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EFFECT OF KANGAROO TREATMENT METHOD ON TEMPERATURE BODY IN LOW BIRTH WEIGHT INFANTS

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ABSTRACT
The prevalence of LBW in Indonesia is 6.2% of 47,011 births, while in Bali Province LBW is 5.6% of 786 births (Riskesdas, 2018). Data shows that more than 20 million babies worldwide are estimated to be born with LBW. Hypothermia is the most common problem found in babies with LBW, so nursing actions are needed that can overcome the problem of hypothermia in LBW. Kangaroo Mother Care (KMC) is one of the nursing actions that can be attempted to overcome this hypothermic problem. The purpose of this study was to determine the effect of the Kangaroo Mother Care (KMC) method on temperature stability in Low Birth Weight (LBW) infants in the Perinatology Room of the Gianyar Regional General Hospital. This type of research is pre experimental design with one-group pre-post test design. Sampling using quota sampling technique with a sample size of 17 babies. Samples were selected based on inclusion and exclusion criteria, where one of the inclusion criteria was LBW who did not have congenital abnormalities, babies who had reflexes and had good coordination of suction and swallowing. After the sample is selected, then a pretest is carried out by measuring the baby's body temperature, then the mother of the baby is taught about KMC for 15 minutes and then asked to repeat independently for 60 minutes, and after that do a posttest, namely measuring the temperature after giving the KMC method. Analysis of the effect of Kangaroo Mother Care (KMC) on the temperature stability of infants using the statistical test paired t-test results obtained p value = 0.000 so that p value <0.05. This shows that there is an effect of the Kangaroo Mother Care (KMC) method on temperature stability in LBW babies in the Perinatology Room of the Gianyar Regional General Hospital.

Keywords: kangaroo mother care; LBW; temperature stability

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INTRODUCTION

Low birth weight babies (LBW) are babies born with a body weight of less than 2,500 grams and normal birth weight babies ranging from 2,500-4,000 grams (Kemenkes RI, 2010). LBW is a baby with a birth weight of less than 2,500 grams regardless of gestational age (Ministry of Health, 2015). The World Health Organization (WHO) stated that in 2015 there was a global prevalence of LBW of 15.5% or around 20 million each year, 96.5% of cases came from developing countries (WHO, 2015).

The prevalence of LBW in Indonesia is 6.2% of 47,011 births, while in Bali Province LBW is 5.6% of 786 births (Riskesdas, 2018). Data from the Bali Provincial Health Office in 2017 reported that Gianyar Regency was ranked first with 261 LBW with a percentage of 4.4%, second place was Klungkung Regency with a total of 123 BBLR and third place was Bangli Regency with a total of 120 BBLR. LBW is caused by several factors, namely the socio-demographic characteristics of the mother (age less than 20 years and age more than 34 years,

black race, insufficient socioeconomic status, illegitimate marital status, low education level). Maternal medical risk before pregnancy also plays a role in the incidence of LBW (parity, body weight and height, ever given birth to LBW, birth spacing). Maternal reproductive health status is at risk of LBW (maternal nutritional status, infections and diseases during pregnancy, pregnancy history and pregnancy complications). The status of antenatal care (frequency and quality of antenatal care, health workers where pregnant check-ups, gestational age at first pregnancy check-up) can also be at risk of giving birth to LBW (Little, Keenan, Niermeyer, Singhal, & Lawn, 2011).

Many changes occur in babies in adjusting themselves from life in the womb to life outside the womb. Physiologically, babies are not able to adapt to the new environment after birth, environmental support so that the baby can maintain its warmth is needed (Heriyeni, 2018). LBW babies lose four times more heat than adults, resulting in a decrease in body temperature. In the first 30 minutes, the baby can experience a decrease in body temperature of 3 - 4 ° C. In a room with a temperature of 20-25 ° C the baby's skin temperature drops by about 03 ° C per minute. A decrease in temperature is caused by heat loss by conduction, covection, evaporation and radiation (Philip & Beverley, 2015).

