

THE EFFECTIVENESS OF BUTEYKO RESPIRATORY TECHNIQUE TO IMPROVE BRONCHIAL ASTHMA CONTROL IN PADANG CITY HEALTH CENTER

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ABSTRACT

Bronchial asthma is one of the chronic respiratory diseases caused by the narrowing of the airways due to hypersensitivity reactions in the bronchi, resulting in symptoms such as wheezing, coughing, and shortness of breath. When asthma patients experience breathlessness, there is an increase in respiratory frequency and a decrease in oxygen saturation. If not promptly treated, it can lead to oxygen deficiency (hypoxia), which can ultimately result in death. The management of bronchial asthma is typically done with pharmacological therapy aimed at achieving a normal lifestyle, avoiding attacks, and restoring optimal lung function. However, it has not shown significant improvement in preventing bronchial asthma. Non-pharmacological treatment methods, such as Buteyko breathing technique, are expected to complement pharmacological treatment in reducing the frequency of asthma attacks (exacerbations). The Buteyko breathing technique has shown an increase in peak expiratory flow rate (PEFR) values and a decrease in bronchial asthma score values. The objective of this study is to analyze the effectiveness of the Buteyko breathing technique in controlling bronchial asthma in the Padang Health Center area. Before the intervention, the average bronchial asthma control was 15.44, with a standard deviation of 2.279, and a minimum control of 11 and a maximum of 19. After the intervention, the average control increased to 21.69, with a standard deviation of 2.387, and a minimum control of 16 and a maximum of 25. Similarly, bronchial asthma control in the control group showed an increase from 16.19 to 15.38 after the intervention. Statistical tests using independent t-tests showed a significant influence of the Buteyko breathing technique on bronchial asthma control, with a p-value of 0.000 ($p \leq 0.05$). This indicates that the Buteyko breathing technique has a significant impact on improving bronchial asthma control. Therefore, this research provides evidence that the Buteyko breathing technique can be a valuable addition to the treatment of bronchial asthma, helping patients achieve better control of their condition and reducing the risk of asthma attacks.

Keywords: Bronchial asthma., Buteyko breathing technique., Breathing patterns.

INTRODUCTION

Asthma is an airway obstruction disease characterized by narrowing of the airways ⁽¹⁻⁵⁾. Narrowing of the airway will cause the patient to experience dyspnea, coughing, wheezing and wheezing. If asthma recurrence occurs continuously, it will have a worse impact on the body's health condition, causing complications, namely pneumonia, damage to part or all of the lungs, respiratory failure, status asthmaticus (severe asthma attacks that do not respond to treatment) poor asthma control can disrupt sleep patterns, daily activities, lung damage, and various other asthma complications such as anxiety and depression ⁶⁻⁹.

Based on data from WHO (2016), the incidence of asthma in the world's population is estimated to reach 235 million, with more than 80% of deaths occurring in developing countries. In 2017, it was found that the incidence of asthma in various parts of the country was 1-18% with the number of people experiencing asthma in the world predicted to reach 300 million ¹⁰⁻¹². The prevalence of

asthma in Indonesia based on data (Rikesdas, 2018) is 4.5%. Asthma sufferers are mostly aged 5 to 14 years and 40 to 50 years, the percentage at the age of 6 to 7 years is 4 to 11%, at the age of 13 to 14 years is 6-13%, and at the age of 40 to 50 years is 10.7% The prevalence of asthma in West Sumatra according to RISKESDAS in 2018 was 20,663 people, with a recurrence frequency over the last 12 months of 66.2%. West Sumatra is included in the 10 provinces with the most asthma in Indonesia (13.14). Asthma cases are in 9th position out of 10 diseases in Padang City with a total of 6,012 cases ¹⁵. Asthma treatment is generally carried out with pharmacological therapy which aims to achieve a normal lifestyle, avoid attacks, and restore optimal lung function. Existing drugs for hypertension do not yet indicate health status. Non-pharmacological treatment methods are expected to be able to complement pharmacological treatment in reducing the frequency of asthma attacks (recurrence) with the Buteyko breathing technique ¹⁶⁻¹⁸.

