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Community-Based First Aid Education for Out-of-Hospital Asthma Attack Management among Laypersons

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ABSTRACT

Airway inflammation, obstruction, and bronchial hyperresponsiveness characterise asthma in children and young adults. Data shows that 38 asthma patients died due to delays in emergency referral, difficulties in initial care, and classroom teachers' incompetence to treat asthma attacks. This Community Service Program teaches SMAN 1 Sungai Ambawang Asthma First Aid. Asthma First Aid teaching at SMAN 1 Sungai Ambawang is essential for community asthma treatment independence. This project attempts to improve asthma attack quality of life. Community service uses lectures, Q&As, and demonstrations. Students, instructors, and the SMAN 1 Sungai Ambawang School Health Unit (UKS) Team will engage in this community service. There are 50 participants. To start community service, follow these steps. Pre-tests are 16 questions and take 16 minutes. The team then teaches asthma first aid for one hour. Steps for first aid are demonstrated. Participant practise what they learned. Following the test, they have 16 minutes to complete a 16-question questionnaire. The pretest-posttest analysis shows that participants learned asthma first aid. Community service can increase asthma attack prevention knowledge. The public health center and education office should increase asthma first aid education. To avoid asthma attacks, SMAN 1 Sungai Ambawang students and community members need regular education.



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INTRODUCTION

Asthma is a chronic disease characterised by airway inflammation, airway obstruction, and bronchial hyperresponsiveness in children and young adults (Adeyeye et al., 2018; Nanda & Wasan, 2020). The incidence of asthma worldwide is predicted to be 300 million sufferers, and it is estimated that 7.5% of the adult population in America suffers from asthma. Based on medical diagnoses, it is estimated that asthma generally affects 8.7% of the Black race, 7.6% of the White race, and 5.8% of the Hispanic race (Nanda & Wasan, 2020). Asthma conditions can be worsened and recurrent due to the anxiety of the sufferers, causing someone

experiencing an asthma attack to have airway spasms, airway inflammation, and excessive mucus production, which leads to difficulty breathing. Asthma attacks are at risk of causing death and require appropriate first aid to anticipate worsening during an asthma attack (Hammett, 2018).

Asthma can become permanent over time because the basement membrane thickens, collagen builds up, and the epithelial cells are shed, as well as because the airways change shape in chronic illness with smooth muscle hypertrophy and hyperplasia. If not treated soon, asthma can get worse and be harder to manage because mucus makes it challenging for inhaled medicines to reach the mucosa. Inflammation also becomes more swollen (Goldin & Cataletto, 2024). People with asthma who don't control it well are at risk of asthma episodes, lung development problems, or a quick drop in lung function, as well as adverse effects from the medicine they take (Kemenkes RI, 2018b). Repeated asthma episodes can make a person's life worse since they make it difficult to sleep and make them tired during the day, which can make them less productive (Pramesthi et al., 2022). Asthma care, therefore, requires continuous monitoring to achieve asthma control with minimal disruption, patient care by making diagnoses, prescribing appropriate treatments, and supplying information, especially for patients and their families, to prevent disease recurrence (Reddel, 2022).

Asthma in Indonesia is estimated to be 2.6% of the population across various ages, with 57.5% of asthma patients experiencing relapses, and 48.1% of asthma relapses occurring in school students (Kemenkes RI, 2018b). The asthma incidence rate in West Kalimantan province is 3.19% of the population, with the Kubu Raya district having an asthma incidence rate of 2.22% and an asthma relapse rate of 52.21% in the Kubu Raya district (Kemenkes RI, 2018a).

Based on reported data, there were 38 asthma-related deaths due to delays in referring patients to the emergency unit, failures in initial management during an asthma attack, and the inability of classroom teachers to provide first aid to students experiencing an asthma attack (Luckie et al., 2019). Introducing risk factors that trigger asthma exacerbations, asthma symptoms, and first aid for asthma attacks is important to educate the community (Nanda & Wasan, 2020). The study results at SMAN 1 Biromaru Demak et al., (2020) The school health showed that Kader's training regarding first aid understanding showed a significant influence post-training on improving first aid knowledge. Another similar study found that community health education based on the Zoom platform improved participants' understanding of first aid management for emergency cases.

