

Effect of onion compresses on feverish children aged 2-10 months after DPT immunization

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ARTICLE INFORMATION

Article history

Received September 15, 2022

Revised January 10, 2023

Accepted January 10, 2023

Keywords: Children with fever, Post-immunization DPT, Onion compress

ABSTRACT

Introduction: Fever felt by children aged 2-10 months after DPT immunization is caused by the body's reaction to bacteria or viruses that enter the body respondents by injection after vaccination. To overcome this, parents, especially mothers, gave paracetamol drugs, but because of the limited drugs from the Integrated Healthcare Center. **Objective:** Knowing the effect of giving shallot compresses on children with fever aged 2-10 months after immunization at Posyandu Kp. Kadu Rt. 003A/001. **Method:** This study uses a quasi-experimental design in one pre-test and post-test group. The sample in this study was 60 respondents. The measurement of body temperature before the intervention of giving red onion compresses resulted in hyperthermia of 46 respondents, 76.7%. Whereas after being given the intervention of giving onion compresses, expected results were obtained for 52 respondents 86.7%, and hypothermia for eight respondents 13.3%. This study uses sampling techniques and for this study using random sampling samples. **Results:** The Wilcoxon Signed Ranks Test $Z = -5.962^b$ statistic and the P-value result of 0.000 (<0.05) H_0 are rejected. It can be concluded that "Ha is accepted," which indicates the hypothesis is accepted and means there is a difference before and after being given onion compresses. **Conclusions:** There are differences in the results of the administration of compressed shallots before and after the intervention. From this, it can be concluded that the giving onion poultices are effective in children with fever aged 2-10 months after immunization at Posyandu Kp. Kadu Rt. 003A/001.

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Website: <http://ejournal.umm.ac.id/index.php/keperawatan>
E-mail: journal.keperawatan@umm.ac.id

1. Introduction

According to the World Health Organization (WHO), fever cases worldwide in 2020 will reach 11-20 million, with an estimated 128,000 to 161,000 deaths annually. It is estimated that 800,000 to 100,000 people suffer from fever yearly in Indonesia. Cases of fever in children range from 91% aged 3-19 years (WHO, 2020). DPT vaccination for children is required to protect against disease from within the body; DPT can cause fever in children after being vaccinated. For initial action in dealing with child fever, provide an intervention with red onion compresses to reduce the body temperature of children with fever.

In Angola, vaccination coverage is only 37%, higher among children under 3 1 year of age (52%) (Medhyna & Putri, 2020). Based on data collected by UNICEF, 1.3 million children fail to achieve the entire Outcome each year. As a result, 30,000 children die of measles: every year, more. Worldwide assessment coverage based on WHO estimates (2013), DPT3 84%, polio three doses 84%, measles one dose 84%, hepatitis B dose coverage 81%, and 25 countries have not achieved neonatal maternal lockjaw elimination. There are 21.8 million children under the age of 1 year who have not been vaccinated against DPT3 worldwide, which results in them being susceptible to the disease. DPT vaccination can cause fever after being given vaccination. Treat fever as an initial action by giving red onion compresses. And nearly 70% of these children's rear dilators are in Kango, Ethiopia, India, Kenya, Mexico, and Nigeria, coming from 10 countries Pakistan and Vietnam, South Africa, and Indonesia (Medhyna & Putri, 2020)

Vaccinated children are protected against Dangerous diseases that lead to disability or death. Immunization is one of the most cost-effective (and cheapest) health interventions because it reduces morbidity, disability, and disability deaths yearly (Medhyna & Putri, 2020). In this study examining children who had been given DPT immunization, there were several

children who, after being given DPT immunization, experienced an increase in body temperature. For initial action in dealing with increased body temperature giving paracetamol, but there were limited drugs to lower the child's body temperature, which increased given red onion compresses as an initial action.

The World Health Organization (WHO) estimates that the number of fever cases worldwide ranges from 16 to 33 million, with 500 to 600 deaths per year (Setiana, 2017)

The number of people with fever and fever in Indonesia is higher than in other countries, around 80% to 90%. (Kemenkes, 2017)

Onion compresses affect body temperature in children with fever because the content of shallots contains an organic sulfur compound, namely Allylcysteine Sulfoxida (Allin), which can reduce fever by destroying the formation of blood clots so that blood circulation becomes smooth and warm in the body. The content of other onions that can lower body temperature is essential oil. So that it can be used as first aid if you have a fever. The bivariate analysis showed significant 0.000 p-values ($p < 0.005$). That is, there is a difference in body temperature before and after being given the onion compress intervention. That is the result of research (Cahyaningrum & Putri, 2017).

