

The effectiveness of crushed onion compresses in reducing baby's body temperature 1-6 months after DPT immunization

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ARTICLE INFO	ABSTRACT
Article history: Received Jun 19, 2024 Revised Jun 22, 2024 Accepted Jun 26, 2024 Keywords: Baby Dpt Immunization Fever Red Onion	Fever is a common symptom of illness in Indonesia, including in children. One effort to reduce fever with non-pharmacological therapy is compressed crushed shallots (<i>Allium Cepa</i> L) which contain flavonoids which have the benefit of protecting cell structure, anti-inflammatory, increasing the effectiveness of vitamin C, as a natural antibiotic. The aim of this research is to determine the effect of giving crushed red onion (<i>Allium Cepa</i> L) compresses on reducing baby's body temperature 1-6 months after immunization at TPMB Bd Fenty Sumara, Serang City. This research uses the quantitative Quasy Experiment method with a one group pretest – posttest design. The sampling technique for this research was total sampling of 30 respondents. The time of the research was April-May 2024. The results showed that compressing crushed onions on babies aged 1-6 months who had fever showed an average decrease of 0.65oC during 50-60 minutes of compression. The average before the compress could be seen was 38. 25oC and the average after compression is 37.60oC. Test Shapiro-Wilk statistics obtained a P value = 0.000 < 0.05. The conclusion from this research is that there is an effect of crushed red onion (<i>Allium Cepa</i> L) compress on reducing the baby's body temperature 1-6 months after DPT immunization. <i>This is an open access article under the CC BY-NC license.</i>



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INTRODUCTION

Children's health is one of the main problems in the health sector currently occurring in Indonesia. Immunization is a way to actively increase a person's immunity against a disease, so that if they are later exposed to the disease they will not suffer from the disease (Santika, 2020) (P. Sari et al., 2022) (Rumaf et al., 2023).

Fever is a common symptom of illness in Indonesia, including in children. Fever phobias that occur in children often encourage parents to seek information about treating fever in children (E. K. Sari & Ariningpraja, 2021) (Komang, et al. 2022) (Aprianti & Sodikin, 2023). According to the SDKI (Indonesian Health Demographic Survey) report, 31% of babies aged under 5 years or

toddlers are known to have fever and 37% of babies aged 6-23 months are more susceptible to fever and 74% are taken to health service facilities (Journal et al., 2023). According to the World Health Organization (WHO), in 2020, the number of fever cases worldwide reached 11-20 million people and it is estimated that between 128,000-161,000 people die every year. In Indonesia, it is estimated that between 800-100,000 people suffer from fever throughout the year. Fever cases are suffered by 91% of children aged 3-19 years (WHO, 2020).

Fever is the body's normal interaction to fight contamination that enters the body(Wulandari, 2021)(Gustina & Azhari, 2021)(AMELIA, 2022). In addition, fever will be dangerous if it reaches a temperature of more than 41.1oC. The Indonesian Pediatrician Association sets the usual internal heat for toddlers and children from 36.5oC to 37.5oC(Anggraeni et al., 2021)(Kurniati et al., 2022). Symptoms of fever are an increase in body temperature above the normal range (>37.5oC), chills, sweating, restlessness or lethargy, no appetite, rapid pulse and breathing and convulsions (Sari, Sinta B, 2022).

Efforts to treat children when they have a fever can be done through pharmacological measures, non-pharmacological measures, or a combination of both(Windawati & Alfiyanti, 2020)(Logayah & Magdalena, 2023)(Meirita et al., 2024). Pharmacological action includes the use of antipyretics. non-pharmacological measures, especially additional measures to reduce fever(Sudirman & Modjo, 2021)(Arifin & Susanti, 2022)(Lawang, n.d.). Compress is a non-pharmacological action that aims to reduce body temperature if the child has a fever. There are several types of compresses that can be used to lower body temperature, namely warm water compresses, hot water compresses, plaster compresses, and the use of traditional medicine, especially onion compresses (Wardiyah, 2016) quoted in (Khoirul Waroh et al., 2023).

