

The Effect of Duration in Providing Kangaroo Mother Care (KMC) on Mother's Psychological Function in Low Birth Weight Babies at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara

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ABSTRACT

A low birth weight babies, in addition to have an impact on physiological function disorders, will also affect the mother's psychology. Management is carried out by providing kangaroo mother care (KMC). There were 16 cases of low birth weight babies in April. The purpose of the study was to determine the effect of Kangaroo mother care (KMC) time duration with Infant Physiological and Maternal Psychological Functions on Low Birth Weight Infants in Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara. This type of research is quantitative, quasi-experimental research design with two group post test design. There were 16 low birth weight babbies as the sample. The intervention was carried out once for an hour and two hours within 1 day. Data was analyzed by using Mann Whitney. The results of the study states there was no difference in the psychological status of mothers given KMC with a duration of 1 and 2 hours ($0.626 > 0.05$). It was concluded that there was no difference in the psychological status of mothers given KMC with a duration of 1 and 2 hours. These results can provide information, and practice giving KMC at a duration of 1 and 2 hours to psychological functions, through counseling and practices, at posyandu activities.

I. Introduction

Data from the World Health Organization (WHO) (2021), shows that around 20 million low birth weight (LBW) babies are born every year which can be caused by premature birth or obstructed fetal development while in the womb. Infants with low birth weight are the highest contributor to the Neonatal Mortality Rate, of around 4 million neonatal, premature and LBW deaths representing more than one-fifth of cases, and Indonesia is listed as the 8th country based on the number of neonatal deaths per year according to WHO data. 1 The prevalence of LBW in Indonesia ranges from 2 to 17.2% and accounts for 29.2% of Neonatal Mortality Rate.

The Infant Mortality Rate (IMR) in Indonesia is still relatively high, when compared to other countries in ASEAN. The main cause of neonatal death is Low Birth Weight (LBW) 30.3% and the main cause of death in infants is perinatal disorders of 34.7%. Based on the 2021 Human Development Report, IMR in Indonesia reaches 31 per 1000 births which is 5.2 times higher than Malaysia, 1.2 higher than the Philippines, and 2.4 times higher than Thailand.

The Infant Mortality Rate in Central Java Province in 2022 is 10 per 1,000 live births. There was a decrease but not significant compared to the 2021 IMR, namely 10.08 per 1,000 live births. The districts/cities with the lowest IMR were Jepara, which was 6.35 per 1,000 live births, followed by Cilacap, 7.01 per 1,000 live births, and Demak, 7.21 per 1,000 live births. The district/city with the highest IMR was Grobogan, which was 17.38 per 1,000 live births, followed by Temanggung, 16.79 per 1,000 live births, and Magelang City, 15.63 per 1,000 live births.



The percentage of LBW in 2022 in Jepara Regency has increased compared to previous years. The coverage of LBW babies handled was 3.46%. This coverage has increased compared to previous years. The increase in the number of babies with LBW needs attention. There were 726 cases of LBW babies this year consisting of 376 males and 350 females from 20,978 babies born who were weighed. Meanwhile at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara in 2022 there were 30 LBW cases.

Low birth weight babies generally do not yet have the maturity in the body's defense system to adapt to the extrauterine environment, so they are at risk of causing complications, especially impaired physiological function compared to term babies and normal birth weight babies, so they need to get special treatment, including having difficulties to maintain physiological function of body temperature due to increased heat loss, lack of subcutaneous fat, large skin surface area to body weight ratio, and reduced heat production due to inadequate brown fat and inability to shiver. In addition to the above problems, LBW also has problems with asphyxia, breathing problems, hypothermia, problems with breastfeeding, infections, jaundice, bleeding problems.

LBW babies, besides having an impact on the problem of impaired physiological function, will also affect the mother's psychology. Postpartum mothers with LBW babies experience feelings that are not in accordance with their expectations, because in general babies need special care assistance separately from their mothers so they do not have many opportunities to interact properly with their babies. This condition causes psychological effects such as anxiety, worrying about safety, caring for and feeding the baby and anxiety has a negative impact on the baby's health in the attachment process with the mother and correlates with the mother continuing to breastfeed her baby.

