The Impact of Asthma Management Health Education On Asthma Knowledge and First Aid Skills

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ABSTRACT

Asthma is a chronic disease with a high prevalence, and its incidence is increasing both globally and nationally. A lack of knowledge about asthma management and first aid practices for asthma is a contributing factor to the high morbidity rates among asthma patients. Health education is expected to enhance asthma knowledge and first aid skills for individuals with asthma. To analyze the impact of asthma management health education on asthma knowledge and first aid skills. This quantitative study employed a pre-experimental design with a one-group pretest-posttest approach delivering the material through lectures and PowerPoint presentation. The study sample consisted of 36 respondents, selected using total sampling. The Wilcoxon Signed Rank Test was used for data analysis. Bivariate analysis results showed a significant difference in asthma knowledge and first aid skills before and after the health education intervention, p= 0,001. The significance level for this study was 0,05, indicating that asthma management health education significantly affects asthma knowledge and first aid practices Asthma management health education has a significant impact on improving asthma knowledge and first aid skills.

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1. INTRODUCTION

Asthma is a disease caused by an exaggerated airway response to irritants and other stimuli. While irritants may not affect normal lung function, their effect on people with asthma can be different. Asthma is considered a chronic inflammatory disease and falls under the category of chronic obstructive respiratory disease (COPD) [1]. Asthma is a chronic respiratory disease with the highest incidence in the world. Based on information from the Global Initiative for Asthma (GINA) in 2023, it is estimated that 262 million people in the world suffer from asthma. This figure increased by 10 million from 2022. The highest prevalence of asthma is in the African region, at 18.2%, followed by the Southeast Asian region, at 12.2%. The lowest prevalence of asthma was in the European region, at 6.3%. Asthma remains a global public health problem and is expected to increase by 10% in the following year if not properly managed. Asthma is a complex disease, and its biological changes are still not fully understood.

Symptoms of asthma include reversible airway obstruction, hypersensitivity to specific and nonspecific airway stimuli, and chronic airway inflammation [2]. Based on data from the Indonesian Health Survey (IHS) in 2023 conducted by the Indonesian Ministry of Health (Kemenkes), the prevalence of asthma in Indonesia was found to reach 3.8%. These results indicate that around 12.8 million Indonesians suffer from asthma health problems. The prevalence of asthma has increased compared to the previous survey in 2018, where the prevalence was 3.2%. This fact highlights that asthma is a very serious health problem in Indonesia. According to Djamil

et.al (2020), there are several precipitating factors of asthma, including: 1) Genetic, Genetic factors arise from a family history of allergies or asthma. 2) Allergic, Allergic factors are thought to play a role in some asthma patients, and airway hyperactivity is also an important factor. 3) Physical, Excessive physical activity, such as strenuous exercise, can be bad for your health, and in particular can lead to asthma attacks. 4) Infection, the viruses are usually respiratory synchyhalvirus (RSV) and para-influenza viruses. 5) irritation, Hairplay, fragrance oils, cigarette smoke, acidic odors from paint and water air pollutants, as well as cold water and cold air. 6) Gastroesopagus reflex, Tracheobronheal irritation due to stomach contents may aggravate asthma. 7) Psychological, when you are stressed, your body will respond by releasing certain hormones that cause problems in the respiratory tract and result in an asthma attack.

The symptoms that often appear in people with asthma are coughing, dyspnea, and wheezing. Asthma often strikes at night, especially when the air is cold. Asthma usually starts with a sudden cough and tightness in the chest, accompanied by slow breathing, and wheezing. Asthma attacks can last anywhere from 30 minutes to several hours and may resolve spontaneously. Although asthma attacks are rarely fatal, sometimes a more severe continuous reaction occurs, called "status asthmaticus", and this condition can be life-threatening (Hadioroto, 2015 in Maulidina, 2019). Health education aims to help individuals take control of their own health by influencing, facilitating and reinforcing decisions or actions that are in accordance with their values and goals. make a plan (Mahendra et al., 2019). Factors that influence health education include: Education level, socio-economic level, customs, community beliefs, time availability in the community.

Knowledge is a person's ability to influence the actions taken. Knowledge is someone who is not absolutely influenced by education because knowledge can also be obtained from past experiences, but the level of education also determines whether or not it is easy for a person to absorb and understand the information received (Notoatmodjo, 2012 in Albunsyary, 2020). First aid is the first aid given to someone who suddenly experiences sudden injury or illness. First aid is carried out quickly and precisely using the means available at the scene. It is important for the community, especially for people with asthma and their families to know first aid for people with asthma. By providing first aid, we can prevent death in sufferers, because asthma treatment has two goals, namely reducing asthma symptoms and preventing asthma symptoms from recurring. (Saputri & Masnina, 2021). The purpose of first aid is to keep the victim alive, prevent more serious disability, prevent the victim's condition from deteriorating until help arrives, and facilitate further treatment.

