

Effect of the Buteyko Breathing Technique as a Nursing Intervention on Oxygen Saturation in Asthma Patients at Lavalette Hospital

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ABSTRAK

Bronchial asthma is a chronic inflammatory disease of the airways that causes bronchial hyperreactivity and leads to episodic symptoms such as shortness of breath, coughing, and wheezing, which are reversible in nature. In emergency conditions, disturbances occur in the airway, breathing, and circulation, characterized by an increased respiratory rate (>30 breaths per minute) and decreased SpO₂ levels due to hypoxia. This condition requires immediate management as it can be life-threatening. This study aims to determine the effectiveness of the Buteyko breathing technique as a nursing intervention to improve oxygen saturation in asthma patients in the inpatient ward of Lavalette Hospital. A descriptive method in the form of a case study of nursing care was used to evaluate the effectiveness of the Buteyko breathing technique in increasing oxygen saturation among asthma patients in Lavalette Hospital, Malang. The approach was based on the nursing process, including assessment, nursing diagnosis, planning, implementation, and evaluation, to provide an in-depth understanding of the intervention outcomes. The results showed an improvement in oxygen saturation and a decrease in respiratory rate after the implementation of the Buteyko breathing technique in asthma patients. Both patients demonstrated better breathing patterns, reduced shortness of breath, and increased independence in performing the breathing exercises. The Buteyko breathing technique is effective as a non-pharmacological intervention to enhance oxygenation and improve respiratory function in patients with asthma.

Keywords: *Bronchial asthma, Buteyko breathing technique, oxygen saturation.*

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INTRODUCTION

Backgrounds

Bronchial asthma is a chronic inflammatory disease of the airways that causes bronchial hyperreactivity and reversible airway narrowing. This condition leads to episodic symptoms such as shortness of breath, coughing, wheezing,

and chest tightness, particularly at night or in the early morning (Wilda, Hutama, & Fatimah, 2021). During an asthma attack, disturbances occur in the airway, breathing, and circulation, characterized by an increased respiratory rate of more than 30 breaths per minute and decreased oxygen saturation (Udayani, 2020).

According to the World Health Organization (WHO, 2022), asthma affects approximately 262 million people worldwide and causes about 455,000 deaths each year. In Indonesia, the prevalence of asthma is estimated at 2.4% of the total population, affecting more than 12 million people (Ministry of Health of the Republic of Indonesia, 2022; Riskesdas, 2018). This condition significantly impacts patients' quality of life and productivity.

Asthma management commonly involves pharmacological therapy, such as oxygen administration and bronchodilators, which may be combined with non-pharmacological interventions like breathing techniques. One of the effective, simple, and self-administered methods is the Buteyko breathing technique, which emphasizes nasal and diaphragmatic breathing control to enhance ventilation efficiency and oxygenation (Pratiwi & Chanif, 2022).

Based on this background, the present study aims to examine the effectiveness of the Buteyko breathing technique as a nursing intervention to improve oxygen saturation in asthma patients hospitalized at Lavalette Hospital, Malang.

METHOD

The research method consists of the research design, research subjects (population and sample), data collection

and instrument development, and data analysis techniques.

This study employed a descriptive case study design with a nursing care approach, which includes the stages of assessment, nursing diagnosis, planning, implementation, and evaluation. The research was conducted at Lavalette Hospital, Malang, from September to October 2025.

The study subjects were two adult patients aged 40–50 years diagnosed with moderate bronchial asthma and having oxygen saturation levels below 95%. The instruments used in this study included the Standard Operating Procedure (SOP) for the Buteyko breathing technique and an observation sheet to record oxygen saturation levels before and after applying the Buteyko technique, measured using a pulse oximeter.

Data were collected through direct observation, interviews, and medical record reviews over a period of three consecutive days, with three measurement sessions per day. Data validity was ensured through source triangulation and data verification.

The data were analyzed descriptively, encompassing the processes of data collection, coding, classification, presentation, and conclusion drawing based on the observed results.