The study results showed that the average body temperature of children with fever after giving onion compresses was at a minimum temperature of 36.3 ° C and a temperature maximum of 37.2°C. After being compressed with shallots, respondents experienced a decrease in temperature and returned to normal. and 37.2°C (Cahyaningrum & Putri, 2017).

Onion compress is a given procedure to the patient to lower or reduce the body temperature. As with the usual compresses, onion compresses work by sending impulses to the hypothalamus that environment hot around. This situation will result in the hypothalamus responding by setting a higher body temperature by reducing body heat production and conversion (Guyton & Hall, 2012).

The results of a preliminary study conducted on the onion compress technique to overcome an increase in body temperature of 15/30 and the administration of paracetamol to reduce body temperature increased by 15/30, as a result of the application of shallot compression to reduce body temperature by 50%. The general objective of this study was to determine the effect before and after giving red onion compresses to children with fever after DPT immunization at Posyandu Rt 003/001.

2. Methods

This type of research uses a quasi-experimental design made in one pre-test and post-test group (Notoadmodjo, 2018). Previously, researchers would conduct an intervention to conduct a pre-test to determine the child's post-immune body temperature after being given an intervention in the form of onion compresses. Then, after giving the onion compress, a post-test was carried out by measuring body temperature. This research was conducted at Posyandu Kenanga II. This research was conducted in June-August 2022. This sample was taken using simple random sampling. The researchers used children with fever aged 2-10 months at Posyandu Kenanga II in Kp. Kadu Rt 003A/001 the Year 2022, namely 60 Respondents. Previously measuring body temperature before giving onion compresses obtained hyperthermic results in as many as 46 respondents 76.7%, while measuring body temperature after being given the intervention of giving onion compresses.

The type of instrument used in this study was measuring temperature using a thermometer and an observation sheet to record the child's temperature before and after giving the onion compress. In sliced or grated (mashed) shallots, sliced shallots can release the enzyme alliinase, which can be used as a catalyst for shallots that can react with other compounds, such as skin, so that this red onion can be used as a compress to reduce body temperature with a fever. To measure body temperature, you can use a digital thermometer and a mercury thermometer.

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3. Results and Discussion

The results of the study will be explained in two parts, namely univariate analysis, which describes the average before and before giving red onion compresses. In contrast, the bivariate analysis explains whether there is an effect on giving red onion compresses to children with fever after exercise at Posyandu Kp. Kadu Rt 003A/001.

Characteristic		Frequency	Percentage %
Age	2 Months	9	15.0%
	3 Months	9	15.0%
	4 Months	14	23.3%
	5-10	28	46.7%

Figure 1. Characteristics of respondents based on age in the red onion (Allium ascalonicum L)

From picture 1, the results of the age characteristics of children who received the most DPT immunization at the age of 5-10 months were 28 children (46.7%), at the age of 4 months there were 14 children (23.3%), while at the age of 2 months and 3. month, there are nine children (15,0%).

Gender	Female	29	48.3%
	male	31	51.7%

Figure 2 Characteristics of respondents based on gender in giving red onion compress (Allium ascalonicum L)

The results of this study were that the gender in this study was 31 children (51.7%) male, while 29 children (48.3%) were female.

Table 1 Distribution of Body Temperature Frequency Before Giving Shallot Compress

Before the red onion compress	Pre-test	
	N	(%)
Hyperthermia	46	76.7
Normal	9	15.0
Hypothermia	5	8.3
Amount	60	100.0

Table 1 shows the results of body temperature measurements carried out before the intervention by the administration of onion compresses. The results for the hyperthermia category were 46 respondents (76.7%); for the regular category, as many as nine respondents (15.0%), while for the hypothermia category, as many as five respondents (8.3%) with a

minimum body temperature value of 1 and a maximum body temperature value of 3 with an average body temperature value of 1.32, while the median value is 1.00 with a standard deviation of 0.624.

Table 2 Frequency Distribution of Body Temperature After Giving Shallot Compress

After the red onion compress	Post-test	
	N	(%)
Normal	52	86.7
Hypothermia	8	13.3
Amount	60	100.0

Table 2 shows that the data obtained from the measurement of body temperature again before the intervention was carried out by giving red onion compress above-obtained body temperature in the normal category as many as 52 respondents (86.7%), and body temperature including hypothermia as many as eight respondents (13.3 %). Moreover, the minimum body temperature is two, and the maximum body temperature is 3, with an average value of 2.13, while the median value is 2.00 and the standard deviation is 0.343.