According to Ruyani (2023) there are several steps of first aid procedures that must be performed on asthma as follows: 1) Calm the patient and position them to sit upright. 2) Loosen the patient's clothing to facilitate his breathing pattern. 3) Regulate breathing and keep the patient quiet and calm. 4) If the person carries asthma medication, such as an inhaler, help them to use it. 5) If the patient does not carry an inhaler, use the inhaler provided in the first aid kit, do not borrow an inhaler from someone else. 6) Before using the inhaler, remove the cap, shake it, and then insert the inhaler into the spacer. There are several asthma treatments that can be done: 1) Pharmacological Treatment: Beta (β2) agonists, Methyl xanthine, Ketotifen has the same effect as the hasian dose of 2 x 1 mg chromolin. the effect can be given orally, Ipletropium bromide (Atroven) Atroven is an anticholinergic drug administered in aerosol form and is a bronchodilator. 2) Non-Pharmacological Treatment: Patient education, Peak expiratory flow (PEF) monitoring, avoiding allergens that can trigger asthma attacks.

In acute asthma exacerbations, oxygen therapy is initiated to achieve arterial oxygen saturation of 93%-95% in adolescents and adults or 94%-98% in pregnant women, school-aged children and people with heart disease, If dehydration occurs, give fluids immediately. According to Saputri and Masnina (2021) there are several medicines or spices that can be used for asthma treatment around the house, including: Eucalyptus oil (Eucalyptus), Cermai (phyllantus acidus), Yellow leaf, Black Cumin (Nigella Sativa).

2. RESEARCH METHOD

The type of research used is quantitative research. The research design used was pre-experimental with a pretest-posttest approach. The population in this study were 36 ustadzah at Zam Zam Cilongok Islamic Boarding School. The sampling technique used in this study is the total Sampling technique. This research is a total sampling technique. This research was conducted on May 25, 2024 at Zam Zam Cilongok Islamic Boarding School. In this study, researchers wanted to know the effect of Asthma Management Health Education on Asthma First Aid Knowledge and Skills. The difference in results between treatments that the difference in results between treatments is considered as a result of after and before being given health education. The experimental power design that will be used is One Group Pretest-Posttest Without Control Design on the grounds of knowing the results of the treatment carried out before and after on each respondent without a control group.

This study requires data on the effect of asthma management health education. Data is very important in the field of research, because the data can then be used to test hypotheses. The data needed in this study are the results of questionnaires regarding the effect of asthma management health education and observation sheets regarding asthma first aid skills. In this study, the test method was used to measure knowledge about the effect of asthma management health education on knowledge about asthma. The research instrument was made in a knowledge grid about the effect of asthma management health education on asthma knowledge which had been

tested for validity by previous researchers. by previous researchers. To analyze data on personal knowledge about the effect of asthma management health education on asthma knowledge and asthma first aid skills quantitatively, researchers used the non-parametric Wilcoxon test. The score of personal knowledge about the effect of asthma management health education on asthma knowledge and asthma first aid skills that are normally distributed or not can choose data analysis. In this study, the data was not normally distributed, so the hypothesis test uses the Wilcoxon non-parametric test. This research has received approval from the health research ethics commission of the Muhammadiyah University of Purwokerto with letter number: KEPK/UMP/101/V/12024.]

3. RESULTS AND DISCUSSIONS

The research was conducted at Zam Zam Cilongok Islamic Boarding School on May 25, 2024. There were 36 respondents in this study who were given asthma management health education. This study used a knowledge questionnaire distributed to responden, the subject of this study was ustadzah Zam Zam Cilongok Islamic Boarding School. Demographic data was obtained through questionnaires filled out by respondents and observation sheets filled out by researchers.

3.1. Univariat

Table 1 above shows that the majority of female respondents are 21 (51.2%) respondents, with the educational level of the majority of tertiary institutions (PT) 19 (46.5%) of respondents, then the majority are private sector workers. There are 22 (56.0%) respondents and the majority aged 41 to 50 years are 21 (51.4%) respondents.

Table 1. Characteristic subject

Characteristic	Frequency (f)	Precentage (%)	Mean	Mode	Median	Min-Max
Age	36	100.0	22.67	26	22.0	18-31
Education						
High School	25	69.4				
Diploma	1	2.8				
Undergraduate	9	25.0				
Post graduate	1	2.8				
Total	36	100				

Table 2. Knowledege score before and after Intervention

Variable	Mean	Median	Std. Deviation	Min	Max
Knowledge Pretest	8.83	9.00	1.231	5	10
Knowledge Posttest	12.33	12.00	0.717	11	13

Based on the Table 2 it provides information about asthma first aid knowledge before the intervention of asthma management health education and first aid knowledge in asthma. The data results before the intervention were the average (mean) of 8.83, median 9.00, standard deviation 1.231, minimum 5 and maximum 10. The data results after the intervention were the average (mean) knowledge 12.33, median 12.00, standard deviation 0.717, drinking score 11 and maximum 13. With the average value of pretest and posttest increased by 3.5.

