

# The Effect Of Shallot Compress On Reducing Body Temperature In Babies With Fever At PMB Wanti Medan

Elya Rosa Br. Sembiring<sup>1</sup>, Syahroni Damanik<sup>2</sup>, May Frinsiska Siahaan<sup>3</sup>, Marlina<sup>4</sup>, Marfuah<sup>5</sup>

<sup>1,2,3</sup>Undergraduate Study Program in Midwifery and Midwifery Profession, Faculty of Pharmacy and Health, Institut Kesehatan Helvetia Medan

<sup>4</sup>S1 Public Health, Bachelor of Public Health Study Program, Faculty of Public Health, Institut Kesehatan Helvetia Medan

<sup>5</sup>D3 Midwifery, D3 Midwifery Study Program, Institut Kesehatan Bina Husada Serang  
[elyarosa@helvetia.ac.id](mailto:elyarosa@helvetia.ac.id)

## ABSTRACT

According to the Medan City Health Office in 2022, out of 7 Health Centers in Medan City, the highest number of children visiting for fever was 1,994 children. Fever can be treated non-pharmacologically by compressing red onions because red onions contain organic sulfur compounds, namely Allicysteine sulfoxide (Alliin). The purpose of this study was to determine the effect of red onion compresses on reducing body temperature in babies with fever at PMB Wanti in 2025.

The design of this study is a quasi-experiment with one group pre-test post-test. The population is 10 respondents and samples using accidental sampling, namely 10 respondents. The data was used using primary and secondary data. Data analysis using univariate and bivariate using non-parametric with sample T-test.

The results of the study showed that there was an effect of red onion compresses on reducing the body temperature of babies with fever at PMB Wanti. The year 2025 with a p-value of  $0.000 < 0.05$ .

Conclusion: There is an effect of red onion compresses on reducing the body temperature of babies with fever at PMB Wanti. Year 2025. It is expected that health workers, especially midwives at PMB, will provide education and knowledge to mothers who have babies so that they can provide red compresses as initial treatment for children with fever.

**Keywords:** Baby, Compress, Onion

## INTRODUCTION

Every parent wants their child to be healthy, and the most common health problem in children is the presence of fever symptoms caused by an infection from the disease suffered by the child. The disease suffered with the occurrence of fever is a symptom of the disease that occurs in the child's body.

Fever is a condition of body temperature above normal as a result of an increase in the temperature control center in the hypothalamus. Most fevers are in the heat center (thermoregulation) in the hypothalamus. Diseases characterized by fever can attack the body's system. In addition, fever may play a role in increasing the development of specific and nonspecific immunity in helping recovery or against infection. (1).

According to the World Health Organization (WHO) Based on data on fever in children in 2020, the number of cases of fever in children worldwide reached 17,000,000 with an incidence of 16,000,000-33,000,000 and a death rate of 500,000 - 600,000 each year. This is a special concern, considering that toddlers are still very vulnerable to disease. (2).

According to predictions *United Nations Children's Fund* (UNICEF), no less than 12,000,000 children die each year from fever. The world's fever incidence is predicted to be 4 to 5 percent of the total population of the United States, South America, and Western Europe. While the Asian fever incidence is higher. Furthermore, in Japan, there are reports of 6% to 9% of events., India 5% to 10%, and Guam 14%. In addition, as many as 559 million children in the world are currently exposed to heat waves with high frequency of occurrence. South Asia has the highest percentage of children exposed to extremely high temperatures, compared to all other regions, according to UNICEF analysis(3).

According to UNICEF's 2021 Children's Climate Risk Index (CCRI), children in Afghanistan, Bangladesh, India, the Maldives, and Pakistan are at 'very high risk' of the impacts of climate change. (3). Because children cannot adapt quickly to temperature changes, they cannot get rid of excess heat from their bodies. This can lead to symptoms and illnesses such as higher body temperature (fever)(4).

Based on statistical data from the 2018 Indonesian Basic Health Research, it shows that signs and symptoms of fever in children include upper respiratory tract infections (12.8%), pneumonia (48%), malaria 0-11 months (0.1%), 12-59 months (0.6%), 5-9 years (1.0%), 10-14 years (0.5%)(5). According to the Ministry of the Republic of Indonesia in 2023 in Indonesia, fever is still the highest cause of death in children aged 12-59 months. Infection is a contributor to death in children aged 29 days-11 months according to data from the Ministry of Health of the Republic of Indonesia in 2020. (6).

