Ammar Journal of Community Service
2025, Vol. 1, No. 1, pp. 1–6
https://doi.org/10.11648/j.ammarjcs.2025.01.01

Education on Tepid Sponging and Simple Inhalation for Managing Acute Respiratory Infections During the Transitional Season

Khotimah Husnul[1], Diktina Arifatul Amalia [2]

Keywords:
Acute Respiratory Infection (ARI); Tepid Sponge; Simple Inhalation.

Corresponding Author
Khotimah Husnul
Sarjana Keperawatan, Universitas 'Aisyiyah Surakarta
Jl. Kapulogo No. 3, Pajang, Laweyan, Surakarta, Jawa Tengah
Email: Husnulkhotimah1996@aiska-university.ac.id

Abstract. This educational outreach aimed to enhance the knowledge and skills of housewives in the early management of Acute Respiratory Infections (ARI) through education and hands-on practice of simple inhalation and tepid sponging techniques. The program was carried out using interactive counseling and live demonstrations involving 27 participants in Dusun Tugu, Sragen. The activity began with a pre-test to assess participants' initial understanding, followed by material presentation, practical demonstrations, a post-test, and a Q&A session. Evaluation results showed a significant improvement in participants' understanding after the program. Before the session, only 18.52% of participants were able to independently identify ARI management steps, which increased to 92.6% afterward. Participants demonstrated high enthusiasm and successfully performed the techniques correctly. Educational leaflets were also produced to support participants' understanding and are expected to be applied within their families. This activity demonstrates that a practice-based educational approach is effective in improving community readiness to address health risks during the transitional (pancaroba) season.

Introduction

Seasonal changes caused by the Earth's revolution and axial tilt are among the main factors contributing to weather instability across various regions, including Indonesia. The El Niño and La Niña phenomena further exacerbate these unpredictable weather conditions, often leading to extreme climates that directly impact public health. One of the most common consequences is the rising incidence of Acute Respiratory Infections (ARI), especially during the transitional season (*pancaroba*). The *pancaroba* season marking the shift between the rainy and dry seasons is characterized by drastic weather fluctuations, high humidity, and decreased immune resistance among the population (Purba et al., 2021).

According to data from the Ministry of Health of the Republic of Indonesia (Kemenkes RI, 2023), the prevalence of ARI across all age groups in Indonesia reaches **23.5%**, indicating that ARI remains a significant public health issue. This highlights the urgency of implementing practical educational interventions for early home-based management of ARI symptoms. Research indicates that steam inhalation therapy using eucalyptus oil can help alleviate ARI symptoms such as cough, nasal congestion, and shortness of breath. The active compounds contained in eucalyptus oil *cineole*, *linalool*, and *terpineol* possess anti-inflammatory, decongestant, and antimicrobial properties that help ease respiratory discomfort (Larasuci Arini & Setiadi Syarli, 2022).

A case study by Handayani et al. (2022) demonstrated that simple steam inhalation using eucalyptus oil in ARI patients led to clinical improvements, including reduced coughing

frequency, decreased adventitious breath sounds, a change in sputum consistency from thick yellowish to thin whitish, and the maintenance of a normal respiratory rate of 22 breaths per minute. In addition, the *tepid sponge* or warm compress method has also been proven effective in lowering body temperature in cases of mild fever due to ARI and improving overall patient comfort.

Based on field observations and interviews with local health cadres, it was found that non-pharmacological methods such as simple inhalation and *tepid sponge* techniques are not yet widely known or practiced by the community. Therefore, this community service program was designed in the form of educational outreach and live demonstrations on how to perform simple and practical inhalation and *tepid sponge* therapies at home. The target audience consisted of women in Dusun Tugu RT 3 RW 12 Tangkil, Sragen, who play a vital role in maintaining their family's health. Additionally, educational leaflets were distributed to reinforce participants' understanding of the material presented.

The main objective of this activity is to improve the community's knowledge and skills in managing early symptoms of ARI through independent practice of simple inhalation and *tepid sponge* methods at home. The working hypothesis of this program is that direct education accompanied by hands-on practice will enhance the community's preparedness and confidence in managing ARI cases, particularly during the *pancaroba* season.

Methods and Strategies

This community service activity was conducted using an educational and participatory approach through counseling and live demonstrations. The program took place in Dusun Tugu RT 3 RW 12, Tangkil Village, Sragen District, Sragen Regency. The implementation team consisted of the author and eight nursing profession students who were completing their practicum at the Regional Disaster Management Agency (BPBD) of Sragen Regency. The participants were women from Dusun Tugu, who play a central role as family health caretakers. This target group was chosen because mothers hold a strategic role in the early detection of ARI symptoms and in applying initial home care practices. A total of 27 participants were recruited through coordination with the neighborhood head (RT) and local health cadres.