Table 3. Skill score before and after Intervention

Variable	Mean	Median	Std. Deviation	Min	Max
Skill Pretest	3.94	4.00	2.028	0	6
Skill Posttest	8.53	8.00	1.320	5	10

Based on the Table 3 the results of skills before the intervention on first aid in asthma were obtained. The skill score before the intervention has a mean score of 3.94, median score of 4.00, standard deviation of 2.028, minimum score of 0, and maximum score of 6. The post-intervention knowledge score is a mean skill score of 8.53, median score of 8.00, standard deviation. 1320, 5 drink points and 10 maximum points. With the mean score of *pretest* and *posttest* increased by 4.59.

3.2. Bivariat

Table 4. Knowledge Normality Test

Variable	P value	A	Conclusion
Knowledge Pretest	0,000	0,05	Abnormally distributed
Knowledge Posttest	0,000	0,05	Abnormally distributed

Significance value of the variable for pretest knowledge in **Table 4** is 0.000, which means that the data is not normally distributed, while the posttest knowledge is 0.000, which means that the data is also not normally distributed. Because both variables show abnormal distribution (> 0.05), statistical tests are carried out using the *Wilcoxon Signed Rank Test*

Table 5. Skill Normality Test

Variable	P value	A	Conclusion
Skill Pretest	0,000	0,05	Abnormally distributed
Skill Posttest	0,000	0,05	Abnormally distributed

Based on the **Table 5** the variable significance value for pretest knowledge is 0.000, which means that the data is not normally distributed, while the posttest knowledge is 0.001, which means that the data is also not normally distributed. Because both variables show abnormal distribution (> 0.05), statistical tests are carried out using the *Wilcoxon Signed Rank Test*.

Table 6. Wilcoxon Signed Rank Test Knowledge

Experiment Group	Median	*P-value*
Skills before intervention (n=36)	4,00	0,001
Skills after intervention (n=36)	8,00	0,001

Based on the **Table 6** the results of bivariate analysis using the *Wilcoxon Signed Rank Test* on 36 respondents show that knowledge about first aid in asthma before and after health education through ppt media and lectures, the *p* value or *Asymp sig (2 tailed)* is 0.001. The significance level for this study is <0.05, which means that there is an effect of first aid education on asthma through ppt media and lectures on Ustadzah at Zam Zam Cilongok Islamic Boarding School. So, in this study Ho is rejected while Ha is accepted.

Table 7. Wilcoxon Signed Rank Test Skills

Experiment Group	Median	*P-value*
Knowledge before intervention (n=36)	9,00	0,001
Knowledge after intervention (n=36)	11,00	0,001

Based on the **Table 7** the results of bivariate analysis using the Wilcoxon Signed Rank Test on 36 respondents show that the practice of first aid in asthma before and after health education through ppt media and lectures, the *p* value or *Asymp sig (2 tailed)* is 0.001. The significance level for this study is <0.05, which means that there is an effect of first aid skills in asthma through ppt media and lectures on Ustadzah at Zam Zam Cilongok Islamic Boarding School. So, in this study Ho is rejected while Ha is accepted.

4. CONCLUSION AND RECOMMENDATION
Conclusion

The research conducted provides an overview of the characteristics of respondents at the Zam Zam Cilongok Islamic Boarding School. Based on age characteristics, it shows that most respondents are on average 22.67 years old, with a minimum age of 18 years and a maximum age of 31 years and the most recent education of the respondents is high school as many as 25 respondents (69.4%).

The results of this study showed that 36 respondents before and after being given asthma management health education on asthma knowledge increased by 3.5 with a mean value of 8.83 and after being given health education the mean result was 12.33.

The results showed that 36 respondents before and after being given asthma management health education increased by 4.59 with a mean value before being given health education 3.94 and after being given asthma management health education 8.53.

There is an effect of asthma management health education on knowledge and practice of asthma first aid with a *p value* of 0.001 (<0.05) and respondents' skills with a *p* value of 0.001 (<0.05).

Sugesstion

1. For Further Research

   Based on the results of this study, future researchers can use this study as a reference to conduct research with similar topics on different objects, with different media and variables. Researchers suggest using panthoms or probandus in research media and adding respondent characteristics such as gender.

2. For Respondents

   The results of this study can help increase knowledge and information about the impact of health education on asthma management, knowledge and practice of asthma first aid for use in emergency situations.

3. For Related Institutions

   The results of this study can be utilized for Pondok Pesantren Zam Zam Cilongok to provide and add information or knowledge routinely and the importance of first aid skills in asthma

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