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THE EFFECT OF RED GINGER AND PURE HONEY ON THE REDUCTION OF MILD RESPIRATORY INFECTIONS IN THE WORKING AREA OF THE BUMIDAYA COMMUNITY HEALTH CENTER, PALAS DISTRICT, SOUTH LAMPUNG IN 2025

Rumayana[1], Nurul Isnaini[2], Lolita Sary[3], Sunarsih[4]

[1,2,3] Faculty of Health Sciences, Malahayati University, Bandar Lampung
Email correspondence : elazzam149@gmail.com

ABSTRAK: PENGARUH PEMBERIAN JAHE MERAH DAN MADU MURNI TERHADAP PENURUNAN ISPA RINGAN PADA BALITA DI WILAYAH KERJA PUSKESMAS BUMI DAYA KABUPATEN LAMPUNG SELATAN
TAHUN 2025

Latar Belakang: Infeksi Saluran Pernapasan Akut (ISPA) adalah penyakit yang paling sering menyerang balita dengan cakupan mencapai 41,5% kasus di Kabupaten Lampung Selatan pada tahun 2023. ISPA menjadi penyebab utama morbiditas dan mortalitas pada balita karena sistem kekebalan yang masih rentan. Pencegahan ISPA dapat dilakukan dengan mengkonsumsi jahe merah dan madu murni karena dapat meningkatkan kekebalan dan menghambat proses infeksi. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian jahe merah dan madu murni terhadap penurunan gejala ISPA ringan pada balita di Wilayah Kerja Puskesmas Bumi Daya, Kabupaten Lampung Selatan, tahun 2025.

Methode: Penelitian menggunakan metode kuantitatif dengan rancangan quasi eksperimen nonequivalent control group design yang melibatkan 34 balita berusia 2–5 tahun, terbagi dalam kelompok intervensi (17 balita) dan kelompok kontrol (17 balita). Teknik pengambilan sampel menggunakan purposive sampling. Analisis data menggunakan uji Mann Whitney.

Hasil: Hasil menunjukkan bahwa rata-rata skoring ISPA pada kelompok intervensi menurun dari 2,82 (pretest) menjadi 0,29 (posttest), sedangkan pada kelompok kontrol hanya mengalami penurunan dari 2,76 menjadi 2,59. Uji statistik menunjukkan terdapat pengaruh signifikan pemberian jahe merah dan madu murni terhadap penurunan gejala ISPA ringan dengan nilai p-value = 0,000. Disarankan untuk menerapkan jahe merah dan madu murni sebagai terapi pendamping dalam pengelolaan ISPA ringan pada balita, serta melakukan edukasi kepada orang tua mengenai manfaat pengobatan alami ini guna mendukung penurunan morbiditas ISPA.

Kata Kunci: Balita, ISPA, Jahe merah, Madu murni

ABSTRACT

Latar Belakang: Acute Respiratory Infections (ARI) are the most common illness affecting children under five, accounting for 41.5% of cases in South Lampung Regency in 2023. ARI is a leading cause of morbidity and mortality among children under five due to their still- vulnerable immune systems. Prevention of ARI can be achieved by consuming red ginger and pure honey, which can enhance immunity and inhibit infection processes. This study aimed to determine the effect of red ginger and pure honey administration on reducing mild ARI symptoms among children under five in the working area of Bumi Daya Primary Health Care, South Lampung Regency, in 2025.

Metode: This research employed a quantitative method with a quasi-experimental nonequivalent control group design involving 34 children aged 2–5 years, divided into an intervention group (17 children) and a control group (17 children). The sampling technique used was purposive sampling. Data were analyzed using the Mann–Whitney test.

Hasil: The results showed that the average ARI symptom score in the intervention group decreased from 2.82 (pretest) to 0.29 (posttest), while in the control group it only decreased from 2.76 to 2.59. Statistical analysis indicated a significant effect of red ginger and pure honey administration on reducing mild ARI symptoms, with a p-value = 0.000. It is recommended to apply red ginger and pure honey as a complementary therapy in the management of mild ARI in children under five, and to provide education to parents on the benefits of natural remedies to support the reduction of ARI morbidity.