According to data from the Medan City Health Office in 2022, 7 Health Centers in Medan City, the Health Centers recorded that they had the highest number of visits by children, namely 3,999 children who had fever and various other infectious diseases. The Health Office data shows that the incidence of fever in children was 1,994 children. In 2021, the

number of children with fever in Medan was recorded at 1,546 children and there was an increase in 2023(7).

Fever is a condition in which body temperature increases above normal temperature. Normally, a person's body temperature is in the range of 36.5-37.50C and is said to be a fever if the body temperature is >37.50C. Fever is caused by an increase in the temperature control center in the hypothalamus which is influenced by interleukin. Fever occurs as a reaction from the immune system to fight viral, bacterial, fungal, or parasitic infections. Fever is also related to weather exposure, high or low temperatures, excessive activity and response after immunization, and the side effects of certain drugs are also causes of fever. (8).

Fever is a condition where the body temperature increases above normal. Generally, antipyretic drug therapy is given to reduce the fever. (9). Fever in children can cause anxiety and fear in mothers, known as fever phobia. Fever phobia is a common problem in various countries that is common in mothers. This fear causes parents to give excessive care to children with fevers. Handling children with fever is very dependent on the role of parents, especially mothers. The role of mothers in handling fever in children is to avoid complications. Fever in children can cause complications of febrile seizures and dehydration, which can threaten the child's safety, such as seizures and decreased consciousness if not treated quickly and appropriately. (10).

Children who have a fever if not treated can cause dehydration due to lack of fluids in the body. Fever above 400C can damage nerves and cause febrile convulsions so it is important to treat children with fever immediately and appropriately. There are various ways to treat fever, one of which is the traditional way of compressing red onions. (11). Treatment for fever can be pharmacological, non-pharmacological, or a combination. Pharmacological action is through the administration of antipyretics. Then non-pharmacological is a supporting action after the administration of antipyretics. This action includes giving the child a lot of drinks, adjusting the room temperature so that it is at a normal temperature, not wearing thick clothes, and compressing the child with warm water. (12).

The non-pharmacological action methods include conduction and evaporation. This method utilizes warm water compresses and utilizes various traditional medicines. One of the traditional medicines that can be utilized is red onion. This is because red onion contains organic sulfur compounds, namely Allicysteine sulfoxide (Alliin). Crushed red

onion will release the enzyme allinase which functions as a catalyst for alliin which will react with other compounds such as skin which functions to destroy blood clots or will smooth blood flow in the body(13). The essential oil content in shallots can also smooth blood circulation so that blood circulation becomes smooth. Other contents of shallots that can lower body temperature are phlorogusin, cycloalkane, metallic, and kaempferol(14). Scientifically, the content of organic sulfur compounds, namely Allylcysteine Sulfoxide (Alliin), can reduce fever by destroying the formation of blood clots so that blood circulation becomes smooth and heat from within the body can be channeled to the peripheral blood vessels. Other contents of shallots that can lower body temperature are essential oils, phlorogusin, cycloalkane, methylation, kaempferol, and quercetin. The content of aspirin as an external medicine functions to widen capillary blood vessels and stimulate sweating. Rubbing shallots all over the body will cause strong vasodilation of the skin, which accelerates the transfer of heat from the body to the skin. The flavonoid phytochemical compounds found in shallots have anti-inflammatory and antipyretic effects, working as cyclooxygenase (COX) inhibitors that trigger the formation of prostaglandins. Prostaglandins play a role in the inflammatory process and increase body temperature which will result in fever. (15)

Rubbing red onion on the surface of the skin causes the veins to change size which is regulated by the anterior hypothalamus to control heat release, resulting in dilation of blood vessels and inhibition of heat production. Blood is redistributed to the surface of blood vessels to increase heat release. The occurrence of this dilation of blood vessels causes heat release through the skin to increase, 4 pores to enlarge, and heat release through sweating which is expected to result in a decrease in body temperature to return to normal. (16).

Onion compresses are the safest alternative because they are considered safer for children and use natural ingredients that are easy to obtain. In addition, onions contain alkaloids that have antipyretic properties. These compounds can reduce fever and act as natural antibiotics against the germs that cause it. (17).