The baby's immature ability to produce heat is very susceptible to decreased heat or hypothermia (Nelson, 2012). According to Saefudin (2011) hypothermia can lead to hypoxemia and leads to infant mortality. Babies who are born with a body weight less than normal, the surface of their body will appear relatively broad, the skin in these babies looks thin, transparent and the subcutaneous fat tissue is less so that the body temperature regulation center becomes immature and eventually the baby is very prone to hypothermia this is caused by loss body heat in babies. The results of the research by Miller, Lee and Gould (2011) stated that hypothermia was common in LBW babies. The target of improving nutrition in Indonesia is around 7%, but around 7.5% of babies are born weighing less than 2500 grams (Proverawati, 2010).

Management of LBW babies in general is treatment using an incubator. This medical action is carried out in order to prevent the baby from experiencing hypothermia. Hypothermia is a problem that most often occurs in infants with LBW because subcutaneous fat is very thin so it is easily influenced by environmental temperature (Suradi & Yanuarso, 2014). In the first 30 minutes the baby can experience a drop in temperature of 3 - 4 ° C. In a room with a temperature of 20-25 ° C the baby's skin temperature drops by about 0.3 ° C per minute. A decrease in temperature is caused by heat loss by conduction, convection, evaporation and radiation (Philip & Beverley, 2015). According to Saefuddin (2011), hypothermia can result in hypoxemia and continues with death in infants.

Handling of low birth weight babies is included in the criteria for high-risk babies, so it requires serious treatment (Askin DF, 2010). Handling to stabilize the body temperature of LBW requires efforts, among others, by means of an incubator and kangaroo treatment methods. The use of an incubator causes the separation of mother and baby, the number of incubators is limited and requires expensive costs, so that some babies do not get good treatment (Deswita, Besral, & Rustina, 2011). Kangaroo treatment is part of the treatment or action performed on babies born weighing less than 2,500 grams (Riskesdas, 2018)

Kangaroo treatment method is one solution to solve hypothermia in LBW. The principle of care for the kangaroo skin to skin contact method is heat transfer by conduction from mother to baby so that the baby stays warm. The mother's body temperature is an efficient and

inexpensive source of heat, it can provide a warm environment for the baby, as well as improve the mother's relationship with her baby (Yetti Anggraini, 2013). Kangaroo method care from an early age, and is sustainable both while still in the hospital and at home, accompanied by exclusive breastfeeding and monitoring of baby development (Muslihatun, 2010).

RSUD Sanjiwani Gianyar has prepared SPO related to the Kangaroo method as an alternative to the use of an incubator to maintain the body temperature of LBW babies, but based on the monitoring and evaluation that has been done, the application of this method has not been implemented properly. The kangaroo method is the treatment of premature babies by making direct contact between the baby's skin and the mother's skin (Yeyeh, Rukiah, Yulianti, 2010). LBW care with kangaroo method care in Indonesia reached 30, 1%, while in Bali Province baby care with kangaroo method treatment reached 27% (Basic Health Research, 2018). The World Health Organization recommends that the duration of the kangaroo treatment is at least one hour to maintain the stability of the baby's condition (Arifah & Wahyuni, 2010). Kangaroo treatment method given to LBW babies for 3 days, which is done once a day, in the morning, can increase the body temperature of LBW babies. Positioning the baby in a state without clothes, the baby is wearing a diaper, socks, gloves, and a hat. Then put the baby in an upright position and face down on the mother's chest. That way between the mother's body and the baby's body will stick.

Based on the results of observations and interviews conducted in the NICU room of the Sanjiwani Gianyar Hospital, the birth rate for babies in 2018 was 129 LBW, in 2019 there were 160 LBW, and from 2020 to August there were 65 LBW. The preliminary study was carried out on September 1, 2020 in the NICU room of the Sanjiwani Gianyar Hospital and found a total of 7 LBW patients who were born at Sanjiwani Gianyar Hospital and currently undergoing treatment at the NICU of Sanjiwani Gianyar Hospital, currently as many as 5 babies. The discovery of the data from the preliminary study made the author interested in conducting research on the effect of kangaroo treatment on body temperature stability for low birth weight babies at Sanjiwani Gianyar Hospital.