The patient's knowledge about asthma is crucial. Asthma patients must know about asthma, its causes, symptoms, and effective prevention methods. If the patient's knowledge increases, they will be able to prevent it better, leading to improved management of their condition and a reduction in asthma attacks. Knowledge greatly influences a person's attitude toward something. In general, receiving information through various media can have positive effects, such as increasing knowledge, changing attitudes, and influencing behaviour (Beliana & Bella, 2022; Ghozali et al., 2019; Pambudi & Maulana, 2022).

First aid for asthma attacks in schools is 48.1% and is administered by class teachers, but they do not yet know how to perform first aid for asthma cases. The general public's involvement in the knowledge and skills in asthma first aid need to be improved. When people with asthma experience an asthma attack outside the hospital and are found by the general public, they should immediately receive assistance according to the asthma first aid protocol and be referred to the nearest

healthcare facility. Related to the reasons underlying the community service activities that have been carried out by the author, as much as possible, the author also included supporting data to strengthen the author's reasons.

The main goal is to increase public knowledge about first aid for asthma attacks out of the hospital. First aid for an asthma attack includes staying calm during the attack, using an inhaler, positioning the patient, sitting down and loosening their clothing, practising breathing exercises, and making a referral. This requires public education to improve knowledge of first aid for asthma attacks at SMAN 1 Sungai Ambawang, Kubu Raya Regency.

Asthma is a significant health problem in West Kalimantan province, with an incidence rate of 3.19% of the population. In Kubu Raya Regency, the incidence is slightly lower at 2.22%, but the recurrence rate among asthma sufferers is high at 52.21%. Alarmingly, 38 asthma-related deaths have been reported in the region. Primarily due to delays in referral to emergency services, inadequate initial treatment during asthma attacks, and a lack of first aid knowledge among class teachers.

Recognising the risk factors that trigger asthma relapses, early asthma symptoms, and appropriate first aid measures is crucial for community education. At SMAN 1 Sungai Ambawang, a school supported by the Sungai Ambawang Community Health Centre, interviews have revealed that students have experienced asthma attacks during ceremonies and sports activities. While teachers have attempted to help, they lack the necessary knowledge to provide effective first aid for asthma.

This situation highlights the urgent need for targeted education for teachers and the school community to improve asthma management and outcomes. This requires public education to improve knowledge of first aid for asthma attacks at SMAN 1 Sungai Ambawang, Kubu Raya Regency. The indicators of the success of public education in improving knowledge of first aid for asthma attacks at SMAN 1 Sungai Ambawang, Kubu Raya Regency, can be described as follows: Indicators of the success of public education in increasing knowledge of first aid for asthma attacks at SMAN 1 Sungai Ambawang, Kubu Raya Regency, can be described as follows: Improvement in knowledge and skills of first aid for asthma attacks by the general public in the vicinity of SMAN 1 Sungai Ambawang, Kubu Raya Regency, and Improve cooperation between the Sungai Ambawang Health Centre and the education office to enhance skills in first aid for asthma attacks. The target of community service activities is students, class teachers and the School Health Unit team at SMAN 1 Sungai Ambawang Durian, Kubu Raya Regency.

IMPLEMENTATION METHOD

Venue and Time: SMAN 1 Sungai Ambawang, School Meeting Room, Monday, September 11, 2024. Audience/Activity Partners: The target audience for this community service activity is students, teachers, and the Health and Safety Team of SMAN 1 Sungai Ambawang. The total number of participants is 50. Service Method: The community service method consists of lectures, question-and-answer sessions, and demonstrations. The event will be held on Monday, September 11, 2024. The community service introduction steps are as follows: Participants have 16 minutes to complete a 16-question pre-test. The team provides a one-hour lesson on how to provide first aid to someone experiencing an asthma attack. A demonstration shows how to provide first aid to someone experiencing an asthma attack, and participants then practice what they have learned. Afterward, participants have 16

minutes to complete a 16-question post-test questionnaire. This systematic approach ensures that participants learn a lot about first aid for asthma and how to use it.

Indicators of Success: Indicators of the success of Public Education in Increasing Knowledge of First Aid for Asthma Attacks at SMAN 1 Sungai Ambawang, Kubu Raya Regency can be interpreted as follows: Increasing knowledge and first aid for asthma attacks by lay people in the SMAN 1 Sungai Ambawang environment, Kubu Raya Regency. Increasing cooperation between the Sungai Ambawang Community Health Center and the Education Office in efforts to increase skills in first aid for asthma attacks.

