

## The Effect of Implementing Skin to Skin Contact on the Increase in Body Temperature of Newborn Babies with Premature

Maria Ulfah Jamil<sup>1</sup>, Novianti Rizki Amalia<sup>1</sup>, Asep Mulyana<sup>2</sup>

<sup>1</sup>Department of Midwifery, Universitas Bhakti Kencana Tasikmalaya, Indonesia

<sup>2</sup>Department of Nursing, Universitas Bhakti Kencana Tasikmalaya, Indonesia

Correspondence Author: Maria Ulfah Jamil

Email: [maria.ulfah@bku.ac.id](mailto:maria.ulfah@bku.ac.id)

Address: Cikiangir, RT/RW 004/002, Mandalaguna, Salopa, Tasikmalaya, West Java, Indonesia, +6281222513438

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### ABSTRACT

**Introduction:** Infant Mortality Rate (IMR) is a benchmark used to determine the level of health development and quality of life in a country. The occurrence of prematurity in pregnancy is caused by multiple factors: maternal factors, fetal factors, and other factors. Premature birth causes the organs of the body to not be able to function perfectly, so that the adjustment of organ function to changes in conditions from intrauterine to extrauterine is very difficult for the baby. Changes in extrauterine conditions can cause stress in premature babies. The mechanism of heat loss through evaporation is the loss of body heat through the air. Preventive efforts by midwives can prevent the risk of hypothermia in newborns with the skin-to-skin method between mother and baby, provide early initiation of breastfeeding and immediately swaddle the baby. **Objective:** The aim of this study was to determine the effect of skin to skin contact on increasing the body temperature of premature newborns. **Method:** The method used in this study is to use the PreExperiment design with One group pre-test–post-test design. The sample in this study was non-probability sampling with inclusion and exclusion criteria of 14 premature babies. **Result:** The results of this study show that there is an influence of skin to skin implementation on increasing the body temperature of premature newborns at Jasa Kartini Hospital, P-Value  $0.000 < 0.05$ . **Conclusion:** Based on the research results obtained, there is an influence of the implementation of skin to skin contact on increasing the body temperature of premature newborns.

**Keywords:** newborn, premature, skin to skin

## Introduction

Infant Mortality Rate (IMR) is a benchmark used to determine the level of health development and quality of life in a country. The IMR is the number of infant deaths in the first 28 days of life per 1,000 live births. In accordance with the health program initiated in the Sustainable Development Goals (SDGs) 2030, the third goal includes reducing the Neonatal Mortality Rate (NAR) to 12 per 1,000 live births and the Infant Mortality Rate (IMR) to 25 per 1,000 live births. Data from the World Health Organization (WHO) states that the infant mortality rate in Indonesia is still quite high, namely 27 per 1,000 live births. The Indonesian Demographic Health Survey (SDKI) states that infant mortality in Indonesia has decreased from 32 per 1,000 live births in 2012 to 24 per 1,000 live births in 2017 (Kementerian Kesehatan RI, 2018).

World Health Organization (WHO) data shows that around 15 million premature babies are born each year. Premature births range from 5-18% of all births. More than 60% of premature births occur in Africa and South Asia. In low-income countries, an average of 12% of babies are born prematurely compared to 9% in high-income countries. The countries with the largest number of premature births are India (3.5 million), China (1.2 million), Nigeria (773,600), and Pakistan (748,100) and Indonesia (675 thousand) births (WHO, 2018).

The incidence of premature babies with low birth weight (LBW) in Indonesia is still high. The prevalence of premature babies and LBW in Indonesia is around 10.2% of the total number of births, even some areas reach 17%. This figure is greater when compared to developing countries of around 5-9%. The most common causes of neonatal death are asphyxia (37%), prematurity and LBW (34%), followed by sepsis (12%), hypothermia (7%), neonatal jaundice (6%), postmaturity (3%) and congenital abnormalities (1%) per 1,000 live births (Kementerian Kesehatan RI, 2017).