METHOD

This research is a pre experimental research. The design used One group pre-test-posttest design. The research was conducted in the Perinatology Room of RSUD Sanjiwani Gianyar. The sampling technique in this study was non-probability sampling with quota sampling, with the number of respondents as many as 17 LBW babies who underwent at Sanjiwani Gianyar Hospital. The research instrument used an observation sheet. After measuring their body temperature, participants were taught to do the Kangaroo method for 15 minutes and were asked to repeat the techniques that had been taught for up to 60 minutes before taking repeated body temperature measurements

RESULTS

Table 1.
Frequency Distribution of Respondents by Gender (n=17)

Gender	f	%
Male	7	41,17
Female	10	58,82

The characteristics of the respondents in this study are as shown in the following table. Based on table 1, it is found that most respondents are in the age range 46-55 years, as many as 9 people (40.9%). It was found that most of the respondents were women, as many as 10 people (71.4%).

Table 2.
Characteristics of Respondents Based on Body Weight (n=17)

Variabel	Mean	SD	Min - Max
Weight	2242.86	200.822	1900 - 2450

Based on table 2 above, it can be seen that, of the 14 respondents studied, the lowest respondent weight was 1900 grams and the highest was 2450 grams with the mean weight of LBW babies in the Perinatology Room of Sanjiwani Gianyarya Hospital, namely 2242.86 grams.

Table 3.
Effect of the Kangaroo Mother Care (KMC) Method on Temperature in LBW babies (n=17)

		Kangaroo Mother Care (KMC)		p *value*
		Before	After	
Temperature	Mean	36.23	37.06	
	SD	0.22	0.25	0.000
	Min	35.90	36.60	7
	Max	36.50	37.50	9

Based on table 3, it is known that before the Kangaroo Mother Care (KMC) method was carried out, the average body temperature of infants was 36.23^0C with the lowest temperature of 35.90^0C and the highest temperature of 36.5^0C, while after the kangaroo method the average body temperature increased to 37.06^0C with the lowest temperature of 36.60 o C and the highest temperature was 37.50^0 C. After the paired t-test was carried out, it was obtained that the p value = 0.000 so that the p value <0.05. This shows that there is an effect of the Kangaroo Mother Care (KMC) method on the temperature of LBW babies in the Perinatology Room of Sanjiwani Gianyar Hospital.

DISCUSSION

Based on the results of data analysis, it is known that before the Kangaroo Mother Care (KMC) method was carried out, the mean body temperature of infants in the Perinatology Room of Sanjiwani Gianyar Hospital was 36.3^0 C with the lowest temperature 35.90^0 C and the highest temperature 36.5^0 C, while after the kangaroo method the mean body temperature was carried out. increased to 37.06^0 C with the lowest temperature 36.60^0C and the highest temperature 37.50^0 C. After the paired t-test was carried out, it was obtained that the p value = 0.000 so that the p value <0.05. This shows that there is an effect of the Kangaroo Mother Care (KMC) method on the temperature of LBW babies in the Perinatology Room of Sanjiwani Gianyar Hospital. The results of this study are in line with research conducted by Zakiah (2014), who found an increase in infant temperature after the KMC method with an average increase of 0.2920, while in the application of incubator treatment, an increase in body temperature was found to be 0.1320, so Zakiah concluded the application of KMC. more effective than incubator treatment in increasing the body temperature of LBW babies. Research conducted by Mustya (2017), also found that the KMC method had an effect on increasing body temperature in BBL at PKU Muhammadiyah Bantul Hospital.

Hendayani (2019) also found that there was an effect of the KMC method on the body temperature of low birth weight babies in the Perinatology Room of Dr. Achmad Mochtar Bukittinggi Newborns lose four times more heat than adults, resulting in a drop in temperature. One of the main problems of low birth weight is having an unstable temperature and tends to be hypothermic (temperature <36.5ºC) (Firdaus, 2017). Temperatures that tend to be hypothermic are caused by less heat production and rapid heat loss. Insufficient heat production due to insufficient body heat circulation, weak respiration, low oxygen consumption, inactive muscles, and insufficient food intake. Heat loss occurs as a result of a relatively wider body surface and a lack of subcutaneous fat (Pratiwi, 2015). The temperature drop is caused by heat loss by conduction, convection, evaporation and radiation. The ability of babies who have not been perfect in producing heat is very susceptible to experiencing a decrease in heat (Arvin, 2012).

