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The Effect of the Combination of Semi Fowler Position and Pursed Lip Breathing Technique on Increasing Oxygen Saturation in COPD Patients in the ER Room at Dr. M.M. Dunda Limboto Hospital

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ABSTRACT

Chronic Obstructive Pulmonary Disease (COPD) is one of the lung diseases characterized by chronic and progressive limited airflow due to obstructions in the airways. This condition causes gas exchange disorders that cause shortness of breath, coughing up phlegm, wheezing, and fatigue due to damage to lung tissue or blockage by phlegm. This study aims to find out whether there is an effect of the combination of semi fowler position and purse lip breathing technique on increasing oxygen saturation in COPD patients. The type of Quasi Experiment research is through a pretest-posttest design control group approach. The population in this study was patients diagnosed with chronic obstructive pulmonary disease (COPD) in the emergency room of Dr. M.M. Dunda Limboto Hospital as many as 70 patients., with sampling techniques using Accidental Sampling amounting to 42 then divided into 21 Intervention groups and 21 Control groups. The level of combination of semi fowler position and Purse Lip Breathing technique, Data analysis was carried out using the Paired Samples T-test.

The results showed that in the intervention group, there was a significant increase in oxygen saturation after the intervention, with a value of sig (2-tailed) = 0.000 (<0.05), so that H0 was rejected and Ha was accepted. Similarly, in the control group, the increase in oxygen saturation was also significant with the value of sig (2-tailed) = 0.000 (<0.05). These findings show that the combination of the Semi Fowler position and the Pursed-Lip Breathing technique effectively increases oxygen saturation in COPD patients in the ER.

The conclusion of this study is that there is an effect of the combination of the Semi Fowler position and the Pursed-Lip Breathing technique and is proven to be effective in increasing oxygen saturation in COPD patients in the ER, so that this intervention can be used as a recommended non-pharmacological strategy in the treatment of COPD patients.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is one of the lung diseases characterized by chronic and progressive limited airflow due to obstructions in the airways. This condition causes gas exchange disorders that cause shortness of breath, coughing up phlegm, wheezing, and fatigue due to damage to lung tissue or blockage by phlegm (WHO, 2023). COPD is also known as emphysema and chronic bronchitis which are major health problems globally because they have a major impact on mortality and quality of life of sufferers.

Globally, the prevalence of COPD ranks fourth as the world's leading cause of death and is predicted to rise to third in the next two decades. In 2022, more than 3 million deaths were caused by COPD, and the burden of this disease is expected to continue to increase as the number of smokers increases and air pollution is the main risk factor (GOLD, 2023). World Health Organization data, (2024) also shows that in 2019 COPD caused 3.23

million deaths or about 5% of the total global deaths, making it the third leading cause of death after ischemic heart disease and stroke.

In Indonesia, the high number of smokers is a serious threat to the increase in COPD cases. Based on a survey by the Ministry of Health of the Republic of Indonesia, (2024) there are around 70 million active smokers with a prevalence of 28.99% at the age of ≥15 years, of which 56.5% are adolescents aged 15-19 years. Based on WHO, (2025) it is projected that the prevalence of smokers in Indonesia will increase to 38.7%, making Indonesia one of the countries with the largest number of smokers in the world. This is in line with the reports of the National Commission on Tobacco Control, (2024) and the Central Statistics Agency, (2024) which mention a significant increase in young smokers. This fact shows that the smoking problem in Indonesia is not only related to the high number of adult smokers, but also to the increased involvement of children and adolescents, thus increasing the risk of increasing COPD in the future.

According to Riskesdas, (2021) and a report from the Ministry of Health, the prevalence of COPD in the adult population in Indonesia reaches 4.5%, with most cases not being medically diagnosed. In Gorontalo Province, the prevalence reached 3.8%, slightly higher than the national figure. Data at Dr. M.M. Dunda Limboto Hospital shows that throughout 2025 there will be 70 inpatients with a diagnosis of COPD who will enter through the Emergency Installation (ER). This figure reflects the relatively high burden of COPD disease at the local level and demands an increase in the effectiveness of nursing management of COPD patients, especially in acute exacerbation conditions.

COPD patients experience chronic obstruction due to narrowing of the airways, increased mucus production, and loss of elasticity of lung tissue. This leads to increased airway resistance and decreased airflow so that the gas exchange process is disrupted and oxygen saturation decreases (Nguyen & Duong, 2023). Hypoxemia that persists can aggravate the work of the respiratory system, increase the risk of respiratory failure, and worsen the prognosis and safety of patients. Therefore, prompt and appropriate handling in the emergency room is crucial to prevent further complications. Commonly given interventions include pharmacological therapy in the form of bronchodilators through nebulizers to widen the airways and reduce bronchospasm, as well as supplemental oxygen therapy through the nasal cannula of 2–5 L/min when oxygen saturation is <90% to improve oxygenation and prevent tissue hypoxia. (Inayati et al., 2025).

