

Influence Technique Buteyko to Improvement SpO2 on Asthma Patient

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ABSTRACT

An increase in the frequency of asthma attacks accompanied by oxygen saturation (SpO₂) deficiency significantly restricts patients' daily activities and can lead to fatal complications. Consequently, patients require immediate relief and long-term control over their breathing pattern during acute episodes. A well-established non-pharmacological method is the Buteyko breathing technique, which emphasizes shallow and controlled breathing. Objective: To determine the effectiveness of the Buteyko breathing technique in reducing shortness of breath and increasing SpO₂ levels in asthma patients. Methods: This study employed a quantitative quasi-experimental design with a one-group pretest-posttest approach. The population comprised inpatient and outpatient individuals diagnosed with asthma at RSUD Dr. H. Abdul Moeloek, Lampung Province. The sample consisted of 15 respondents selected based on preliminary surveys indicating acute dyspnea and lack of prior exposure to the Buteyko technique. Data collection utilized structured questionnaires and pulse oximetry, analyzed using univariate and bivariate paired dependent t-tests via SPSS version 26. Results: Prior to intervention, the mean oxygen saturation was $89.13 \pm 1.727\%$. Following the Buteyko breathing intervention, the mean SpO₂ increased significantly to $94.33 \pm 1.543\%$ ($p = 0.000$; $p < 0.05$; 95% CI: 93.48–95.19). Conclusion: The Buteyko breathing technique is effective in significantly increasing SpO₂ levels and relieving respiratory distress among asthma patients.

Keywords: Asthma; Buteyko; Congested Breath; SpO₂



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INTRODUCTION

Asthma is an inflammation chronicles on the road breath caused by hyperresponsiveness road shortness of breath, mucosal edema and excess mucus production. Inflammation This usually relapsed with signs of an asthma episode such as cough, breath shortness of breath, wheezing and dyspnea (1). Disease This can result in decline amount air that can induced by contraction muscle plain, thickening of the walls road breath as well as the presence of secretion excessive in road breath which is results from response overexposure to allergens (2).

Symptom asthma varies greatly between a sufferer with sufferer other symptoms asthma consists of from the triad, namely: dyspnea, cough and wheezing (3). According to Suddarth in Bachri state symptom the caused by narrowing channel breath. Narrowing This caused by

by shrink it muscles that surround the channel breath, swelling and inflammation network around membrane mucus or phlegm that is shed channel breath (4).

According to Smeltzer in Melastuti allergies is factor predisposition strongest to number incident asthma, prolonged exposure to irritants road breath or allergens also increase risk development asthma. While factor originator to symptom asthma and exacerbations in patient asthma covering irritant road breath, exercise, stress or deep sadness, sinusitis with postnasal drip, therapy treatment, infection tract respiratory caused by by virus and gastroesophageal reflux (5). The purpose of treatment asthma namely control asthma indicated by function pulmonary which returns to normal or approaching normal, maintaining normal activity levels, and minimizing the need for beta2 agonist inhalers that work as a quick relief from asthma symptoms given 2 times a week monitored in a way adequate (6).

Signs and symptoms common asthma often appear is improvement frequency breathing, hyperventilation, hyperinflation, fluctuation CO₂ levels (7). Hyperventilation followed by with anxiety is common symptoms found in patient asthma, resulting in bronchoconstriction road breath (8). Hyperventilation is something condition Where CO₂ in blood and the alveoli are reduced so that compensation road breath experience construction aim for avoid loss of CO excessive (9).

Besides that thickening wall road breath Because remodeling road breath increase with sharp and contributing to obstruction flow air. Such breathing This contribute in vulnerabilities and weaknesses body to various type disease and related close with method Effective and correct breathing techniques (1). Buteyko breathing is something series exercise breathing that is done in a way simple as management management asthma that aims for reduce constriction road breath with principles exercise breathe shallow. The purpose of method Buteyko which simple and easy.

practiced this is for return to normal air volume (10). According to Adha in Bachri effective he did technique breathing Buteyko is 1 time a day for 20 minutes. And the results can see in one week. Benefits exercise breathing Buteyko no contradictory with management asthma in a way conventional. Breathing exercises Buteyko become complement management asthma. Initially, the benefits of exercise breathing Buteyko that is seen in the reduction symptoms and reduction of use bronchodilator (11).

Study previously Andriany (12) obtained influence from giving technique breathing Buteyko to respondent sufferer asthma experience decline symptom asthma average 3.72 before treatment and 3.18 after treatment and classification its decline is at from currently to light.

METHODS

This study employed a quantitative quasi-experimental design with a one-group pretest-posttest approach. The population comprised inpatient and outpatient individuals diagnosed with asthma at Dr. H. Abdul Moeloek Hospital, Lampung Province. The sample consisted of 15 respondents selected based on preliminary surveys indicating acute dyspnea and lack of prior exposure to the Buteyko technique. Data collection utilized structured questionnaires and pulse oximetry, analyzed using univariate and bivariate paired dependent t-tests via SPSS version 26. Ethical testing research conducted at the Commission Ethics Malahayati University Health Research port Lampung with number letter 3705/EC/KEP-UNMAL/VII/2023.