The results in this study support the statement of Pratiwi (2015), which states that one of the efforts that can be made to maintain temperature stability in LBW babies is to apply Kangaroo Mother Care (KMC). Kangaroo Mother Care (KMC) is skin-to-skin contact care so that the baby gets warmth from the mother's body. The mechanism of action of the kangaroo treatment method is the same as the treatment in an incubator which functions as a thermoregulator to provide a thermonetral environment through conductive heat flow and radiation. Heat flow through conduction is by skin contact between mother and baby, such as in a heat conduction incubator from the body of the incubator to the baby's skin. Heat flow through radiation is warm air in the incubator such as warm air between a blanket or kangaroo and baby clothes. The heat conduction process continues as long as KMC is carried out so that the baby's temperature stability can be maintained.
Kangaroo Mother Care (KMC) also significantly increases the bond between mother and baby as well as father and baby. The position of babies who get KMC makes it easier for mothers to give breast milk directly to their babies. If you are accustomed to doing KMC, mothers can easily give breast milk without having to remove the baby from his kanguroo shirt. In addition, stimulation from the baby can increase the mother's milk production, so that the mother will give her milk more often according to the baby's needs (Indrasanto, 2013).

Based on the results obtained in this study, the researchers argued that treatment with the Kangaroo Mother Care (KMC) method had a strong influence in increasing the baby's body temperature. This is due to the high willingness of the mother to implement KMC during the research process, the support from families and health workers who serve in the perinatology room, making KMC implementation can be done 100% according to the SOP by the mothers so that this KMC method can be implemented effectively by mothers. . The implementation of the KMC method which was carried out properly by mothers during the research process made the baby get the warmth conduced from the mother's body, exposure to cold air that was connected to the ambient temperature could also be minimized by the mother's warm embrace, so that the baby's temperature could be maintained.

CONCLUSION

The results of temperature identification in infants with Low Birth Weight (LBW) before Kangaroo Mother Care (KMC) were carried out in the Perinatology Room of Sanjiwani Gianyar Hospital, from the 14 respondents studied, the lowest body temperature was 35.9^0C and the highest was 36.5^0C with an average body temperature of 36.23^0C. The results of temperature identification in Low Birth Weight (LBW) babies after Kangaroo Mother Care (KMC) were carried out at Sanjiwani Gianyar Hospital, of the 14 respondents studied, the lowest body temperature was 36.6^0C and the highest was 37.5^0C with an average body

temperature of 37.06^{0}C. The results of the analysis of the effect of the Kangaroo Mother Care (KMC) method on temperature stability in infants with low birth weight (LBW) in the Perinatology Room of Sanjiwani Gianyar Hospital using the paired t-test obtained p value = 0,000 so that the p value <0.05. This shows the effect of the Kangaroo Mother Care (KMC) method on temperature stability in LBW babies in the Perinatology Room of Sanjiwani Hospital, Gianyar.

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REFERENCES

Ageng, D. K. (2016). Gambaran Pengetahuan Ibu Tentang Perawatan Metode Kanguru (Pmk) Pada Bayi Berat Lahir Rendah (BBLR) Di Kota Semarang Tahun 2016.

Akib, A. A. P., Munasir, Z., Kurniati, N. (2010). *Alergi-Imunologi Anak*. Jakarta: IDAI.

Alya, D. (2014). Faktor-Faktor yang Berhubungan dengan Bayi Berat Lahir Rendah (BBLR) di Rumah Sakit Ibu dan Anak Banda Aceh Tahun 2013. *JurnalSekolah Tinggi Ilmu Kesehatan U'budiyah*.

Arifah, S., & Wahyuni, S. (2010). Pengaruh Kangaroo Mother Care (KMC) dua jam dan empat jam per hari terhadap kenaikan berat badan lahir rendah bayi preterm di rumah sakit. *Prosiding Seminar Ilmiah Nasional Kesehatan*, *1*(1), 35–41.