In an effort to address problems with LBW physiological and psychological functioning of the mother, in 1983 two neonatologists from Colombia discovered the kangaroo method of care, better known as Kangaroo Mother Care (KMC). The Kangaroo method is able to meet the basic needs of LBW by providing situations and conditions similar to those of the uterus so as to provide opportunities for LBW to adapt well to the outside world. Kangaroo Mother Care (KMC) has been shown to reduce mortality, infection, increase growth, lactation rate, increase thermotaxis and improve mother-infant bonding.

Kangaroo Mother Care (KMC) is an effective, easy and inexpensive way to care for premature babies. Psychologically the baby's behavior is better, breastfeeds more often, falls asleep faster, sleeps more deeply, the attachment between the baby and the mother is better, the baby feels safe and comfortable. While the benefits of Kangaroo Mother Care (KMC) for mothers facilitate breastfeeding, increase milk production, mothers are more confident, increase the role of mothers in caring for babies, better attachment, increase bonding between mother and baby, mothers are more affectionate, psychological influence, reduce stress on the mother, increasing the tension of the mother.

Kangaroo Mother Care has several implementation standards; for example when KMC starts, how to start KMC, and how long is the optimal duration of KMC for the baby. The World Health Organization recommends a minimum duration of KMC implementation of 1 hour to maintain the stability of the baby's condition, while other studies state that the duration of 2 hours of implementation is more beneficial for increasing the baby's weight.

Research conducted by Bera, Ghosh, Singh, Hazra, Som, & Munian (2018), shows that data from 265 mother-infant pairs were analyzed. Improvements occurred in all 4 physiological parameters recorded during the KMC sessions. The average temperature increase is about 0.4°C, Respiratory Rate is 3 per minute, Heart Rate is 5 bpm, and oxygen saturation is 5%. Despite this modest change, this change was statistically significant on all 3 days. Individual abnormalities (eg hypothermia, bradycardia, tachycardia, low oxygen saturation) are often corrected during KMC.

Another study conducted by Fatimah (2018), that babies who undergo KMC for a longer duration showed better results, this is because the KMC method after birth has a positive effect on breastfeeding duration and physiological function of the baby's temperature within the normal range. Babies who breastfeed their mothers longer will have an impact on the psychological function of the babies and the mothers will feel calm and comfortable.

Problems based on data obtained from Private Midwife Practice Millatin Khusniyati, S.Tr. In 2021 there were 31 cases of LBW births, while in 2022 34 cases of LBW babies were born, from

these events in January-April 2023 31 cases of LBW births were obtained, these events certainly need proper handling of LBW babies , but the cases that appeared in the April case were dominated by hyperthermic body temperature in 11 cases, other problems were not gaining weight in 12 cases, weak sucking reflex in 3 cases. Observations made when there was a delivery at PMB Millatin Khusniyati, S.Tr. Counsel for 5 LBW babies. During observations related to the physiological functions of LBW infants (body temperature, oxygen saturation, respiratory rate and pulse rate), 3 babies were hypothermic and 2 hyperthermic, 4 hypoxic oxygen saturation measurements, 4 normal oxygen saturation measurements. 1 baby, 2 babies measured the respiratory rate of tachypnea, 3 babies bradypnea, and 2 babies measured the pulse tachycardia and 3 babies bradycardia. The mother of the LBW baby said she had never done Kangaroo Mother Care (KMC) while her baby was in the incubator. At Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara, Kangaroo Mother Care (KMC) has been exposed/implemented, but has not been optimally applied, due to the heavy workload plus some inadequate KMC equipment.

Micro problems carried out on May 9 2023 at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara based on interviews with midwives showed that 5 cases of LBW were born in April 2022, handling of LBW problems has been carried out according to the procedure carried out, namely with treatment at the incubator provided, as well as for babies who experience more severe disorders with a body weight of less than 2000 grams, referrals are made to more complete health facilities, namely the nearest hospital, in addition to treatment carried out at home by providing lights and skin care to skin on mother. Before returning home, mothers are given advice and taught about skin-to-skin care and how to give breast milk to LBW babies..

Based on interviews conducted with mothers who have LBW babies, information is obtained that care is carried out at home, usually the baby is brought closer under the lights, in addition, mothers who have babies Low birth weight babies are not taken out of the house or dried in the sun because mothers feel embarrassed for babies who are born small. Apart from that, routine care is required to maintain the baby's body temperature, respiration, pulse and oxygen saturation. Mothers who are not ready to accept their babies are usually cared for by grandmothers or parents-in-law with care according to previous experience, this causes lack of nutrition, close skin contact between mother and baby. Based on the background above, researchers are interested in conducting research on the effect of the duration of Kangaroo Mother Care (KMC) on the psychological functioning of mothers in low birth weight babies at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara.

