

Original Research

THE EFFECT OF TOUCH THERAPY ON BODY TEMPERATURE IN NEWBORNS IN THE SELE BE SOLU HOSPITAL, SORONG CITY, PAPUA, INDONESIA

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ABSTRACT

Background: Newborns are not able to regulate their body temperature directly and are quickly getting cold. If heat loss is not immediately prevented, the baby will experience hypothermia and is at risk of falling ill leading to death. Hypothermia is a decrease in body temperature below 36.5⁰C. One way to handle it is by giving touch therapy.

Objective: This study aims to analyze the effectiveness of touch therapy to stabilize baby temperature in newborns in Sele Be Solu Hospital in Sorong City, Papua Indonesia.

Methods: The study used a quasi-experimental design with pretest and posttest control group design. There were 32 patients, which 16 patients were assigned in the intervention group and the control group. Data were analyzed using Independent t-test.

Results: The results showed that there was a significant increase in the body temperature of newborns in the intervention group (p=.000).

Conclusion: Touch therapy is effective for increasing body temperature in the newborns.

Keywords: touch therapy, newborn, temperature

INTRODUCTION

Temperature is the amount of heat or coldness of an object, and a tool for measuring it is a thermometer. Under normal circumstances, the newborn's body temperature has variations depending on the time of measurement. The highest temperature is obtained in the afternoon between 17.00-19.00 WIB and the lowest temperature at midnight before morning between 02.00-06.00 WIB (Davies & Mcdonald, 2011). Newborns are not able to regulate their body temperature and can get cold quickly. If heat loss is not immediately

prevented, the baby experiences hypothermia and is at risk of falling ill until he dies. Hypothermia is a decrease in body temperature below 36.5⁰C. Normal body temperature in newborns is between 36.5 ° C-37.5 ° C (Engel, 2012).

Hypothermia can cause a variety of disorders in newborns such as disorders of the central nervous system, gradual decrease in blood pressure, disappearance of systolic blood pressure, disappearance of peripheral reflexes. The principle of difficulty as a result

of hypothermia is increased oxygen consumption (hypoxia occurs), the occurrence of metabolic acidosis as a consequence of anaerobic glycolysis, and decreased glycogen deposits with the result of hypoglycemia. Calorie loss will prevent weight gain in newborns ([Engel, 2012](#)).

Child health care efforts are intended to prepare healthy, intelligent, and qualified future generations as well as to reduce child mortality. Child health care effort is started from fetus, during birth, after birth until the age of eighteen years. Child health efforts are expected to reduce child mortality ([Aditya, 2014](#)). Indicator of child mortality is the Neonatal Mortality Rate (AKN). Infant Mortality Rate (IMR), and Underfive Mortality Rate (AKABA). A higher effort to reduce neonatal mortality (0-28 days) is important because neonatal mortality contributes to 59% of infant deaths. Based on the results of the Indonesian Demographic and Health Survey (IDHS) in 2012, the neonatal mortality rate (AKN) in 2012 was 19 deaths per 1,000 live births, infant mortality rate (IMR) is 32 deaths per 1,000 live births, under-five mortality rates (AKABA) is 40 deaths per 1,000 Births. This figure is the same as AKN based on the 2007 IDHS and only decreased by 1 point compared to the 2002-2003 IDHS which was 20 per 1,000 live births ([Indonesian Demographic and Health Survey, 2012](#)).

West Papua is a Province with the highest Infant Mortality Rate (IMR) in Indonesia at 74 deaths per 1,000 Births. The province with the second highest under-five mortality rate in Indonesia has 109 deaths per 1,000 live births. Death causes of newborns (0-28 days) are respiratory, premature and sepsis disorders. The causes of death of newborns (neonates) aged 0 - 6 days are respiratory problems (37%), prematurity (34%), sepsis (12%), hypothermia (7%), icterus (6%), post maturity (3%), and congenital abnormalities (1%). The causes of death of newborns aged 7-28 days are sepsis (20.6), congenital abnormalities (19%), pneumonia (17%), RDS (14%), prematurity (14%), icterus (3%),

disability birth (3%), tetanus (3%), nutritional deficiencies (3%), and SIDS (3%) ([Indonesian Demographic and Health Survey, 2009](#)). Infant mortality and morbidity are influenced by various factors, one of which is the condition when the baby is born. Data in Indonesia state that every year it is estimated that babies are born around 350,000 premature babies or low birth weight. The pattern of causes of death shows that the highest proportion of causes of neonatal deaths in the 0-7 day age group are premature and low birth weight (35%), then birth asphyxia (33.6%) ([Indonesian Demographic and Health Survey, 2007](#)).