Keywords : Children under five, ARI, Red ginger, Pure honey

INTRODUCTION

Acute Respiratory Infection (ARI) is an abbreviation for Acute Respiratory Infection, a term adapted from the English term Acute Respiratory Infection (ARI). It is an acute infectious disease that attacks one or more parts of the respiratory tract, from the nose (upper tract) to the alveoli (lower tract), including adjacent tissues such as the sinuses, middle ear cavity, and pleura. Acute respiratory infection or ARI is an infection of the respiratory tract that causes symptoms of coughing, runny nose, and fever. ARI is highly contagious and can affect anyone, especially toddlers (Meihindra et al., 2021).

ARI is the leading cause of morbidity and mortality from infectious diseases worldwide. Nearly four million people die from ARI each year, 98% of which are caused by upper respiratory tract infections. The mortality rate is very high among infants, children, and the elderly, especially in countries with low and middle per capita incomes. Similarly, ARI is one of the main causes of consultation or hospitalization in health care facilities, especially in pediatric wards (WHO, 2019).

ARI is caused by viruses, bacteria, or fungi and is contagious. If not treated properly or if treatment is delayed, it can attack the lungs and cause death in children under five years of age. ARI is still listed as one of the 10 most common diseases in community health centers (Budhyanti et al., 2021). Bacteria are the main cause of upper respiratory tract infections, and Streptococcus pneumoniae is the most common cause of community-acquired pneumonia in many countries. However, the most common pathogens causing ARI are viruses or combined viral-bacterial infections. Meanwhile, the threat of ARI caused by new organisms that can lead to epidemics or pandemics requires special prevention and preparedness measures (Adjani et al., 2020).

Respiratory tract infections often occur in toddlers because their immune systems are still weak. Respiratory tract infections can be transmitted through saliva, sneezing, and respiratory air containing germs that are inhaled by healthy people into their respiratory tracts. Upper respiratory tract infections, especially those caused by viruses, often occur in all age groups, but ARIs that progress to pneumonia often occur in toddlers, especially when there is malnutrition and combined with unhygienic environmental conditions (Adjani et al., 2020).

External factors causing URTI include environmental conditions (e.g., air pollutants, family density), humidity, hygiene, season, temperature), availability and effectiveness of health services and infection prevention measures to prevent spread (e.g., vaccines, access to health care facilities, isolation room capacity), host factors, such as age, smoking habits, host ability to transmit infection, immune status, nutritional status, previous infection or concurrent infection caused by other pathogens, general health conditions, and pathogen characteristics, such as mode of transmission, transmissibility, virulence factors (e.g., toxin-encoding genes), and number or dose of microbes (inoculum size) (Adjani et al., 2020). Various risk factors increase the incidence, severity of illness, and mortality from ARI, namely nutritional status (malnutrition and poor nutrition increase the risk), breastfeeding (exclusive breastfeeding reduces the risk), vitamin A supplementation (reduces the risk), zinc supplementation (reduces the risk), low birth weight babies (increases the risk), vaccination (reduces risk), and indoor air pollution, especially cigarette smoke and cooking smoke from the kitchen (increases risk) (Adjani et al., 2020).

Strategies for treating, preventing, and protecting children under five from ARI include improving case management at all levels, vaccination, and improving child nutrition. Immediate administration of antibiotics to toddlers infected with pneumonia can prevent death. UNICEF and WHO have developed guidelines for the diagnosis and treatment of pneumonia in communities in developing countries that have been proven to be effective, acceptable, and targeted. The recommended antibiotics for the treatment of pneumonia in developing countries are cotrimoxazole and amoxicillin (WHO, 2020).

Data on the prevalence of ARI based on data from the Ministry of Health of the Republic of Indonesia (Kemenkes RI) in 2021 shows that the incidence of ARI in infants < 1 year old was 85,900 with a mortality rate of 162. Meanwhile, the incidence of ARI in infants < 1-4 years old was 238,109 with a mortality rate of 275 . The Lampung Province Health Profile report, where the SDGS target related to the ISPA program is to reduce the mortality rate of pneumonia in infants (from 44 to 32 per 1000 live births), shows that the ISPA coverage in Lampung Province in 2022 is 28.5%, which is still below the national target of 100% (Lampung Province Health Office Profile, 2023). Meanwhile, the coverage of ISPA in infants in South Lampung Regency in 2023 was 1,010 cases (41.5%), while the highest number of cases of infants with ISPA was found at the Sidomulya Community Health Center with 141 cases, followed by the Bumi Daya Community Health Center with 63 cases. The

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lowest coverage was found at the Tanjung Sari Inpatient Community Health Center with 0 cases (South Lampung District Health Office Profile, 2024).