Artawan Eka Putra, I.W.G. (2011). Pengaruh perawatan metode Kanguru terhadap pencapaian berat normal pada bayi berat lahir rendah di Kabupaten Temanggung tahun 2011.*Jurnal Pasca Sarjana Universitas Indonesia*, 8, 89-94

Askin DF, W. D. (2010). The high-risk newborn and family. Retrieved from http://www.freebookcentre.net/

Bera, A., Ghosh, J., Singh, A., Hazra, A., Som, T., & Munian, D. (2014). Effect of Kangaroo mother care on vital physiological parameters of the low birth weight newborn. *Indian Journal of Community Medicine*. https://doi.org/10.4103/0970-0218.143030

Dahlan, A. K., Kusumawati, W., & Mawarti, R. (2017). Input Pelaksanaan Kangaroo Mother Care Pada Berat Lahir Rendah Di Rumah Sakit. *44 Jurnal Kebidanan Dan Keperawatan*, *13*(1).

Departemen Kesehatan RI. (2015). Profil Kesehatan Indonesia 2014. Kementerian Kesehatan Republik Indonesia. https://doi.org/10.1037/0022-3514.51.6.1173

Deslidel, Hasan, zuchrah, Hevrialni Rully, dan Sartika, Y. (2011). *Buku Ajar Asuhan Neonatus, Bayi, dan Balita*. Jakarta: EGC.

Deswita, D., Besral, B., & Rustina, Y. (2011). Pengaruh Perawatan Metode Kanguru terhadap Respons Fisiologis Bayi Prematur. *Kesmas: National Public Health Journal*. https://doi.org/10.21109/kesmas.v5i5.131

Dwi Maryati, T. S. & B. (2011). *Buku Ajar Neonatus, Bayi, dan Balita*. Jakarta: Trans Info Media.

Guyton, A. C., & Hall, J. E. (2012). *Buku Ajar Fisiologi Kedokteran*. Jakarta: EGC.

Hasanah, N., & Titik Kurniawati, L. K. (2011). Faktor-Faktor Yang Berhubungan Dengan Kejadian Bayi Berat Lahir Rendah (BBLR) Di Ruang BBRT RSUP Dr.Kariyadi Semarang.*Jurnal Akademi Kebidanan Abdi Husada Semarang*

Hidayat, A. A. A. (2014). *Metode Penelitian Kebidanan dan Teknik Analisis Data*. Jakarta: Salemba Medika.

Kementerian Kesehatan RI. (2011). Manajemen Bayi Berat Lahir Rendah Untuk Bidan dan Perawat.

Kemenkes RI. (2010). Riset Kesehatan Dasar 2010. Badan Penelitian Dan Pengembangan Kesehatan. https://doi.org/1 Desember 2013

Kosim, S., *et al*. (2010). *Buku Ajar Neonatologi* (1st ed.). Jakarta: IDAI.

Little, G. A., Keenan, W. J., Niermeyer, S., Singhal, N., & Lawn, J. E. (2011). Neonatal Nursing and Helping Babies Breathe: An Effective Intervention to Decrease Global Neonatal Mortality. *Newborn and Infant Nursing Reviews*, *11*(2), 82–87. https://doi.org/10.1053/j.nainr.2011.04.007

Mayasari Denny. (2015). Aplikasi Tindakan Perawatan Metode Kanguru Terhadap Fungsi Fisiologis Pada Asuhan Keperawatan Bayi Ny. F Dengan Kelahiran Prematur Di Ruang High Care Unit (Hcu) Neonatus Rsud Dr. Moewardi Surakarta.*Jurnal Sekolah Tinggi Ilmu Kesehatan Kusuma Husada Surakarta*

Mitayani. (2011). *Asuhan keperawatan Maternitas*. Jakarta: Salemba Medika.

Muslihatun, W. N. (2010). *Asuhan Neonatus Bayi dan Balita*. Yogyakarta: Fitramaya.

Notoatmojo, S. (2010). *Metodologi Penelitian Kesehatan.* Jakarta: Rineka Cipta

Nursalam. (2008). *Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan: pedoman Skripsi dan Tisis dan Instrumen Penelitian Keperawatan*. Jakarta: Salemba Medika

Nursalam. (2014). *Manajemen Keperawatan Aplikasi Dalam Praktik Keperawatan* Profesional. Jakarta: Salemba Medika.

