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Research Article

The Effectiveness of Compressing Leaves (*Erythrina Lithosperma*) in Reducing Body Temperature in Toddlers at the Bojonegara Health Center

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Abstract. Is a condition where the body temperature is higher than normal, namely 38 degrees Celsius, which is caused by a body condition that creates more heat than is released. Fever in children is one of the most common clinical symptoms. As is well known, Dadap Serep Leaf compress (*Erythrina lithosperma*) is believed to be a non-pharmacological therapy to treat fever due to this infection, although not many studies have explained its effectiveness. Was carried out by bivariate test analysis, first the normality test was carried out with the pretest and posttest design measurements. The sampling technique uses the expert validity test. Data analysis used the Kolmogorov-Smirnova and Shapiro Wilk tests. to determine the effect of compressing dadap serep leaves on decreasing body temperature levels in toddlers in the Bojonegara Health Center with 30 respondents. Of the study obtained a p value of $0.000 \leq 0.05$ from these results there was an effect of compressing dadap serep leaves on body temperature levels in toddlers at the Bojonegara Health Center.

Keywords: *Fever, Toddler, Erythrina Lithosperma Leaves Compress.*

A. INTRODUCTION

The World Health Organization (WHO) estimates that the number of fever cases worldwide reaches 16-33 million with 500-600 thousand deaths each year. Data on visits to pediatric health facilities in Brazil show that around 19% to 30% of children are examined for having a fever (Aryanti Wardaniyah, Setiawati, 2017; Kianitalei et al., 2019; Hassan et al., 2020).

In Indonesia it was reported that the incidence of febrile seizures was 3-5% of children aged 6 months in 2017-2018, this figure continues to increase to 6% in 2018 (Setyowati, 2018). Toddlers who are experiencing fever need proper treatment from their parents. Fever is very different from hyperthermia. Hyperthermia in typhoid is a nursing problem characterized by an increase in body temperature above the normal range which is usually caused by an acute infection in the gastrointestinal tract (Ribek et al., 2017; Razmjouei et al., 2020; Zagloul et al., 2020).

These leaves contain several compounds including alkaloids, eritradina, eritrina, eritramina, hipaforina and erisovina. Dadap serep leaves have a bitter taste and are cooling and cleanse the blood. Based on existing research, it shows that Erythrina species have central nervous suppression activity, sympatholic muscle relaxation and parasympathomimetics. Several studies also explain that dadap serep leaves contain alkaloid substances which are cooling and function as antipyretics. Not only functions as an antipyretic, dadap serep leaves also have functions as antimicrobial, anti-inflammatory and antimalarial. This is proven by research (Kholidha et al., 2016) which tested the activity of dadap serep leaves.

Scientifically, the efficacy of this dadap tree has been studied, one of which was in a study conducted by Nurul Hidayah with the title effectiveness of giving Dadap Serep

compresses to reducing body temperature in post-immunization children. Dadap Serep (*Erythrina sumbubrans*) is a member of the Papilonaccae family which has hereditary well-known efficacy. This plant contains extra ethanol in the leaves which can cool. In the community, the Dadap Serep leaf is used to reduce fever, usually mixed with fennel and betel leaf. This herb is used as a fever medicine for women (fever during the postpartum period), facilitating breast milk, internal bleeding, abdominal pain, preventing miscarriage, fever in children, as well as the bark of the Dadap Serep plant used as a phlegm thinner (Hidayah, 2019; Monazzami et al., 2021; Rahnemaie et al., 2019).

The Serang District Health Office (2021) states that there are 30.60% of toddlers with fever and in 2021 it will decrease to 12.17% of toddlers. While the results of Riskesdas (2020) state the cause of the increase in the incidence of fever in the previous year, namely 2019-2021, which is always increasing, namely being influenced by house construction and the environment which do not meet health requirements.

Until now, if there are complaints of mild to high fever, parents of toddlers tend to give antipyretic drugs without thinking about the chemical content of these drugs. If complaints of mild to moderate fever have been treated with non-pharmacological therapy, it will prevent the occurrence of high fever as well as prevent the use of pharmacological therapy which has many side effects (Liepa et al., 2018; Gresh et al., 2019; Cai et al., 2020). One of these non-pharmacological actions is compressing dadap serep leaves (*Erythrina lithosperma*) to reduce fever in toddlers. Apart from that, the dadap serep leaf is a plant that is easy to get and the price is affordable. The results of this study are expected to provide input on complementary therapy knowledge with compresses from dadap serep leaves (*Erythrina lithosperma*) which can be used as complementary measures both in the community and in health centers to reduce fever in toddlers.

B. METHOD

This type of research is quantitative research, true experiment which aims to determine the effectiveness of compressing dadap serep leaves (*Erythrina lithosperma*) in reducing body temperature in toddlers with fever. This study used a Quasi-Experimental research design with a pretest-posttest control group design. There are 2 groups, namely the intervention group and the control group. The intervention group was given a compress of dadap serep leaves (*Erythrina lithosperma*), while the sample consisted of an affordable population that could be used as a research subject through sampling (Nursalam, 2019).

