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The Correlation of Asthma Patients' Knowledge Level with Asthma Symptoms Control Level

***Mardhiah*[1]**

[1]*STIKes Flora Medan*

Abstract. Asthma is a disease caused by disorders in the respiratory tract due to allergies or genetics. It cannot be cured, but it can be controlled. With medical treatment and proper self-management, asthma patients can achieve a good asthma symptoms control level. One of the factors affecting asthma control is knowledge about asthma. This study aims to determine the correlation between knowledge of asthma and asthma symptoms control level at Medan Pulmonology Hospital. This research uses a descriptive correlation research design. Seventy-three respondents were selected using a simple random sampling technique. They are the asthma patients in the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital. This research also used questionnaires of knowledge and asthma symptoms control; then, the results were analyzed. The study results indicated that most asthmatic patients were categorized as having less level knowledge of asthma with 38 respondents (52.1%). In addition, most asthma patients have uncontrolled asthma type with 37 respondents (50.7%). This shows that there is a correlation between level knowledge of asthma and asthma symptoms control level with p = 0.034. Furthermore, Nurses can use this study to provide nursing care and control asthma symptoms to asthmatic patients.

Keywords: Asthma; asthmatic patients; symptom control

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*Corresponding author at: STIKes Flora Jl Rajawali No 24 Medan

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1. Introduction

Currently, asthma is still showing a high prevalence. Based on WHO (2013) and GINA (2017) data, it is estimated that 300 million people worldwide have asthma. Cases are expected to increase, and the number of sufferers will increase by 100 million people by 2025. The prevalence of asthma is 15 million people per year, and deaths from asthma are 1 in every 250 deaths ((GINA), 2017; WHO, 2013). Meanwhile, according to The Global Asthma Report (2014), it is estimated that 334 million people worldwide have asthma. The mortality rate caused by asthma worldwide is estimated to increase by 20% over the next ten years if not appropriately controlled (WHO, 2013).

Asthma is included in the top ten diseases that cause illness and death in Indonesia. The 2009 Household Health Survey recorded that 225,000 people died of asthma. According to the 2013 Basic Health Research, the overall prevalence of asthmatics in Indonesia was 3.5%. The 2013 Basic Health Research results show that the prevalence of asthma in North Sumatra Province is 3%, with a prevalence range of 3-6.4%. In Medan, the prevalence of asthma reached 3.6% (men 1.9% and women 1.7%) (RISKESDAS, 2013).

Asthma cases increase along with one's age, and cases in women tend to be higher. The asthma prevalence also looks the same between rural and urban areas. Also, asthma cannot be cured. Treatment can only relieve or control the frequency of ongoing asthma attacks (RISKESDAS, 2013).

Asthma is an inflammatory disease in the respiratory tract which affects all age groups. Its symptoms are repeated breath shortness and wheezing that vary in each person in terms of severity and frequency. It affects people's quality of life and becomes a socio-economic burden. At the same time, asthma has low treatment facilities, yet its cases are many in developing countries (Waladi & Andayani, 2014).

Although asthma management guidelines have been widely distributed worldwide along with the newly developed drugs, asthma management in the actual condition is still inadequate, both in developed and developing countries. The data on asthma control levels of asthmatic patients in Indonesia is still unknown. The preliminary research on asthma symptoms control level at Immunology and Allergy Polyclinic, Department Clinical of Internal Medicine, Dr. Cipto Mangunkusumo National Government Hospital (RSUPN) Jakarta was conducted. It recorded 64% uncontrolled asthma, 28% well-controlled asthma, and 8% fully uncontrolled asthma.

The main goal of asthma management is to achieve and maintain controlled Asthma so that attacks can be prevented at night and during the day. Thus, patients can still carry out physical activities (Rahayu, 2013). The level of asthma symptoms control can be achieved with medical treatment and proper self-management of asthma patients. One of the factors that affect asthma

control is knowledge about asthma. With it, patients can effectively recognize and carry out Asthma self-management.

Patient knowledge about asthma is one factor that affects the level of asthma control. So, knowing the correlation between the level of knowledge about asthma and asthma control is crucial (Rahayu, 2013). A survey at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital obtained 260 people (last six months). They are patients with the knowledge of asthma symptom control levels. After the researchers interviewed several asthmatics about their knowledge of asthma, five people had controlled asthma, and seven people had uncontrolled asthma because they lacked knowledge about it.

