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THE EFFECT OF GIVING KANGAROO MOTHER CARE METHOD ON THE STABILITY OF BODY TEMPERATURE IN LOW BIRTH WEIGHT (LBW) INFANTS : *A LITERATURE REVIEW*

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ABSTRACT

Background : Low Birth Weight Babies are newborns who weigh less than 2500 grams at birth. The LBW mortality rate is 35x higher than for babies with birth weights of more than 2500 grams. The method used in caring for babies with low birth weight is Kangaroo Mother Care (KMC). KMC is an effective way to meet baby's basic needs, namely warmth, breast milk, and affection. **Purpose :** Analyze the effectiveness of the KMC method for body temperature stability in low birth weight infants. **Methods :** Determine the topic, determine the formulation of the problem, determine the objectives, search for data sources and journal selection. Journal search uses electronic databases namely google scholar, Wiley, and Pub Med, with the keywords used "metode *kangaroo mother care*, kestabilan suhu tubuh, BBLR or *kangaroo mother care method, stability of body temperature, LBW".* **Results :** The journals that were sampled in this study were 14 journals resulting from experimental research and literature studies with the results of the Kangaroo Mother Care Method affecting the stability of body temperature in low birth weight babies (LBW). **Conclution :** From the literature study it can be concluded that there is an effect of giving kangaroo mother care method to the stability of body temperature in low birth weight babies with p value <0.05.

Keyword : *Body Temperature, Low Birth Weight Babies Mother Care Kangaroo Method*

Introduction

According to the WHO weight babies born to low or low birth weight is a baby born with a weight less than 2500 grams. LBW is baby new born the weight at birth of less than 2500 grams. LBW not only can occur in premature babies, but also on infants who experience barriers to growth during pregnancy. LBW is a new baby born weighing the time of birth of less than 2500 grams up to 2499 grams (Rhomawati, 2017).

Baby weight loss born low in general not have a maturity in the system of defense of the body to adapt with the environment *extrauterine*, so that raises the risk of complications, especially the instability of the temperature. Instability temperature on low birth weight occurs because the reserves of fat under the skin is thin, the central regulator of the heat in the immature brain, the ratio of the broad surface against the great weight and heat production is reduced due to brown fat, which is not adequate as well as the inability to shiver (Setiyawan, 2019).

In the newborn the center of the arrangement the temperature of his body not functioning perfectly, making it easy decline in body temperature, mainly due to a cold environment. Balance the heat of the newborn will be trying to stabilize the temperature of his

body against the factors that cause the loss of heat because of the environment. At the time of the birth, the baby undergoes a change by the environment of intra-uterine warm surroundings of the extra-uterine is relatively cold. This causes a decrease in body temperature 2-3^{0}C, especially the loss of heat due to evaporation or evaporation of amniotic fluid on the baby's skin that is not dried immediately. Such conditions will spur the body to become cold, which will cause the response of the metabolism and heat production (Pratiwi, 2015).

In general, the baby has a low birth weight treated in an incubator. The baby needs to be cared for in an incubator, the baby is in the supervision of high enough, and need health workers who are experienced, whereas the number of incubators in the hospital is very limited compared with the number of LBW are treated. Some research has been done about the methods of *kangaroo mother care*, the result says that the method of *kangaroo mother care* not only just a replacement incubator in the care of LBW, but also gives a lot of advantages that cannot be provided by the care incubator (Syamsu, 2013; Hendayani, 2019).

Kangaroo Mother Care (KMC) is one solution to the prevention of hypothermia on LBW. Principle *of skin to skin contact* , namely heat transfer by conduction from the mother to the baby so that the baby stays warm. The mother's body temperature is a heat source that is efficient and inexpensive, can provide a warm environment in the baby,it also improves the relationship of the mother with the baby (Angriani, 2014).

Kangaroo Mother Care can reduce the risk of hypothermia because of the mother's body can give warmth to the baby continuously by means of direct contact between the skin of the mother with the skin of the baby. Baby will also sleep better and more calm. In addition, KMC also facilitate the mother in giving breast MILK so it needs the nutrients the baby remains unfulfilled also can improve the bond of affection between mother and baby, as well as shorten the period of treatment in a hospital so that it can reduce the cost of care (Pratiwi, 2015).

The influence of the method of kangaroos against stabilitis baby's body temperature in the room perinatology. General Hospital Bengkalis (Heriyeni, 2018) which states bahwaperawatan methods *kangaroo* is treatment with do contact directly between the skin of the baby with the skin of the mother (*skin to skin contact*). The baby is laid on the chest of the mother in the position of the vertical, only wearing a diaper and a hat. At the time of the study, the researchers conducted a monitoring on the baby in space perinatology to monitor baby's body temperature before and after the given method kangaroo. The baby is a new born easily experience the loss of heat of the body. The process of heat loss in infants can occur through processes such as evaporation, radiation, conduction, and convection.

