to exclusive breastfeeding.

Table 5 Barriers to KMC Implementation among Respondent

Table 5a: Barriers to KMC among mothers N= 50

Variables	Mean	S.D	Remark
Cultural oppositions	3.20	0.728	Agree
Exposure of mothers body to staffs	2.96	0.807	Agree
KMC is substandard	2.70	0.839	Agree
Location of the hospital	2.70	0.909	Agree
KMC is only for the poor	2.60	1.010	Agree
It is stressful and overwhelming	2.94	0.843	Agree
Resistance to EBF	2.74	0.853	Agree
Staff usually object to early discharge if KMC is practised	2.84	0.738	Agree
lack of KMC knowledge	3.10	0.707	Agree
lack supports from the midwives	2.86	0.808	Agree
It gives no time for other family Members	3.00	0.881	Agree
Aggregate	2.880		Agree

Table 5b showed a mean aggregate of 2.64 among the midwives. This implies that factors such as cultural opposition by mothers, the perception that facilitating kangaroo care is an added burden to midwives, shortage of staff and the absence of a clear protocol, were important barriers. However, the finding

among midwives is inconsistent with the report by Solomon and Rosant (2012), which reported that nursing staff did not communicate any resistance to KMC, did not think that KMC would increase their workload, and felt that it was beneficial to the premature infant and the mother.

Table 5b: Barriers to KMC Implementation among Midwives N= 30

Variables	Mean	S.D	Remark
Facilitating KMC an added burden to midwives	2.37	0.928	Agree
Cultural opposition	2.93	0.640	Agree
KMC is substandard	2.10	0.759	Agree
It is not scientific so it should not be practised	2.20	0.961	Agree
KMC is only for the poor	1.90	0.885	Agree
Shortage of staffs	2.87	0.776	Agree
Absence of clear protocol	2.87	0.681	Agree
Lack of Organisational report	3.0	0.743	Agree
Lack of KMC up – to date Knowledge	3.03	0.712	Agree
Lack of KMC training of all midwives	3.10	0.759	Agree
AGGREGATE	2.64		Agree

Conclusion

It can be concluded based on findings from this study that mothers have a low level of knowledge of KMC which is largely attributed to poor education and awareness.

However, midwives have a high level of knowledge on KMC which can be largely due to their educational background and exposure. In addition, both the mothers and midwives

have a positive perception regarding the practices of KMC. The positive perception of KMC by the mothers despite their low knowledge could be seen as confounding. Their level of education might have played a role in this finding.

Whilst mothers agreed that factors such as participation of fathers, encouragement of mothers by relatives, provision of adequate information on KMC, continuing education program on KMC, support and supervision by midwives, readiness of midwives and mothers, adequate nursing staffing, encouragement from the government, among others as being supportive factors for KMC implementation, the midwives were of agreement that conducive environment for KMC participation, clear implementation policy, continuous education program on KMC to update knowledge, adequate staffing, encouragement and support from management.

Among the Barrier to KMC implementation, the mothers opined that factors among mothers include cultural oppositions, exposure of mother's body to staffs, location of the hospital, perception that KMC is only for the poor, stressful and overwhelming, resistance to exclusive breastfeeding, objection of staff to early discharge if KMC is practiced, lack of KMC knowledge, lack of supports from the nurse and the perception

that it gives no time for other family members. The midwives also were of the view that factors such as cultural opposition, added burden to midwives, KMC is substandard, it is not scientific, it is for the poor as well as shortage of staffs, absence of clear protocol, lack of Organisational report, lack of KMC up – to date knowledge and lack of KMC training of all midwives all constitute barrier to implementation of KMC.

Recommendations.

Based on the findings of this study, it is recommended that training opportunities should be created for the midwives to address gaps in knowledge on this subject especially for the newly qualified midwives joining the profession. These training opportunities should emphasize the facts related to, and abilities required for, safe and effective KMC practice, and should also incorporate a supervised, hands-on practical experience component. The mothers also should be educated on the facts, benefits and possible hindrance to KMC practice as well as how to overcome such hindrances. Community support groups should be formed to discuss success stories of KMC to foster acceptance and wider coverage. Girl child education should be encouraged and supported in order to uplift the knowledge base of women in northern Nigeria.

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