RESEARCH METHODS

This research uses a Quasi Experimental quantitative research design with a One Group Pretest-Posttest research design. The population in this study were all babies 1-6 months who experienced fever after immunization and who met the inclusion and exclusion criteria in April - May 2024 at TPMB Bd Fenty Sumara, Serang City. The samples in this study were all 30 babies aged 1-6 months who experienced fever after immunization who met the inclusion and exclusion criteria in April - May 2024 at TPMB Bd Fenty Sumara, Serang City. The sampling technique in this research is total sampling.

RESEARCH RESULT

Data was obtained from observations of 30 respondents at TPMB Bd Fenty Sumara, Kaligandu Village, Serang District, Serang Regency, Banten Province, during April - May 2024. The respondents consisted of 30 babies with fever after DPT immunization who received mashed shallots. The researcher gave informed consent to the respondents then carried out observations and interviews before giving crushed red onions, then the researchers gave crushed red onions for 1 day to be used once a day after carrying out the DPT immunization. Then the researchers informed the respondents via telephone/whatsapp to find out if the baby's body temperature had decreased after Use crushed shallots.

Univariate Analysis

Table 1. Respondent characteristics based on gender in babies 1-6 months who experienced fever After DPT Immunization at TPMB Bd Fenty Sumara, Serang City in April-May 2024 (n=30)

Baby Gender	Frequency	Percentage (%)
Woman	16	53.3
Man	14	46.7
Total	30	100.0

Source: Primary Data, 2024

Based on Table 1, the characteristics of gender respondents show that 16 respondents (53.3%) of female babies experienced fever and 14 male respondents (46.7%) of the 30 total respondents in the study had a fever.

Table 2. Characteristics of respondents based on the age of babies 1-6 months who experienced fever after DPT Immunization at TPMB Bd Fenty Sumara, Serang City in April-May 2024 (n=30)

Age	Frequency	Percentage (%)
1-3 Months	9	30.0
4-6 Months	21	70.0
Total	30	100.0

Source: Primary Data, 2024

Table 2 shows the results of the age characteristics of babies who have fever, 9 respondents (30%) aged 1-3 months and 21 respondents (70%) aged 4-6 months from the 30 total respondents in the study.

Table 3. Changes in body temperature before compressing shallots (*Allium Cepa L*) in babies 1-6 months after DPT Immunization at TPMB Bd Fenty Sumara in April-May 2024 (n=30)

Body temperature	Frequencies	Percent
37.5	1	3.3
37.7	2	6,7
37.8	1	3.3
37.9	3	10.0
38.0	8	26.7
38.3	2	6,7
38.4	2	6,7
38.5	3	10.0
38.6	2	6,7
38.7	1	3.3
38.8	3	10.0
39.0	2	6,7
Total	30	100.0

Source: Primary Data, 2024

Table 3 of the baby's body temperature before compressing using shallots (*Allium Cepa L*) shows that the baby's body temperature was 37.5 by 1 respondent (3.3%), the baby's temperature was 37.7 by 2 respondents (6.7%), temperature baby 37.8 as many as 1 (3.3%), baby temperature 37.9 as many as 3 respondents (10%), baby temperature 38.0 as many as 8 respondents (26.7%), baby temperature 38.3 as many as 2 respondents (6.7%), baby temperature 38.4 as many as 2 respondents (6.7%), baby temperature 38.5 as many as 3 respondents (10%), baby temperature 38.6 as many as 2 respondents (6.7%), temperature baby 38.7 as many as 1 respondent (3.3%), baby temperature 38.8 as many as 3 respondents (10%), baby temperature 39.0 as many as 2 respondents (6.7%) out of 30 total respondents in the study.

