The Relationship Between Knowledge About Kangaroo Mother Care (Kmc) Among Mothers and Increased Weight of Low Birth Weight (Lbw) Babies in the Neonate Intensive Care Room of the Mayapada Hospital Jakarta Selatan

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Abstract

One of the main causes of infant mortality is low birth weight babies. Low birth weight babies are high risk babies and are susceptible to various problems such as the risk of respiratory infections, low blood sugar levels (hypoglycemia), eating disorders, too many red blood cells and the risk of experiencing hypothermia. Hypothermia in babies with low birth weight is caused by very thin subcutaneous fat so it is influenced by environmental temperature. In general, babies with low birth weight must be treated with an incubator or using the KMC method so that their body temperature is maintained. This study aims to determine the relationship between knowledge of the Kangaroo Mother Care (KMC) method among mothers and the increase in Low Birth Weight (LBW) Babies in the NICU Room at Mayapada Hospital, South Jakarta. This research is quantitative using a correlative analytical descriptive design with a cross sectional approach. Conclusion: shows that there is a significant relationship between knowledge about the Kangaroo Mother Care (KMC) Method in mothers and the increase in Low Birth Weight (LBW) in the NICU room at Mayapada Hospital, South Jakarta.

Keywords: LBW, Kangaroo, Knowledge

INTRODUCTION

Data from the World Health Organization (WHO) in 2018 states that the prevalence of LBW babies in the world is 15.5% or around 20 million are born every year, around 96.5% of which occur in developing countries. One of the highest contributors to the Neonatal Mortality Rate (AKN) is LBW. The incidence of LBW in the world is currently 15.5% (which means around 20.6 million every year), and 96.5% in developing countries. Indonesia is one of the countries in Southeast Asia with a LBW prevalence of more than 15.5% of births every year. In 2018 the results of Riskesdas showed that the proportion of body weight less than 2500 grams in Indonesia on average was 6.2%(Riskesdas, 2018).

Low birth weight babies are high risk babies and are susceptible to various problems such as the risk of respiratory infections, low blood sugar levels (hypoglycemia), eating disorders, too many red blood cells and are at risk of experiencing hypothermia due to difficulties in adapting to the environment outside the womb after birth. This is due to the immaturity of the baby's organ systems such as the lungs, kidneys, heart, immune system and digestive system. Babies with low birth weight will experience hypothermia caused by very thin subcutaneous fat so it is influenced by environmental temperature. In general, babies with low birth weight must be treated with an incubator or use the KMC method so that their body temperature is maintained.(Nurlaila, 2017).

Several perinatologists conducted several studies and concluded that care using the kangaroo method or what is called the attachment method can provide more benefits in treating babies weighing less than 2,500 grams.(Siagian, Pujiati, & Sinaga, 2021).

The results of a preliminary study that has been carried out, from medical record data from Mayapada Hospital, South Jakarta from June to August 2023, showed data on LBW babies in the NICU room as many as 54 babies with details of hyperthermia as many as 8 babies (14.8%), hypothermia as many as 20 babies (37). %) and normal temperature for 26 babies (48.2%). The results of observations carried out by researchers, from the birth data of 54 LBW babies, only 15 babies (27.8%) were carried out by KMC. Ten mothers (20.4%) performed baby care using the KMC method for less than one hour and eight mothers (14.8%) performed KMC on their babies for approximately one hour. Based on the background above, researchers were encouraged to conduct research with the title Relationship between knowledge of the Kangaroo Mother Care (KMC) method and an increase in Low Birth Weight (LBW) in the NICU Room at Mayapada Hospital, South Jakarta.

RESEARCH METHOD

This research uses a descriptive analytical research design with a crosssectional approach. Sampling and data collection were carried out using a knowledge questionnaire about KMC, documentation studies and direct observation. Determining the number of samples in this study used the total sample technique and met the inclusion and exclusion criteria. The total sample was 30 mothers of LBW babies in the NICU room at Mayapada Hospital, South Jakarta. Inclusion criteria include LBW babies aged 6 months, mothers not suffering from chronic diseases during pregnancy and babies not suffering from congenital abnormalities. Meanwhile, the exclusion criteria were mothers who were not willing to be respondents. This research was conducted from October 2023 to the end of February 2024. The ethics applied in this research were respecting human dignity by providing a letter of consent from the nurse, not

including the nurse's name, maintaining confidentiality and adhering to the principles of justice and openness.

