

RESPIRATORY PATTERN DETERIORATION IN ISPA PATIENTS IN THE SUKAMERINDU COMMUNITY HEALTH CENTER WORK AREA, BENGKULU CITY

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ABSTRACT

WHO data shows that there are around 7-13% including the severe category that require treatment, in Health facilities (Agustina & Subharmiati, 2017). Based on a 2022 Health Service report, the Sukamerindu Community Health Center reported that Acute Respiratory Infection (ARI) ranked third as the disease with the highest prevalence in Bengkulu. In 2020, there were 1,477 cases of ARI, with 228 cases, and 28 cases in those aged 70 and over. The highest number of cases was found in the 20-44 age group, with 329 cases. To determine whether there is a decrease in breathing patterns in patients with ISPA after being given Jerani Inbalasi Vap Peppermint Essential Oil. The study employed a quasi-experimental design, with two groups using a pre-test and a post-test. The subjects were 30 ISPA patients aged 20-44 years, selected using a purposive sampling technique.

The results of this study show that the intervention is effective in reducing respiratory frequency in ISPA patients significantly with a p-value of 0.000 in each group. Based on the research findings, it can be concluded that both therapies are equally effective in reducing respiratory rate in patients with acute respiratory infections. However, no significant differences were found between the two methods in terms of effectiveness

Keywords : *Respiratory Rate, ARI*

INTRODUCTION

WHO data shows that approximately 7-13% of cases fall into the severe category and require treatment in a health facility (Agustina & Suharmiati, 2017). According to a 2022 Health Office report, the Sukamerindu Community Health Center reported that Acute Respiratory Infections (ARI) ranked third as the disease with the highest prevalence in Bengkulu. In 2020, there were 1,477 cases of ARI. Of these, 228 cases were recorded, with 28 cases among those aged 70 and over. The highest number of cases was found in the 20-44 age group, with 329 cases (Sukamersindu Community Health Center, 2023). Simple inhalation therapy is a method of administering medication by inhaling vapor containing active ingredients into the respiratory tract. This method uses readily available materials and methods and can be performed at home. Simple inhalation is considered more effective because the medication works quickly, goes directly to the target tract, and has minimal systemic side effects. Another advantage of this therapy is its ease of implementation and relatively low cost (Handayani et al., 2021).

Research by Handayani et al. (2021) showed that this therapy can improve airway clearance. Results were seen in a reduction in adventitious breath sounds, decreased cough frequency, thinner sputum, and a change in sputum color to white.

One simple inhalation technique is to drop eucalyptus oil into hot water and then inhale

the resulting steam repeatedly, especially when your nose is stuffy (Hartanti, 2010). Its active ingredients have anti-inflammatory properties.

Nugrawati (2012) showed that approximately 85% of patients experienced improved breathing patterns and a reduction in symptoms of ineffective airway clearance after inhalation therapy. She found a decrease in respiratory rate after administering this therapy. Implementing this non-pharmacological therapy at home can help reduce the incidence of acute respiratory infections (ARI).

METHODS

This study employed a two-group quasi-experimental design using a pre-test and post-test. The subjects were 30 acute respiratory infection (ARI) patients aged 20-44 years, selected using a purposive sampling technique. The dependent variable was changes in breathing patterns, measured by respiratory rate. The results were analyzed using an independent t-test.

RESULTS AND DISCUSSIONS

Results

Table 1
Average respiratory rate before and after intervention

Variabel	N	Mean	Sd.Deviation	Min	Max
Before	15	25.73	1.163	24	28
After	15	21.53	1.060	20	23

It can be seen that the average respiratory rate of respondents was 25.73 times per minute with a standard deviation of 1.163. After the intervention was given, the average respiratory rate decreased to 21.53 times per minute with a standard deviation of 1.060.

Description of Breathing Pattern Frequency Before and After Peppermint Essential Oil Steam Inhalation Therapy in Respondents in the Sukamerindu Community Health Center Work Area, Bengkulu City

Table 2

Variabel	N	Mean	Sd.Deviation	Min	Max
pre	15	25.87	1.246	24	28
pre After therapy is given Essential Oil Peppermint	15	20.80	1.014	19	23

The results in Table 2 show that the average respiratory rate of respondents was 25.87 breaths per minute with a standard deviation of 1.246. After the intervention, the average respiratory rate decreased to 20.80 breaths per minute with a standard deviation of 1.014.

Table 3
Normality Test

Variabel		Shapiro-Wilk		
		Statistik	Df	Sig
eucalyptus oil	Before	0.929	15	0.262
	After	0.889	15	0.064
<i>Essential Oil Peppermint</i>	Before	0.924	15	0.220
	After	0.916	15	0.165

Based on Table 3, all breathing pattern data in the intervention group obtained a p-value > 0.05. Meeting the assumption of normality, the analysis was continued using both paired t-test and independent t-test

Table 4
Bivariate Analysis Results

Variabel	Mean	N	Std. Deviation	p-value
Before given	25.73	15	1.163	0.000
After being given	21.53		1.060	

The table shows a decrease in the average respiratory rate of 4.2 breaths per minute in ISPA patients compared to before the intervention. Statistical test results indicate that this difference is statistically significant with a p-value of 0.000.

Table 5

Variabel	Mean	N	Std. Deviation	p-value
Before given	25,87	15	1.246	0.000
After being given	20.80		1.014	

The average respiratory rate of patients with acute respiratory infections decreased by 5.07 breaths per minute after treatment. Statistical tests showed a significant difference.

Table 6

Variabel	Mean	T Hitung	N	Std. Deviation	Value
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eucalyptus oil	21.53	1.936	15	1.060	0.063
<i>Essensial Oil Peppermint</i>	20.80	1.936	15	1.014	0.063

Source: Processed primary data (2025).

DISCUSSION

The findings of this study indicate that the intervention was effective in reducing Respiratory frequency in ISPA patients significantly decreased, with a p-value of 0.000 in each group. The therapeutic effect of eucalyptus oil is thought to originate from its cineole content, which has mucolytic and bronchodilator properties, while peppermint contains menthol, which has anti-inflammatory and antibacterial properties.

However, the test results showed no difference in therapy type (p-value >0.05). This is likely influenced by factors such as age variation, severity of acute respiratory infections, and irregularities in the timing and duration of therapy among respondents.

These findings suggest that both non-pharmacological inhalation methods are beneficial in helping manage ARI, although neither therapy proved statistically superior. The researchers believe the lack of significant differences between the therapies is likely due to heterogeneity in respondent characteristics, both in terms of age and level of symptoms experienced, as well as differences in timing and implementation of the intervention, which may influence the results of respiratory rate reduction.

These results are consistent with research showing a decrease in respiratory frequency in patients after eucalyptus oil vapor inhalation therapy. However, variations in respiratory rate reductions persisted among respondents, likely related to differences in severity, acute respiratory infection (ARI), and age, which influence individual breathing patterns.

CONCLUSION

Based on the research findings, it can be concluded that both therapies are equally effective in reducing respiratory rate in patients with acute respiratory infections. However, no significant differences were found between the two methods in terms of effectiveness.

Health workers at Sukamerindu Community Health Center are expected to educate the public about the benefits of using peppermint oil and essential oil as a non-pharmacological supportive therapy option in treating ARI.

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