



Characteristics of Bronchial Asthma Patients at The Pulmonary Polyclinic Dr. H. Chasan Boesoirie Ternate Hospital

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ARTICLE INFO	ABSTRACT
Keywords: Bronchial, Asthma, Patients, Pulmonary Submitted: June 26th 2025 Reviewed: July 19th 2025 Accepted: Sept 5th 2025	Introduction: Bronchial asthma is a reversible obstructive airway disease characterized by lung inflammation and airway hypersensitivity. In 2018, the incidence of bronchial asthma in North Maluku Province reached 4,723 cases. Patient characteristics are thought to contribute to the occurrence of bronchial asthma. Objective: This study aimed to identify the characteristics of bronchial asthma patients at the Pulmonary Polyclinic of Dr. H. Chasan Boesoirie Hospital in Ternate. Methods: This research used a retrospective descriptive design with a cross-sectional approach. The variables studied included asthma severity, gender, age, occupation, and education level. Secondary data were collected from medical records at Dr. H. Chasan Boesoirie Hospital between 2019 and 2022. Results: Among the 40 samples, most patients had moderate persistent asthma (47.5%). The majority were female (70%), aged 26–45 years (42.5%), self-employed (55%), and had completed high school education (70%). Conclusions: The study concludes that bronchial asthma at Dr. H. Chasan Boesoirie Hospital in Ternate is more prevalent among females, individuals aged 26–45 years, those who are self-employed, and those with a high school education level. Moderate persistent asthma was the most common severity observed. These results highlight the importance of considering demographic and occupational characteristics in the management and prevention of bronchial asthma.

Introduction

Bronchial asthma is included in the disease of obstruction of the respiratory tract in the lungs, which is reversible and characterized by inflammation of the respiratory tract and increased response of the airways to various stimuli (hypersensitivity). Bronchial asthma can affect people of all ages with symptoms that vary greatly from one person to another.

Obstructions that occur in the airway show common clinical symptoms, including coughing, wheezing, and shortness of breath. Bronchial asthma can also occur due to various factors such as a history of dust allergy, cold allergy, pet fur allergy, smoking, and so on (Ginanjari, 2014).

The Global Initiative for Asthma (GINA) divides asthma into three types, in the form of asthma controlled, partially

controlled, uncontrolled. Based on the type of degree, bronchial asthma is divided into four parts, including intermittent asthma, mild persistent asthma, moderate persistent asthma, and severe persistent asthma (GINA, 2021).

The World Health Organization (WHO) stated that the incidence of bronchial asthma in 2019 in the world amounted to 235 million people, with the mortality rate exceeding 80% in developing countries. WHO projects that bronchial asthma cases by 2025 will reach 300 million patients (GINA, 2021). In 2018, Basic Health Research (Riskesdas) reported that around 1 million people in Indonesia were living with bronchial asthma. The incidence was higher in women than in men, and based on place of residence, the percentage of bronchial asthma cases was higher in urban areas. The incidence of bronchial asthma in North Maluku Province in 2018 according to the Riskesdas report reached 4,723 people (Balitbangkes, 2018).

Research conducted by DwiYana, Eryati, and Irvan in 2017, at Dr. M. Djamil Padang Hospital, found that bronchial asthma was 70.9% found in women. Based on the age of the patient, the most occurrence of bronchial asthma was found at an average age of 46 years. Based on the degree of severity, it was found that the highest incidence rate in moderate persistent

asthma was 64% (Roselin, 2017). Fadhilah, et al., who conducted research at the Harum Melati Clinic and Wisma Rini Hospital in Pringsewu Regency, explained that the majority of asthma patients work as self-employed, namely 71 people (56.3%). The results of the study based on education, the highest number of bronchial asthma patients are high school students, totaling 49 people (38.9%). Findings from the study indicated that individuals with a high school education comprised the largest group of bronchial asthma patients, accounting for nearly 39% of the total cases (Putri et al., 2017). A study conducted in Pringsewu Regency reported that most asthma patients were self-employed, accounting for over half of the participants, while individuals with a high school education represented the largest proportion of bronchial asthma cases (Rahmawati et al., 2017).

