Original Research Article

MATERNAL AND NEONATAL CRITERIA FOR KANGAROO MOTHER CARE: THE PERSPECTIVE OF THE MIDWIFE IN THE WEST MAMPRUSI DISTRICT OF NORTH-EAST REGION, GHANA

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ABSTRACT

Introduction: Kangaroo Mother Care (KMC) is the Skin-to-Skin (SCC) between mothers and their newborns that encourages adequate breastfeeding, early discharge from the health facility, and reduction of neonatal deaths. It benefits all babies and more especially those who are born preterm and with low birth weight**.** KMC is especially relevant in low-income and less-resourced settings. This study was conducted in the West Mamprusi District of the North-East Region of Ghana.
Objectives: This study aimed to explore the maternal and neonatal criteria necessary for the practice of Kangaroo mother care in the West Mamprusi District from the perspective of the professional and practicing midwives.
Methodology: The design for this study was a qualitative cross-sectional explorative one. This was necessary because it sought to explore both Maternal and Neonatal criteria used for mothers and babies for the practice of Kangaroo Mother Care (KMC) by gathering primary data. Participants for the study were professional midwives practicing in the West Mamprusi District of the North-East Region. Inclusion criteria were any health professional with certification to practice midwifery in the district**.** A semi-Structured interview guide was used to collect primary qualitative data from the participating midwives. These interviews were tape-recorded with their permission and informed consent. The researchers reached data saturation at the fourteenth (14th) participant. Recordings from them were transcribed and the Thematic Analysis technique was used to analyze the data.
Results: The study revealed that both mother and neonate need to meet certain criteria for the effective practice of Kangaroo Mother Care. Mothers must meet certain health parameters including recovering from birth-related surgeries and be willing to practice KMC. The babies on the other hand will need to meet the right weight, right gestational age, and must be healthy to undergo the procedure.
Conclusions: The mother and neonate are very fundamental in the practice of KMC. Very fundamental to the extent that they must meet obstetric, health, and physical criteria for the effective practice of KMC

Keywords: Ghana, Kangaroo Mother Care, Midwife, Perspective, newborn, Low birth weight

1. INTRODUCTION

The United Nations in its effort to safeguard the successes achieved through the Millennium Development Goals for the fifteen (15) year period and to set new benchmarks and targets for the next fifteen (15) years came out with the seventeen (17) Sustainable Development

Goals (SDGs). Goal three (3) target two (2) of SDGs aims to end preventable deaths of newborns and children under five (5) by the close of 2030[1]. One sure way of dealing with this issue of newborns is by using innovative ways like Kangaroo mother care (KMC) especially in low income and resource settings and health systems. It benefits all babies and in particular those that are born preterm and low birth weight [2, 3]. KMC is the Skin-to-Skin (SCC) between mothers and their newborns that encourages adequate breastfeeding, early discharge from the health facility, and reduction of neonatal deaths among those who are preterm and low birth weight. Though it is termed kangaroo mother care, the father or any other caregiver can put the baby to the KMC position. It requires very little resources to be practiced [4]. Preterm or premature birth refers to a live birth before the 37th week of gestation [5] whiles low birth weight refers to the birth of a baby with a weight less than 2.5kg. Low birth weight and preterm can occur separately or together in newborns [6]. Available evidence in a past study in a Columbian University Affiliated Neonatal Intensive Care Unit indicates that stability of the newborn under room or optimum temperature and the ventilator is very essential for the practice of KMC [7]. It is further asserted that babies that are less than 1kg and twenty-eight (28) weeks of gestation cannot be put to KMC. Medical situations of the newborns like intubation, umbilical vein catheterization are contraindicated in putting babies to KMC [8, 9]. Maternal health is very crucial to the practice of KMC. It is suggested that mothers who have had birth related surgeries could have implications for KMC position [10]. This past study however failed to provide enough information on any specific birth related surgeries. [2] in a study in 2017 indicates that mothers or parents need to be offered support that boarder on comprehensive information for them to be able to carry out KMC for their babies in low-resourced settings like Africa. There is however limited data on the specific maternal and neonatal criteria for the practice of KMC, especially in the less resourced settings. This current study, therefore sought to look at the benchmarks and parameters newborns and their mothers must meet for the effective practice of KMC in deprived districts of one of the northern regions of Ghana.