The initial phase of the program began with coordination between the organizing team and the neighborhood head to present the activity plan. After obtaining approval from relevant parties, participant registration and structured scheduling were conducted. The implementation team was divided into several functional groups responsible for counseling, demonstration, facilitation, and documentation.

The counseling material covered basic knowledge about Acute Respiratory Infection (ARI), including its definition, causes, symptoms, and risk factors that can worsen the condition, particularly during the transitional (*pancaroba*) season. Participants were educated on recognizing early symptoms such as cough, cold, mild shortness of breath, fever, and fatigue as early warning signs of ARI. The session also emphasized preventive measures through clean and healthy living behaviors, maintaining environmental hygiene, avoiding exposure to smoke, and ensuring adequate family nutrition.

The practical demonstration of **simple inhalation therapy** involved tools such as warm water (42–44 °C), a small basin, a towel, and eucalyptus oil. Warm water was poured into the basin, and 2–3 drops of eucalyptus oil were added for every 250 ml (equivalent to one glass). Participants were instructed to lean their heads over the steam at a safe distance of 25–30 cm from the water surface, covering their heads and the basin with a towel to concentrate the vapor for 10–15 minutes (Vathanophas et al., 2021).

For the **tepid sponge demonstration**, the required tools included warm water (29.1–37.4 °C), a washcloth, and a thermometer. The team explained that the washcloth should be dipped into warm water, wrung out, and used to wipe body areas such as the neck, armpits, and groin for 20–30 minutes. This technique aims to gradually lower body temperature through the process of evaporation without causing chills. The thermometer was used to monitor body temperature before and after the procedure.

Evaluation was conducted using pre-test and post-test assessments to measure participants' understanding before and after the session. The pre-test results indicated that most participants lacked knowledge about the initial steps of independent ARI management. After the session, there was a significant improvement in understanding. Most participants were able to correctly explain and perform both the simple inhalation and warm compress techniques. They also showed high enthusiasm during the practice and discussion sessions.

After completing all educational and demonstration activities, an interactive Q&A session was held. To enhance participation and create an enjoyable learning atmosphere, the committee provided small rewards for participants who actively asked or correctly answered questions. This strategy effectively increased engagement and reinforced the participants' comprehension of the materials presented.

Flagship Program

This activity is part of the disaster preparedness flagship program of the Bachelor of Nursing Program at Universitas 'Aisyiyah Surakarta, which emphasizes promotive and preventive education in disaster management, including non-natural disasters such as transitional (*pancaroba*) seasons. The nursing students conducting their practicum at the Regional Disaster Management Agency (BPBD) of Sragen Regency carried out this counseling activity as an implementation of their disaster management competencies, while also serving as a tangible contribution to preparing the community to face health risks caused by extreme weather changes.

Results and Discussion

This community service activity involved 27 women from Dusun Tugu RT 3 RW 12, Tangkil, Sragen, as active participants. Prior to the counseling session, the majority of participants lacked understanding of the initial steps for managing Acute Respiratory Infections (ARI). The pre-test results showed that only 5 participants (18.52%) understood how to manage ARI independently, while 22 participants (81.48%) did not.

After the educational counseling and demonstrations, the post-test results indicated a significant improvement in understanding. A total of 25 participants (92.6%) demonstrated increased comprehension and were able to accurately explain and perform the steps for ARI management. Only 2 participants (7.4%) still experienced difficulties, likely due to advanced age, low health literacy, or limited exposure to hands-on learning methods. This finding aligns with Kim and Oh (2020), who found that the effectiveness of health education among older adults and individuals with lower education levels often requires more intensive and repetitive approaches.

A layered evaluation process was implemented to ensure the effectiveness of the applied educational methods. In addition to written pre-tests and post-tests, elderly participants who had difficulty reading or comprehending the questions were assisted by facilitators who read the questions aloud. Further evaluation was conducted through an interactive Q&A session, where facilitators randomly asked participants verbal questions to assess oral understanding. Participants who answered correctly received small rewards as a form of appreciation and motivation. This approach supports the findings of Salmani et al. (2025), which revealed that providing incentives, including non-financial ones, significantly enhances active participation in health programs (SMD = 0.52; $p < 0.001$).