RESULT

Table 1. Results of Anamnesis of Bronchial Asthma Patients at Lavalette Hospital

Client Identity	Client 1	Client 2
Name	Mrs. P	Mrs. S
Age	50 years old	47 years old
Gender	Female	Female
Address	Sukun	Klojen
Religion	Islam	Islam
Ethnicity/Nationality	Javanese	Javanese
Date of Assessment	22-09-2025	24-08-2025
Ward/Unit	Ruby	Ruby
Medical Diagnosis	Bronchial Asthma	Bronchial Asthma
Medical Record Number	5839xxx	5839xxx
Main Complaint	Shortness of breath	Shortness of breath
Reason for Hospital Admission	The patient complained of shortness of breath and chest pain.	The patient complained of difficulty breathing and productive cough with sputum
Current Health History	The patient stated that asthma often recurs when exposed to cold weather. The patient has had asthma for the past 4 years. Vital Signs: BP: 128/82 mmHg HR: 93 bpm RR: 25 breaths/min T: 36.6°C SpO ₂ : 94%	The patient reported shortness of breath during heavy activities such as cleaning the house or eating chicken. The patient has had asthma for the past 3 years. Vital Signs: BP: 128/76 mmHg HR: 96 bpm RR: 26 breaths/min T: 36.0°C SpO ₂ : 94% S : 36°C SpO ₂ : 94 %

Based on Table 2, the first client, Mrs. P, is a 50-year-old female residing in Sukun, Malang. She is Muslim and of Javanese ethnicity. The client was admitted to the

Ruby Ward of Lavalette Hospital Malang with a medical diagnosis of bronchial asthma on September 22, 2025. The main complaint reported was shortness of breath accompanied by chest pain. The client stated that asthma attacks often recur during cold weather and that she has been suffering from this condition for the past four years. The results of vital sign examination showed: blood pressure 128/82 mmHg, pulse rate 93 beats/min, respiratory rate 25 breaths/min, temperature 36.6°C, and oxygen saturation (SpO₂) 94%. These findings indicate the presence of an ineffective breathing pattern related to bronchial asthma, requiring nursing intervention through the implementation of the Buteyko breathing technique to improve oxygen saturation.

The client, Mrs. S, is a 47-year-old female residing in Klojen, Malang. She is Muslim and of Javanese ethnicity. The client was admitted to the Ruby Ward of Lavalette Hospital Malang with a medical diagnosis of bronchial asthma on August 24, 2025. The main complaint was shortness of breath, accompanied by difficulty breathing and productive cough. The client reported that asthma attacks frequently occur during strenuous activities such as house cleaning or after consuming certain foods (e.g., chicken). She has been experiencing asthma for the past three years. The results of vital sign examination

showed: blood pressure 128/76 mmHg, pulse rate 96 beats/min, respiratory rate 26 breaths/min, temperature 36°C, and oxygen saturation (SpO₂) 94%. This condition indicates a moderate level of impaired breathing pattern related to bronchial asthma, requiring nursing intervention through the Buteyko breathing technique to enhance oxygen saturation and improve respiratory function.

Table 2. Results of Nursing Intervention Implementation in Asthma Clients at Lavalette Hospital

Name	Oxygen Saturation Level		
	Day 1	Day 2	Day 3
Mrs. P	94%	95%	96%
Mrs. S	94%	96%	97%

Based on Table 2, after the implementation of Buteyko breathing exercises for three consecutive days, a gradual increase in oxygen saturation levels was observed in both patients. In Mrs. P, oxygen saturation improved from 94% to 96%, while in Mrs. S, it increased from 94% to 97%. Both patients also showed a decrease in respiratory rate, reduced shortness of breath, and improved independence in performing the breathing exercises.

The application of the Buteyko breathing technique proved effective in improving breathing patterns and enhancing oxygenation through more efficient respiratory control. These findings are consistent with the theory that the

Buteyko method helps balance CO₂ and O₂ levels, stimulates the parasympathetic nervous system, and enhances ventilation function. Therefore, the Buteyko breathing technique can be utilized as an effective non-pharmacological intervention to improve oxygen saturation in patients with bronchial asthma.