The purpose of this study was to explore the neonatal and maternal criteria for the practice of Kangaroo Mother Care in the West-Mamprusi District of North-East of Ghana. The research questions for this study were, therefore;

1. What are the maternal criteria for the practice of KMC?
2. What are the neonatal criteria for the practice of KMC?

2.0 METHODOLOGY

2.1 Approach and Design

The approach to this study was qualitative. The design for this study was phenomenological with the aim of describing and exploring the perspective of midwives on the neonatal and maternal criteria for the practice of KMC. This type of design and approach aims to describe diverse realities at the same time providing insight, understanding, and capturing everyday life and human perspectives on a particular issue. It examines into maximum context and interaction of the researcher with participants during the collection of face-to-face data from research participants. It takes place in the real world with little or no manipulation from the researcher. It gathers information as much as possible through detailed narrative descriptions about the issue or phenomenon under study as opposed to statistical calculations [11]. In descriptive studies a situational picture of the person, event, or show on the relationship between things [12]. It is a type of design that is open-ended and where emerging data is collected with the main aim of developing themes [13]. Qualitative designs generate a large amount of detailed data among a small number of participants [14]. This design afforded the researchers the opportunity to dig deeper into the understanding of how

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the participants evaluate the maternal and neonatal criteria for the practice of KMC from their professional and personal points of view.

2.2 Setting

The setting for this study was the West Mamprusi District of the North-East Region of Ghana with its capital being Walewale. It has a total population of 168,011 people [15]. The district covers an area of 4,892 km^2. Under-five (5) mortality rate for the district is 175/1000 live births [16]. It was chosen for this inquiry because the district is one of the poorest and low resourced in most areas including health in Ghana. The health system in the district has both public and private health professionals including midwives to provide services to clients in the face of limited resources. More importantly the use of innovative strategies like KMC to provide care to those who need it most.

2.3 Target population, sampling, and Participants

The study targeted all types of midwives in the Mamprusi West District of the North-East Region of Ghana. These were all health professionals with professional midwifery backgrounds, certifications, and practice in the district. They included tall those that had a straight three (3) year diploma in midwifery training, those with post-basic midwifery, and the Bachelor of Science (Midwifery) training.

The study targeted this category of health workers because they are in constant touch with both mothers and their newborns especially when it comes to the practice of Kangaroo Mother Care. Another reason is that Mamprusi West District is one of the deprived districts in Ghana with accompanying inadequate numbers of modern and orthodox equipment like the incubator. This particularly makes it imperative for midwives to be in the right positions to provide data for the study concerning the objective of the study to know what the maternal and Neonatal criteria for the practice of KMC are. The study employed the purposive sampling technique to get respondents for the study.

The sample size for this study was fourteen (14) participants (midwives). The study reached data saturation at the 14th participating midwife. Most of the participating midwives were in the age bracket of 50-59+ (64.2%) with the least (about 7.1%) recorded in age brackets of 20-29 and 40-49 years. Most, about 92% of the midwives' participants were Ghanaians with just a little under 8% of them having dual citizenship (both Ghanaian and Burkinabe). Half of the midwives (50%) of the midwives were community midwives. None of participating midwives in this study had a Bachelor's degree qualification.

2.4 Data collection

The midwives recruited for this study were from both public and private health facilities from all levels of the health system from hospitals to the Community-Based Health Planning and Services (CHPS) Centers. Permission was sought from the District Health Directorate with the necessary documentation from the Noguchi Memorial Institute for Medical Research (NMIMR). Since all the participants were literates, they easily understood the information on the information sheet. Where necessary clarifications were provided to the participants before they were allowed to sign the consent form for all those who agreed to take part in the study.