2. Research Methods

This research used a descriptive correlational design and simple random sampling. The respondents are 260 asthmatic patients who seek outpatient treatment at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital. Seventy-three samples met the inclusion and exclusion criteria. The independent variable is the patient knowledge level of asthma. In comparison, the dependent variable is the disease control level in asthmatics. Questionnaires were used to collect the data on those two variables. Then, the data were analyzed using Pearson product-moment test with a significance level of $\alpha \leq 0.05$.

3. Research Result

Table 1 Frequency distribution of respondents at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital

No	Demographic Data	Frequency (f)	Percentage (%)
1	**Age**		
	15 – 30	13	17.8
	30 – 45	33	45.2
	>45	27	37.0
2	**Sex**		
	Male	25	34.2
	Woman	48	65.8
3	**Education**		
	Elementary School (SD)	27	37.0
	Junior High School (SMP)	12	16.4
	Senior High School (SMA)	23	31.5

Based on Table 1, 33 respondents aged 30-45 years old (45.2%), female respondents are 48 people (65.8%), and people with elementary school graduate is 27 people (37%).

Table 2 Frequency distribution of respondents' knowledge level at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital

Knowledge level	Frequency (f)	Percentage (%)
Good	11	15.1
Adequate	24	32.9
Inadequate	38	52.1
Total	**73**	**100.0**

Table 2 above shows that 11 respondents (15.1%) have a good knowledge level and 38 respondents (52.1%) have inadequate knowledge level.

Asthma Symptom Control

Table 3 Frequency distribution of respondents' asthma symptom control at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital

Symptom Control	Frequency (f)	Percentage (%)
Controlled	16	21.9
Partially Controlled	20	27.4
Uncontrolled	37	50.4
Total	**73**	**100.0**

Table 3 above shows that 16 respondents (21.9%) have controlled asthma symptom, and 37 (50.7%) respondents have uncontrolled asthma symptom.

Bivariate Analysis

The analysis was used to determine whether there was a correlation between knowledge level of asthma and control level of asthma symptoms at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital.

Table 4 The correlation between knowledge level of asthma and control level of asthma symptoms at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital

Knowledge Level	Frequency (f)			*P-value*	*p*
	Controlled	Partly Controlled	Uncontrolled		
Good	1	1	3		
Adequate	7	5	14	0.034	0.50
Inadequate	2	14	26		
Total	**10**	**20**	**43**		

Table 4 above shows that the Pearson product-moment test was used as an analytical test to measure the correlation level of knowledge level and symptom control with a 95% confidence level (α = 0,05). If the p-value <0.05, it indicates a significant correlation between the independent and dependent variables. The result is 0.034, meaning H0 is rejected, and Ha is accepted. Thus, there is a correlation between knowledge level of asthma and control level of

asthma symptoms at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital.

4. Discussion

a. Respondent's characteristics

Based on the research results, 33 respondents (45.2%) who suffer from asthma aged 30-45 years old at the Pulmonology Technical Implementation Unit Medan. This result aligns with Syahira's (2015) research conducted at the Pulmonology Policlinic, Regional Hospital (RSUD) Arifin Achmad about the knowledge level of asthma. She mentioned that asthmatic patients are more common in adults in her research. In young adults often have asthma symptoms caused by bronchus hyperactivity due to allergens. Broncus hyperactivity was determined by the value variation of peak expiratory flow (PEF) in the morning and late afternoon. In addition, it has diagnostic value for asthma (Syahira et al., 2015).

Based on sex, 48 respondents (65.8%) are female and a small number of males with 25 respondents (34.2%). This research aligns with the National Center for Health Statistics (NCHS) statistical data, which stated that women suffer more from asthma than men with 9.2% and 7.7%, respectively. Physical feature is the potential factor to cause asthma because non-specific bronchus hyperresponsiveness is often found in women than men. Women also have a smaller respiratory tract calibre than men. In addition, women often have uncontrolled asthma, and the high prevalence of uncontrolled asthma in women was related to how they report their symptoms. They often seek treatment in the hospital, causing most data to contain female patients. Another theory can also be related, saying that males have smaller lung sizes than women at birth. During adolescence and adults, men's lung sizes will be larger than women's (Global Initiative For Asthma (GINA), 2015).

Based on the education level, 27 respondents (37%) have an elementary school education, a small portion of them have university education (11 respondents, 15.1%). Education affects the asthmatic patient to seek treatment and care of the disease. Also, choosing and deciding which treatment/therapy to undertake to overcome their issue (Putri, 2015).