A low birth weight (LBW) infant is a newborn whose birth weight is less than 2,500 grams. LBW is synonymous with prematurity. However, LBW occurs not only in premature infants but also in full-term infants who weigh less than 2,500 grams (Sinta, Andriani, Yulizawati, & Insani, 2019). Premature birth causes the organs of the body to not be able to function perfectly, so that the adjustment of organ function to changes in conditions from intrauterine to extrauterine is very difficult for the baby. Changes in extrauterine conditions can cause stress in premature babies. The stress response experienced by babies can be through physiological changes such as breathing frequency, pulse, temperature changes and behavioral responses of the baby. In addition, the stress response will have an impact on metabolism, thus affecting the growth and development of the baby. Caring for premature babies in the early days of birth is very important because the baby is still in the process of adapting to the environment.

Physiologically, LBW babies are not able to adjust to their new environment after birth, so they need proper management to avoid health problems because LBW babies are very vulnerable to infection. A warm environment is needed so that the baby is able to adapt to the environment (Solehati, Rahmat, & Kosasih, 2019). Kangaroo care method is a method technique used to care for and maintain infants born with LBW. An increase in body temperature is expected in infants under kangaroo care. Through direct contact between the skin of the mother and the baby, it has an influence on increasing the body temperature of LBW. By conduction and radiation, direct contact between the skin of the baby and the mother can help increase the baby's body temperature (Christiani, 2021).

Babies have a high potential to experience various welfare problems due to differences in conditions inside and outside the womb. These medical problems vary, ranging from problems that are not too serious to those that can eventually cause death. Premature babies are not yet able to control their body temperature optimally, and those born at full term still need to adjust to their surroundings (Yuliana, Jasmawati, & Firdaus, 2022)

The mechanism of heat loss by evaporation is the loss of body heat through the air, which can result in the baby: due to water or amniotic fluid, wetting the skin of the body to the air. Conduction from the baby in direct contact with a cooler object. Convection is called the release of body heat from the baby due to the cold air surrounding it. Radiation when the heat from the baby's body is reduced because it is exposed to a colder environment accidentally (Sarnah, Firdayanti, & Rahma, 2020).

## Objective

To determine the effect of implementing skin to skin contact on increasing the body temperature of premature newborns.

## Method

This study used a PreExperiment design with One group pre-test–post-test design. This study was conducted on one group that was given a certain treatment/intervention, which was observed before and after the intervention (Surahman, Rachmat, M Supardi, 2016). Furthermore, comparing the results of the pre and post-test. The population in this study were all premature newborns in the perinatology room of Jasa Kartini Hospital. The sample in this study was Non-probability sampling with a Consecutive sampling approach, namely this sample collection method was carried out by selecting all babies in the population that met as many as 14 premature newborns.

## Result

Table 1. Respondent Characteristics

Respondent Characteristics	Frequency	Presentation (%)
<b>Age</b>		
20-30	4	28,6
31-40	5	35,7
40-50	5	35,7
<b>Education</b>		
Elementary	2	14,2
Intermediate	11	78,5
Upper	1	7,3
<b>Work</b>		
Work	4	28,5
Doesn't work	10	71,5
<b>Parietas</b>		
Primipara	5	35,7
Multipara	6	42,8
Grande Multipara	3	21,5

Based on table 1, the distribution of respondent characteristics in terms of mother's age, the most were in the age range of 31-40 years and 40-50 years (35.7%), while the age of 20-30 years there were 4 respondents (28.6%). Based on the education of respondents with

the category of secondary education as many as 11 respondents (78.5%), basic education as many as 2 respondents (14.2%) and high education as many as 1 respondent (7.3%). Based on the characteristics of the work of the most respondents in the working category as many as 10 respondents (71.5%), while those who do not work as many as 4 respondents (28.5%). Based on the characteristics of parity, the most respondents are in the multipara category 6 people (42.8%), while primipara as many as 5 people (35.7%), and multigrande as many as 3 people (21.5%).

Table 2. Distribution of Body Temperature of LBW Babies Before and After Skin to Skin

Body Temperature	Mean	SD	Min-Max
Before Skin to Skin	36,10	0,113	36.0-36.3
After Skin to Skin	36,67	0,116	36,6-36,8

In table 2 above, it is known that the average (mean) body temperature of LBW babies before skin-to-skin treatment is 36.10 with a standard deviation of 0.113. Showing a minimum value of 36.0 and the maximum value displayed is 36.3. While the average (mean) body temperature of LBW babies after skin-to-skin treatment is 36.67 with a standard deviation of 0.116. Showing a minimum value of 36.6 and the maximum value displayed is 36.8.