The importance of maintaining a stable body temperature for newborns is an important point in improving the well-being of newborns, especially in premature babies and low birth weight. Incubators and electricity are needed in an effort to provide a stable body temperature for newborns, especially in areas far from the reach of hospitals or referral facilities. Looking at the geographical conditions of Papua, there are still many remote areas, borders, and islands (DTPK) without health facilities that provide enough incubators and electricity, then an alternative is needed to maintain the stability of the body temperature of newborns ([Engel, 2012](#)). Skin is the widest receptor, the sensation of touch or touch is one of the senses that function early. The nerve endings on the surface of the skin will react to each touch. This reaction will then send a message to the brain through nerve tissue in the spinal cord. Touch stimulates blood circulation so more fresh oxygen will be sent to the brain and throughout the body and increase energy ([Utami, 2013](#)).

Previous study ([Diego et al., 2008](#)) revealed that touch therapy in premature babies can increase body temperature compared to premature babies who were not getting touch therapy. Another study ([Hikmah et al., 2011](#)) found that touch therapy significantly increased the average temperature in the intervention group ($p = .000$). Another study stated that touch has emerged as an important

modality for the facilitation of growth and development ([Ardiel & Rankin, 2010](#)). Many studies on touch therapy in infants prove that touch therapy in infants can increase weight growth, increase temperature and make babies more comfortable and calm during sleep ([Kusumastuti et al., 2016](#); [Ramada et al., 2013](#)). Previous study ([Diego et al., 2008](#)) revealed that research on touch therapy carried out in premature infants can increase body temperature compared to premature babies who were not treated with touch therapy.

Touch Therapy performed on babies is one of the ways for parents to express love for their babies. According to dr. Hendratno Halim, a child specialist from Pantai Indah Kapuk Hospital through routine touch therapy, babies will receive two benefits at once, they are physical and psychological warmth feeling ([Ardiel & Rankin, 2010](#)). The increase in body temperature of newborns after getting touch therapy is due to the touch therapy action can facilitate the circulation of blood circulation of newborns, then the transfer of temperature from therapists to newborns and the improvement of thermoregulation in the regulation of newborn babies ([Diego et al., 2008](#)).

METHODS

Study design

This study used a quasi-experimental research design ([Burns & Groves, 2004](#)). The quasi-experimental design in the study used the type of pre test and post test control group design. The study was conducted at Sorong Sele Be Solu Hospital from May 21 to June 24, 2018.

Setting & sample

The sample in this study amounted to 32 respondents, with 16 respondents in the intervention group, and 16 respondents in the control group. The sampling technique used was a consecutive sampling, which all subjects who come and meet the selection criteria are included in the study until the

number of research subjects is met ([Nursalam, 2016](#)). The inclusion criteria of the participants were normal newborns, births with no complications, not covered by special garment to keep warm, body temperature within the limit of 36.5 oc - 37.1 C and age > 8 hours.

Instrument

This study was measured using an observation sheet and carried out 2 body temperature measurements in the morning and evening in 1 day. Temperature measurement via axilla using a digital thermometer.

Intervention

Before giving intervention, body temperature measured 2 times, in the morning and in the evening a day. Measurement through axilla using a digital Thermometer, then the results were recorded on the observation sheet. Touch therapy was given to the intervention group for 10 minutes 2 times a day (morning and evening), the steps were as follows ([Nursalam, 2016](#)): (1) Making eye contact and talking with the baby to make the baby feels calm, (2) Removing baby clothes and letting the baby keeps using diapers, hats and blankets, (3) Doing light sweeping without emphasis, and not immediately rub the baby's body so the baby was not surprised and relaxed first by touch. And ensuring the baby's body was not directly exposed to room temperature, (4) Each swipe area was carried out 20 times. Starting touching the face and forehead area, rubbing the forehead with an ironing motion. Using the thumb swab the top towards the forehead. Using right and left hand's index finger to wipe from the top of the nose to the bottom. Touching the lips using the index finger starting from the middle of the upper lip swabs to the tip of the lips. Using two fingers and placing it under the lips, then making a circular motion. Touching the ear by gently pressing the upper to lower ear lobes. Wiping the baby's chest with the knuckles of both palms soft and without emphasis starting from the middle towards the shoulder, wiping the upper arm to the wrist, using thumb to do a swab on the palm with a circular motion. Next,

doing swabs with palms from the groin to the ankles, wiping the back of feet from the base to the tips of fingers using thumb, then wiping feet from the heel to the toes. The last session, stop the touch slowly and softly. After given the intervention, the body temperature was measured in 16 infants in the axillary using a digital thermometer. The control group was not given an intervention, which the body temperature of the infants was immediately measured 2 times, namely morning and evening in one day, and the results were recorded on the observation sheet.