Treatment for ARI can be done pharmacologically using antibiotics, expectorants, bronchodilators, analgesics, antihistamines, corticosteroids, and vitamins. The use of antibiotics carries the risk of gastrointestinal side effects, increases treatment costs, and increases bacterial resistance to antibiotics (Meihindra et al., 2021). In addition to pharmacological drug therapy, reducing symptoms in ARI patients can also be done with non-pharmacological methods at home, such as sambiloto herbs, echinacea purpurea herbs, garlic, green tea herbs, and black tea. Another herbal therapy is red ginger, which contains flavonoids, alkaloids, and essential oils (Fitri Afdhal et al., 2024). Ginger is known to contain various bioactive compounds such as gingerol, shogaol, paradol, and zingerone. These compounds give red ginger strong anti-inflammatory, antioxidant, anticancer, and antimicrobial properties. Essential oils give ginger its distinctive aroma and have additional therapeutic properties (Ahnafani, 2024).

Currently, plants have become a source of symptom relief for ARI patients and can also be used non-pharmacologically with the use of red ginger as a natural remedy that is no longer doubted in the medical world. For ARI, red ginger is one of the most effective remedies. Red ginger can be useful as an antiviral, antimicrobial, and anti-inflammatory agent, thereby addressing the main causes of respiratory tract infections. Red ginger can be consumed directly or boiled in boiling water (Adjani et al., 2020).

Many studies have been conducted on red ginger's ability to boost immunity and reduce symptoms of fever, cough, and other ailments. Red ginger (Zingiber officinale Var Rubrum) can boost immunity and inhibit the infection process because it contains beneficial substances such as vitamin C, vitamin A, zingiberene, and zingerone, which have high antioxidant properties. An alternative way to utilize the antioxidant content in red ginger is by making a health drink (jamu) because the active substances in essential oils are not soluble in water, so their content can still be utilized properly (Fitri Afdhal et al., 2024).

Honey can also be an alternative to relieve ISPA. Honey contains antibacterial properties and is useful for strengthening the immune system. Honey is suitable for toddlers suffering from this disease. In addition, honey can also be mixed in warm water and lemon juice before consumption. Research by the Department of Pediatrics in the United States shows that honey is one of the best traditional treatments for ARI symptoms, including reducing the severity of coughs and improving the quality of sleep in toddlers at night. Ginger drinks are also effective in reducing the severity of coughs in toddlers with ISPA (Adjani et al., 2020).

Honey also contains pinobanksin and vitamin C as antioxidants and antibiotics. The vitamin C content in honey can be used to treat coughs without causing side effects that affect children's health (Nimatillah et al., 2024). In addition, honey has sedative properties that can induce sound sleep. In the body, honey is metabolized like sugar, causing an increase in serotonin (a compound that can reduce brain activity) in the brain, which induces relaxation and the desire to sleep (Fitri Afdhal et al., 2024). Acute Respiratory Tract Infection is the most common illness among children, and all children can experience it. This is because children's immune systems are more vulnerable than those of adults, with lower immunity compared to adults (Lisdawati et al., 2024).

The results of research by Fitri Afdhal et al. (2024) show that ginger and honey drinks can reduce the frequency of coughing in toddlers aged 1-5 years. Toddlers who were given red ginger and honey drinks by researchers and experienced severe symptoms of coughing, colds, fussiness, and loss of appetite showed improvement. Ginger water mixed with honey should be used to treat coughs because it is effective in overcoming ARI (Fitri Afdhal et al., 2024). The statistical test results using the Wilcoxon signed rank test showed that the test value was 0.005 < 0.05, meaning that ginger mixed with honey was effective in treating coughs and colds in toddlers with ARI compared to those who did not receive any intervention (Fitri Afdhal et al., 2024).