The authors analyze the method of *kangaroo mother care (*KMC) because in the HOSPITAL the parents or the mother they don't believe in the benefits caused after the treatment KMC, then before making the application of KMC in LBW author should do education about KMC because parents do not know the advantage and the importance of KMC for LBW, in addition parents are afraid because of the care KMC is made the care of the baby in the HOSPITAL longer. In addition, the incidence of increased mortality due to sepsis neonatorium quite high then the method of *kangaroo mother care* (KMC) is needed to cope with an increase in mortality of LBW infants.

Methods

Methods in the making of this literature study with citing information from a variety of literature such as journals, articles, and research results with mter topic, determine the formulation of the problem, determine the purpose, looking for the source of the data as well as the selection of journals based on the specifications of KMC on the care of LBW. Search journals using a database of electronics , namely *google scholar*, Wiley, and Pub Med, with the word keys which used "the method of *kangaroo mother care*, the stability of body temperature, LBW or *kangaroo mother care method, stability of body temperature, LBW".*

Results and Discussion

Literature study titled "the Effect of the Method of *Kangaroo Mother Care* On the Stability of the Temperature of the Body At LBW", based on peer - reviewed journals that relate to the topic of the taken, the journal of the sample in this study as many as 10 of the journal

the results of experimental research and the study of literature. The population that was used in 10 of the journal of research is that babies with low birth weight.

Of the 10 journals that are all taken using the inclusion and exclusion criteria of the sample based on the specific objectives of each study, the researcher also has to consider carefully that research is taken does not affect the results of the study. Criteria insklusinya is the baby of Low Birth Weight (LBW) who were treated at the HOSPITAL, LBW experiencing hipertermi and hypothermia, Mothers of LBW infants are willing to do KMC for 3 days, the general state of low birth weight infants are good and stable during KMC. While the criteria eksklusinya: low birth weight infants with normal body temperature, low birth weight infants with congenital abnormalities mayor, and mothers of LBW infants reject the KMC. The number of samples in a given group technique *kangaroo mother care* ranges from 14 to 25 respondents, while for the control group were only given health education ranges from 14 respondents.

Kangaroo mother care given to infants with a body weight of < 2500 grams and gestational age preterm or at term. At the time of the intervention, carried out the administration of the education of health by the power of the health of the very first to the mother of the BBRL about the methods of *kangaroo mother care* , which includes the meaning, purpose, and management methods of *kangaroo mother care* on low birth weight. So, the intervention can be carried out independently at the time of the home directly and without cost. Intervention methods *kangaroo mother care* is given periodically with time one time a day for 30 – 120 minutes with a minimum 3 - day administration of the intervention.

Granting intervention *kangaroo mother care* of 10 source journal are taken , there are 5 sources of journals that have a comparison. In the journal D. Farida and A. R. Yuliana, 2017, this study also evaluated against weight gain in LBW by using the method of *Kangaroo Mother Care;* Dinda Nadia, and Lavi Indriani, explaining that *Kangaroo Mother Care* (KMC) can be done in two ways namely KMC intermittent and continuous; Zakiah, et al., 2014, study consists of 2 groups of treatment, treatment 1 using the kangaroo care method (FMD), treatment group 2 using the method of care incubator; Atik Purwandari, et al., 2019, research using univariate analysis which includes the age of the baby's mother, gender, type of childbirth as well as the actions before and after the PMK to the body temperature, heart frequency and oxygen saturation.

The results of the intervention on 10 source journal has equation from the results of the research, where the *kangaroo mother care* affect the stability of the temperature of the body at LBW. The method of kangaroo mother care is more effective than the care of LBW in the incubator. It was described by Zakiah, *et.al.*, 2014 that the implementation of kangaroo care method to an increase in body temperature in infants ($p=0.000$; $p<\alpha$), there is influence. While the application of the maintenance incubator to an increase in body temperature in infants ($p=$to 0.883; $p<\alpha$), there is a difference of temperature increase on the application of the PMK and the care of the incubator in low birth weight infants and the application of the FMD is more effective than treatment inkubator in increasing the body temperature low birth weight infants in HOSPITALS Hadji Boejasin Pelaihari 2013 ($p=0.000$, $p<\alpha$).

According to Setiyawan, *et.al.,* 2019, Solehati, *et.al*., 2018, Damayanti, *et.al.,* 2019, and Zakiah, *et.al.,* 2014 explained that the intervention is carried out for 3 days with a frequency of 3 times a day and *the intensity* time 1 hour However, in some journals is not explained how long time used in the provision of a method of *kangaroo mother care* so that the absence of clarity of time in the provision of intervention.

