Implementation of Kangaroo Mother Care (KMC) for low birth weight babies (LBWBs) at Budi Kemuliaan Mother and Child Hospital: a qualitative study

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ABSTRACT

INTRODUCTION

The infant mortality rate is one indicator of the public health quality in a country. The degree of public health has shown improvement as can be seen from the infant mortality rate, maternal mortality rate, and life expectancy.¹ According to WHO, the neonatal mortality rate was 37% among all of under-five deaths in developing countries. Moreover, 75% of neonatal deaths occur during the first week of life, and between 25%-45% of neonatal deaths occur in the first 24 hours. The main causes of infant mortality are premature and low birth weight, infection, asphyxia (lack of oxygen at birth), and birth trauma. This causes almost 80% of deaths to occur at this age.²

According to the 2002-2003 Indonesia Demography and Health Survey (SDKI/ Survei Demografi dan Kesehatan Indonesia), the infant mortality rate in Indonesia is still relatively high, at 35 per 1000 live births. One of the main causes of infant mortality is low birth weight babies which are 29% of all cases.¹ Therefore, it is necessary to intervene on the problems that cause infant mortality to accelerate the reduction of infant mortality in Indonesia.

In this regard, the target of the 2004-2009 Ministry of Health’s Medium-Term National Development Plan (RPJMN/Rencana Pembangunan Jangka Menengah Nasional) is to reduce the infant mortality rate to 26 per 1000 live births.¹ Many factors affect the infant mortality rate but it is not easy to determine the dominant factor and the less dominant factor. The availability of various facilities or accessibility factors and skilled health workers, as well as the willingness of the community to change traditional life to modern life norms in the health sector, are factors that greatly influence the infant mortality rate.

Fetal growth in the womb is more influenced by factors of environment, behavior, and lifestyle. Thus, various efforts to prevent low birth weight babies are aimed at controlling various risk factors, such as nutritional conditions,
infectious diseases, heavy work, and stress. Meanwhile, the handling of newborns, especially Low Birth Weight Babies (LBWB), is carried out through five service principles, such as clean and non-traumatic delivery, maintaining the baby's body temperature, initiating spontaneous breathing, immediate breastfeeding after delivery, and preventing and treating disease infection. Nothing too special indeed, everything can be done in every health facility wherever it occurs. The problem is, the extent of that authority and skill is passed down at a lower level. The high perinatal infant mortality rate cannot be reduced solely by relying on sophisticated medical technology services in hospitals.3

The intervention that has been carried out so far is in the form of treatment with an incubator. The use of incubators to care for LBWB requires high costs. Due to the limited incubator facilities, it is not uncommon for one incubator to be occupied by more than one baby which can increase the risk of nosocomial infection in the hospital. The care of the baby in the incubator causes separation of the mother and newborn baby. This condition is one of the causes of the mother's lack of confidence in caring for her baby. A new innovation in the care of low birth weight babies that brings babies and their mothers closer is the Kangaroo Method of Care or KMC.4

In 1983, two neonatologists from Colombia discovered the Kangaroo Method to solve the problem. The Kangaroo Mother Care (KMC) is a method of caring for LBWB which is inspired by the way a kangaroo takes care of its children who are always born prematurely.5 KMC is a care for low birth weight babies by making direct contact between the baby’s skin and the mother’s skin (skin to skin contact).6 KMC is able to meet the basic needs of LBWB by providing situations and conditions that are similar to the uterus so as to provide opportunities for LBWB to adapt well and after in-depth interviews with health workers. All informants were treated equally and the personal data of informants were kept confidential during and after the study.