The data collection tool in this study was a questionnaire containing 20 questions with answer choices consisting of true and false, a sheet recording the baby's weight after measurements were taken using a baby scale which was carried out with a frequency of 2 times, namely the first week and the second week. The third tool is a baby scale in grams (gr).

Before the questionnaire was used, a validity and reliability test was carried out first using IBM SPSS version 27 software. The results of the validity test were with r table: 0.361 with a knowledge value range of 0.581 – 0.919, so the questions for each variable were declared valid. The results of the reliability test show that the Cronbach Alpha results of the knowledge questionnaire (0.786) are reliable enough to be used as a research instrument in the "high" category. Thus the questionnaire used is valid and reliable. Researchers provideQuestionnaire for respondents to read everything and then fill in the questionnaire. Researchers measured the baby's weight with the baby lying straight, from the crown of the head to the heels (soles of the feet), using a measuring tape with an accuracy of cm (centimeters) on a scale. Measurements were taken twice to see any increase in body weight, namely at week 1 and week 2.

Data processing using quantitative analysis techniques is carried out through editing, coding, scoring, tabulating processes.

    a. Data analysis includes univariate analysis which produces a frequency distribution of the variables studied, and bivariate analysis using the Chi Square test of the relationship between mother's knowledge about KMC and the increase in baby's weight using infusion according to the Standards. The conclusions from the statistical tests are as follows:

1) If the P-value is smaller than alpha α (P $\leq$ 0.05) then the null hypothesis is rejected, meaning that the results are meaningful, meaning there is a meaningful relationship between the two variables that have been studied.

If the P-value is greater than alpha α (P > 0.05) then the null hypothesis fails to be rejected, meaning that the results are not significant, meaning there is no relationship between the two variables studied.

RESULTS AND DISCUSSION

The research results related to the characteristics of the respondents in this study, namely:

1. Characteristics of mothers of LBW babies in the MHJS nursery.
   a. Age frequency distribution
   Univariate analysis of this study includes the characteristics of respondents, age, parity, and pregnancy history.

   Diagram1. Age Frequency Distribution in the NICU Room at Mayapada Hospital, South Jakarta
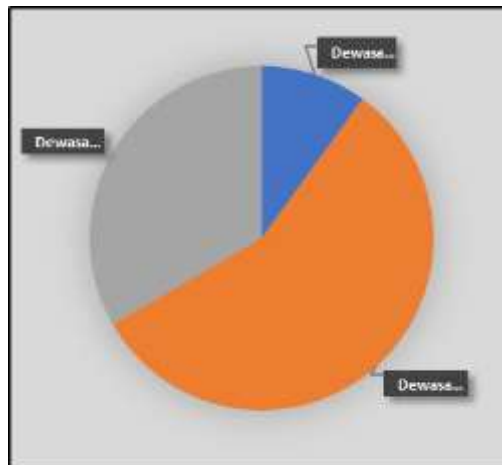
The research results showed that the majority of respondents who had babies were middle adults (21-35 years) amounting to 56.7% or 17 respondents (n= 30).