Table 3. Mean Difference in Body Temperature of LBW Babies Before and After Skin To Skin

Body Temperature	Mean	Mean Difference	p-value	N
Before skin to skin	36,10	0,57	0,000	14
After skin to skin	36,67			

Based on the data above, the average mean body temperature of LBW babies before skin-to-skin care was 36.10 and after skin-to-skin care was 36.67. The table also shows the difference in the mean body temperature of LBW babies before and after skin-to-skin care, which is 0.57. The results of the statistical test obtained a p value = 0.000. This shows that p (probability) is lower than p value = 0.05. So it can be concluded that there is an effect of skin-to-skin care on increasing body temperature in premature babies.

## Discussion

The results of the study showed that from 14 babies whose body temperature was measured before skin to skin care, the average mean temperature was 36.10 with a standard deviation of 0.113. This means that the baby is still at a normal temperature, but the baby is very susceptible to a decrease in body temperature.

According to the assumption of researchers, babies born with low birth weight will have a risk of decreasing the baby's body temperature because the baby has not been able to adapt to the environment outside the womb and also its fat tissue is still lacking because this BBLR will generally not have maturity in the body's defense system because it has not been able to adapt to the surrounding environment. Babies born with low birth weight will also quickly experience hypothermia and are susceptible to infection.

These results are in line with the opinion expressed by (Sudarti & Fauziah, 2020) that babies with low birth weight will be very susceptible to disorders that will be very susceptible to limitations in adjusting their body temperature, babies will also be at high risk of experiencing hypothermia because the subcutaneous fat tissue is still very low and the surface area of the body is larger compared to babies born with a sufficient body weight in general.

That babies born with low birth weight will experience the loss of most of the heat in their bodies through evaporation, conduction, convection and radiation in their bodies (Dewi, 2019). This condition makes babies born with low birth weight very susceptible to hypothermia, so if hypothermia occurs in babies, immediate treatment is needed so that the baby does not experience more serious complications and can endanger the baby's life, by using the existing method, namely kangaroo when the baby is born, this is done because this method is very simple to do and can overcome babies with hypothermia. This theory is in accordance with the fact that babies born with low birth weight are very susceptible to hypothermia because the surface of their bodies is very large compared to their mass, thin skin, less skin fat which creates an imbalance in the formation of heat on the surface of the baby's skin (Jamil, 2017).

The results of the study showed that from 14 babies whose body temperature was measured after skin-to-skin care, the average mean temperature was 36.67 with a standard deviation of 0.116. The results of the study showed that most respondents were at normal temperatures. According to the researcher's assumption, providing skin-to-skin can help increase the baby's temperature because through skin contact the mother's body temperature is transferred to the baby so that the baby's body temperature increases. Based on research results (Ruminem, Adawiyah, Widiastuti, Sari, & Ramadhani, 2023) there is a difference in LBW body temperature before and after being given the kangaroo method treatment, and there is an effect of the kangaroo care method on the body temperature of LBW babies. This study is in line with the results of research (Hendayani, 2019) which shows that the provision of PMK can affect the increase in newborn body temperature.

In line with the opinion of (Maryunani, 2019) who said that proper care is by using skin to skin, this is a very alternative method that can replace babies who do not need to be put in an incubator. This method has a very big influence in creating a sense of security and in increasing the temperature of babies who experience hypothermia. Giving this method is a very warm treatment because there is direct contact between the baby and the mother (Skin to skin contact). Through this method, it can prevent the loss of heat from the baby through direct contact with the mother, this method is also very effective in providing what a baby needs which basically the baby needs enough warmth, breast milk from his mother, protection from infections that will occur, providing stimulation and safety for babies who feel threatened and giving full affection to the baby.

## **Conclusion**

The body temperature of premature babies before being given skin to skin care is at a minimum of 36.0 and a maximum of 36.3, The body temperature of premature babies after being given skin to skin care is at a minimum of 36.6 and a maximum of 36.8. There is an effect of giving skin to skin on increasing the body temperature of premature babies with a p-value of 0.000.

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