In addition to knowledge improvement, the community service activity was supported by the use of educational leaflets. The leaflets contained concise information on early ARI symptoms and step-by-step instructions for performing inhalation and *tepid sponge* techniques.

The design was intentionally simple, using clear, accessible language and illustrative images to facilitate understanding and allow participants to share the information with their family members. The leaflet served as an effective visual aid in reinforcing participants' comprehension. This finding is consistent with Shalahuddin et al. (2025), who reported a significant increase in mothers' knowledge ($p < 0.05$) after receiving health education through leaflets. Leaflets are considered practical and easy-to-understand media because they deliver essential information concisely, supported by visuals and simple language suited to the community's literacy level. Furthermore, they can be taken home and reread at any time, enabling independent repetitive learning.

Overall, the results of this community engagement program demonstrate that educational methods combining counseling, demonstration, and hands-on practice are highly effective in improving participants' understanding. Participants reported that they became more confident in managing ARI symptoms independently at home, emphasizing that direct experience through practice was the key factor in developing skills and behavioral change. These findings are supported by Nanda and Hikmawati (2022), who found that health education incorporating pre- and post-tests significantly improved family knowledge and skills in managing fever using *tepid sponge* techniques ($p = 0.000$) in Brebes. Similarly, Susiami and Mubin (2022) reported that steam therapy with added eucalyptus oil significantly improved airway clearance in children with ARI ($p = 0.035$). Although their study focused on pediatric cases, similar physiological benefits can be experienced by other age groups when appropriate adjustments are made. These prior studies reinforce the present findings, indicating that clinical improvements such as reduced respiratory rate and enhanced breathing comfort—were observed after the intervention.