Research by Kusumadewi (2024) found that the p-value = 0.000 (p-value < 0.05), indicating that there is a significant effect of red ginger and honey drinks in relieving coughs in toddlers (Kusumadewi et al., 2024). Research by Lisdawati (2024) observed case 1 An. S, where there was effectiveness before and after pharmacological and complementary therapy intervention with red ginger and honey decoction on toddlers with ARI at the Cibungbulang Community Health Center in 2024, where there was a decrease in cough, runny nose, hoarseness, and body temperature. However, in case 2, An. I, who only underwent pharmacological therapy intervention, the reduction in coughing, runny nose, and body temperature was slow. Based on these two observations, it is known that both

have a good effect on the symptoms of ARI in toddlers (Lisdawati et al., 2024).

The South Lampung District Health Office profile reports an increase in life expectancy and changes in lifestyle patterns, leading to an epidemiological demographic transition characterized by persistently high rates of infectious diseases and an increase in non-infectious diseases. The ten most common diseases at the South Lampung District Health Center were dominated by the common cold (ISPA), followed by dyspepsia, hypertension, myalgia, acute upper respiratory infection, headache, gastritis, fever, cough, and influenza. A preliminary survey at the Bumi Daya Community Health Center in January 2025 found 37 toddlers with complaints of cough and cold, 34 toddlers diagnosed by doctors with mild ARI, and 3 toddlers with influenza.

The lack of pharmacological ARI medication from the Health Office and limited JKN Puskesmas funds are among the factors contributing to the high ARI mortality and morbidity rates. Therefore, non-pharmacological treatments, such as ginger and honey, which are easily available in the community, should be used as alternatives to pharmacological treatments to reduce the frequency or symptoms of ARI. Based on the above data, the researcher is interested in investigating "the effect of ginger and honey administration on reducing mild ARI in infants in the working area of the Bumi Daya Community Health Center, South Lampung Regency, in the year."

RESEARCH METHODS

This research method uses a quantitative approach, which is scientific research that is systematic and requires the use of numbers from the data collection process, data interpretation, to the presentation of results (Notoatmodjo, 2018). This study aims to determine the effect of ginger and honey on the incidence of Acute Respiratory Infections (ARI) in toddlers. The research was conducted in the working area of the Bumi Daya Community Health Center in South Lampung Regency from January to May 2025. The research design used was a quasi-experiment with a nonequivalent control group design, involving two groups, namely a control group and an intervention group. In the intervention group, initial measurements (pretest) of mild ARI symptoms were taken, then treatment in the form of ginger and honey was given, followed by re-measurements (posttest). Meanwhile, the control group only underwent initial and final measurements without any treatment.

The population in this study was all toddlers aged 2–5 years diagnosed with mild ARI in the working area of the Bumi Daya Community Health Center in South Lampung Regency, with a total of 43 toddlers in May 2025. The research sample consisted of 34 toddlers, comprising 17 toddlers in the intervention group and 17 toddlers in the control group. The sampling technique used purposive sampling with the inclusion criterion being toddlers diagnosed with mild ARI by a doctor, while the exclusion criteria were toddlers with severe diseases such as pneumonia, heart failure, asthma, tuberculosis, hepatitis, or other complications, as well as toddlers who were allergic to ginger or honey.

The research variables consisted of an independent variable, namely the administration of ginger and honey, and a dependent variable, namely mild ARI symptoms in toddlers. The operational definition of the variable of ginger and honey administration was a drink made from 3 cm of ginger and 2.5 mg of honey, given twice a day (morning and night) at a dose of 250 cc for five consecutive days. Mild ARI was defined as toddlers who experienced cough, runny nose, and fever without shortness of breath, with measurements based on mild ARI scoring (0–12) diagnosed by a doctor.

The research instrument used was an observation sheet. Data collection was carried out in several stages, namely the pretest stage by selecting samples according to the criteria, explaining the purpose of the study, obtaining respondent consent, and conducting initial observations. Next was the intervention stage, which involved administering ginger and honey drinks according to the specified dosage and time for five days, with the assistance of enumerators in the observation process. After that, a post-test stage was carried out, in which the researchers recorded the reduction in ISPA symptoms on the sixth day using an observation sheet.