DISCUSS

The implementation of the Buteyko breathing therapy conducted by the author showed that both respondents, Mrs. P (50 years old) and Mrs. S (47 years old), were female and diagnosed with bronchial asthma. Gender is known to play an important role in the incidence of asthma, where women are 1.5–2 times more likely to develop the condition than men due to hormonal influences—particularly progesterone and testosterone levels that affect immune responses and airway inflammation. This finding is consistent with studies by Hasibuan (2018), Kartini & Litanto (2021), and Andriani et al. (2019), which report that females have a higher susceptibility to asthma than males. Therefore, gender should be considered as an important factor in the assessment and planning of nursing care for asthma patients.

Based on the assessment results, the primary nursing problem identified in both patients was ineffective breathing pattern

related to impaired respiratory effort, as evidenced by shortness of breath, tachypnea, and decreased oxygen saturation. This condition reflects ventilation disturbance due to airway constriction and increased bronchial resistance, which are the main characteristics of asthma. According to Khasanah & Maryoto (2022), oxygen saturation levels below 95% indicate tissue oxygenation impairment. This corresponds to the condition of both patients, who initially had oxygen saturation levels of 94%.

The nursing intervention provided focused on airway management through the Buteyko breathing technique. This non-pharmacological method emphasizes nasal breathing and diaphragmatic control to regulate oxygen (O₂) and carbon dioxide (CO₂) balance in the body. Wilda et al. (2021) stated that the Buteyko technique can improve ventilation, stimulate the parasympathetic nervous system, lower blood pressure, and reduce stress. Meanwhile, Litanto & Kartini (2020) emphasized that this technique helps improve breathing patterns by maintaining CO₂ balance and enhancing cellular oxygenation.

The Buteyko breathing exercises were applied for three consecutive days with a frequency of two to three times per day, lasting 10–15 minutes per session. The

results showed a gradual improvement in oxygen saturation and breathing pattern in both patients. For Mrs. P, oxygen saturation increased from 94% to 96%, while for Mrs. S, it increased from 94% to 97%. Additionally, respiratory rate decreased from 25–26 breaths per minute to 22 breaths per minute, accompanied by subjective improvements such as reduced dyspnea, a feeling of lightness, and increased independence in performing the breathing exercises.

These findings align with the theories proposed by Wilda et al. (2021) and Litanto & Kartini (2020), which state that the Buteyko technique improves pulmonary ventilation efficiency, reduces dyspnea, and enhances tissue oxygenation balance. Therefore, Buteyko breathing exercises have proven effective as a non-pharmacological intervention for improving oxygen saturation and breathing patterns in patients with bronchial asthma.

Based on the results and supporting theories, it can be interpreted that the Buteyko breathing technique produces a positive effect on increasing oxygen saturation in patients with bronchial asthma. This improvement reflects enhanced ventilation and oxygen distribution due to more controlled and efficient breathing. These findings indicate that the Buteyko technique can serve as an effective non-pharmacological nursing

intervention in asthma management, particularly in addressing ineffective breathing patterns and improving tissue oxygenation. Furthermore, the consistent results observed in both patients strengthen the relevance of implementing this technique as part of a nursing care plan focused on improving respiratory status.

SUMMARY

Based on the study conducted at Lavalette Hospital entitled “*Nursing Intervention for Bronchial Asthma Patients through the Implementation of the Buteyko Breathing Technique to Improve Oxygen Saturation*”, the following conclusions can be drawn:

1. Based on the respondents’ characteristics, the study sample consisted of two female patients over 40 years of age who were diagnosed with bronchial asthma at Lavalette Hospital.
2. Data analysis showed that both patients complained of shortness of breath. The initial oxygen saturation level before the Buteyko breathing technique intervention was 94%. The identified nursing diagnosis was *ineffective breathing pattern related to airway obstruction*, characterized by dyspnea, tachypnea, and easy fatigue during activity.

3. The intervention results demonstrated that both patients were able to perform the Buteyko breathing technique correctly and practiced it regularly three times a day. By the third day, the patients were able to perform the technique independently or with minimal assistance from family members.
4. The nursing implementation results indicated an improvement in oxygen saturation, with an average increase to 96–97% after the intervention.
5. Based on the nursing evaluation, it can be concluded that the Buteyko breathing technique has a positive effect on improving oxygen saturation in patients with bronchial asthma. At the final evaluation, both patients reported reduced shortness of breath. Oxygen saturation levels increased from 94% before the intervention to 96% and 97% after the intervention for Mrs. P and Mrs. S, respectively.

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