RESULTS

The study aimed to determine the implementation of Kangaroo Mother Care for LBW mother at Budi Kemuliaan Mother and Child Hospital Jakarta in 2011. The total number of informants interviewed was six people consisting of two LBW mothers, two husbands of mothers with LBWI, and two health workers of Budi Kemuliaan Mother and Child Hospital Jakarta. The first LBW mother was 20 years old, while the other was 39 years old. The last education of the first LBW mother was junior high school, while the other was high senior school. Both LBW mothers was a housewife that gave their first birth. The first mother had given birth to a girl that had 2100 grams weight by section cesarean, while the other had given vaginal birth to a boy that had 1500 grams weight. The husband of the first LBW mother was 34 years old, while the second one was 40 years old. Both of their last education was high school. The first LBW mother's husband worked at the factory, while the other was an entrepreneur. Both families were live in Jakarta. The first health worker of Budi Kemuliaan Mother and Child Hospital Jakarta was a 23 years old Diploma nurse, while the other health worker was a 30 years old Diploma midwife.

This study identified eight factors to determine the implementation of KMC for LBW mother at Budi Kemuliaan Mother and Child Hospital namely: knowledge of KMC, attitude of KMC, information sources of KMC, policy related to KMC, health workers support, husband support, group support, health education of KMC for mother before discharge, KMC practice at home.

Knowledge of KMC

One of the factors that determine the implementation of KMC practice among
LBW mothers was knowledge. The mother said that they never heard and never know about KMC before they delivered their baby at Budi Kemuliaan Mother and Child Hospital. One commented: “Never heard about it, only found out in here…” (LBW mother, 20 years old). This statement was justified by her husband that noted: “Yes, we never knew about it before, we only found out after getting an explanation from here…” (Husband, 34 years old). This statement was reinforced by a health worker as key informants. One commented: “Yes it seemed they only found out about it after we explain that the baby was LBW and we recommended them to practice KMC…” (Health worker, 23 years old). After the health workers explain how KMC was done, its purpose, and the benefits of KMC, then the LBW mother could follow and illustrated the right way of KMC’s practice. One informant explained: “Firstly, take off the baby's clothes except for diapers and then placed on the mother's chest like a kangaroo…” (LBW mother, 39 years old). This statement was justified by her husband that noted: “Place the baby on the mother's chest without clothes just diaper, using a sling, like a kangaroo…” (Husband, 40 years old). All informants stated that the purpose of KMC is to provide warmth so that baby's body temperature remains normal, accelerate weight gain, accelerate breast milk consumption, and increase breastfeeding success. One informant quoted: “Put the baby on the chest to keep it warm, so that my baby's weight increasing rapidly and normal, baby drink more breast milk, staying healthy…” (LBW mother, 20 years old). The benefits of implementing the KMC for LBW perceived and known by all informants of LBW mothers were the cost of KMC was cheaper due to shorter treatment time and did not use any incubator and increasing the emotional bonding between mother and baby. One informant commented: “…it was cheaper than using an incubator and there was a bonding between mother and baby because the mother stay with her baby for 24 hours…” (LBW mother, 39 years old). This statement was justified by her husband that noted: “Practicing KMC is cheaper than using an incubator, besides they said the baby and mother will become more closer…” (Husband, 40 years old).

**Attitude of KMC**

All LBW mothers agreed to do KMC for their babies. All mothers did not mind carrying out the KMC's practice. This was because after gave birth to each of their babies, they had received complete information about KMC from health workers, including how to practice KMC, the purposes, and the benefits of implementing KMC for mothers and babies. Although one mother said that she felt a bit troubled in doing the KMC because there was no one to replace it when she took a bath and it hurt the surgical scar if the baby's leg kicked it. One commented: “…..Yes, I agree, I just have fun thinking about it so that the baby is healthy, the weight increasing quickly, the breastfeeding is smooth and we can go home quickly. The most hassle is when you want to take a shower, no one replaces the baby's feet and sometimes kicks from the surgery so a bit sick…” (LBW mother, 20 years old). The husband supports the attitude of the informant, one noted: “Yes, she agrees and I fully agree. I fully support (KMC) because it is good for the baby too…” (Husband, 34 years old). Health workers who carried out the KMC for the LBW mother stated that almost all of the informants agreed to do the KMC after being given an explanation and technique for KMC practice. One noted: “There are those who are happy, there are those who refuse, the reason is that they have no time for that, meanwhile those who want they discharge quickly are diligently practicing KMC, there are (mothers) who can practice by themselves, generally (mothers and family) accept them (KMC practice), we will give more explanation to those who refuse, hope they would finally accept (to do KMC practice), although (mothers and family) rarely refuse” (Health worker, 30 years old)