Based on the background and literature review, bronchial asthma is known to have a significant impact on public health. However, there is a lack of research data regarding the characteristics of bronchial asthma patients in North Maluku Province. Therefore, this study aims to describe the Characteristics of Bronchial Asthma Patients at the Pulmonary Polyclinic of Dr. H. Chasan Boesoirie Ternate Hospital.

Methods

This research employed a retrospective descriptive design with a cross-sectional approach. Data for this study were collected from Dr. H. Chasan Boesoirie Ternate Hospital from May to July 2023.

In this study, the population comprised all bronchial asthma patients at pulmonary polyclinic. A total sampling technique was applied, resulting in 40 samples that met the inclusion criteria. Source of data was secondary, retrieved from medical records of the selected patients.

Data analysis was performed using univariate analysis to present the frequency and percentage distributions of all variables studied. Ethical aspects of the research were strictly upheld. Throughout this study, strict measures were implemented to safeguard patient confidentiality, including the omission of full patient names and the use of only initials and medical record numbers for identification. Additionally, prior to initiating data collection, the research team secured formal authorization from the hospital administration, supported by an official research permit issued by the affiliated institution

Results and Discussion

Research samples obtained from the results of data collection in the medical records section Dr. H. Chasan Boesoirie Ternate Regional Hospital in 2019–2022. There were 6 cases in 2019, 1 case in 2020, 20 cases in 2021, 13 cases in 2022. Data has been collected consists of various variables which are then presented in the following table. The characteristics of the patients in the study included the degree of bronchial asthma, gender, age, occupation, and education. Evaluation in this study is described descriptively in the form of a presentation. The characteristics of Bronchial Asthma patients at Dr. H. Chasan Boesoirie Ternate Hospital based on the degree of bronchial asthma, gender, age, occupation, and education can be observed in the table.

Table 1. Characteristics based on the degree of bronchial asthma

Degree of Bronchial Asthma	Frequency (n)	Percentage (%)
Mild Persistent	13	32,5
Moderate Persistent	19	47,5
Intermittent Persistent	5	12,5
Weight Persistent	3	7,5
Total	40	100

Source: original research

Based on table 1, the characteristics based on the degree of bronchial asthma were obtained, the most were patients who had a moderate degree of persistent asthma

as many as 19 patients (47.5%). Meanwhile, the least degree of bronchial asthma was patients who had intermittent asthma degrees as many as 3 patients (7.5%).

Based on table 2, characteristics were obtained based on age with the degree of bronchial asthma, namely teenagers patients (12-25 years) suffered the most from mild persistent bronchial asthma as

many as 4 patients (10%), adults (26-45 years) and the elderly (46-64 years) more suffered from moderate persistent bronchial asthma as many as 9 patients (22.5%) and 7 patients (17.5%). Meanwhile, patients who are senior (>65 years old) have the most mild persistent bronchial asthma as many as 2 patients (5%).

Table 2. Distribution of Patient Frequency Based on Age Characteristics with Degree of Asthma

Age	Degree of Bronchial Asthma				Total
	Persistent Mild	Persistent Moderate	Persistent Weight	Persistent Intermittent	
Teenagers (12-25 years)	4	2	0	0	6
Adults (26-45 years)	5	9	2	1	17
Elderly (46-65 years old)	2	7	3	2	14
Senior (>65 years)	2	1	0	0	3
Total	13	19	5	3	40

Source: original research

Based on Table 3, the gender distribution of bronchial asthma patients showed a predominance of women, with 28 patients (70%), while male patients accounted for 12 individuals (30%). Regarding age characteristics, the highest proportion was found in adults (26–45 years) with 17 patients (42.5%), followed by elderly (46–65 years) with 14 patients (35%). The smallest group consisted of seniors (>65 years) with only 3 patients (7.5%). In terms of occupation, most patients were self-employed (22 patients, 55%), while no patients were found working as fishermen,

farmers, or police/military personnel. The majority of patients in the education category had completed high school, totaling 28 individuals (70%). Meanwhile, patients who did not go to school were not found.