C. RESULT AND DISCUSSION

1. Univariate Analysis

Univariate analysis is an analysis carried out to analyze each variable from the research results. Univariate analysis serves to summarize the measurement data set in such a way that the data set turns into useful information.

Table 1. Distribution Before the Dadap Serep Leaf Compress

Category	Frequency	Presentation
Mild Fever	6	20%
Moderate Fever	24	80%
Total	30	100%

Based on table 1 above, it was obtained from 30 respondents before using the dadap serep leaf compress, there were 6 respondents (20%) with mild fever and 24 respondents (80%) with moderate fever at the Bojonegara Health Center in 2022.

Table 2. Distribution After Compressing Dadap Serep Leaves

Category	Frequency	Presentation
Normal Fever Temperature	29	97%
Mild Fever	1	3%
Total	30	100%

Based on Table 2, it can be seen that after compressing dadap serep leaves at the Bojonegara Health Center in 2022, there were 30 respondents (100%) who experienced a decrease in normal fever temperature, there were 29 respondents (97%) and a mild temperature, there was 1 respondent (3%) in toddlers.

2. Normality Test

The normality test is used to determine whether the data set is properly modeled by a normal distribution and to calculate how likely it is that the random variables underlying the data set are normally distributed. The normality test results are presented in the following table:

Table 3. Kolmogorov-Smirnov and Shapiro-Wilk Normality Test Results

Respondents		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
Toddler Temperature	Pre Test	.171	30	.025	.932	30	.054
	Post Test	.144	30	.116	.943	30	.111

Table 3 shows that all data groups based on the normality test have fulfilled the requirements because the significance value of the Kolmogorov-Smirnova Pre Test is 0.025 and the Post Test is 0.116, the significance value is from the Shapiro-Wilk Pre Test is 0.054 and the Post Test is 0.111, or between all data normality values that are obtained > 0.05 and stated that the data is normal to continue testing using the dependent t-test.

3. Bivariate Analysis

Bivariate analysis is one of the simplest forms of quantitative analysis. It involves the analysis of two variables, for the purpose of determining the empirical relationship between them. Bivariate analysis can assist in testing simple association hypotheses. The results of bivariate analysis testing are presented in the following table:

Table 4. Bivariate analysis of decreasing fever temperature in toddlers before and after using Dadap Serep leaf compresses

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PreTest - Post Test	1.80333	.70637	.12896	1.53957	2.06710	13.983	29	.000

From the results of the statistical analysis table 5.4 through the dependent test t-test with the help of SPSS 26, the result is p value = 0.000 ≤ 0.05, then Ha is accepted, meaning that there is a combination effect of giving Dadap Serep leaf compresses on decreasing the fever temperature of toddlers at the Bojonegara Health Center in 2022.

4. Research Limitations

Limitations in the research that researchers experienced, namely when conducting research constrained by samples who were willing to become respondents but did not understand how to fill in the instrument (questionnaire) that had been given so that researchers had to explain again and ask question items or statements on the instrument (questionnaire)

verbally to respondents, besides that, the respondents were distracted based on the situation and conditions in the room, where the room conditions for conducting research were not conducive, toddlers who cried when given before and after giving Dadap Serep leaf compresses which greatly affected the concentration of respondents who were initially enthusiastic but because disturbing things, the respondent becomes uncomfortable in various situations.

And also based on the situation the research was conducted during the Covid-19 pandemic, researchers and respondents were required to use strict health protocols including wearing masks and keeping their distance so that patience was needed in explaining the research process to respondents.

5. Knowledge of Dadap Serep Leaf Compress Research

The results showed that of the 30 respondents who were examined before compressing Dadap Serep leaves on toddlers who had a mild fever temperature, 6 respondents (20%) and moderate fever temperature, 24 respondents (80%) and after compressing Dadap Serep leaves, there were 29 respondents (97%). and normal fever temperature and 1 respondent (3%) mild fever temperature. Knowledge is the result obtained after people do research on a particular object. Knowledge is a guide in one's actions. Based on experience, it can be obtained that behavior based on knowledge is more lasting than behavior that is not based on knowledge (Induniasih & Wahyu, 2017; Zolala et al., 2020). Dadap Serep leaf compost is a procedure given to patients with the aim of reducing or reducing fever. As in the dadap serep leaf compress works at a feverish temperature to the surrounding environment in a hot / feverish state by providing a temperature response by reducing the production and conversion of body heat.

The advantage of giving Dadap Serep leaf compresses to changes in the body temperature of children who have fever is that it is faster because it is in the Papilionaceace family category. This spare dadap leaf contains several compounds including alkaloids, eritradina, eritrina, erytramina, hipaforina and erisovina and also has a bitter taste and is cooling and cleanses the blood. Based on existing research, it shows that Erythrina species have central nervous suppression activity, sympatholic muscle relaxation and parasympathomimetics (Shao et al., 2018).