**Information sources of KMC**

All LBW mothers stated that it was their first time learning about KMC after had given explanations from the officer when gave birth at Budi Kemuliaan Mother and Child Hospital and knew that the baby was born with a low weight. The informant stated that the hospital workers had provided the information and techniques to practice KMC for low birth weight babies, how to carry out KMC, the purposes, and the benefits of implementing KMC. One commented: “Yes, just in this hospital, the doctor informed me that the baby is small and recommend me to do KMC practice because the baby will stay with me 24 hours, (they also explain) the purpose, the benefits, and the health worker demonstrating how to carry the baby and how to take care of it......……” (LBW mother, 39 years old) The husband also justifying that was the first time to hear and received an explanation about the KMC from the health worker at the Budi Kemuliaan Mother and Child Hospital. One noted: “Previously I didn't know, I just found out hereafter (my wife) giving birth and I was told if the baby was small then the health workers advised us to practice KMC, besides being cheap it is also good for the babies, then (health workers) explaining about KMC…” (Husband of an LBW 1 mother). Health workers as the key informants in this study stated that all LBW mothers received an explanation about the KMC before practicing KMC.

**Policy of KMC**

Policies to support the implementation of the KMC program are absolutely necessary to provide comprehensive guidance on these actions. The Standard Operating Procedure (SOP) and Decree (SK) from the Director of Budi Kemuliaan Mother and Child Hospital are meant to be policies for the health workers to assist KMC practice services according to standards. The Director’s Decree contained the KMC team and the implementation of KMC at their Hospital. SOP for KMC contained several components, including procedures and flow chart of KMC, intermittent KMC (indications and procedures), and the continuous of KMC (indications and procedures). The SOP and Decree in the implementation of each action would have a very important part, one commented: “Yes, there are SOPs, there are also decrees, a decree from the director which regulates the implementation of KMC, I think (the implementation) already comply with the SOP...” (Health worker, 23 years old).

**Health workers support**

Morale support given to all LBW mother by the hospital health worker
professional. Explanation and counseling about how to do KMC were given to all mother informants by the health worker professional, but they did not give the demonstration yet. Even so, if the mother informant asked for assistance from the health worker about KMC, they would give it. The leaflet about KMC was given to every mother informant who has LBW. Although there was one mother informant who stated that the explanation about implementation of the KMC was only given by the officer at the beginning, not continuously that statement was in this commented: “Yes only explanation about how to do it only once at the beginning, and they give the brochure about KMC. I mean the demonstration was only given once, but if we ask, they would explain if there are some obstacles the officer would help although the helps come more from other moms” (LBW mother, 20 years old).

The other informant also commented: “Yes the officer explained at the beginning and also give the brochure like this. After that we do it by ourself and if there are any obstacles we would asked for help, and then the officer would come to help me...” (LBW mother, 39 years old).

Support from the health workers was confirmed by the husband of the mother with LBW, for example, one husband commented: “Giving explanations, being taught how to do KMC...” (Husband, 34 years old). While the other husband also commented: “Good, still giving explanations and being patient, the continuous staff saw, gave me a way, carried her, finally the mother was told to do it herself so that she could do it herself later when she came home...” (Husband, 40 years old).

The in-depth interview also explained that there was support provided by health workers. As the commented from one of the health workers: “Yes, apart from explanations, we check every day, we see and assess how the mother uses the KMC carrier by herself without our continued assistance, we also see the mother’s readiness to carry out KMC continuously while we monitor the baby’s weight gain... we motivated the mom on how to express breast milk, how the baby sucks the milk, how is the position of the baby...” (Health worker, 23 years old).