II. Methods

This type of research uses quantitative. The research design is quasi-experimental in two groups, two pretest-posttest control group design. Place of research at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara. The time of the study was April-May 2022. The independent variable in this study was the psychological functioning of mothers in low birth weight babies. The dependent variable is the duration of Kangaroo Mother Care (KMC). The population in this study were infants and postpartum mothers who had babies with LBW of 23 LBW in the registration report for mothers and newborns in May 2022. The sample in this study was a portion of babies with birth weight weighing 2000 - 2499 grams, regardless of their gestational age. 16 respondents. The sampling technique in this study is total sampling. The instrument in this study was Standard Operating Procedures (SOP), Mother's psychological observation sheet. Data was analyzed by using Mann Whitney.

III. Results and Discussion

Psychological Status of Mothers before and after Kangaroo Mother Care in an hour duration.

Table 1. Average of Psychology Status before and after providing Kangaroo Mother Care within an hour duration.

Psychology status	N	Median	Std. Deviation	Min	Max
Pre- intervention	8	4,50	1,126	4	7
Post-intervention	8	6,00	0, 886	5	8

Based on table 1, it can be seen that the psychological function of the mother at Private Midwifery Practice Millatin Khusniyati, S.Tr.Keb Jepara before being given an hour KMC intervention obtained a median of 4.50, a standard deviation of 1.126, a minimum of 4, a maximum value of 7. After being given a 1 hour KMC intervention, the median was obtained 6.00, standard deviation 0.886 minimum 5, maximum value 8.

Psychological Status of Mothers before and After Providing Kangaroo Mother Care within 2 hours duration.

Table 2. Average of psychological status of mothers before and after being given Kangaroo Mother Care within 2 hours duration.

Psychological Status	N	Mean	Std. Deviation	Min	Max
Pre-intervention	8	5,75	1,035	4	7
Post-intervention	8	7,25	1,035	6	9

Based on table 2, it can be seen that the psychological function of the mother at Private Midwifery Practice Millatin Khusniyati, S.Tr.Keb Jepara before being given the 2-hour KMC intervention obtained an average of 5.75, a standard deviation of 1.035, a minimum of 4, a maximum value of 7. After being given a 2-hour KMC intervention obtained an average of 7.25, a standard deviation of 1.035 a minimum of 6, a maximum value of 9.

The difference psychological status of mothers who has been given Kangaroo Mother Care within 1 and 2 hours duration.

Table 3 Difference Psychological Status of mothers within 1 and 2 hours difference in Providing Kangaroo Mother Care

Difference Psychological Status	Mean Rank	ρ value
An hour Difference Psychological Status	8,00	0,626
Two hours difference Psychological status	9,00	

Based on table 3 bivariate analysis using the Mann Whitney correlation test, the results obtained for the difference in the psychological status of mothers in the 1-hour KMC intervention had an average rating of 8.00 and the 2-hour KMC intervention had an average of 9.00. The results of the Mann Whitney analysis with $\alpha = 0.05$, with a ρ value of $0.626 > 0.05$, so H_0 is accepted H_a is rejected meaning there is no difference in the psychological status of the mother who is given KMC with a duration of 1 and 2 hours in Jepara.

Psychological Status of Mothers before and after being given Kangaroo Mother Care within an hour duration.

The psychological function of mothers at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara before being given an hour KMC intervention obtained a median of 4.50, a minimum value of 4, a maximum value of 7. After being given a 1 hour KMC intervention a median of 6.00, a minimum value of 5, the maximum value is 8. because when the mother is given the intervention the mother is very cooperative, so the mother can distinguish before and after being given the 1 hour KMC intervention.

Based on the findings of research in the field, it proves that the position of the baby during KMC (ie being on the mother's chest) with direct skin-to-skin contact for a few days or weeks after birth improves parent-child relationships. This is because, during KMC, in addition to skin-to-skin contact, the baby's parents have full opportunities to hold, touch, and make eye contact. From the physical contact that occurs during KMC, the emotional dimension between parents (especially mothers) will be formed and an attachment will be established.