Share the information in this study is necessary to do research that is more because in this study the researcher can only find 10 of the journal appropriate to be analyzed, therefore, in the further research are expected to reproduce the references for the analysis of journals and doing research is more directly about the application of the method of *kangaroo mother care* on the stability of the subu on LBW and further research can conduct research with the number of samples that is a lot of research techniques and which is better.

Title	Author/ Year/ Design of the Study	Intervention	Outcome
Granting the Method of Kangaroo Mother Care (KMC) On the Stability of the Temperature of the Body Dan Weight Loss Baby LBW In the Space of Carnations Hospital Umum RA Kartini Jepara	D. Farida, and A. R. Yuliana / 2017 / *Descriptive Analytic*	Researchers taught the method of the kangaroo to the mother of the patient, the earlier the patient is measured his vital signs and weight loss. The intervention was carried out for 3 dayswith a frequency of 3 times a day and *the intensity of the* 2 hours	With the provision of a method of kangaroos in the case of the obtained temperature changes and weight loss after the given method kangaroo for 3 days with the frequency of a day at least 3 times with the intensity of the timeu 2 hours. The changes increased the temperature of the body cant reach 10C and an increase in weight loss of as much as 110 grams. So the method of the kangaroo are very effective in increasing body temperature and body weight on low birth weight infants.
The influence of the Implementation of *Kangaroo Mother Care* (KMC) For One Hour To a Temperature of Body of Low Birth Weight Infants (LBW) In the Space of Perinatology RSUD Pandan Arang Boyolali	Setiyawan, Revelation Deda Prajani, Wahyu Dwi Agussafutri / 2019 / *Quasy Experiment*	Laid and mendekapkan baby di dada mother (kangaroo mother care)	Based on this obtained the average temperature of the body at the Low Baby Weight (LBW) in Perinatology RSUD Pandan Arang Boyolali before and after the implementation of KMC for one hour the first day, the second, ketiga is $36,66^0$C and $37,07^0$C. There is the influence of the implementation of the *KangarooMother Care* (KMC) for one hour on the temperature of the body of a Baby of Low Birth Weight (LBW) in Perinatology RSUD Pandan Arang Boyolali ($p < 0,05$).

The influence of the Kangaroo Care Method On the Stability of the Temperature of the Body BBLR in the Space of Perinatology RSUD Dr. Achmad Mochtar	Weni Lidya Hendayani / 2018 / Pre-Experimental	Pe method kangaroo for the baby of low birth weight who are experiencing the instability of body temperature. After that researchi started doing a pre-test measurement of the body temperature of the baby to dijadikan data before do care methods kangaroo.	From the results of research on the influence of the kangaroo care method with the temperature of the body of the baby weight loss born low in the space of Perinatology RSUD Dr. Achmad Mochtar Bukittinggi 2018, it can be concluded from the results of the T test obtained p value is $0.0005 \leq \alpha (0.05)$ it can be concluded that there is influence of the method of treatment kangaroo with a baby's body temperature weight born low on space Perinatology RSUD Dr. Achmad Mochtar Bukittinggi Year 2018
The Influence of the Method of Kangaroos Against Stabilitis the Temperature of the Body of the Bayi In the Space Perinatology Regional General Hospital district of Bengkalis	Heni Heriyeni / 2018 / *Quasy Experimental*	Peneliti monitoring on the bayi in the perinatology room to monitor the body temperature of the baby before the dan after the given method kangaroo.	After research about the influence of the method of the kangaroo to the stability of the temperature of the baby's body in Space Perinatology General Hospital Area of Bengkalis can be concluded that: The Average the average temperature of the body of the baby after the treatment methods kangaroo in the Space of Perinatology General Hospital Bengkalis Area of $37,10^0$C.
The effectiveness of the Improved Suhu the Body On the Care of the Kangaroo Method With Care Incubator In BLUD RS H. Boejasin	Zakiah, Norhajati Bt. Zulbachri Noor, Erni Setiawati / 2014 / *Quasi - experimental*	Study consisted of 2 Groups of treatment, treatment 1 using treatment methods kangaroo (PMK), group treatment 2 use the	Research the effectiveness of the increase in the temperature of the body at the kangaroo care method with care incubator in