Table 4. Changes in body temperature after applying compresses against shallots (*Allium Cepa L*) in Babies 1-6 Months After DPT Immunization at TPMB Bd Fenty Sumara in April-May 2024 (n=30)

Body temperature	Frequencies	Percent
37.2	9	30.0
37.3	2	6,7
37.4	2	6,7
37.5	4	13.3
37.6	1	3.3
37.7	2	6,7
37.8	1	3.3
38.0	6	20.0
38.4	3	10.0

Total	30	100.0
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Source: Primary Data, 2024

Table 4. The baby's body temperature after compressing using shallots (*Allium Cepa* L) shows that the baby's body temperature was 37.2 for 9 respondents (30%), the baby's body temperature was 37.3 for 2 respondents (6.7%), temperature baby's body temperature was 37.4 as many as 2 respondents (6.7%), baby's body temperature was 37.5 as many as 4 respondents (13.3%), baby's body temperature was 37.6 as many as 1 respondent (3.3%), baby's body temperature 37.7 as many as 2 respondents (6.7%), baby body temperature 37.8 as many as 1 (3.3%), baby body temperature 38.0 as many as 6 respondents (20%), baby body temperature 38.4 as many as 3 respondents (10%) of the 30 total respondents in the study.

Bivariate Analysis

Table 5. Distribution of data normality test with shapiro-wilk before and after compressing shallots (*Allium Cepa* L) on Babies 1-6 Months Who Experienced Fever After DPT Immunization at TPMB Bd Fenty Sumara in April-May 2024 (n =30)

Body temperature	n	Rank	Mean Rank	p-value
Pre Compress	30	Negative	15.50	0,000
Post Compress	30	Ranks		

Source: Primary Data, 2024

Table 5 shows that the results of the pretest and posttest are not normally distributed, with the conclusion that the data has a significant value of $p < 0.05$. So the test used in this research is the non-parametric Wilcoxon Sign Rank test.

Table 6. Effectiveness of crushed shallot compress on reducing baby's body temperature 1-6 months after DPT immunization at TPMB Bd Fenty Sumara in April-May 2024

Pretest Posttest Compressed Shallots	
Z	-4.796b
Asymp. Sig. (2-tailed)	0,000

Source: Primary Data, 2024

Table 6 shows that the negative rank before and after being given the crushed onion compress intervention was that there were 30 respondents who experienced a decrease in body temperature. The statistical test output obtained a significant value of 0.000, a significant result of 5% ($p\text{-value} = 0.000 - 0.05$). The conclusion was that H_a was accepted, that there was an effect of mashed shallot compresses on reducing the baby's body temperature 1-6 months after immunization. TPMB Bd Fenty Sumara Serang City in 2024.

Discussion

Characteristics of respondents based on gender showed that 16 female respondents (53.3%) had a fever and 14 male respondents (46.7%) of the 30 total respondents in the study had a fever. In research, women are more dominant in getting fever. It is also possible that this is due to the number of baby boys at TMPB Bd Fenty Sumara, Serang City in 2024.

In accordance with research by Vika Roni Arista (2020), women generally experience greater fluctuations in body temperature compared to men. Women are also considered to have lower immune system, although this is not always true. Because there are still many other factors that can influence the body's resistance, such as environment, nutrition, disease and so on. According to research by Hidayah (2020), it is revealed that children are susceptible to disease because their body organs have not yet fully matured. Conditions where a healthy child becomes sick will cause the body to react by increasing its body temperature.

Characteristic results based on the age of babies 1-6 months who had a fever were found to be 9 respondents (30%) aged 1-3 months and 21 respondents (70%) aged 4-6 months. The results of research from Dwicahyaningrum (2020), categorized the age of respondents into 0-6 years of development stages, namely infancy (0-1 year), toddler (1-3 years), pre-school (3-6 years) where body temperature regulation is not yet stable Until children reach puberty they are susceptible to fever.