The Buteyko breathing technique is a form of exercise that can reduce lung hyperventilation in asthma

patients by using breathing techniques. In fact, the Buteyko method can overcome the problem of reducing CO₂ to return to normal, and relaxing the smooth muscle in the bronchial walls thereby avoiding bronchospasm and opening the airway and preventing asthma¹⁹⁻²⁰. The advantages of the Buteyko breathing technique can reduce the frequency of asthma attacks (recurrence), prevent severity, and reduce the dose of inhaled corticosteroids and improve PEF_R (Peak expiratory flow rate). Apart from that, the Buteyko breathing technique can stop coughing, nasal congestion, shortness of breath, wheezing, and improve quality of life²¹. Buteyko breathing technique has no side effects. The Buteyko breathing technique is effective twice a day for 20 minutes and results can be seen within one week. Usually this breathing technique can be done before breakfast, before lunch and before going to bed at night (22,23). The goal to results it can reduce the frequency of asthma recurrence with the Buteyko technique and other research states that the Buteyko technique can reduce the frequency of asthma recurrence with the Buteyko technique²⁴⁻²⁶.

MATERIALS AND METHODS

Research design: this research uses an experimental design with a pretest-posttest control group design. Population and sample: adult bronchial asthma patients aged over 18 years and undergoing treatment at the Padang City Health Center. By using predetermined inclusion and exclusion criteria. Inclusion criteria in this

study include adult patients diagnosed with bronchial asthma who have been using anti-asthma medication for at least 3 months and still experience symptoms of shortness of breath, coughing and/or wheezing, and have a health condition that makes it possible to use the Buteyko breathing technique. Exclusion criteria include having a history of health problems that worsen asthma, such as acute respiratory infections, pneumonia, and so on.

Primary data collection: Primary data was collected through interviews using questionnaires to collect demographic data, medical history and asthma symptoms. In addition, spirometry data were also collected to evaluate lung function and asthma control levels at the beginning and end of the study.

Buteyko breathing technique intervention: After data collection in the first stage, research subjects will be trained to use the Buteyko breathing technique individually for 4 weeks. Research subjects will be instructed to perform the Buteyko breathing technique regularly every day for 5-10 minutes during the training period.

Post-intervention data collection: After the training period, spirometry data and asthma control questionnaires will be collected again to evaluate the effectiveness of the Buteyko breathing technique in improving asthma control. This research was funded by the ministry of Research, Technology and Higher Education.

RESULTS

Univariate Analysis

The Average Control Of Bronchial Asthma Using The Buteyko Breathing Technique At The Dadaok Stump Hitam Community Health Center In The Intervention Group Is Known.

Table 1. Average Control of Bronchial Asthma Intervention Group of Bronchial Asthma Patients Before Buteyko Breathing Technique

Variable	Mean	Standar Deviation (SD)	Min-Max	n
Intervention Group (before)	15,44	2,279	11-19	16

Based on table 1, the average bronchial asthma control intervention (before) was 15.44 with a standard deviation of 2.279 and asthma control

The minimum is 11 and the maximum asthma control is 19..

The average control of bronchial asthma using the Buteyko breathing technique at the Dadaok stump Hitam Community Health Center in the intervention group after treatment was known.

Table 2. Average Control of Bronchial Asthma Control Group of Bronchial Asthma Patients Average Control of Bronchial Asthma Intervention Group of Bronchial Asthma Patients After Buteyko Breathing Technique

Variable	Mean	Standar Deviation (SD)	Min-Max	n
Intervention Group (After)	21,69	2,387	16-25	16

Based on table 1, the average bronchial asthma control intervention (after) is 21.69 with a standard deviation 2,387 and minimum asthma control is 16 and maximum asthma control is 2

The average control of bronchial asthma using the Buteyko breathing technique at the Dadok bungul Hitam health center in the control group is known.