***Figure 1**. Counseling and Demonstration by the Community Service Team in Dusun Tugu RT 3 RW 12*

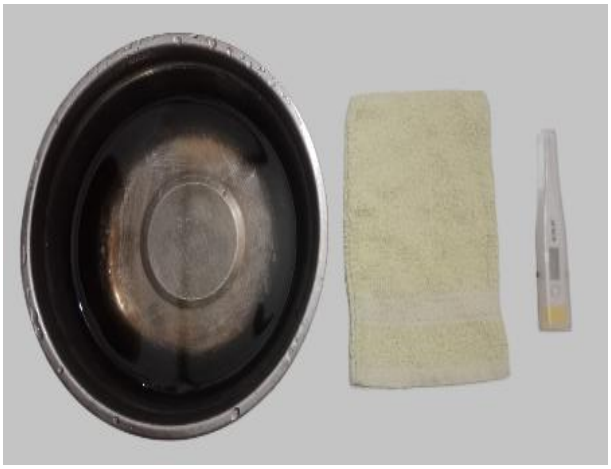

***Figure 2.** Tepid Sponge Equipment (basin, warm water, washcloth, thermometer)*

***Figure 3.** Simple Inhalation Equipment (basin, warm water, towel, eucalyptus oil)*

***Figure 4.** Community Service Team and Residents of Dusun Tugu RT 3 RW 12*

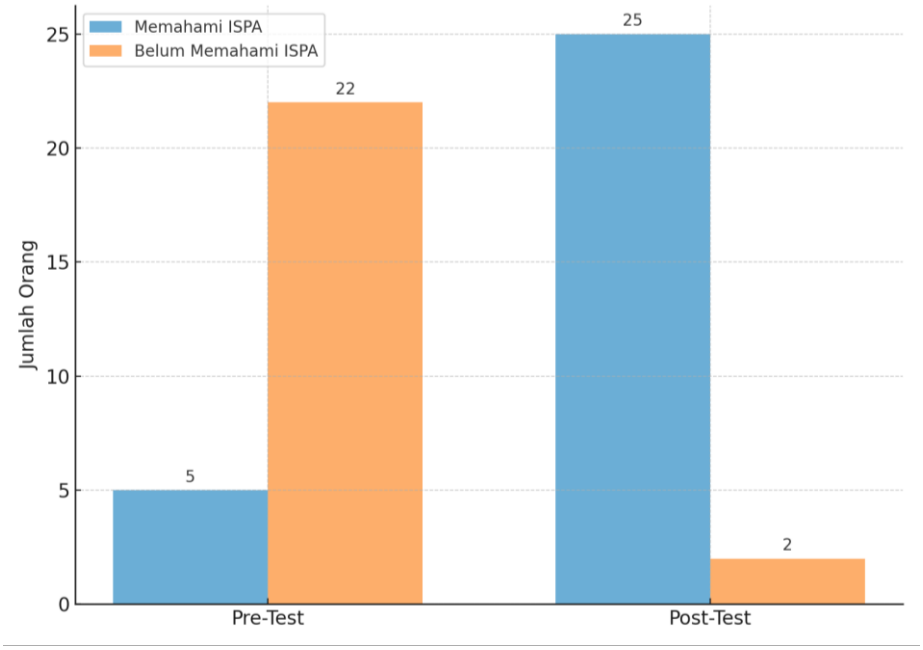

Figure 5. *Pre-test and Post-test Results of Residents in Dusun Tugu RT 3 RW 12*

Evaluation and Monitoring

The counseling activity was evaluated using pre-test and post-test assessments to measure participants' understanding of the initial management of Acute Respiratory Infections (ARI). The results showed a significant increase in knowledge after the intervention. In addition, monitoring was carried out by observing participants during the practical sessions and discussing the challenges they faced when applying the techniques at home. This monitoring process was supported by coordination between the implementation team and local health cadres to ensure the continuity and improvement of similar educational activities in the future.

Conclusion and Recomendations

This counseling activity successfully enhanced the knowledge of women in Dusun Tugu RT 3 RW 12, Tangkil, Sragen, regarding the initial management of Acute Respiratory Infections (ARI) through the application of simple inhalation and *tepid sponge* techniques. Most participants were able to understand the material and practice the methods effectively. As a follow-up, it is recommended to conduct regular mentoring or monitoring sessions to ensure that participants continue to apply the knowledge they have gained. Moreover, the active involvement of local health cadres is essential to facilitate wider and more sustainable dissemination of information within the community.

References

Handayani, S., Risa Dewi, N., & DIII Keperawatan Akper Dharma Wacana Metro, P. (2022). Penerapan Terapi Inhalasi Sederhana Dengan Minyak Kayu Putih Untuk Meningkatkan Bersihan Jalan Napas Pada Anak Dengan ISPA. *Jurnal Cendikia Muda*, *2*(4).

Kemenkes RI. (2023). *Survei Kesehatan Indonesia*. Kementerian Kesehatan Republik Indonesia.

Kim, M. Y., & Oh, S. (2020). Nurses' perspectives on health education and health literacy of older patients. *International Journal of Environmental Research and Public Health*, *17*(18), 1–11. https://doi.org/10.3390/ijerph17186455

Larasuci Arini, & Setiadi Syarli. (2022). *Implementasi Terapi Inhalasi Uap Minyak Kayu Putih Pada Anak dengan Infeksi Saluran Pernafasan Akut (ISPA)*.

Nanda, R., & Hikmawati, I. (2022). Health Education About Tepid Water Sponge Efforts to Increase Family Knowledge and Skills in Handling Fever. *Proceedings Series on Health & Medical Sciences*, *3*, 116–120. https://doi.org/10.30595/pshms.v3i.630

Purba, N. P., Pranowo, W. S., Ndah, A. B., Nanlohy, P., Tinggi, S., Angkatan, T., Sttal, L. (, & Tni-Al,). (2021). *Seasonal Variability of Temperature, Salinity, and Surface Currents at 0° Latitude section of Indonesia Seas*. http://apdrc.soest.hawaii.

Salmani, B., Prapavessis, H., Vanderloo, L. M., & Mitchell, M. S. (2025). Financial incentives for physical activity in adults: Systematic review and meta-analysis update. In *Preventive Medicine* (Vol. 192). Academic Press Inc. https://doi.org/10.1016/j.ypmed.2025.108237

Shalahuddin, I., Salsabila, S., Rukmasari, E. A., Rosidin, U., Eriyani, T., Pebrianti, S., & Maulana, I. (2025). The Impact of Health Promotion Using Leaflet Media on Mothers' Knowledge of the Early Stimulation of Toddlers' Development and Growth. *Journal of Multidisciplinary Healthcare*, *18*, 113–122. https://doi.org/10.2147/JMDH.S427166

Susiami, S., & Mubin, M. F. (2022). Peningkatan Bersihan Jalan Nafas Pada Anak Balita Penderita ISPA Dengan Terapi Uap Air dan Minyak Kayu Putih Di Poliklinik AKPOL Semarang. *Ners Muda*, *3*(1). https://doi.org/10.26714/nm.v3i1.7089

Vathanophas, V., Pattamakajonpong, P., Assanasen, P., & Suwanwech, T. (2021). The effect of steam inhalation on nasal obstruction in patients with allergic rhinitis. *Asian Pacific Journal of Allergy and Immunology*, *39*(4), 304–308. https://doi.org/10.12932/AP-090818-0393