In this study, it was found that the age was in accordance with the applicable theory. Age 20-35 years is the ideal age for a mother to become pregnant and give birth because at that age the mother's uterus is mature and able to accept pregnancy well from a mental and physical perspective. According to Qurniyawaty et al (2014), maternal age 20-35 years during pregnancy has the lowest risk of pregnancy and childbirth. This means that a mother over 35 years of age at the time of pregnancy has a very high risk of pregnancy and childbirth which is detrimental to the health of the mother and the child to be born. In addition, maternal death at the age of <20 years and >35 years is an age at risk that is 2-5 times higher than at the age of 20-35 years. Apart from that, according to Pinontoan (2015), the relationship between maternal age and the incidence of LBW is due to the fact that at <20 years of age the development of the reproductive system is not yet optimal so it affects the birth weight of the baby, whereas in mothers aged >35 years the function of the reproductive system has decreased so that it will affect the pregnancy. Also, as the mother ages, there will be changes in the blood vessels and a decrease in the function of hormones that regulate the reproductive cycle. If the mother's age is within the age range that is not at risk then the chance of LBW will also be low, conversely if the mother is of high risk age then the chance of LBW will be higher.

b. Parity frequency distribution

Diagram 2 Parity Frequency Distribution in the NICU Room at Mayapada Hospital, South Jakarta
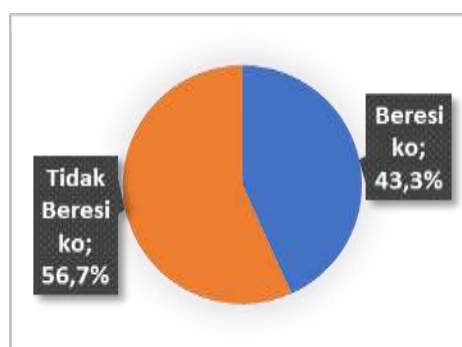
Diagram 2. Distribution shows that the majority of respondents' parity is between 2 and 3 children, 56.7% or 17 respondents.

High parity will have an impact on various health outcomes for both the mother and the baby born. Repeated pregnancies and childbirth will cause damage to the blood vessels in the walls of the uterus and a decline in the flexibility (elasticity) of the tissue that has been repeatedly stretched during pregnancy so that there tends to be abnormalities in the location or growth of the placenta and fetal growth, resulting in the birth of babies with low birth weight (Pinontoan, 2015).

c. Frequency Distribution of Pregnancy History

Diagram2. Frequency Distribution of Pregnancy History in the NICU Room at Mayapada Hospital, South Jakarta
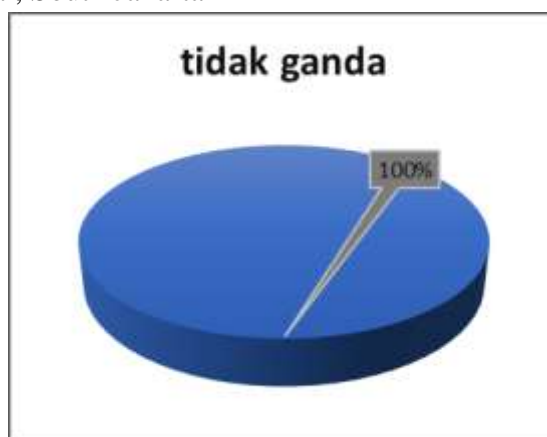

Diagram 3 above shows that all respondents' pregnancy history is not 100% multiple.

Biologically, multiple pregnancies are at risk of LBW. In multiple pregnancies, the weight of one multiple fetus is on average 1000 grams lighter than a single fetus. The weight of the fetuses from multiple pregnancies is not the same, generally, there is a difference of between 50 and 1000 grams. Apart from that, there is an unequal distribution of blood circulation. As a result, the growth of the two fetuses was different. Multiple pregnancies can pose a higher risk to the baby and mother. The need for growth in multiple pregnancies is greater so that if nutritional deficiencies such as pregnancy anemia occur, it can disrupt fetal growth in the womb (Sulistiani, 2014).

2. Frequency distribution of KMC knowledge among mothers

Diagram3Frequency Distribution of KMC Knowledge among Mothers in the NICU Room at Mayapada Hospital, South Jakarta
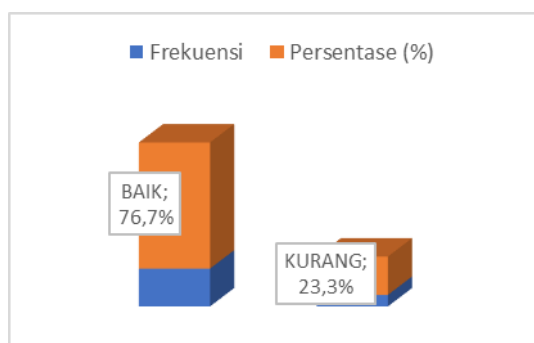
Diagram 4 shows that almost all respondents' knowledge about KMC is in the good category, amounting to 76.7% or 23 respondents.