A semi-structured interview guide was used to collect data that was relevant to the objectives of the study. Researchers elicit from participants through a first-person account of the experience of the phenomenon under study. Mostly these interviews were one-to-one or

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dyadic [17]. It is a two-way affair that allows the exchange of ideas and information between the participant directly in both written and oral [18,19]. Each of the participating midwives was interviewed for a period ranging from 45-60 minutes aimed at addressing themes and not any specific questions. With the permission of the participants, the interviews were audiotaped with permission from them.

2.5 Analysis

An iterative deductive thematic analysis was employed to analyse the data from the participants of this study. This is because the researchers aimed at staying on focus with the aim of eliciting from the participants what they felt are the maternal and neonatal criteria for the practice of KMC. The audio recordings were first transcribed into raw data. The next step was to read extensively the data several times to become familiar with it. This process led to the compression of this raw data into a succinct structure of themes and subthemes directly related to criteria for the practice of KMC. First of all sentences or phrases of the transcripts that had direct relation to the objectives were coded by highlighting and labeling electronically using the "review" tool of Microsoft word. The electronic coding system was used to ensure that any alteration could be made without having to waste any printed materials.

A coding frame was then developed. The next stage was the identification of patterns from the frame and grouping of these codes according to these patterns. These patterns from the frame were then compressed to form subthemes. These subthemes were then further grouped according to their relation to either neonatal or maternal criteria, to form the two main themes. Some direct quotes from the participants' narrations were used to illustrate these themes and subthemes.

3.0 RESULTS

The results of this study are presented in themes and sub-themes from the analysis of the transcripts.

3.1 Themes and sub-themes from the interviews

The second part of the findings answered the research objectives and are presented in themes and sub-themes that came out of the narrations of the midwives from the fourteen (14) interviews. There were two (2) main themes. These are maternal and neonatal criteria for the practice of kangaroo mother care. The theme for maternal criteria has two (2) subthemes whiles the neonatal criteria have three (3) subthemes (Table 1).

Table 1: Themes and Subthemes

Themes	Sub-Themes
Maternal criteria for KMC	Health of mother
	Willingness to practice KMC
Neonatal criteria for KMC	Health of baby
	Birth weight
	Gestational age of baby

In the analysis stage of this study, field notes were added to give some richness to the data. Direct quotes from the participants were also added to provide evidence and more understanding of the results. In order to conceal the identity and ensure anonymity of the

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participants, pseudonyms were used to represent the respondents. The following are the details of themes and sub-themes

3.1.1 *Maternal criteria*

In the view of the participants for this study, mothers of newborns must meet certain parameters and requirements before they can put their newborns to KMC. Key from, their narrations were the health of the mother and willingness of the mother to practice KMC. It came to light from the midwives' narrations that there exist many pathogenic and non-pathogenic health conditions of the mother that can make it challenging for the practice of KMC. It is therefore important for the mother to be free from these conditions before she can put her newborn to KMC. The second sub-theme under maternal requirement according to the participants was the issue of willingness on the part of the mother to practice KMC. In the view of the participants' narrations, the midwife must be willing to practice KMC before it can be practiced. They indicated that the mother is a major stakeholder in the practice of KMC.

3.1.1.1 Health of mother

The participating midwives mentioned that there are pathogenic and non-pathogenic conditions that can pose a challenge to the practice of KMC. They specifically mentioned obstetric-related surgeries like caesarean surgeries as one of the problems related to the practice of KMC. In this vein according to them, the mother must be free of these, or these need to be overcome before KMC can be practiced. They indicated that infectious diseases especially those of the skin and chest pain will pose problems to the practice. This is one of such narrations to confirm:

Well, f the mother is having diseases like rashes or something like that, I will advise her not to put the baby to kangaroo mother care. Or if the woman is having some infectious disease, the child too may be infected. Apart from that, I don't think there is anything that will prevent her from practicing kangaroo mother care. If the mother also has chest pains, it will pose as a problem for the mother to put the baby to kangaroo mother care. Apart from that I don't think there is anything else.