According to Hermayudi (2021), in children between the ages of four months and three years, there is an increased risk of serious illness due to a lack of IgG, which is a material for the body to form the complement system which functions to overcome various infections. The results showed that the body temperature before applying the shallot compress (*Allium Cepa* L) of the 30 respondents in this study had an average (mean) of 38.25OC, at which temperature the baby had a fever. Even though fever is included in the category of mild illness, fever does not cause serious and worrying complications.

Temperature regulation depends on the normal heat production process, the heat produced by the body is fever, which is a chemical reaction in all body cells. Food is the main source of fuel for metabolism, heat increases due to increased metabolism, a decrease in heat or little heat produced is due to a decreased metabolic rate (Novieastari et al., 2020) in (A et al., nd). Based on ET Dewi Cahyaningrum's research, respondents experienced fever according to the journal (Dafit et al, 2022), a condition when individuals experience or are at risk of experiencing a continuous increase in body temperature of more than 37.8 °C orally or 37.9 °C per rectally due to external factors. When measured rectally >38OC, when measured orally >37.8OC, and when measured through the axilla >37.2OC.

In line with the theory of Nield and Kamat (2020), which states that fever is an increase in body temperature from normal daily temperature variations which is related to an increase in the temperature reference point in the hypothalamus. Shallots contain flavonoids which have benefits for protecting cell structure, anti-inflammatory, increasing the effectiveness of vitamin C, as a natural antibiotic and preventing bone loss (Hasibuan & Edrianto, 2021).

Shallots can be used for compresses because they contain organic sulfur compounds, namely Allylcysteine Sulfoxide (Alliin). Cutting or slicing red onion bulbs will release the allinase enzyme which functions to destroy the formation of blood clots so that blood circulation becomes smooth and heat from within the body can be more easily distributed to peripheral blood vessels and the fever that occurs will decrease (Harnani et al., 2019) in (Waroh KY, Setiawandari, Rosyida CAD, Latifah A, Susanto PCV, 2023).

Traditional medicine or herbal medicine has the advantage that it can be prepared in combination according to each patient's condition. The combination can be done with the principle of hydrotherapy which is used as a compress or for bathing. The use of onion compresses is also easy to do and does not require a lot of money (Novikasari et al., 2021) in (Izzah et al., 2023).

Crushed shallots will release the enzyme alliinase which functions as a catalyst for alliin which will react with other compounds such as skin which functions to destroy blood clots. The essential oil content in shallots can also improve blood circulation so that blood circulation becomes smooth. Other ingredients in red onions that can reduce body temperature are phlorogusin, cycloalliin, metialin, and kaemferol (Rifaldi & Wulandari, 2020) in (Rachma Kailasari et al., 2023).

Red onions are used as an alternative to compresses because red onions contain flavonoid compounds. This compound will act as a natural antioxidant and inhibitor of the COX cycle. Flavonoid compounds will work centrally to inhibit and inhibit the cyclooxygenase-2 enzyme as does antipyretics. The cyclooxygenase-2 enzyme is an enzyme that plays an important role in the biosynthesis of PGE2 (Wijayanti & Rosyid, 2018) in (August et al., 2023).

CONCLUSION

Based on research that has been carried out, the temperature of babies who have a fever at TpmB Bd Fenty Sumara before the crushed onion compress is applied has an average temperature of 38.25°C from 30 respondents and the temperature of babies who have a fever at TpmB Bd Fenty Sumara after the crushed onion compress is applied red, namely having an average temperature of 37.60°C from 30 respondents. The results of the study showed that compressing crushed shallots on babies 1-6 months who had a fever showed an average decrease of 0.65°C during 50-60 minutes of compressing, it can be seen that the average before the compress was 38.25°C and the average after the compress namely 37.60°C from 30 respondents in this study. Based on the research above, it was found that the P value = 0.000 was smaller than α (<0.05), so H_0 was rejected and H_a was accepted, so there was an effect of crushed red onion (*Allium Cepa* L) compress on changes in body temperature in babies 1-6 months. Those Who Have Fever at TPMB Bd Fenty Sumara, Serang City.

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