Analysis based on the KMC theory is a special way of caring for LBW babies by making direct contact between the baby's skin and the mother's skin which is useful for helping the baby's health development through improving temperature control, breastfeeding, preventing infection, and mother-infant contact. The goal is skin to skin between mother and baby to reduce radiation loss and aims to maintain a neutral thermal environment/NTE, namely the environmental temperature range so that the baby can maintain normal body temperature with minimum basal metabolism and the smallest oxygen requirement.

The way to deal with it so far is based on the experience of the respondents, namely by the mother holding the baby by giving a blanket so that the baby stays warm. However, this method is less effective because there is no skin contact between the mother and the baby. Management based on theory by doing KMC, with this method is more effective because there is skin contact between the mother and the baby, so that a full feeling of affection can be established between the two of them.

In line with previous research, Ngaiyaye and Kalembo (2016) stated that mothers feel they are always close to their babies and are responsible for caring for their babies. During KMC, the mother feels comfortable breastfeeding her baby, the mother feels she can care for her own baby, breastfeed the baby, and change diapers, so the mother feels her baby will know that she is the mother because they are always together.

Respondents' responses after being given the intervention were very happy and felt close to their babies, and it was more practical for mothers to be able to bring their children while doing housework activities, so it was very practical to be able to do the KMC method.

Intervention can improve the psychological function of the mother because a mother who gives birth to a baby with LBW experiences feelings that are not in accordance with her expectations, because the baby needs special care assistance separately from the mother so they do not have many opportunities to interact well with their baby. This can cause adverse psychological effects such as stress, guilt, disappointment, fear, and even greater emotional turmoil for a mother. Kangaroo method care provides an opportunity for the baby to be cared for together with the mother so that it will increase the bonding attachment between mother and baby, increase the mother's sensitivity to the baby, and can gradually transfer skills and responsibilities to become the child's main caregiver and meet the child's physical and emotional needs

Psychological Status of Mothers before and after being given Kangaroo Mother Care within 2 hours duration.

The psychological function of the mother at Private Midwife Practice Millatin Khusniyati, S.Tr.Keb Jepara before being given the 2-hour KMC intervention obtained an average of 5.75, the minimum value was 4, the maximum value was 7. After being given the 2-hour KMC intervention the average was 7.25, minimum 6, maximum value 9.

The researcher's analysis was based on the findings in the field that the research was carried out for 1 day at 2 hours KMC, the early period of a baby's life is the most important period for aspects of the mother's psychological life. For a mother who devotes herself to caring for and nurturing her own child and living up to this task will bring a feeling of satisfaction and happiness.

This condition can be internalized as the most intimate psychic relationship with her child, especially when the mother can interact with her child, such as when breastfeeding. Therefore the feeling of satisfaction and happiness is felt as a culminating experience.

Analysis based on the KMC theory is an alternative way of care that is cheap, easy, and safe to care for LBW babies. With KMC, mothers can warm their babies so they don't get cold which puts LBW babies in danger and can threaten their lives, this is because LBW babies cannot regulate their body temperature due to the small layer of fat under their skin. KMC can provide warmth so that the body temperature of LBW babies remains normal, this can prevent hypothermia because the mother's body can provide warmth directly to her baby through contact between the mother's skin and the baby's skin, this can also function as a substitute for an incubator. KMC can protect babies from infection, provide appropriate breastfeeding, gain weight quickly, have a positive effect on increasing baby's cognitive development, and strengthen the bond between mother and baby, and mothers are more confident in caring for babies.

The management of LBW mothers at home is by giving warm bottles placed on the right and left sides of the baby's bed as baby bolsters. Management based on theory, namely by providing care for babies with LBW babies using the kangaroo method will provide opportunities for mothers and children to do skin-to-skin-contact, namely placing the baby on the mother's chest with the principle of direct skin contact between mother and baby which is a safe care and effective.

In line with previous research from Daswati (2016), which found that there was a decrease in the degree of anxiety in postpartum mothers with LBW babies after carrying out baby care using the kangaroo method.

Respondents' response after the intervention was given, the mother was very calm and comfortable with the 2-hour KMC implementation, and the mother could still carry out her activities as a housewife while still holding her baby.