Data analysis

The data of this study were processed with statistical programs. Data were tested for normality before further analysis. Univariate analysis was carried out to describe the characteristics of each variable, namely mother's age, mother's education, mother's work, and the sex of the baby. The results of data analysis were in the form of frequency

distribution for univariate maternal age, maternal education, maternal occupation, and gender. Bivariate analysis with Independent t-test was carried out to prove the hypothesis that had been formulated, namely whether there were differences in the two groups.

Ethical consideration

The study was conducted after obtaining ethical feasibility recommendations from the Sorong Health Polytechnic Ethics Health Commission.

RESULTS

Based on table 1, it can be seen that of the 32 respondents, most of the parents of respondents had a low risk of 27 people (84.40%) more than their parents. A low risk means that majority the parents are under 40 years old. And the majority of the respondents were female (59.40%)

Table 1 Distribution of frequency based on the age and gender of respondents (n=32)

Age	N	%
High Risk	5	15.60
Low Risk	27	84.40
Gender	N	%
Male	13	40.60
Female	19	59.40

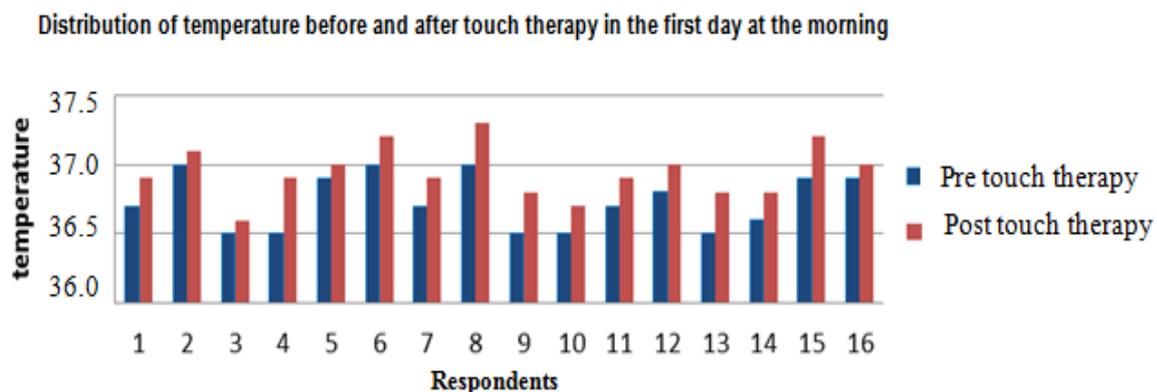


Figure 1 Distribution of temperature before and after touch therapy in the first day at the morning in the intervention group (n=32)

Figure 1 shows that before giving touch therapy the body temperature of the intervention group was lower than after giving touch therapy in the first day at the morning, which indicated that all respondents' body

temperatures were increased after giving touch therapy. Figure 2 shows that most of respondents' body temperature had the same temperature or the average body temperature were no increased at the control group.

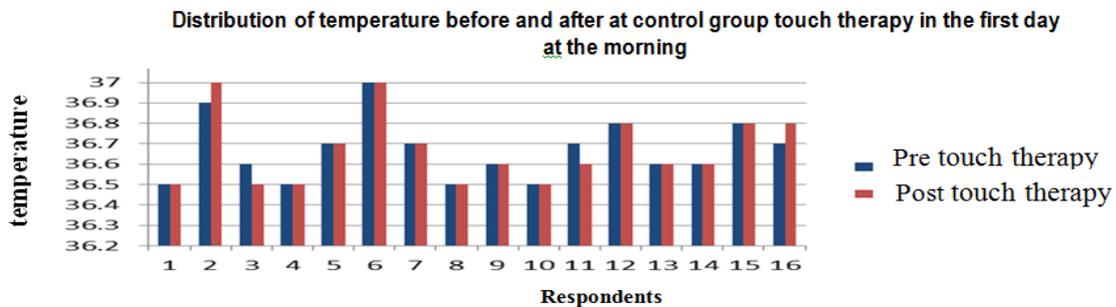


Figure 2 Distribution of body temperature in the control group (n=32)