Based on the occupation, 33 respondents (45.2%) are housewives, and one respondent (17.8%) is unemployed. Syahira's (2015) research at the Pulmonology Policlinic, Regional Hospital (RSUD) Arifin Achmad showed that the most occupation of the asthmatic patients was housewives (47 people, 48.5%) and unemployed (24 people, 24.7%). In this research, the patients who do not work are unemployed, retired, or still going to school (Syahira et al., 2015). Kusuma’s research concluded that a low occupation level is strongly associated with a bad asthma state. Her research showed that 27 housewives have a higher level of asthma knowledge. In comparison, 20 housewives have a low level of asthma knowledge (Kusuma, 2014).

b. Knowledge

Based on the knowledge, it can be concluded that 11 respondents (15.1%) have a good knowledge level of asthma, and 38 respondents (52.1%) have inadequate knowledge levels. One's knowledge is affected by many factors such as education level, experience, faith, facilities, income, socio-cultural and surroundings. Each factor dramatically affects one's mindset and habits in every decision he takes. The accumulation of those factors constructed one's mindset to create some knowledge, either low, moderate, or good knowledge.

c. Controlled asthma symptoms

From the research result, it can be concluded that 16 respondents (21.9%) have controlled asthma, and 37 respondents (50.7%) have uncontrolled asthma. Various factors influence the high prevalence of uncontrolled asthma, including age, sex, genetics, smoking, etc. Each factor affects the control level of asthma. The control of asthma management is a system used to prevent, detect, and monitor asthmatics related to asthma exacerbation. Also, monitoring the degree of disease suffered by asthmatics.

The data on asthma control levels of asthmatic patients in Indonesia is still unknown. The preliminary research on asthma symptoms control level at Immunology and Allergy Polyclinic, Department Clinical of Internal Medicine, Dr. Cipto Mangunkusumo National Government Hospital (RSUP) Jakarta was conducted. It recorded 64% uncontrolled cases, 28% well-controlled, and 8% fully uncontrolled. Controlled asthma can be achieved if the frequency of asthma attacks decreases, respiratory inflammation improves, and physical activity and lung function improve. Priyanto et al. research at Persahabatan Jakarta Hospital in 2008-2009 showed that 16 (15.6%) asthmatic patients did not receive regular treatment but still had regular control of their disease. Eighty-six people (84.3%) had regular uncontrolled asthma consisting of 71 people (69.61%) who perform a control if they have sickness and 15 people (14.71%) who perform a control once a year (Priyanto et al., 2011).

The level of asthma symptoms control can be achieved with medical treatment and proper self-management of asthma patients. One of the factors affecting asthma control is knowledge about asthma. Thus, patients must know the correlation between the knowledge level of asthma and control asthma. Based on the information obtained related to the increasing cases of asthma every year, it can be said that asthma is not a mere disease. Previous research at Bekasi Government Hospital showed the asthma cases were relatively large. Even though many patients did not seek treatment related to asthma, 184 people came to Bekasi Government Hospital to seek treatment or outpatient for asthma. Thirty-eight of them had to be treated because asthma can not be cured, but it can be controlled.

d. The correlation of asthma knowledge level with control level

The results showed that there is a correlation between knowledge level of asthma and control level of asthma symptoms at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital. The results align with Waladi's (2014) research. His research showed a correlation between one's knowledge level of asthma with control level of asthma. His research also stated that a poor knowledge level of asthma affects asthma severity in asthmatics. It can affect the asthma control status to be uncontrolled (Waladi & Andayani, 2014).

The research results also align with Katerine et al.'s (2014) research on The Correlation of Asthma Knowledge Level with Asthma Control Level at Dr. M. Djamil Government Hospital Padang and Dr. Achmad Mochtar Regional Hospital Bukittinggi. The research showed a correlation between knowledge level of asthma and control level of asthma with p-value = <0.01 ($p<0.05$) (Katerine et al., 2014).

In contrast, this research is not aligned with Atmoko et al.'s (2011) research. His research did not find a significant correlation between knowledge level of asthma and control level of asthma with p=0,189. The result can be caused by confounding variables that were not considered but probably affected the research result. The factors such as differences in sample amounts and patient distribution based on education level and uneven age can be the confounding variables in the research (Atmoko et al., 2011).

In conclusion, patients' knowledge level of asthma affects their control level of asthma. If they have insufficient knowledge of asthma, they tend to have uncontrolled asthma.

5. Conclusion

There are 11 respondents (15.1%) with a good knowledge of asthma. In contrast, 38 respondents (52.1%) have inadequate level knowledge of asthma. Regarding the control level of asthma symptoms, 37 respondents (50.7%) have uncontrolled asthma. It can be concluded that there is a correlation between knowledge level of asthma and control level of asthma symptoms at the Technical Implementation Unit (UPT) of Medan Pulmonology Hospital with a significance value of $p = 0.34$ ($p<0.05$).

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