Pelaihari Tanah Laut Year 2013		method of treatment of the incubator.	BLUDRS H. Boejasin Pelaihari obtained no effect of the application of pregn a method of kangaroo against the increase of body temperature in infants (p=0.000; p<α), there is influence. While the application of the care of the incubator to a significant increase in then body temperature in infants (p=to 0.883; p<α), there are differences in the increase in the temperature of the pada the application of the PMK and the care of the incubator in infants of low birth weight and the application of the FMD is more effective than treatment of the incubator in increasing the body temperature low birth weight infants in the HOSPITAL Hadji Boejasin Pelaihari year 2013 (p=0.000, p<α).
The influence of the Treatment Method Kangaroo / Kangaroo Mother Care Versus the Temperature Stability of the Body of the Baby Weight Born Low On Space Peristi RSUD Kebumen	Sri Abdi Lestari, Cahyu Septiwi, Ning Iswati / 2014 / *Quasi - Experimental*	measure temperature on the low birth weight infants before and after care Kangaroo Mother Care	is No influence of the treatment method kangaroo / kangaroo mother care to the stability of the temperature of the body weight babies born in Space Peristi RSUD Kebumen with p:0,000.

The influence of the Kangaroo Care Method To Increase the Temperature of the Body of the Bayi the Weight of Low Birth in the NICU Hospital Grand Medistra	Ika Nur Saputri, and Weti Ariska / 2016 / *Pre experimentstal*	Do temperature measurement in low birth weight infants before and after care Kangaroo Mother Care	At the body of the baby before the performed treatment methods kangaroo i.e. the average of the respondents have at 34,7 with a standard deviation of 1,211. The body temperature of the baby after the treatment methods kangaroo i.e. the average the respondents have at 36,9 with a standard deviation of 0,349. There is a difference in body temperature before and after the treatment methods kangaroos on the weight babies born low (LBW). Based on the results of a statistical test by using the test *dependent sample t-test/paired t testt* shows that the p-value that is 0.004 which means the value of p (0,004) < (α=0.05).
The influence of the Method of Kmc On the Temperature of the Body On the BBL In RSU PKU Muhammadiyah Bantul	Merizka Mustya, and Enny Fitriahadi / 2017 / *One Group Pre Test– Post Test Design*	Ddo care methods KMC, then the researchers taught the procedure KMC, then perform the measurement of the temperature of the body on the respondents before the given method KMC recorded on the observation sheet, after that the giving of the method of KMC as much as one times in a day with period of 15 minutes to 30 minutes to the respondent.	Methods KMC has an influence on the temperature of the body on the BBL proven with the results of the test statistic non parametric with techniques *Wilcoxon* obtained results Asymp.Sig. (2- tailed) of 0.025. It can be concluded that the value of Asymp.Sig. (2- tailed) < 0,05 , which means there is influence of the method of KMC against the body temperature on the BBL in RSU PKU Muhammadiyah Bantul 2017.

Methods Kangaroo Against The Physiological Function Of Low Birth Weight Babies	With Purwandari, Sandra G. J Tombokon, Negin Lidya Clara Combo / 2019 / *Pre - Experimental*	Perform temperature measurements in low birth weight infants before and after care Kangaroo Mother Care	Analysis bivariate mdicate the presence of the influence of PMK function physiological LBW in addition to body temperature before given PMK =36,316 after a given FMD the value of the mean to the temperature of the body =36,684, the value of t = 13,677 (p = 0,000), the pulsation of the heart before the given KMC obtain the value of the mean =97,48 after a given PMK mean value for heart rate = 121,440, the value of t = 17,078 (p = 0.000), and oxygen saturation before being given the PMK to obtain the value of the mean =88,080 after a given PMK obtain a mean value for oxygen saturation = 94,320, the value of t = 9,774 (p = 0.000).
The Effect Of Kangaroo Mother Care Method To Change Of Body Temperature In Lbw (Low Body Weight) Babies	Bety Maya Sari, Riska Aprilia Wardani, Dian Fitra Arismawati / 2019 / *Pre-Experimental*	Perform temperature measurements in low birth weight infants before and after care Kangaroo Mother Care	Observation results of measurements of body temperature changes in LBW infants showed changes that were given to treatment interventions in the kangaroo mother care method of body temperature with an average body temperature of 36.30 C, and two babies experienced a decrease in body temperature after being given intervention. Kangaroo mother care method of treatment with a value of Z - 3,114 with a significant level of 0.002.

Tabel 1. Result of Journal

Conclusion

From the literature study which is titled "the Provision of a Method of *Kangaroo Mother Care* On the Stability of Body Temperature In Infants of Low Birth Weight" can be concluded that from 14 journal of experimental research with the dependent variable stability of body temperature on LBW and independent *method of kangaroo mother care* can be concluded there is the effect of the method of *kangaroo mother care* on the stability of the temperature of the body on the weight of the baby born with low *p value* of<0.05.

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