According to Siswandoyo (2016), knowledge can be defined as a collection of information that can be understood and obtained from the learning process throughout life and can be used at any time as a tool for self-adjustment. Knowledge is an introduction to reality, truth, principles and rules of an object and is the result of information stimulation for behavior change.The knowledge that mothers need to understand regarding the kangaroo mother care method includes mothers needing to know the meaning of KMC, the benefits of KMC for LBW babies, how to carry out KMC and the criteria for the success of KMC. Once the mother has good knowledge about KMC, the mother can then determine the attitudes and behavior that can be taken for the welfare of her baby (Sofiana J, et al. 2016). The results of this research are in line with research fromKurniawati et al., (2022)The research results showed that respondents had good knowledge (46.7%), sufficient knowledge (20.0%), and poor knowledge (33.3%). Other research results from(Amalia & Herawati, 2018)showed that some respondents had good knowledge, namely 34 mothers (45.3%) and those with sufficient knowledge criteria were 14 mothers (18.7%) and those with insufficient knowledge criteria were 27 mothers (36%). Research results that are not in line withSuwarni et al., (2021)as many as 7 respondents (35%) had good knowledge and 13 respondents (65%) had poor knowledge. In fact, taking KMC for a longer period of time has a positive effect on the length of breastfeeding and the baby's temperature within the normal range, resulting in an increase in the baby's weight. A baby who breastfeeds the mother for longer will make the baby feel calm and comfortable so that the baby gets an adequate supply of breast milk and the energy obtained by the body is only focused on growth.

3. **Frequency Distribution of Increased Weight in LBW babies**

Diagram4. Frequency Distribution of Weight Gain in LBW babies in the NICU Room at Mayapada Hospital, South Jakarta
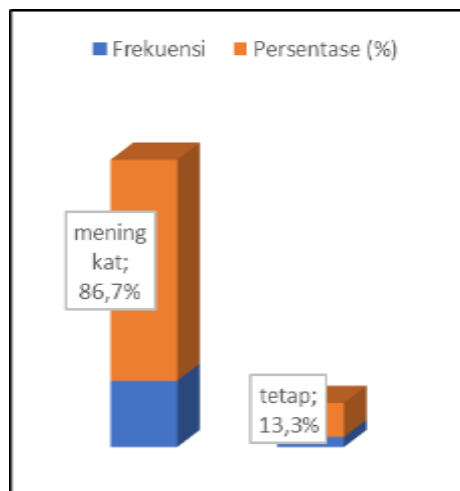

Diagram 5 shows that almost all respondents' knowledge about KMC is in the good category, amounting to 76.7% or 23 respondents.

Babies with low birth weight (LBW) are those whose body weight is less than 2,500 grams regardless of the gestation period. LBW is a major factor in increasing mortality, morbidity and disability of neonates, infants and children and has a long-term impact on their

lives in the future. Therefore, it is necessary to provide care for babies with LBW (Sembiring, 2017).

The increase in body weight also occurs due to the increased relationship between the baby and the mother, where the baby has more time to feel touch, which can reduce the release of catecholamines in the blood, thereby reducing the physiological stress of the fetus. KMC increases mother and baby bonding and is a therapeutic intervention to increase maternal closeness, promote natural behavior to stimulate growth and development(Arifah & Wahyuni, 2016).