The collected data was then processed through several stages, namely editing to check data completeness, tabulating to group and calculate data, cleaning to recheck entry errors, and data analysis. Data analysis was carried out quantitatively with univariate and bivariate analysis. Univariate analysis was used to describe the average ARI symptoms before and after the intervention. Bivariate analysis was performed to see the effect of ginger and honey on the reduction of ARI symptoms. The Shapiro-Wilk test was used to test the normality of the data because the sample size was less than 100, with the condition that the

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data was normally distributed if p ≥ 0.05. If the data was not normally distributed, the Wilcoxon test was used to test the difference in the mean before and after the intervention, with a significance level of 0.05. If the p value was ≤ 0.05, there was a significant difference, while if p > 0.05, there was no significant difference (Ha was rejected).

RESEARCH RESULTS

Respondent Characteristics

Based on Table 1, the characteristics of the respondents in this study consist of two groups, namely the intervention group and the control group, each consisting of 17 toddlers. Based on age, most toddlers were in the 37–48 month age range, namely 8 toddlers (47.1%) in the intervention group and 7 toddlers (41.2%) in the control group. In the intervention group, the next most common age range was 24–36 months, with 7 toddlers (41.2%), while in the control group, the 49–60 month age range was second, with 5 toddlers (29.4%). In terms of gender, most respondents were female, namely 9 toddlers (52.9%) in the intervention group and 10 toddlers (58.8%) in the control group. Meanwhile, there were 8 male respondents (47.1%) in the intervention group and 7 male respondents (41.2%) in the control group. Based on nutritional status, the majority of toddlers in both groups had good nutritional status, namely 14 toddlers (82.4%) in the intervention group and 13 toddlers (76.5%) in the control group. The rest had poor nutritional status, namely 3 toddlers (17.6%) in the intervention group and 4 toddlers (23.5%) in the control group. In terms of the mothers' education levels, most of the mothers had a high school education, namely 12 people (70.6%) in both the intervention and control groups. A small number of mothers had a junior high school education, namely 3 (17.6%) in the intervention group and 2 (11.8%) in the control group. Meanwhile, mothers with a higher education numbered 2 (11.8%) in the intervention group and 3 (17.6%) in the control group.

Table 1
Respondent Characteristics

Characteristics	Group			
	Intervention		Control	
	n= 17	%	n=17	%
Age				
24-36 Months	7	41,2	5	29,4
37-48 Months	8	47,1	7	41,2
49-60 Months	2	11,8	5	29,4
Sez				
Male	8	47,1	7	41,2
Female	9	52,9	10	58,8
Nutritional Status				
Normal	14	82,4	13	76,5
Underweight	3	17,6	4	23,5
Mother's Education Level				
Junior High School	3	17,6	2	11,8
Senio High School	12	70,6	12	70,6
Higher Education	2	11,8	3	17,6

Univariate Analysis

Based on Table 2, it shows that the average ISPA score in the intervention group before treatment (pretest) was 2.82 with a minimum value of 2 and a maximum of 4. After the intervention of ginger and honey administration (posttest), there was a decrease in the average ISPA score to 0.29, with a minimum value of 0 and a maximum value of 1. The average difference between the pretest and posttest was 2.53, indicating a significant decrease in ISPA symptoms after the intervention.

Table 2
Distribution of Average ISPA Scores in the Intervention Group

ISPA Score	n	Min	Max	Mean	Standard Deviation
Pretest	17	2	4	2,82	0,728
Posttest	17	0	1	0,29	0,47

Table 3
Distribution of Average ISPA Scores in the Control Group

ISPA Score	n	Min	Max	Mean	Standard Deviation
Pretest	17	2	4	2,76	0,752
Posttest	17	2	4	2,59	0,618

Based on Table 3, it shows that the average ISPA score in the control group before treatment (pretest) was 2.76 with a minimum value of 2 and a maximum of 4. After observation without intervention (posttest), the average ISPA score decreased slightly to 2.59 with the same range of values, namely a minimum of 2 and a maximum of 4. The average difference between the pretest and posttest was 0.17, indicating that without intervention, the reduction in ISPA symptoms was not very significant.