Vida

Some of the midwives also attested to the fact that childbirth-related surgeries are major issues in KMC practice; specifically caesarean sections. These surgeries cause discomfort like pain to the mother that can prevent her from putting the baby in the KMC position. The following two sentences from a participant shed some light in this direction;

If the mother is operated upon like CS (referring to Caesarean Section) *case and she is still in pains, she cannot do it. The effect of the surgery must be over first.*

Shetu

This is another narration to drum home on the same effect:

If she delivers a preterm baby through an operation and she is very sick in bed, can she do kangaroo mother care? She cannot do kangaroo mother care. So people will help her at home. Ahhhhhaaaa (agreeing with herself). If she gets well then she can do it.

Laila

In the following narration a midwife stressed on the need for the mother to be healthy before she can practice KMC:

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When the mother is healthy, there is no problem and I will advise the mother to practice kangaroo mother care…... I will advise her to practice kangaroo mother care when the mother is healthy. It is only when the mother is healthy that she can practice. Without good health, she can't do it.

Vida

3.1.1.2 Willingness to practice

All the participants were of the view that the woman must be willing to practice KMC before it can actually be practiced. They alluded to the fact that, refusal by the mother to practice will jeopardize the effort of the midwife to implement the practice of KMC.

In the following narration, this participant explains how important it is for them to get the mother to agree to practice KMC:

I think one of the things is that, the woman should be willing to put the child to the chest or the abdomen? You can do all that you think is necessary but if she refuses it won't work (shrugging her shoulders). I think she should be willing to do it first.

Maggie

This second narration helps to further confirm that the practice of KMC depends largely on the mother's willingness to practice KMC. This is how the participant narrates:

You have to be convincing to the woman. She must accept to practice. If she says no, what can you do? The woman is the main problem. If she is willing, fine. But I think you must make her accept to practice. It is very very important……

Theresa

3.2.2 Neonatal criteria

The participating midwives in this study also pointed out that the neonate must meet certain criteria before it can be put to KMC position. Their narrations fell under three main subthemes. These were the health of the neonate, the weight of the neonate, and the gestational age at which the child is born.

3.2.2.1 Health of baby

Disease conditions of the child can greatly hamper the practice of KMC. They mentioned congenital and infectious conditions in the child as major examples. For the babies to be put to KMC position, the baby must be free of congenital and infectious conditions.

Among the several narrations by midwives with respect to this, a midwife verbalizes that spina bifida, infection of the umbilicus and wounds on the child can affect KMC practice. It went this way:

I don't think babies with spina bifida can be put to kangaroo mother care. Another condition is , maybe sepsis on the umbilicus or some sores. You know sometimes you deliver a baby full of blisters and pemphigus on the body. The baby should not have these for the practice of kangaroo mother care.

Fati

3.2.2.2 Birth weight

In their narrations also, one of the issues identified in relation to the neonatal requirement for the practice of KMC was the weight and size of the baby. They indicated that the baby should be put to KMC if it appears to be small and when the measured weight at birth is below 2.5kg.

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An illustration by one of the narrations confirms the size of the baby as one of the criteria for KMC. She narrates:

….. So when you observe that the baby is very small, you can put the baby to kangaroo mother care. Maybe you are an experienced mother, you know that you have been delivering your babies and they are always big and now that this one is small, and we should know that this baby needs kangaroo mother care.

Kisu

Another midwife added more information by recommending KMC to babies that are less than 2.5kg which usually occurs in twin delivery. The following is how she illustrated it:

What I know is that kangaroo mother care is a care that we give to mothers who deliver children less than the normal weight. That is if the weight is less than 2.5kg. Mostly in twin delivery, some weigh more than the other one. If you see that the child weighs less than the normal weight. You can just put the child to kangaroo mother care.

Maggie

3.2.2.3 Gestational age of the baby

Also paramount in their narrations emerged the issue of gestational age of the baby at birth. In terms of the gestational age, the participating midwives indicated that it should be recommended for babies that are born preterm.