The results of this research are(Amalia & Herawati, 2018)that the implementation of Kangaroo Method Care (PMK) is influenced by the knowledge and attitudes of mothers who have Low Birth Weight babies with a p value of 0.004 < (0.05). Other research from Gratisari & Agonwardi (2017) was conducted at RSUD Dr. Rasidin on 15 mothers who have LBW. The results of the study showed a p value of 0.001, which means that there is an influence of KMC on weight gain in LBW. Apart from that, research from Solehati, et al., (2018) also concluded that KMC is effective in increasing the weight of LBW babies.

4. **The relationship between knowledge of the kangaroo mother care (KMC) method in mothers and increased weight in babies with low birth weight (LBW).**

Table 1. Chi Square Test Results of the Relationship between Knowledge of the Kangaroo Mother Care (KMC) Method and Weight Gain in Low Birth Weight (LBW) Babies in the Mayapada Hospital Nicu Room, South Jakarta

Knowledge	Weight Gain	OR	P-Value
	Increase n	Still %	Total n
Good	23	76.8	0
Knowledge	Weight Gain	OR	P-Value
	Increase	Still	Total

The results of the crosstabulation test between knowledge and weight gain in LBW babies showed that all respondents with good knowledge experienced an increase in body weight in LBW babies (100%). Meanwhile, most respondents with less knowledge did not experience weight gain in LBW babies (57.1%). The Chi Square test results show that the p value is 0.001 < 0.05 with an OR value of 6.5, which means that Ha is accepted and H0 is rejected. It can be concluded that there is a relationship between knowledge of the Kangaroo Mother Care (KMC) Method and weight gain in babies with low birth weight (LBW) in the NICU room at Mayapada Hospital, South Jakarta, and mothers with good knowledge have a 6 times greater chance of increasing weight. body weight in their babies, while mothers with less knowledge have a chance of having babies with a constant weight.

According toNotoatmodjo, (2018) that knowledge is a domain that is quite important in determining behavior. Behavior that is based on knowledge, awareness and positive attitudes will be more lasting. Good knowledge will make it easier for someone to change behavior, including KMC practices. KMC can increase the weight and body length of LBW babies.

KMC is highly recommended for LBW babies because when the mother's skin meets the baby's skin there will be a change in temperature. This happens because the baby is relaxed, resting in a pleasant position, similar to the position in the womb, so that the baby is less anxious and sleeps longer. In this situation, oxygen and calorie consumption is at the lowest level, so the existing calories are used to increase body weight. In addition, the baby's weight gain is caused by increased breast milk production and more frequent breastfeeding, which is one of the benefits of KMC (Wulaningsih et al., 2023).

The results of this research are in line with research fromKurniawati et al., (2022) The research results showed that respondents had good knowledge (46.7%), sufficient knowledge (20.0%), and poor knowledge (33.3%). The results of the analysis of the relationship between maternal knowledge and the implementation of KMC showed p-value = 0.012, which means there is a relationship between maternal knowledge and the implementation of the Kangaroo Mother Care (KMC) method for low birth weight (LBW) babies. Other research in line fromWulaningsih et al., (2023) that the research results show that there is an influence of KMC on increasing LBW body weight through a maximum increase in the graph from day to day 5 in 2012, amounting to 88 grams. The test results obtained a p value (0.000) and comparing the weight when weighed with the weight at start showed a significant average of -93.576 (CI - 220.376/-126.8) and a standard deviation of 91.00.

CONCLUSION

Based on the research results, it shows that: The majority of respondents who have babies are 21-35 years old, 56.7%, the parity of respondents with 2 and 3 children is 56.7%, and all of the respondents' pregnancy history is not multiple (100%). Most of the respondents' knowledge about KMC was in the good category at 76.7%.

Most of the weight gain in babies with LBW increased by 86.7%. There is a relationship between knowledge of the Kangaroo Mother Care (KMC) Method in mothers and weight gain in babies with Low Birth Weight (LBW) in the NICU Room at Mayapada Hospital, South Jakarta with a p value of 0.001 < 0.05.

ACKNOWLEDGMENTS

AUTHOR CONTRIBUTIONS
Author 1: Conceptualization; Project administration.
Author 2: Data curation; In-vestigation.
Author 3: Validation; Writing.
Author 4: Review and Editing.

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