Data Normality Test

Based on Table 4, before statistical testing, data normality was tested using the Shapiro-Wilk test to determine whether the research data was normally distributed or not. After testing, the Shapiro-Wilk result was <0.05, indicating that the data was not normally distributed. Therefore, the bivariate analysis used was the Mann Whitney test.

Table 4
Data Normality Test

Kelompok	n	*Shapiro Wilk*	Note
Intervention Group (*Pretest*)	17	0,003	Not Normally Distributed
Intervention Group (*Posttest*)	17	0,000	Not Normally Distributed
Control Group (*Pretest*)	17	0,002	Not Normally Distributed
Control Group (*Posttest*)	17	0,000	Not Normally Distributed

Bivariate Analysis

Table 5
The Effect of Red Ginger and Pure Honey on the Reduction of Mild Respiratory Infections in Toddlers

Variable	Mean Rank	p-value
Intervention Group (n=17)	9	0.000
Control (n=17)	26	

The results of the analysis in the Table show that the Mann Whitney test yielded a p-value of 0.000. Since the p-value is <0.05, it can be concluded that red ginger and pure honey have an effect on reducing mild ARI in toddlers in the working area of the Bumi Daya Community Health Center in South Lampung Regency.

DISCUSSION

Average Distribution of ISPA Scores in the Intervention Group

The analysis results show that the average ISPA score in the intervention group before treatment (pretest) was 2.82, with a minimum value of 2 and a maximum value of 4. After the intervention of ginger and honey administration (posttest), there was a decrease in the average ISPA score to 0.29 with a minimum value of 0 and a

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maximum value of 1. The average difference of 2.53 indicates a significant decrease in ISPA symptoms after the intervention.

Pharmacologically, honey contains pinine and vitamin C, which act as antioxidants and antibiotics, thereby reducing the severity of coughing without causing harmful side effects to children's health. Ginger also contains essential oils, with the main components being zingiberene and zingiberol, which are antiseptic, antioxidant, and antibacterial, and can function as a traditional medicine for coughs with an expectorant effect (Nurlia, 2024). This supports the effectiveness of the combination of ginger and honey as a natural therapy.

The results of this study are in line with the findings of Linda et al. (2024), who reported a significant decrease in cough scores in the intervention group, where the average cough score before treatment was 18.91 and after treatment decreased to 10.00. This decrease reinforces the evidence that the combination of ginger and honey is effective in reducing respiratory symptoms in children.

In addition to the active ingredients, the effectiveness of the intervention was also influenced by the characteristics of the respondents. The majority of toddlers were in the 37–48 month age range, a period when children are physically and socially active, but their immune systems are still developing, making them susceptible to infection. The decrease in ARI scores in this group indicates that the intervention was on target. Nutritional status also plays an important role, with most toddlers having good nutritional status (82.4%), which supports the body's resistance and absorption of active substances from ginger and honey. The mother's education level also has an influence, as the majority have a high school education, enabling them to understand the research instructions and carry out the intervention properly.

Thus, the decrease in ISPA scores from 2.82 to 0.29 proves that the administration of pure ginger and honey is an effective, safe, non-pharmacological approach that can be used as an applicable natural therapy alternative at the family and community levels.

Average Distribution of ISPA Scores in the Control Group

In the control group, the average ISPA score before treatment (pretest) was 2.76, with a minimum value of 2 and a maximum value of 4. After observation without intervention (posttest), the average score only decreased slightly to 2.59, with a difference of 0.17, indicating that the reduction in ISPA symptoms was not significant.

ARI in toddlers is an acute infection of the lower respiratory tract that lasts up to 14 days, generally caused by bacteria such as Staphylococcus aureus and Streptococcus pneumoniae or the influenza virus (Putri et al., 2024). Environmental factors, such as the quality of home ventilation, housing density, and exposure to cigarette smoke, also contribute to the incidence of ARI (Dessy, 2022).

Based on the characteristics of the respondents, the majority of toddlers were aged 37–48 months (41.2%), which is a vulnerable age for infection exposure due to high social activity but without an understanding of hygiene. The majority of respondents were female (58.8%), but gender differences did not show a significant effect on the reduction of ARI symptoms. The nutritional status of most toddlers was good (76.5%), which supports immunity, although without additional therapy, symptom improvement was only minimal.