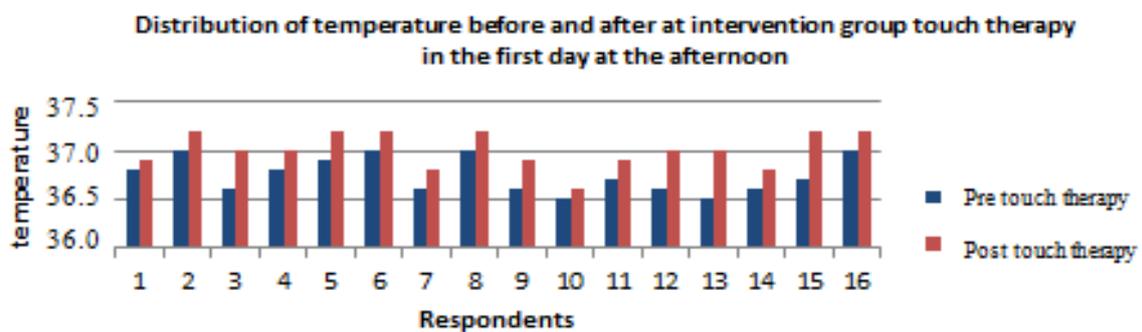


Figure 3 Distribution of temperature before and after touch therapy in the first day at the afternoon in the intervention group (n=32)

Figure 3 shows that before giving touch therapy the body had lower temperature than after giving touch therapy in the first day at the afternoon. This indicates that the body temperature in the intervention group were

increased after giving touch therapy. And Figure 4 shows that the average of respondents' body temperature were no increased at the control group in the first day at the afternoon.

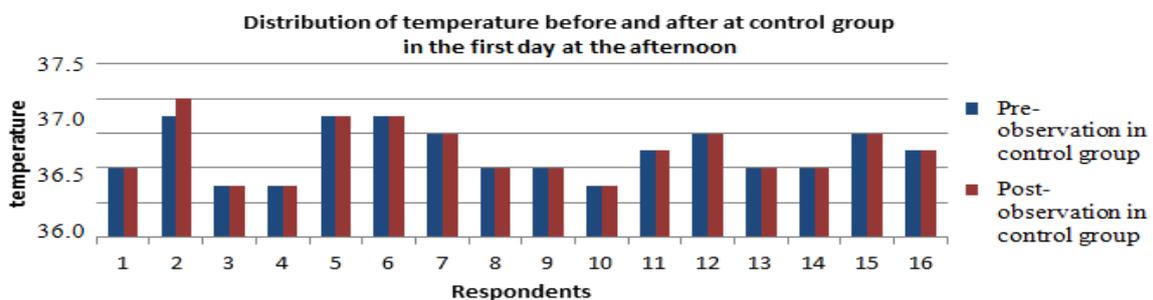


Figure 4 Distribution of temperature before and after touch therapy at the control group in the first day at the afternoon (n=32)

Differences in body temperature between intervention and control group

There was an increase in body temperature in the intervention group after giving touch therapy (mean=.2563, SD=.10308), whereas in the control group there was no increase in body temperature (mean=.000, SD=.07303). However, the Independent-t-test showed a significant mean difference between the intervention group and the control group (p=.000).

DISCUSSION

Findings found that there was a significant difference between the baby's body temperature between the intervention and control group. The results of the analysis showed that the effective touch therapy can maintain the stability of the body temperature of the newborn with the value of the analysis (p=.000).

This result is related to the center of regulation of the human body in the hypothalamus. If the hypothalamus is disturbed then the mechanism of regulating body temperature will also be disrupted and affect the thermostat of the human body. The part of the brain that affects the regulation of body temperature is in the anterior and posterior hypothalamus. The anterior hypothalamus (AH / POA) plays a role in increasing heat loss, vasodilation and causing sweating ([Aditya, 2014](#); [Pratyahara, 2012](#)).

Our study result is in accordance with the results of previous study ([Diego et al., 2008](#)), which proven that touch therapy carried out in premature infants could increase body temperature compared with premature babies who were not getting touch therapy. Research ([Hikmah et al., 2011](#)) found that touch therapy significantly increased the average temperature in the intervention group (p < .000). This was in accordance with the opinion of ([Diego et al., 2008](#)), which says that the increase in body temperature of newborns after getting touch therapy is due to

the touch therapy action which can facilitate the circulation of blood in the newborn baby, then the transfer of temperature from the therapist to the newborn and improvement in thermoregulation arrangements temperature in the box of a newborn baby. The results of the study ([Diego et al., 2008](#)) also revealed that research on touch therapy carried out in premature infants can increase body temperature compared to premature babies who were not treated with touch therapy.

The results of the study can be used as an input and insight in improving health services for newborns, by providing the application of touch therapy to infants. It is expected that this study can add the insight of knowledge and motivate mothers to keep the stability of the temperature for the newborns. The results of the study can also be used as the basis for further research using touch therapy and adequate sample quantities and can apply touch therapy as an alternative to maintain.

CONCLUSION

Based on the findings of this study, it can be concluded that the provision of touch therapy to newborns is effective in maintaining the stability of the body temperature of newborns. Therefore, the touch therapy can be one of the techniques that can be applied by health workers with the aim of stabilizing the body temperature of newborns.

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