In the following narration, the midwife does not see any reason why mothers with term babies should practice KMC. This goes to affirm that, they will ask mothers to practice KMC if the baby is preterm. She verbalizes:

…….That is why I was saying that, when the baby is preterm, you can ask the mother to practice that. Ahhhhha (agreeing with herself). Because if baby is term and is active, why should you practice kangaroo mother care? Do you understand?.......

Theresa

This midwife adds her voice to the recommendation by other midwives that it should be for babies that are born preterm.

Kangaroo mother care I know is a care that is given to a baby that is premature…. If the child is a premature baby, is good to practice kangaroo mother care……

Melda

There was also skepticism about the use of KMC for babies born before the 28th week of gestation. Some of the participants mentioned that, at gestational age of 28 weeks or below, the birth of any child is considered an abortion. In that light, it is their belief that there shouldn't be any question of KMC or incubator. They contended that the baby will not even survive. At best if they survive, they should be cared for using an incubator or any other specialised care.

The illustration of gestational age of 28 weeks and below not having anything to do with KMC is seen below.

And with even gestational age of 28weeks, they say it is an abortion. But above 28weeks, they need more to care for the baby than skin-to-skin.

Gina

Further, some of the participants affirmed that babies born before 28weeks of gestation do not have well-developed body parts. Even if they survive according to the participating midwives, they will need specialised care. Regardless, they should be considered as an abortion. The following narration supports the assertion:

Even babies born before 28 weeks we consider them as abortion. We don't consider them as a baby because every part of the child is not so matured. Unless maybe the specialised areas like the big hospitals whereby some….(Incomplete sentence). Recently I heard even at gestational age 20 weeks

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or 22 weeks, they can keep the baby and nurse the baby to mature. But in settings like this, we still determine it as abortion. The survival of the baby is very, very slim.

Ruth

4.0 DISCUSSION

4.1 Maternal criteria for KMC

The health of the mother was one of the outstanding issues related to the maternal requirements of the mother in the practice of KMC. Pathogenic and non-pathogenic conditions featured prominently in their narrations. According to them, the mother must be free or these need to be overcome before KMC can be practiced. In their submissions, the participating midwives indicated that infectious diseases especially those of the skin and chest pain will pose as problems to the practice of KMC. The non-pathogenic conditions include obstetric-related surgeries like caesarean surgeries. According to them, this kind of surgery causes discomfort like pain to the mother that can prevent her from putting the baby to KMC position. A study was conducted in Sweden. [10] has provided some confirmation to this finding. In their findings, midwives agreed that childbirth related surgeries like caesarean section have an impact on the practice of KMC. Their study mentioned in particular the pain associated with surgery and the inability to use the upper limbs to hold the neonate to KMC position due to the effects of anesthesia. They therefore concluded that the mother must first of all recover from the effects of this surgery before they are allowed to practice KMC. This finding in the previous study is in consonance with that of the current study. The results of both the past and this present study failed to suggest remedies like pain management when possible

In the same study, [10] also provided some insight into the fact that the decision to practice KMC lies with the parents (both mother and father). Results of this previous study held the view that the ultimate decision to partake in KMC activities lies with the parents. This previous finding is partially consistent with those of the current study. This current study showed that all the participants were of the view that the woman must be willing to the practice KMC before it can actually be practiced. The present study remained on silent the involvement of the father in activities of KMC. They alluded to the fact that, refusal by the woman to practice will jeopardize the effort of the midwife to implement practice of KMC. This disparity in the involvement of the father in KMC activities could probably be due to cultural and gender issues in the African setting of the West Mamprusi District of Ghana. The previous study was carried out in a Swedish culture as compared to this current study in the typical Northern Ghanaian culture setting where child care is seen as a woman's responsibility. It is must also be noted that the willingness to practice KMC should be voluntary but in some settings, this might not be the situation for the caregivers (parents) because of the fear of negative replications from health workers. This was contained in the findings from a qualitative Malawian study involving nurses, clinicians, and pediatricians [20]. This finding from a previous study could give clue to the fact that some women though in pain from obstetric-related surgeries might be intimated to still put their babies to KMC practice.