RESULT AND DISCUSSION

We engaged 50 participants in community service by implementing public education initiatives to improve first aid management for asthma attack cases At SMAN 1 Sungai Ambawang. These findings were derived from a 16-question survey that assessed community members' understanding of first aid management for asthma attack cases.

Table 1. Average Distribution Based on Pre-Post Test Knowledge of First Aid Management for Asthma Attack Victims at SMAN 1 Sungai Ambawang (n=50)

Knowledge	Mean	Median	Standard Deviation
Before	66,75	68,75	11,94
After	84,88	87,5	11,98

Table 1 shows that the average knowledge score before and after education is 66,75 and 84,88.

Table 2. Normality Test of Respondents' Knowledge Data on First Aid Management for Asthma Attack Victims at SMAN 1 Sungai Ambawang (n=50)

Knowledge	Median	Standard Deviation	P Value
Before	68,75	11,94	0,001
After	87,5	11,98	0,001

*Normal Distribution $\alpha > 0,05$ Shapiro Wilk Test

Based on Table 2, the results of the normality test for the knowledge variable before education showed $p=0.001$ ($\alpha < 0.05$), which indicates that the knowledge before education is not normally distributed. The results of the normality test for the knowledge variable after education showed $p=0.001$ ($\alpha < 0.05$), which indicates that the knowledge after education is not normally distributed.

Table 3. The influence of education on respondents' knowledge of First Aid Management for Asthma Attack Victims at SMAN 1 Sungai Ambawang (n=50)

Knowledge	Median	Mean Difference	P Value
Before	68,75	19,4	0,001*
After	87,5		

* $\alpha < 0,05$ significant with the Wilcoxon test

Table 3 shows the findings of the education effect test, which showed that the median knowledge score was 68,75 before delivery of education and 87,5 following delivery of education. The knowledge scores before and after the test differed by an average of 40.40 points. The Wilcoxon test indicates that $p = 0.001$ ($\alpha < 0.05$), indicating a significant impact of education on First Aid Management for Asthma Attack Victims out-of-hospital at SMAN 1 Sungai Ambawang.

Based on reported data, there were 38 asthma-related deaths due to delays in referring patients to the emergency unit, failures in initial management during an asthma attack, and the inability of classroom teachers to provide first aid to students experiencing an asthma attack (Luckie et al., 2019). Introducing risk factors that trigger asthma exacerbations, asthma symptoms, and first aid for asthma attacks is important to educate the community (Nanda & Wasan, 2020). The study results at SMAN 1 Biromaru Demak et al., (2020) The school health showed that Kader's training regarding first aid understanding showed a significant influence post-training on improving first aid knowledge. Another similar study found that community health education based on the Zoom platform improved participants' understanding of first aid management for emergency cases.

A community service program is more successful when it uses interactive delivery methods, including conversations, simulations, and case-based learning. These methods help participants grasp and remember what they learn better. However, there are problems, especially with the different levels of knowledge among the participants, the short amount of time available, and the occasional technical problems that come up in the online learning environment. Even with these problems, educational programmes have been shown to work to raise knowledge and awareness.

The community service programme works well when the educational tactics are tailored to the needs of the participants, when the learning methods are participatory and easy to access, and when the participants are actively involved in the community service activities. Most people who do community service say they are happy with it, and they learn more about how to give first.

The follow-up plan for community service activities includes coordinating with the Community Health Center to form an education team on first aid for asthma attacks outside the hospital, planning ongoing training activities, developing Standard Operating Procedures (SOPs) for asthma management in schools, and providing supporting facilities to improve the readiness of teachers and the UKS (School Health Unit) team. Additionally, we need to regularly monitor and expand education in the community to ensure the program's desirability and effectiveness.



Picture 1 and 2: Implementing Public Education to Improve First Aid Management for Out-of-Hospital Asthma Attack Victims

CONCLUSION AND SUGGESTION

The pretest-posttest analysis reveals that participants in community service acquired a more profound comprehension of how to aid those during an asthma attack. Participating in community service can improve understanding of methods to avert future asthma attacks. Recommendations: The local health center and education office should enhance their initiatives to inform the public about the administration of first aid for asthma episodes. Students and the community at SMAN 1 Sungai Ambawang must receive continuous education on preventing the recurrence of asthma episodes.

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