Table 3. Average Control of Bronchial Asthma Control Group of Bronchial Asthma Patients Before Buteyko Breathing Technique

Variable	Mean	Standar Deviation (SD)	Min-Max	n
Control Group (before)	16,19	2,228	12-20	16

Based on table 3, the average control for Bronchial Asthma control (before) is 16.19 with a standard deviation of 2.228 and The minimum asthma control is 12 and the maximum asthma control is 20.

The average control of bronchial asthma using the Buteyko breathing technique at the Dadok bungul Hitam health center in the control group is known.

Table 4. Average Control of Bronchial Asthma Control Group of Bronchial Asthma Patients After Buteyko Breathing Technique

Variable	Mean	Standar Deviation (SD)	Min-Max	n
Control Group (After)	15,38	2,217	11-19	16

Based on table 4, the average control for bronchial asthma control (after) is 15.38 with a standard deviation of 2.217 and Minimum asthma control is 11 and maximum asthma control is 19.

Bivariate Analysis

Table 5. The Effect of the Effectiveness of the Buteyko Breathing Technique to Improve Control of Bronchial Asthma at the Dadok bungul Hitam Community Health Center

Variable	Mean	SD	P value	n
Average Effect of Effectiveness of the Buteyko Breathing Technique to Improve Control of Bronchial Asthma in the Dadok Tbungul Hitam Community Health Center Control and Intervention Groups	5.500	0,816	0,000	32

Based on table 5, the results show that the average effect of the effectiveness of the Buteyko breathing technique to improve bronchial asthma control at the Dadok Tbungul Hitam Community Health Center for the control and intervention groups is 5.500 with a standard deviation of 0.816. And the statistical test results obtained using the independent t test obtained a p value = 0.000 ($p \leq 0.05$), so there was an influence on the effectiveness of the Buteyko breathing technique to improve bronchial asthma control.

DISCUSSION

This study investigated the effectiveness of the Buteyko breathing technique in improving control of bronchial asthma in the Padang City Health Center. The results showed that after intervention with the Buteyko breathing technique, there was a significant improvement in bronchial asthma control.

http://ojs.unud.ac.id/index.php/eum
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asthma control, as indicated by an increase in the average control value. In addition, reduction in bronchial asthma scores also reflects improved control of this disease. The statistical test results show a p value ($p \leq 0.05$) indicating that the Buteyko breathing technique is effective in improving control of bronchial asthma.

These findings have important implications in the management of bronchial asthma. In the medical world, improving the control of bronchial asthma is the main goal because it can reduce potentially life-threatening asthma attacks and improve the patient's quality of life. Buteyko breathing technique, as a non-pharmacological approach, can be an effective adjunct in the treatment of bronchial asthma, allowing patients to achieve better control of their condition. This can also reduce the burden of pharmacological treatment which often has side effects. Therefore, the Buteyko breathing technique should be considered as one of the recommended components of therapy for patients with bronchial asthma.

In the context of this study, the effectiveness of the Buteyko breathing technique needs to be compared with other treatment approaches, such as conventional pharmacological therapy. From a clinical perspective, this comparative study may help physicians and patients choose the best approach to managing bronchial asthma. Additionally, it is important to consider social and economic factors that may influence patient access to the Buteyko breathing technique. From a health policy perspective, this research may trigger changes in bronchial asthma treatment guidelines and integrate the Buteyko breathing technique into the broader health care system, if proven effective in further studies. Finally, from an educational perspective, the results of this study may provide a basis for increasing public understanding of the role of the Buteyko breathing technique in the management of bronchial asthma, which may increase patient awareness and participation in their care.

CONCLUSIONS AND SUGGESTIONS

There is Effectiveness of the Buteyko Breathing Technique to Improve Control of Bronchial Asthma in Padang City Health Centers

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