Nursalam. (2017). *Metodologi Penelitian Ilmu Keperawatan: Pendekatan Praktis*. Jakarta: Salemba Medika.

Nur Sri Atik , Sri Achadi Nugraheni, K. Cahyo. (2016). Analisis Implementasi Program Perawatan Metode Kanguru (PMK) Dan Partisipasi Pasien Pada Pelayanan Kesehatan Bayi Berat Lahir Rendah (BBLR) (Studi pada Pasien di Rumah Sakit Mardi Rahayu Kudus).*Jurnal Manajemen Kesehatan Indonesia*,4(2).98-108

Pantiawati Ika. (2010). *Asuhan Kebidanan 1*. Yogyakarta: Nuha Medika.

Polit, & Beck. (2012). *Nursing Research*. Lippincott; Williams & Wilkins

Potter, P., & Perry, A. (2005). *Buku ajar fundamental keperawatan: konsep, proses, dan praktik*, Edisi 7. Jakarta: EGC.

Potter, P., & Perry, A. (2008). *Buku ajar fundamental keperawatan: konsep, proses, dan praktik*, Edisi 4 vol.1.Jakarta: EGC.

Pratiwi Anisa. (2015). Pemberian Metode Kangaroo Mother Care (Kmc) Terhadap Kestabilan Suhu Tubuh Bblr Pada Asuhan Keperawatan Bayi Ny. Y Di Ruang Hcu Neonatus Rsud Dr. Moewardi Surakarta.*Jurnal Sekolah Tinggi Ilmu Kesehatan Kusuma Husada Surakarta*

Putriana, Yeyen ., Warjidin, A. (2018). Efektifitas Perawatan Metode Kangguru (PMK) dan Terapi Murottal terhadap Peningkatan Berat Badan dan Suhu pada Bayi BBLR. *Jurnal Kesehatan (Bandar Lampung)*, *9*(1), 33–45. https://doi.org/10.26630/jk.v9i1.731

Riskesdas. (2018). Hasil Utama Riskesdas 2018. Kementrian Kesehatan Republik Indonesia. https://doi.org/1 Desember 2013

Saryono, A. (2010). *Metodologi penelitian kualitatif dalam bidang kesehatan*. Yogyakarta: Nuha Medika.

Silvia, Putri,Yelmi Reni, Gusnila, E. (2015). Pengaruh Perawatan Metode Kanguru Terhadap Perubahan Berat Badan Bayi Lahir Rendah. *Jurnal Ipteks Terapan*, *9*, 11–19. https://doi.org/http://dx.doi.org/10.22216/jit.2015.v9i1.24

Sofiani, F., Asmara, F. Y. (2013). Pengalaman Ibu Dengan Bayi Berat Lahir Rendah (BBLR) Mengenai Pelaksanaan Perawatan Metode Kangguru (PMK) Di Rumah. *Jurnal Fakultas Kedokteran Universitas Diponogoro*.

Swarjana, I.K. (2016). *Metodologi Penelitian Kesehatan (Edisi Revisi)*. Yogyakarta: Cv. Andi Offset

Wahyuni, S., & Parendrawati, D. P. (2013). Pengalaman Ibu dalam Melakukan Perawatan Metode Kanguru The Experience of Mothers in Applying Kangaroo Mother Care Method, *1*(3), 183–195.

WHO. (2015). Global status on road report 2015. World Health Organization. https://doi.org/10.1136/injuryprev-2013-040775

Yetti Anggraini. (2013). Hubungan Antara Persalinan Prematur dengan Hiperbilirubin pada Neonatus. *Jurnal Kesehatan*, *5*(2), 109–112. https://doi.org/10.1246/cl.140400

Yeyeh, Rukiyah, Yulianti, L. (2010). *Asuhan Neonatus Bayi dan Anak Balita*. Jakarta: Trans Info Medika.

Zahra, S. A., Radityo, A. N. S., Mulyono. (2018). Pengaruh Durasi Kangaroo Mother Care Terhadap Perubahan Tanda Vital Bayi. *Jurnal Kedokteran Diponogoro*, *7*(2), 1182–1191.