**Husband support**

Moral support and attention were given to the informant mother from her husband when carried out KMC. The assistance of KMC implementation cannot be provided by the husband because of limited visiting hours in the hospital and the husband had to work. The mother informant commented about her husband support: “...Oh no, husbands can’t come in other than visiting hours, at least when they are visiting, just he asked how my condition and our baby, I’m still encouraged to be strong and patient to undergo KMC all for the sake of the baby...” (LBW mother, 20 years old).

Support from the husband of the mother who has LBW confirmed by the husband’s informant and the officer’s informant if the implementation of the KMC was still only carried out by the mother herself. This is due to the limited visiting hours in the KMC room. One husband commented about their support to the mother informant following this interview: “Yes, I am very supportive, yes, I continue to motivate her to stay enthusiastic and patient if doing KMC for this it requires patience, yes, to replace it, I can’t because of limited visiting hours, but when I come home later I am ready to replace her position to do KMC because the benefits of KMC are great for babies” (Husband, 40 years old).

The health worker also confirmed that the mother would need support from at least one of their family members, especially their husband. The officer commented about the husband’s support: “So far, in the implementation, it is still the mother herself, in the future, KMC implementation would be difficult for the patient to do it alone, maybe later there must be 1 family member who helps with the implementation. For 3 hours, we watched, but someone had to help the mother while doing KMC, it’s not possible for the mother to do it herself, there must be a husband” (Health worker, 23 years old).

**Support group for the implementation of KMC**

The implementation of KMC did not yet have a support group at that time. Confirmation about the absence of a group that might provide support for the KMC implementation was given by all informants. The mother informants commented about the support group for the KMC implementation: “No... maybe yes, because I’ve never seen it... if there is, they would get support from me... that would be great...” (LBW mother, 39 years old).

All informants also hope and would give their appreciation if there were people who were pleased to establish a group that provides support for the KMC implementation. One husband of the mother with LBW commented about their support for the group: “I’ve never seen it, whether it’s there or not, I don’t think so. yes, of course, I really support the existence of this group so that KMC can succeed...” (Husband, 40 years old). The officer also hopes if the group could be established like in this commented: “Not yet, the moms who do KMC were only given an explanation from us, for example in one day there are 3 mothers who do KMC, we gather in the room there is a baby then we give directions about KMC... I support it and I hope later there will be the support group for the implementation of the KMC...” (Health worker, 23 years old) and the others also commented: “Nothing yet... of course I’m glad to be an input, yes and I hope that later there will be a support group for the implementation of this KMC...” (Health worker, 30 years old).

**Health education about KMC before discharge**

All of the informants, both the mothers with LBW and each of their husbands were given an explanation and counseling for continuing to carry out KMC at home as well as an explanation about follow-up visits. The mother commented about the health education and the counseling: “Yes, I was given an explanation and recommended to continue doing KMC at home and reminded to do the follow-up visits 3 days later for the baby’s health” (LBW mother, 39 years old). One of the husbands of the mother with LBW also: “Given an explanation about KMC and advice to keep doing it at home and have to do the follow-up visit for the good of the baby...” (Husband, 40 years old).
The statement of the mother with LBW and each of their husband was confirmed by the health workers. As the following interview: “So later, before going home, we will give advice, explanation and counseling, so that later after returning home, the mother will continue to carry out KMC” (Health worker, 23 years old).

**DISCUSSION**

The implementation of Kangaroo Mother Care for LBW mother at Budi Kemuliaan Mother and Child Hospital Jakarta was determined by so many factors. Our findings showed that all LBW mothers never know about KMC and only find out about it after being explained by health workers of Budi Kemuliaan Mother and Child Hospital. LBW mother's knowledge of KMC includes how to practicing KMC, the purposes, and the benefits of KMC. After explaining about KMC, the informant's attitude in practicing KMC was good enough because they understand the purposes and benefits of KMC. This showed that having a good understanding of health was important. Humán's brain interpret actions based on one's knowledge of the environment. LBW mother will be more prepared to practice KMC if they supported by sufficient knowledge and understanding.