A study by Afdhal et al. (2024) also found similar results, where the average cough and cold symptoms in the control group only decreased from 8.00 to 6.00 after the observation period. This indicates that symptom improvement was largely due to the body's natural healing process in mild, self-limiting ARIs, as well as increased parental attention to daily care.

However, compared to the intervention group, the reduction in symptoms in the control group was much smaller. This confirms that ginger and honey intervention provides real therapeutic benefits in reducing mild ARIs in toddlers.

The Effect of Red Ginger and Pure Honey on the Reduction of Mild Respiratory Infections in Toddlers

The Mann Whitney test results showed a p-value of 0.000 ($p < 0.05$), so it can be concluded that there is a significant effect of red ginger and pure honey on reducing mild ARI in toddlers in the working area of the Bumi Daya Community Health Center in South Lampung Regency. This intervention was able to reduce symptoms of cough with phlegm, runny nose, mild fever, fussiness, and loss of appetite. Ginger, with its essential oil content, has an antitussive effect, while honey contains natural antibiotic substances that can treat infections (Riyanti, 2023).

This study is in line with Linda et al. (2024) and Riyanti (2023), who both reported that the combination of red ginger and honey is effective in reducing ARI symptoms with a significant p-value.

The advantages of this therapy are that it is easy to do, inexpensive, safe, and can be applied independently at home.

However, the results of the study show that not all respondents experienced maximum improvement. Several factors that may have influenced this include the age of the respondents, who were still in the stage of immune development, gender dominance, variations in micronutrient status, and the mothers' level of understanding regarding dosage and frequency of administration. Environmental factors, such as home ventilation and exposure to cigarette smoke, also have the potential to slow down healing.

In contrast, in the control group, there were toddlers who experienced natural improvement due to immunological factors and greater attention from their parents during the study. This shows that in addition to intervention, success is also influenced by the mother's compliance in administering the treatment, the child's acceptance of the taste of ginger and honey, and the household environment. Overall, this study strengthens the evidence that red ginger and honey administration is an effective non-pharmacological intervention for mild ARI in toddlers and has the potential to be developed as a promotive and preventive therapy alternative in the community.

Research Limitation

This study has several limitations. External factors such as living conditions, air quality, exposure to cigarette smoke, household cleanliness, and previous medical history cannot be fully controlled. These factors may be confounding factors that affect the effectiveness of the intervention.

CONCLUSION

The results of this study indicate that most of the toddlers who participated in the study were aged 37–48 months, with a higher proportion of females, good nutritional status, and mothers with secondary education (high school). In the intervention group, the average ISPA score before treatment was 2.82 and decreased dramatically to 0.29 after being given red ginger and honey, while in the control group, the average ISPA score only decreased slightly from 2.76 to 2.59 without intervention. Statistical tests showed a significant effect of red ginger and honey administration on the reduction of mild ARI in toddlers in the working area of the Bumi Daya Community Health Center in South Lampung Regency with a p-value of 0.000. Thus, red ginger and honey administration proved to be effective as non-pharmacological therapy in reducing mild ARI symptoms in toddlers.

SUGGESTION

For mothers of toddlers, it is recommended to consider using natural ingredients such as ginger and honey as complementary alternatives to mild respiratory tract infection treatment, while still consulting with health professionals. Proper administration of ginger and honey can help relieve symptoms and boost children's immunity. For the Bumi Daya Community Health Center, the results of this study can be used as a reference in promotional and preventive efforts, particularly by integrating education about the benefits of ginger and honey into child health education activities and integrated health service posts. For Malahayati University, this research can enrich the knowledge base in the field of public health and pediatric nursing and support the development of evidence-based practice in the learning process. Meanwhile, future researchers are advised to expand the scope of the research area with a larger sample size so that the results can be more generalized. The use of a stronger research design, such as a randomized controlled trial (RCT), is also recommended to increase internal validity, as well as considering other variables such as environmental conditions, home hygiene, exposure to cigarette smoke, nutritional status, and immunization history that may potentially affect the incidence of ARI in toddlers.

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