Based on the results of a study conducted by Rindiani, et al. in 2023, the average body temperature of children before being given warm water compresses and aloe vera was 37.9 0C. After being given a warm water compress, the average body temperature of children was 36.73°C, and the body temperature of those who received aloe vera compress treatment was 37.9°C on average. This indicates that there is a difference in effectiveness

between warm water compresses and aloe vera compresses in children with fever, namely warm water compresses are effective(18).

Based on Hati's 2021 research, the results showed that onion compresses lower body temperature to normal temperature faster than aloe vera and warm water compresses. This is found in the results of the study where the average body temperature of respondents before being given warm water and onion compresses was 37.90C. After being given a warm water compress, the average body temperature was 37.60C and 37.90C. Meanwhile, the average body temperature after being given an onion compress was 37.50C(19).

Based on the background above, it can be seen that onion compress is one of the treatment interventions because it has high effectiveness and does not cause side effects on babies. Based on the survey results at PMB Wanti, every month there are 11-15 babies brought by their parents for treatment because of fever. Based on the initial survey that was conducted by interviewing 5 mothers who have babies with fever at PMB Wanti, it was found that 3 mothers said that when their babies had a fever, they treated them by giving compresses using bye-bye fever and if it was still high, the mother gave fever-reducing syrup provided by Pmb. While 2 mothers said that when the baby has a fever, give a compress with warm water. When asked about the use of shallots, 4 mothers did not know that shallots can be used to compress when a child has a fever. Given the background, the researcher studied "The Effect of Shallot Compresses on Reducing Baby's Body Temperature During Fever at PMB Wanti".

## **RESEARCH METHODS**

The type of research used is a quasi-experimental method (Quasi Experiment) with one group pre-test post-test without control design. This research will be carried out at PMB Wanti. The population in this study was all babies with fever who came to the hospital.PMB Wantias many as 10 pregnant women experienced anemia. Sampling using purposive sampling, namely where respondents who come to PMB Wanti are following the research criteria. Data collection is carried out using questionnaires and observations. Secondary data is data from PMB Wanti, data on infant fever in Medan City, and others. Tertiary Data is data obtained from published manuscripts, for example, WHO, Ministry of Health. Data analysis is univariate and bivariate.

## **RESULTS AND DISCUSSION**

**Characteristics**

**Table 1.** Distribution of Age CharacteristicsBaby in PMB Wanti 2025

No	Baby Age	Frequency	Percentage (%)
1	0-6 Months	3	30
2	7-12 months	7	70
<b>Total</b>		<b>10</b>	<b>100</b>

Based on the table above, it shows that the frequency distribution of babies aged 0-6 months is 3 people (30%) and those aged 7-12 months is 7 people (70%).

**Univariate Analysis**

**Table 2.** Decrease in Baby's Body Temperature Before and After AdministrationRed Onion Compress

Pre Child Body Temperature	Category	Child Body	
		Temperature Post	Category
38.30C	Fever	37.60C	Fever
39.10C	Fever	38.30C	Fever
38.30C	Fever	37.00C	No Fever
37.90C	Fever	36.90C	No Fever
38.70C	Fever	37.90C	Fever
38.50C	Fever	37.60C	Fever
38.40C	Fever	38.00C	Fever
38.10C	Fever	37.00C	No Fever
39.00C	Fever	38.00C	Fever
38.70C	Fever	37.30C	No Fever

Based on table 2. above, shows that the body temperature of babies with fever before being given a red onion compress was 10 people (100%) and after being given a red onion compress, 6 people (60%) still had a fever and 4 people (40%) did not have a fever.

**Univariate Analysis**

**Table 3.** The Effect of Red Onion Compresses on Reducing Baby's Body Temperature During Fever at PMB Wanti

Variables		Intervention			P
		Mean	Difference	SD	
Baby's Body Temperature	Before	38.50	0.94	0.380	0,000
Decrease During Fever	After	37.56		0.492	

Based on table 4. Decrease in Body Temperature of Babies with Fever at PMB Wanti before being given a red onion compress with an average temperature of 38,500C, after being given a red onion compress the average temperature was 37,560C with a difference of 0.94.