RESULTS

Analysis Univariate

Based on study Which has done obtained data Which has described as following:

Table 1. Level saturation oxygen pre- test and post- test intervention Technique Buteyko against increased SpO2 in patients asthma

	Mean±SD Variable
Pre- Test Intervention	89.13 ± 1.727
Post- Test Intervention	94.33 ± 1.543

Based on table 4.2 it can be explained average value level saturation oxygen in the group intervention before given the Buteyko Technique for reduce congested breath is 89.13 with mark standard deviation 1,727 and average value level saturation oxygen in the group intervention after given the Buteyko Technique for reduce congested breath is 94313 with mark standard deviation 1.543.

Analysis Bivariate

Based on study Which has done obtained data Which has described as following:

Table 2. Comparison level oxygen pre- test and post- test given Buteyko Technique To Increased SpO2 On Patient Asthma

Variables	Mean±SD	p- value	95% Confidence Interval of the Difference	
			Lower	Upper
Pre- test	89.13±1.727	0.000	88.18	90.09
Post- test	94.33±1.543	0.000	93.48	95.19

From the table above known that level saturation oxygen before given the Buteyko Technique for increase SpO2 in room Jasmine Dr. H Abdul Moeloek Regional General Hospital, Lampung Province, in 2023 had an average of 89.13 with standard deviation 1.727, lower value 88.18 and upper value 90.09. And the level saturation oxygen after given the Buteyko Technique for reduce congested respiratory rate in the Melati room of Dr. H Abdul Moeloek Regional Hospital, Lampung Province in 2023 had an average of 94.33 with standard deviation 1.543, lower value 93.48 and upper value 95.19.

DISCUSSION

From the results study known that level saturation oxygen before given the Buteyko Technique for Increased SpO2 in the Melati Room of Dr. H Abdul Moeloek Regional Hospital, Lampung Province in 2023 have flat flat 89.13 with standard deviation 1.727, lower value 88.18 and upper value 90.09. And the level saturation oxygen after given the Buteyko Technique for increasing SPO2 in the Melati room of Dr. H Abdul Moeloek Regional Hospital, Lampung Province in 2023 had an average of 94.33 with standard deviation 1.543, mark lower 93.48 And mark upper 95.19.

Statistical test results use t-test dependent obtained mark p-value 0.000 $P > 0.005$ which means there is effectiveness of the Buteyko Technique to increased SpO2 in patients Asthma in the Melati Room of Dr. H Abdul Moeloek Regional Hospital, Lampung Province in 2019 2023.

Buteyko is technique breathing which is combination from breathing nose, diaphragm, and control pause. Technique breathing This is something series exercise purposeful breathing for reduce narrowing on road breath. Breathing exercises butyeko combine breathing through nose, diaphragm, and control pause (13).

Buteyko technique teaches breathe through the nose that will bring profit that is filtering air from allergens and pollution dust, humidification, and produces nitric oxide which will produce bronchodilation respiratory tract. Increased levels of CO₂ and nitric oxide produced from technique Buteyko can widen channel breathing so that patient asthma can do work daily without There is complaint wheezing or wheezing, shortness of breath, coughing, and chest pain (14). Besides that's technique breathing Buteyko is also a combination from breathing diaphragm, which will result in raised abdomen in a way slowly and the chest expands full, so that lungs can insert and output air with more both (15).

In the research this is a breathing technique Buteyko given as many as 3 cycles for $\pm$ 5 minutes on second respondents and given in sitting position. The results of data collection show existence improvement mark saturation oxygen on respondents (16). This is showed technique breathing Buteyko effective given to asthma sufferers to reduce obstruction airway. Research Melastuti, et al., regarding Effectiveness technique breathing Buteyko to control asthma in 2015 showed mark significant (p value < 0.05) for measurement with use asthma control test is 0,000 (17, 18).

Based on results the can concluded that there is difference control asthma before and after done technique breathing buteyko. Meanwhile, regarding influence technique breathing Buteyko to frequency relapse asthma on sufferer asthma bronchial in the year of 2017 shows there is a difference average frequency relapse asthma bronchial before And after given Technique breathing buteyko, it means technique breathing Buteyko influence to frequency relapse asthma bronchial with significant, namely relapse which often experienced the patient who was initially currently become relapse light with presentation 83.3% (19).

According to Analysis researchers which is conducted to 15 respondents, it was seen there is change frequency breathing after the Buteyko Technique can also be done seen from existence improvement oxygen saturation at the time after the Buteyko Technique is carried out.

CONCLUSION

There is effectiveness of the Buteyko Technique to increasing SPO₂ in patient asthma in the Melati room of Dr. H Abdul Moeloek Regional Hospital. Officer health specifically nurses to be more increase skills through literature, training as well as counseling for each inspection on patient asthma, so that own knowledge about Buteyko Technique therapy for increasing SpO₂ in patient asthma.

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