The intervention provides changes in the psychological functioning of the mother due to the interaction that occurs between the mother and the baby during the KMC implementation, showing significantly higher levels of oxytocin which is a chemical bond compared to mothers who do not interact with their babies. The benefits of Oxytocin can protect against the reactivity of the autonomic nervous system. Therefore Oxytocin is said to be a regulator of response to stressors, and has properties and effects related to reducing anxiety and relaxing so that it can provide a positive psychological response.

Differences in the psychological status of mothers who were given KMC with a duration of 1 and 2 hours

The difference in maternal psychological status in the 1 hour KMC intervention has an average rating of 8.00 and the 2 hour KMC intervention has an average rating of 9.00. The results of the Mann Whitney analysis with $\alpha = 0.05$, with a p value of $0.626 > 0.05$, so H_0 is accepted H_a is rejected meaning there is no difference in the psychological status of the mother who is given KMC with a duration of 1 and 2 hours in Jepara.

Analysis based on results in the field of mental health is very closely related to physical health. Mental health problems can develop as a result of reproductive health problems including pregnancy, childbirth and the puerperium. In addition, basically, mothers who have LBW babies need support from both the family and from health workers, guidance and knowledge and skills that enable them to participate confidently in the care of their babies are very important. Therefore, it is very necessary to have a communication process related to giving and receiving information about knowledge related to maternal psychomotor in terms of caring for small babies as well as the process of conveying information from health workers should use delivery methods and simple language so that mothers can easily understand it. Postpartum mothers are vulnerable to emotional stress, especially for mothers who have premature babies, generally parents, especially mothers, are in a state of anxiety. In response to this, an effort was developed to provide opportunities for mothers to be cared for together with their babies (rooming-in).

A-rooming in care treatment between mother and baby also shows the mother's ability to fulfill and respond empathetically to her baby's needs.

Analysis based on the theory of kangaroo care is a substitute method for incubators that can prevent hypothermic babies by keeping the baby's temperature stable and optimal. An increase in baby's O₂ saturation can occur because the Kangaroo Mother Care (KMC) method is very useful for keeping the baby's body temperature normal. accelerating the release of breast milk and increasing the success of breastfeeding, protecting the baby from infection, increasing the baby's weight quickly, early stimulation and affection.

Supported by the results of Daswati's research (2016) which states that measuring the degree of anxiety of postpartum women with LBW showed that prior to the implementation of the kangaroo method treatment they were in the mild-moderate category of 28 subjects and the category of severe degrees of 5 subjects; after the implementation of the kangaroo method treatment the degree of anxiety decreased, namely in the category of not anxious as many as 24 subjects and the rest classified as mild-moderate degrees as many as 9 subjects and there were 4 subjects who did not experience a change in the status of the degree of anxiety, namely they remained at mild-moderate degrees.

Management carried out by respondents at home by giving blankets to babies, placing babies under lights and swaddling babies. Management with the Kangaroo Care method, which is a method of care by placing the baby between the mother's breasts so that there is direct contact between the mother's skin and the baby's skin to distribute warmth to the baby.

Respondents' responses after the mother's intervention were very comfortable and calm when the KMC method was carried out, at first the mother felt confused because she had to wait for her child so that she could not carry out her activities as a housewife, by giving this KMC method the mother got the right solution.

Intervention does not affect the psychological status of the mother because the benefits of the kangaroo method include benefits for the baby and his parents. The benefits for the baby are the

effectiveness of thermoregulation, stable heart rate, regular breathing including reducing apnea, increased oxygen saturation, weight gain and faster baby development, reducing crying, supporting exclusive breastfeeding, prolonging the baby's deep sleep. The benefits for the mother include accelerating bonding, increasing the mother's confidence to care for her small baby, increasing milk production, reducing hospital care costs, eliminating feelings of separation and inadequacy, and the mother feeling satisfaction because she has participated in caring for her baby.

IV. Conclusion

Conclusion based on the reseach above is the psychological status of the mother was given KMC for 1 hour before having a median of 4.50 and after having a median of 6.00. The psychological status of mothers given KMC with a duration of 2 hours before having an average of 5.75 and after having an average of 7.75. There was no difference in the psychological status of mothers who were given KMC with a duration of 1 and 2 hours ($0.626 > 0.05$). Suggestions through this study are expected to add information and be practiced by all mothers, especially those with LBW by providing 2 hours of KMC intervention every day to improve psychological function in mothers.

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