And also several studies also explain that dadap serep leaves contain alkaloid substances which are cooling and function as antipyretics. Not only functions as an antipyretic, dadap serep leaves also have functions as antimicrobial, anti-inflammatory and antimalarial. Based on the results of the research, theory and related research above, the research assumes that knowledge can be obtained in various ways, not only through formal education but also from experience, information obtained through various media such as counseling, posters or electronic media such as television, radio or cell phone (Poletto et al., 2020).

6. Fever Treatment

Reducing or controlling fever in toddlers can be done in various ways, one of which can be done by applying compresses from Dadap Serep leaves. The following responses include decreased heat production, increased blood flow to the skin, and increased heat loss through the skin by radiation, convection and evaporation. Selection of Dadap Serep leaf compress, method of administration and dosage is important for practitioners and parents to know when dealing with fever, so that complete information must be given to parents at each visit to prevent errors in giving Dadap Serep leaf compress.

The results showed that of the 30 respondents who were examined before compressing Dadap Serep leaves on toddlers who had a mild fever temperature, 6 respondents (20%) and moderate fever temperature, 24 respondents (80%) and after compressing Dadap Serep leaves,

there were 29 respondents (97%). and normal fever temperature and 1 respondent (3%) mild fever temperature. Dadap Serep leaf compresses contain alkaloids which are cooling and anti-inflammatory. The Dadap Serep leaf compress also absorbs heat so that this leaf is effective for reducing fever. This claim is proven by (Wahyuni & Maa'idah, 2019) in the Medfarm Journal: Pharmacy and Health showing that dadap serep leaf extract can reduce fever temperature. Phytochemical tests of various parts of the dadap serep plant were also reported to contain saponins, flavonoids, polyphenols, tannins and alkaloids. It is the content of these substances that makes the dadap serep plant function as an antimicrobial, anti-inflammatory, antipyretic, and antimalarial. How to use it, take a piece of Dadap Serep leaf and wash it thoroughly with water. Roll and roll the spare dadap leaves until they are mushy and soft.

Then stick it to the forehead as a compress. If the leaves dry out, replace them with new leaves immediately. And so on until the child's fever goes down. Furthermore (Trisnawan, 2020) mentioned in his scientific writing that dadap serep leaves belong to the Papilonaceae family which contains saponims, flavonoids, polyphenols, tannins, and alkaloids. When there is heat transfer from the chest to the surface of the skin, the temperature drop from hot to cold is immediately responded by the surrounding blood vessels so that these blood vessels will transfer the temperature change to the hypothalamus, then the hypothalamus will automatically respond and reduce body temperature back to normal limits. (Suproborini et al., 2018). Based on the results of the study that most of the respondents had given Dadap Serep leaf compresses in good fever management for toddlers at the Bojonegara Health Center, from the results of research, theory and related research, the researchers assumed that handling fever temperatures could be done independently at home with parents, namely by giving Dadap Serep leaf compresses to toddlers, giving toddlers plenty to drink, and so on.

7. The Relationship between Dadap Leaf Compresses and Reducing Fever in Toddlers

Hidayah (2019) in her scientific writing explains that compresses from dadap serep leaves (*Ethrina ambushbrans*) are part of the Papilonaccae family which has well-known efficacy for generations. This plant contains extra ethanol in the leaves which can cool. In the community, compresses from Dadap Serepini leaves are used to reduce fever, usually mixed with fennel and whiting. This herb is used as a fever remedy for women (fever during the puerperium), facilitating breast milk, internal bleeding, abdominal pain, preventing miscarriage, fever in children, and the bark of the Dadap Serep plant is used as a phlegm thinner. The same thing was conveyed by (Mugiyanto et al., 2018) in scientific proceedings saying that compressed dadap serep leaves have various benefits, namely as anti-inflammatory, antimicrobial, antipyretic and antimalarial. Related to the mechanism of the Dadap Serep leaf compress in reducing fever, (Suproborini et al., 2018) explained that the mechanism for reducing body temperature by using the Dadap Serep leaf compress begins with the meeting of the Dadap Serep leaf compress with a hot skin surface in which there are blood vessels. This compress of dadap serep leaves which contains ethanol will give a cooling effect by its conduction method.

D. CONCLUSION

From the results of research regarding the therapy of dadap serep leaf compresses in reducing body temperature in toddlers at the Bojonegara Health Center, the conclusions that can be drawn include the following: 1) The average temperature of respondents before giving Dadap Serep leaves ranged from 38.00 to 39.50 °C; 2) The average temperature of the respondents after giving dadap serep leaves was 36.20 to 38.70 °C; and 3) That there is an

effect between or differences in compressing dadap serep leaves on a decrease in temperature, where the results of the dependent t test show a pre-test value of 0.054 and a post-test of 0.111.

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