The Effect of Red Onion Compresses on Reducing Baby's Body Temperature During Fever at PMB WantiYear 2024, the results of the statistical test with a simple t-test obtained a p-value of  $0.000 < 0.05$ , which indicates that there is an effect of red onion compresses on reducing the body temperature of babies with fever.

## DISCUSSION

### The Effect of Red Onion Compresses on Reducing Baby's Body Temperature During Fever at PMB WantiYear 2025

Based on the table of Body Temperature Decrease in Babies with Fever at PMB Wanti before being given a red onion compress with an average temperature of 38,500C, after being given a red onion compress the average temperature was 37,560C with a difference of 0.94.

The Effect of Red Onion Compresses on Reducing Baby's Body Temperature During Fever at the PMB Wanti ClinicYear 2025, the results of the statistical test with a simple t-test obtained a p-value of  $0.000 < 0.05$ , which indicates that there is an effect of red onion compresses on reducing the body temperature of babies with fever.

Medhyna's research (2020) entitled The Effect of Red Onion Compresses on Reducing Baby's Body Temperature During Fever After Immunization in the Work Area of the Pagar Ayu Village Health Center, Musi Rawas. The results of the study showed that a p-value of 0.000 was obtained, meaning that there was an effect of red onion compresses on

reducing a baby's body temperature during fever after immunization in the work area of the Pagar Ayu Village Health Center, the conclusion was that red onion compresses affected reducing baby's body temperature during fever after immunization in the work area of the Pagar Ayu Village Health Center, Megng Sakti District, Musi Rawas Regency in 2020. (20).

Noviyanti's research (2021) entitled Giving Red Onion Compresses to Reduce Fever in Toddlers. This study uses descriptive qualitative research with a case study research type. The results of the study after conducting an assessment, intervention, and evaluation showed that there was an effect of giving red onion compresses on reducing fever in toddlers. (21).

Juniah's research (2022) on the Effect of Red Onion Compresses on Lowering Body Temperature in Children with Hyperthermia. The results of the study showed that red onion compresses were carried out at 36.00C on children with hyperthermia. There was a difference in the effectiveness of red onion compresses on hyperthermia problems in children, it turned out that red onion compresses were more effective in lowering body temperature in children. (22).

Veronica's research (2022) entitled Giving Shallots for Fever in Babies. The results of the study showed that there was a decrease in body temperature of fever in babies Mrs. C, Mrs. P, and Mrs. M. So according to the author, giving shallot compresses to babies is very effective in reducing fever compared to using pharmacological therapy considering the very young age of the babies. (23).

Logayah's research (2023) entitled Effectiveness of Red Onion Compresses and Warm Compresses on Reducing Body Temperature in Infants After DPT Hb Immunization at Sukahurip Health Center, Garut Regency in 2023. The results of the study showed that there was a difference in the speed of heat reduction in body temperature in infants after DPT HB immunization with a time difference of 1 hour, for red onion compresses it took 1 hour to reduce the body temperature of infants after DPT HB immunization, while warm compresses took 2 hours to reduce the body temperature of infants after DPT HB immunization. (24).

Fever is not a disease, but fever is a sign or symptom of a disease. Some diseases that are manifested by fever or increased body temperature are mainly infectious, dehydration, disorders of the heat regulating center, and poisoning including drug poisoning, immune processes, and so on. (8). In general, fever is not dangerous, but high fever can be

dangerous for children. The planning stage in reducing fever is made according to the action plan that has been made, by paying attention to the patient's needs, and made according to the problem or diagnosis that has been established. Researchers focus on controlling the patient's body temperature by providing non-pharmacological actions of red onion compresses and collaboration in providing antipyretics. (25).

Shallots are plants that play a role in making various dishes on the dining table delicious. In addition, its properties and benefits have now been widely studied. In terms of health, shallots are believed to be a cure for various minor illnesses such as colds, fever, coughs, and runny noses. Shallots that have many properties can reduce fever because they contain alliin as an antibiotic, flavonoids as antioxidants, adenosine as an anti-inflammatory, cycloalkane can lower body temperature, essential oils that function to smooth blood circulation so that blood circulation becomes smooth, and organosulfur which can prevent blood cell clotting. (26).