Table 3 Normality Distribution of Body Temperature Before and After Intervention of Shallot Compress

Statistic	Shapiro-Wilk			Conclusion
	Statistik	Df	Sig.	
Pre_Test	.552	60	.000	Data is not normally distributed
Post_Test	.402	60	.000	Data is not normally distributed

Table 3 shows that the significant values of the *Pre-Test* and *Post-Test* Compress onions are abnormal ($p\text{-Value} < 0.05$), which means that the data are distributed abnormally, namely in this study will use the *Wilcoxon Signed Ranks Test test*.

Body Temperature	n	Mean	SD	Negative Ranks	Positive Ranks	Ties	Z Hitung	Sig. (2-tailed)
Pre	60	26.71	.624	4 ^a	48 ^b	8 ^c	-5.962	.000
Post	60	24.00	.343					

The results of the statistical test show that the *Wilcoxon Signed Rank Test* can be known as a $P\text{-Value} 0.000$ ($P < 0.05$). That is, it can be concluded that "Ha is accepted" means that there are differences before and after the application of onion compresses.

This found that there was an effect of giving shallot compress with a significance value of 10,000 which was smaller than the value of $p < 0.05$, which means that there was a significant effect on the body temperature of children with fever. The results of the Wilcoxon Signed Rank Test ($p = 10.000$). Because $p < 0.05$, then H1 is accepted H0 is rejected. The probability value Z -13.954 ($Z > -0.0000391$) statistically showed a significant difference between the temperature before giving the red onion compress five and the temperature before giving the red onion compress. There is an influence on the administration of red onion compresses in children with fever aged 2-10 months after immunization at the Posyandu Kp. Kadu Rt. 003A/001 with a p-value of 0.000 means ($p < = 0.05$) H0 is rejected and opened. Ha is accepted, which has been accepted and means there is a difference before and before giving red onion compresses; this study is also in line with research (Cahyaningrum & Putri, 2017).

Grinding shallots on the skin's surface causes the veins to change in size, which is regulated by the anterior hypothalamus to control heat dissipation through the skin pores, resulting in vasodilation (widening) of blood vessels and inhibition of heat production. Blood will be redistributed to 19 blood vessels to increase heat dissipation, this vasodilation will cause heat dissipation through the skin. Enlarged pores and evaporative heat loss (sweating) are expected to decrease body temperature to reach a normal state again (Potter, P. A., & Perry, 2009).

There is an effect on the Administration of Shallot Compresses in Fever Children Aged 2-10 Months After Immunization at Posyandu Kp. Kadu Rt. 003A / 001 obtained a p-value of 0.000 which means ($p < 0.05$) H_0 rejected can be rejected can it is concluded that "Ha is accepted," which indicates the hypothesis of acceptance and is interpreted as a difference before and after the administration of onion compresses. one of them is warm compresses, and infrared radiation, one of the non-pharmacological therapeutic modalities that can reduce body temperature in children with red onion compresses. In the content of onion, others that can lower body temperature are essential oil phloroglucinol, cycloalkane, methylmalonic, kaemferol, and quercetin (Potter, P. A., & Perry, 2009).

The results of this study are in line with the theory (Entitled The Effect of DPT Vaccination on Changes in Body Temperature in Infants 3-12 months, that this problem shows DPT immunization has an impact on increasing children's body temperatures in Integrated Healthcare Center in the working area of the Public health center (Cynthia Puspariany, 2018).

There is an effect of Shallot Compresses on Reducing Body Temperature in Typoid Fever Patients at PKU Muhammadiyah Gombong Hospital (Nur maulita dkk, 2019). There is an Effect of Giving Crushed Shallots a Lowering Body Temperature in Toddlers with Fever at the Lubuk Buaya Health Center in Padang City in 2018 (Bd, Yusefni, & Myzed, 2018). There Are Differences in the Effectiveness of Warm Compresses and Red Onion Compresses in Reducing the Body Temperature of Children Aged 0-1 Years Who Have Post-DPT Immunization Fever in Semboro Village (Akib Hariana & Megawati, 2014).

The difference before and after being given this onion compress intervention can reduce the body temperature that increases in children because, in the onion content, there is a content of organic sulfur compounds, namely *Allylcysteine Sulfoxida (Alliin)* can reduce the fever with the mechanism destroy the formation of blood clotting so that the circulation blood becomes lancer and heat body can be channeled to blood vessels edges. In the content of onion, others that can lower body temperature are essential oil phloroglucinol, cycloalkane, methylation, kaemferol, and quercetin. This means that this onion compress is effective as an initial treatment for reducing the body temperature of children with fever 2-10 months after immunization (Rachman, 2018).