Another noteworthy finding of this study was information sources of KMC. LBW mothers and husbands never knew about KMC, they only know about it after the health workers of Budi Kemuliaan Mother and Child Hospital giving them the information about KMC. The health workers give them important information about KMC and diligently teach LBW mothers to practicing correct KMC. These findings are consistent with a study in Sweden where information and communication from the hospital workers to mothers were trustable and gave them the courage to practicing KMC. Another study showed that a hospital in Ghana where LBW mothers diligently visits counseling to increasing their knowledge was more likely to change their wrong attitudes and practices.

Health workers at Budi Kemuliaan Mother and Child Hospital stated that they already have a special team to carry out the KMC program and they already implementing the KMC's policy in their hospital. A study in Sweden found that written guidelines and policies that incorporate skills and knowledge to facilitate KMC are important to give accurate and supportive information and communication to parents. Study in Depok City, Indonesia also showed that the presence of supporting policies was necessary as the foundation of funding allocation of KMC program in one's hospital. Aside from giving LBW mother explanations about KMC, they also give support and encourage LBW mothers and their families to practice KMC. A study in Sweden reported that well-versed health worker's information gave the parents courage and motivation to practice KMC.

Husband support is one of the important factors in implementing KMC. All informants in this study stated that they fully support their wife to practice KMC after knowing the benefits and purposes of KMC. Husband is one of the family members that need to be present to motivate the mother to continuously practice KMC. They were fully aware of this and giving all the support and motivation to their wives. This finding is consistent with a study in Cirebon where husband support is the most anticipated support for mothers who practice KMC. Besides, the direct involvement of the husband in KMC practice increases the mother's motivation. Aside from those involved in KMC practice, there is no other group support that exists at that time. All informants show their interest if there will be group support for KMC. They hope there will be a support group for KMC which lets them support other families practicing KMC, transfer and exchange their knowledge and experiences. Another study showed that social support raises a sense of comfort, a feeling of being included, cared for, and a sense of confidence and competence to practice KMC.

Before the mother's discharge, LBW mothers and their husbands were given health education and counseling. Health workers will encourage parents to carry out KMC at home and give an explanation for follow-up visits. Health education and counseling before discharge were considered an important part of KMC continuity at home. This finding is consistent with a study in Depok City that found LBW families’ readiness to continue KMC practice at home should be supported by sufficient knowledge which was given by health workers. There should be an intense and comprehensive information and communication from health workers to the families to increase the confidence and motivated parents to continue KMC at home.

**CONCLUSION**

The implementation of KMC at Budi Kemuliaan Mother and Child Hospital Jakarta was determined by various factors. This study identified there were seven factors that determine the successful implementation of KMC for LBW mothers at Budi Kemuliaan Mother and Child Hospital, those were; mothers and their husbands have sufficient knowledge of KMC from health workers explanation, good acceptance attitude, given accountable information sources of KMC, the presence of KMC policy that supporting KMC program, health workers support, husband support, and sufficient health education and counseling of KMC for mother and their husband before discharge. The formation of the support group was suggested to build social support between LBW families.

**DISCLOSURES**

**Ethical Statement**

This article was based on the undergraduate thesis by the first author, an undergraduate student at the Faculty of Public Health Universitas Indonesia, which undergraduate thesis does not require an ethical clearance. However, it must have an informed consent which complies with the requirement of the human subject of the study as it was laid out at the Helsinki Declaration.

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**Conflict of Interest**

All authors declare there is no conflict of interest.
Author Contribution
Ms. R conceptualized, designed the study, conducting data collecting, data analysis, and wrote the thesis. Ms. UHZ and Ms. M rewrite the thesis, provided new literature of the study, and prepared the draft of the manuscript. Mr. HP guided data analysis, reviewed, and approved the final manuscript, and served as the corresponding author.

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