Based on the results of the study, these results are in line with the research carried out by Pratama et al with a sample of 604 outpatients of the Poly Asma Hospital which totals 604 people, with 272 people with moderate persistent asthma (45%). The difference was found in a study conducted by Khoman at the Asthma Polytechnic of

Haji Adam Malik Hospital Medan with 50 subjects, the majority of whom were intermittent asthma patients, namely 18 people (39.1%). This is because patients come to the polyclinic with asthma symptoms experienced in a mild to moderate state. Where the symptoms of mild to moderate asthma patients last every day and disrupt activity and sleep and require bronchodilators every day.

Table 3. Frequency distribution of bronchial asthma patients by gender, age, occupation, education

Sample Characteristics	Frequency (n)	Percentage (%)
Gender		
Man	12	30
Woman	28	70
Age		
Teenagers (12-25 years)	6	15
Adults (26-45 years)	17	42.5
Elderly (46-65 years old)	14	35
Senior (>65 years)	3	7.5
Work		
PNS	10	25
Fisherman	0	0
Farmer	0	0
Police/TNI	0	0
Housewife	8	20
Self employed	22	55

Sample Characteristics	Frequency (n)	Percentage (%)
Education		
No School	0	0
Elementary School	4	10
Junior High School	2	5
Senior High School	28	70
College	6	15

Source: original research

According to the study findings, asthma cases were predominantly observed among adults aged 26–45 years and elderly aged 46–64 years. This aligns with previous data showing that asthma prevalence is highest among individuals aged 18–64 years, with an estimated rate of 50 cases per 1,000 population (National Heart, Lung, and Blood Institute, 2009). Similarly, recent studies have reported that asthma commonly affects adults in their productive age group due to continuous exposure to environmental triggers and occupational risk factors (To et al., 2021; Dharmage et al., 2019). The respiratory system under normal conditions achieves maximum growth and development up to the age range of 20-25 years. After passing that age, lung function will decline rapidly. This causes a lower change in total compliance, a decrease in the capacity of a given vital capacity, a decrease in the volume of forced

expiration in one minute, an increase in residual volume, an increase in the ventilation of the dead chamber, an increase in perfusion, an increase in the partial pressure of the arteries of the CO₂ does not change, the partial pressure of the O₂ arteries is lower, the maximum oxygen consumption decreases, the lung loss chamber that exerts an effect on atrial oxygen without affecting carbon Dioxide. With advancing age, the sensitivity to dyspnea tends to decline, and the physiological responses to hypoxia and hypercapnia become blunted, increasing the risk of ventilatory failure in elderly (LoMauro & Aliverti, 2018).

Another study said that asthma that affects adults becomes more dominant when it is inherited in women who are obese, non-atopic, have smoked, or are white. The prevalence over time of disease onset in adults was greater in subjects with non-atopic asthma than in atopic asthma in both sexes. In addition, asthma that affects adults has a tremendous difference in risk factors related to sex (Akshay Sood, 2013).

The results were obtained that most respondents were female. These results are in accordance with the research carried out by Afiani et al regarding "Factors Affecting the Quality of Life of Asthma Patients in the Pontianak Lung Disease Treatment Unit" which states that there are more female