4.2 Neonatal criteria for KMC

The midwives in this study also raised the point that the neonate must also meet certain criteria for the mother to put them to KMC position. The areas identified by the midwives that will determine whether a baby is qualified to be put in KMC or not are the weight, health, and gestational age of the baby at birth.

Factors such as the disease conditions of the child can greatly hamper the practice of KMC. The participating midwives mentioned congenital and infectious conditions in the child as

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major examples. For a baby to be put to KMC position, the baby must be free from these. Concerning this, they indicated that congenital conditions like spina bifida, infection of the umbilicus, and lesions like wounds on the child can affect the practice of KMC. They disclosed that the baby must be free or cured of these things to be qualified for this kind of care. This particular finding was actually confirmed in a study that indicated that babies with infections like that of the umbilicus cannot be put to KMC position because of the danger of worsening the plight of these babies [21, 8].

Another issue that stood out with respect to neonatal requirements for the practice of KMC was the weight and size of the baby. They specifically indicated the baby must appear to be small and measured weight at birth should be below 2.5kg. According to them, naked eye assessment and a confirmation with the use of a weighing scale to confirm that the birth weight is less than 2.5kg remains paramount in deciding KMC. Confirming this in a study, [8,21] has highlighted that weight or the size of the baby at birth is one of the criteria for the practice of KMC. In that study, midwives argued that if babies appear small then KMC should be introduced. The finding of this current study is however in conflict with that of [22] who found that about 60% of nurses will not provide KMC services to babies that even weigh between 1-1.8kg. [8] in their work have recognized that though birth weight is a consideration, it should be a weaker criterion as opposed to the stability of the baby.

The gestational age of the baby at birth also emerged as a paramount issue in the current study. In terms of the gestational age, the participating midwives used the terms premature and preterm to qualify babies for KMC. They indicated that it should be recommended for babies that are born prematurely. According to them, there is no reason why mothers with term babies should be put to KMC. Consequently, they will only ask mothers to practice KMC if the baby is premature or preterm. There were also specific findings of gestational age of 28 weeks and below. The midwives were skeptical of the use of KMC for babies of 28 weeks and below. Most participants considered the birth of babies below that age of 28 weeks as abortion and will not even survive and so there is no question of KMC use in that regard. Participants doubted the effectiveness of the practice in those kinds of babies. According to them, if those babies should survive, they will need to be put in the incubator or given some specialized care in bigger hospitals than KMC. This particular reference to the gestational age of 28 weeks was confirmed by a study that indicated that staff are hesitant to use KMC for babies that are born below gestational age of 28 weeks [21]. This finding was however in a way debunked by [8] in their study in that gestational age is closely related to birth weight and therefore held the view that KMC should not be a contraindication to babies born below the gestation age of 28 weeks.

5.0 CONCLUSION

The findings of this study brought to light that both mother and neonate need to meet certain criteria before KMC can be practiced. Among the issues under the criteria of the baby are gestational age, weight, and health of the baby. The midwives also brought to light the maternal criteria for the practice of KMC. The findings of this study have implications for the practice of KMC.

6.0 CONSENT AND ETHICAL CONSIDERATIONS

There were no ethical issues in the study. This study abided by all the ethical requirements for conducting human research in Ghana. First of all, the researchers committed themselves to the University of Ghana Institutional Review Board, Noguchi Memorial Institute for Medical Research (NMIMR) to seek approval before carrying out the study (IRB 00001276, NMIMR-IRB CPN 017/15-16). Apart from this, the researcher also sought approval from the

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Mamprusi West District Health directorate. The researchers also sought individual consent from the participating midwives who were recruited for this study. They were provided with all the information regarding this study with help of an information sheet before they were given the consent form to sign when they agreed to take part in this study.

8.0 COMPETING INTERESTS

There are no competing interests. This work was taken from a thesis work of the first author for the award of a Master of Philosophy (Nursing) degree from the school of Nursing and Midwifery, University of Ghana and with the second author as the principal supervisor for the study and entire thesis.

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