The content of essential as external medicine dilates blood vessels' capillaries and stimulates sweating discharge. Baluran shallot l to the whole body will cause muscular vasodilation on the skin, which accelerates heat transfer from the body to skin (Anuhgera et al., 2020).

This study is in line with the effectiveness of shallots and onion extract (*Allium Cepa Var Ascalonicum*) in reducing body temperature in children. After knowing the benefits of shallots and being given this onion compress as a first aid to lower body temperature carried out by the mother. In general, to lower body temperature, paracetamol drugs are given because the limitations on drugs for the initial action are to give onion compresses in lowering body temperature in children (Anuhgera et al., 2020)

Based on the description above, the results show that the average fever in children after being given an onion compress has increased, or those who give this onion compress have an effect on a decrease in body temperature. Onion contains the natural essence of glutamic acid, with volatile propyl disulfide and propyl methyl disulfide (Anuhgera et al., 2020)

The chemical constituents of shallots are essential oils, cyclophilin, methyl alliin, dehydroalanine, flavon glycosides, quercetin, shampoos, peptides, plant hormones, vitamins, and starch (Hayuni et al., 2019)

Of the 15 articles that have been traced successfully, the most interventions given were warm compresses in the axilla and tepid sponge areas by giving compresses for 30 minutes and compressed water temperature of 37°C (Burhan et al., 2020)

In line with this study, there was a difference in the average body temperature of children before and after giving shallot compresses ($p=0.000$) with a difference of 0.77500C and giving a tepid sponge ($p=0.000$) with a difference of 0.82500C. The analysis test showed that there was no significant difference in reducing the mean body temperature in the shallot compress group and the tepid sponge group ($p=0.669$) in reducing the body temperature of children with fever (Fathirrizky, S. 2020)

in line with the study of the effect of giving crushed shallots as a decrease in the body temperature of infants with fever, it showed that crushed shallots were 37.9-39.9°C, namely 37.4-36.0°C after giving crushed onions. After running the paired sample t-test, the mean difference before and after treatment was 0.48. Ho is rejected because the p-value is 0.000 <0.05. In other words, shallots effectively lower body temperature in babies who experience heatstroke. Red onion is essentially effective in reducing the temperature of a feverish baby (Myzed Dahli et al.2018)

There is an Effectiveness of Compressing Shallots in Reducing Body Temperature in Children Aged 1-5 Years at the Gilingan Health Center (Fathi Hayuni, 2019).

To lower it yourself, use onion bulbs that contain cycloalkane substances that can lower body temperature. Likewise, with other shallot components, namely methyl alkaline, quercetin, chemtrail, and phloroglucinol. These five substances are used to lower body temperature and temperature and can be used as antipyretics (Soedarsono, 2012)

There is the Effectiveness of Shallots in Reducing Body Temperature in Febrile Children aged 1-5 (Suryono, 2015)

From the above discussion, the shallot compress is one of the initial measures to treat fever in children after using DPT. In sliced or grated (mashed) shallots, sliced shallots can release the enzyme alliinase, which can be used as a catalyst for shallots that can react with other compounds, such as skin, so that this red onion can be used as a compress to reduce body temperature with a fever.

There Are Differences in the Effectiveness of Moringa Leaf Compresses and Shallot Compresses on Changes in Body Temperature of Toddlers with Fever at UNS Surakarta Hospital (Hartanti, 2017). There is the Effectiveness of Red Onion Compresses the Body Temperature of Children with Fever After Immunization at the Bailang Health Center in Manado City (Enggeline, 2019). The Effect of Giving Shallots (*Allium Ascalonicum* L.) on Reducing Body Temperature in Children with Fever in the Work Area of the Singkrak Health Center, X Koto Singkrak District, 2017 (Fardila, 2017)

Researchers assume that the content of red onion is beneficial as a first aid to overcome the decrease in body temperature. To compress this onion, puree and add additional oil such as telon oil, done about three times a day or adjusted to body temperature and applied to the body.

4. Conclusion

The giving onion poultices are effective in children with fever aged 2-10 months after immunization at Posyandu Kp. Kadu. Based on research and discussion about the effect of giving red onion compresses to children with fever aged 2-10 months after immunization at the Posyandu Kp. Kadu Rt. 003A/001 Desa Bunder Kec. Cikupa District. Tangerang in 2022 with a sample of 60 respondents.

Acknowledgments

Thank you to our research team who have worked on this research, Posyandu Kenanga II and Puskesmas Pasir Jaya, who have provided facilities and all health workers who helped with this research, and all respondents who were part of this research.

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