respondents with a percentage of 76.7%. Another study that had the same results was a study conducted by Andriani et al on "Overview of the Characteristics of the Control Level of Asthma Patients Based on BMI in the Pulmonary Poly of RSUP. Dr. M. Djamil Padang in 2016" where women are more inclined to be asthma patients. than men with a percentage of 50.8%. This is because women experience menstruation, pregnancy and menopause which are the cause of changes in the amount of estrogen which results in an inflammatory response as a trigger for the appearance of asthma (Chowdhury, 2021). It is theoretically that airway epithelial cells, lymphocytes, eosinophils and mast cells have the ability to express estrogen receptors that have an important role in the mechanism of asthma occurrence (Natalia, 2022). Another cause is because the diameter of the respiratory tract and lung function in men are larger than in women. The resistance of the respiratory tract is inversely proportional to 4 times the diameter of the respiratory tract, so the resistance of the airway increases when the size of the airway diameter is small. In addition, the influence of genetic polymorphisms that are only found in women, such as cyclooxygenase-2-765C. With this genetic polymorphism, the capacity of monocytes can increase with the aim of creating prostaglandins that are able

to aggravate inflammation that occurs in the respiratory tract (Chowdhury, 2021).

Based on the results of the study, characteristics were obtained based on age, most patients were adults (26-45 years). These results are in accordance with the research carried out by Hamdin et al on "The Relationship between Body Mass Index and Control Status of Asthma Patients at Mataram City Hospital" where asthma is more common in adults (29-39 years). In this study, asthma was found in all age groups. The most age is in the range of 26-45 years, this is due to the possibility of a history of asthma since childhood or s that occurs continuously or reappears after the remission period but can also be found in the age range of > 65 years or the category of elderly. Asthma that occurs in the elderly based on its clinical nature is divided into two groups, in the form of people who become asthma patients in childhood or teenagers and slow-onset asthma. In addition, the incidence of asthma has also increased in line with increasing age. In this study, patients aged > 65 years decreased by 3 people (7.5%). This condition is often attributed to the frequent underdiagnosis of asthma in elderly, largely resulting from reduced symptom perception, non-specific clinical manifestations, and the presence of multiple

comorbidities that obscure diagnosis (Yáñez et al., 2018).

Based on the results of the study, characteristics were obtained based on occupation, with most patients working as self-employed. This result is the same as the results of a study carried out by Fadhilah et al at the Harum Melati Clinic and Wisma Rini Hospital in Pringsewu Regency in 2021, where asthma patients were most found in patients who worked as self-employed people (56.3%). According to the literature, more than 25% of all asthma cases in adults are work-related. Current studies reveal that more than 80% of cases become asthmatic after years of exposure to the agent in the workplace. Although, the main causative agents are dust, textiles, welding fumes, and chemicals such as isocyanates, artificial mineral fibers, and solvents (Wortong, 2015). Occupational exposure to dust, especially mineral and inorganic particles, has been shown to exacerbate asthma symptoms and increase disease severity among workers (Kogevinas et al., 2019).

Based on the results of the study, the majority of patients had education at the high school level. Meanwhile, patients who did not go to school were not found. These results are in accordance with the results obtained by Fadhilah et al at the Harum Melati Clinic and Wisma Rini Hospital in

Pringsewu Regency in 2021, where based on education, most bronchial asthma patients have education up to the high school level, totaling 49 people (38.9%). Explaining that education is an example of efforts in developing personality and abilities inside and outside school and is carried out throughout a person's life. In this study, more asthma patients were found at the high school education level, this is due to the uneven distribution of research data. It may also be due to the fact that education alone is not enough to create improvements in the control behavior of asthma patients. The level of high school education is not necessarily able to be used as a reflection of having good knowledge about asthma (Caragih, 2013).

Conclusion

Based on the research findings, the characteristic of bronchial asthma suffers at the Pulmonary Polyclinic of Dr. H. Chasan Boesoirie Ternate Hospital have been successfully identified. The results indicate that the most common profile of an asthma sufferer is female gender (70%) of adult age 26-45 years (42.5%) with moderate persistent asthma, who are self-employed occupation (55%) and have a high school education (70%). Understanding this demographic and clinical profile is essential for developing

targeted public health interventions and improving clinical management for the most affected groups in the Ternate region.

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