Red onions contain organosulfur compounds, namely allylcysteine Sulfoxide (Aliin), which break down blood clots. This makes blood circulation smooth, so that body heat is more easily distributed to the peripheral blood vessels. Red onions, apart from being a traditional medicine, are also easier to obtain, and do not contain chemicals so they do not cause side effects.. Red onion compress is given to children with fever by grating 5 cloves of red onion, then rubbing the grated red onion into the child's armpit for 10 minutes for one treatment. Overall, the procedure went well because in planning the author conducted research as much as possible based on the needs and conditions of the patient. During the process of giving therapy, attention must also be paid to the child's clothing, when the child has a fever, try to make the child wear thin clothes because thick clothes will increase the increase in body temperature in children with fever.

Increased body temperature in children greatly affects the physiology of their organs, because the surface area of the body is relatively small compared to adults, causing an imbalance in their organs. Excessive increases in body temperature can cause dehydration, lethargy, and loss of appetite, which can lead to decreased food intake, including life-threatening seizures, and developmental disorders in children. (27).

The Infant Mortality Rate (IMR) shows that neonates in a country receive poor health services. The temperature of the 3 babies studied dropped on the first day of fever until the third day after treatment. It can be said that red onions work effectively to lower body temperature in children with fever. (28).

Red onions have many active ingredients in them including as antimicrobials which are believed to be able to fight various infections that occur. Red onions have a therapeutic effect to reduce fever in children where one of the active ingredients is as an antimicrobial and anti-inflammatory. Red onions have an antibacterial effect that can inhibit bacterial growth and have a much wider spectrum for both gram-positive and gram-negative bacteria. Apart from several scientific explanations related to red onions, parents have believed in red onions as one of the alternative therapies that have been carried out since the past until now(8).

According to the researcher's assumption compresses using red onions are very effective in lowering children's body temperature among other actions. This highlights the potential of onion compress as a simple non-pharmacological home remedy for fever in children. Of the 10 respondents, 10 respondents experienced a decrease in the baby's body temperature, but 4 respondents did not have a fever with a temperature below 37.5 degrees Celsius, while the other 6 still experienced a decrease in body temperature but the temperature was still above 37.5 degrees Celsius, if seen from the average difference in baby's body temperature before being given an onion compress of 38.50 degrees Celsius and after being given an onion compress, the average baby's body temperature was 37.56 degrees Celsius with a difference of 0.94 so that it can be seen that there is an effect of decreasing the baby's body temperature before and after being given an onion compress. The decrease in the baby's body temperature after being given an onion compress can be caused by several factors that affect the decrease in temperature, namely the child's age which greatly affects the body's metabolism due to hormonal mechanisms so that it has an indirect effect on body temperature.

The body's mechanism that affects body temperature increases due to the reaction of alien which can dissolve blood clots and essential oils that can increase blood vessel circulation so that vasodilation occurs from red onions caused by inhibition of the sympathetic center in the posterior hypothalamus which causes vasoconstriction so that strong vasodilation occurs in the skin, which allows acceleration of heat transfer from the body to the skin up to eight times more, because the transfer of heat from the body to the skin so that the body sweats, sweating through the skin occurs as an effect of increasing temperature that passes the critical limit.

Sweating causes a 1° increase in body temperature, which will cause a large amount of sweating to be able to remove body heat produced from basal metabolism 10 times greater.

Sweating is one of the body's mechanisms when the temperature rises beyond a critical threshold, several heat-forming mechanisms, such as chemical thermogenesis and shivering are strongly inhibited. The body's mechanisms when body temperature decreases are: (vasoconstriction) which occurs due to stimulation of the sympathetic center of the posterior hypothalamus, increased heat production by the metabolic system through the shivering mechanism, heat production due to sympathetic stimulation, and increased thyroxine secretion.

## **CONCLUSION AND SUGGESTIONS**

### **Conclusion**

Decrease in Baby's Body Temperature During Fever still feverish 6 people (60%) and not feverish 4 people (40%). There is an effect of red onion compress on decreasing a baby's body temperature during fever at PMB WantiYear 2025, the results of the statistical test using the simple t-test obtained a p-value of  $0.000 < 0.05$ .

### **Suggestion**

It is expected that respondents will apply the application of red onion compresses to reduce the baby's body temperature during the next fever or can provide it to the family so that they can anticipate a fever that occurs at night so that the first thing to be given is a compress using red onions.

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