In addition to pharmacological therapy, non-pharmacological management is also important for COPD patients to optimize respiratory function and quality of life. The combination of the Semi Fowler position and the pursed-lip breathing (PLB) technique is effective in increasing lung expansion, improving ventilation, slowing down breathing, preventing airway collapse, and increasing gas exchange. The synergy of these two methods has been shown to help increase oxygen saturation and reduce congestion, so it is recommended as a supportive intervention in COPD patients (Fitriani et al., 2022; Rusmina et al., 2021).

The semi-Fowler position is a position where the patient lies with the headboard raised by about 30–45 degrees. This position has been shown to increase lung expansion and lower intra-abdominal pressure, thus facilitating the process of inspiration and expiration (Widyaningtyas et al., 2021). This technique also helps reduce the work of the respiratory muscles. In the study (Sadaukur et al., 2023), there was an effect of the semi-fowler position on oxygen fulfillment in COPD patients in the inpatient room of Sayang Cianjur Hospital with a sample of 18 respondents. The results of the statistical test using a parametric statistical test (Dependent Simple T Test) for one group of pairs obtained a P value of (0.000) smaller than the value of α (0.05). This therapy may have been the therapy of choice so far and has been proven to be able to improve the patient's condition, but the action alone has not been able to accelerate the improvement of the patient's condition so that the treatment time for COPD patients tends to be long, because the patient is not given breathing exercises so that the dependence on oxygen actually increases. Therefore, patients are given additional non-pharmacological therapy in the form of breathing exercise therapy, one of which is Pursed Lips Breathing (N. M. D. H. Milasari & Triana, 2021a).

The PLB technique is a breathing method that involves inspiration through the nose and slow expiration through the lips that are closed. This technique has been widely researched and proven to prolong the expiratory phase, improve alveolar ventilation, and increase oxygen saturation (Fitriani et al., 2022). The reason for PLB's action is because PLB has several benefits, namely, it can improve gas exchange with better arterial oxygen saturation results and be able to protect the airway so that it remains open in maintaining positive airway pressure (Rusmina et al., 2021). This is in line with the research (Inayati et al., 2025) obtained from the results of the research obtained Data analysis was carried out using univariate and bivariate analysis. The results of the independent t test analysis showed that pursed lip breathing exercise was proven to have an effect on the increase in SPO2 of COPD patients (p-value 0.002), the average difference in SPO2 between the two groups was 1.214%. It is hoped that PLB exercises can be used as one of the companion therapies for COPD patients who experience a decrease in SPO2.

In COPD patients who experience acute exaggeration that has decreased saturation to below 90%, it is only treated with oxygen, fowler and semifowler positions and bronchodilator drugs through nebulizers or intravenously, while breathing exercises such as PLB are not applied to these patients. So that the increase in oxygen saturation in COPD patients tends not to increase. This is also the cause of the long patient treatment time.

Research on the combination of these two techniques was able to significantly increase the oxygen saturation of COPD patients in a relatively short time (Rahayu & Wahyuni, 2020). This is in line with the research of Milasari & Triana, (2021) obtained the results of the study obtained that the average oxygen saturation of patients before the provision of the semifowler position and the PLB technique had an effect on increasing the oxygen saturation value in COPD patients, this is evidenced by a significance value of 0.000 < 0.05 which means that there is an effect of the provision of the semifowler position and the pursed lips breathing technique on the oxygen saturation of patients with COPD.

Based on the results of initial observations conducted at the Emergency Installation of Dr. M.M. Dunda Limboto Hospital, information was obtained from interviews with several nurses that the treatment of COPD patients who experienced acute exacerbations with a decrease in oxygen saturation below 90% generally still focused on pharmacological actions, such as oxygen administration, semi-fowler positions, and bronchodilators through nebulizers and intravenously. However, non-pharmacological interventions in the form of breathing exercises such as PLB have not been routinely applied in daily nursing practice. This condition shows that efforts to increase oxygen saturation in COPD patients have not been fully optimized through a comprehensive combination of therapies. As a result, the improvement in oxygen saturation tends to be slow, which can indirectly prolong the patient's treatment time. Based on these conditions, the researcher felt the need to conduct a study entitled "The Effect of the Combination of Semi Fowler Position and Pursed-Lip Breathing Technique on Increasing Oxygen Saturation in COPD Patients in the Emergency Room of Dr. M.M. Dunda Limboto Hospital.".

RESEARCH METHODS

This research was carried out in the Emergency Installation room of Dr. M.M. Dunda Limboto Hospital. This research was conducted using the Quasi Experiment type of research through a pretest-posttest design control group approach. The sample used in this study was determined by the Accidental Sampling technique using the Slovin Formula amounting to 41 divided into 2 intervention groups 21 and control groups 21. The instruments in this study included the respondent characteristics sheet (name, gender, age, smoking history, use of oxygen, SOP combination of Semi Fowler position and Purse Lip Breathing Technique, and oxygen saturation observation sheet in patients before and after the action.

RESEARCH RESULTS

Respondent Characteristics

Table 1. Characteristics of Respondents by Age

No	Usia	frekuensi (n)	persentase (%)
1.	Dewasa Awal (26-35 Tahun)	8	19%
2.	Dewasa akhir (36-45 tahun)	12	29%
3.	Pra Lansia (46- 55 tahun)	12	29%
4.	Lansia (56-65 Tahun)	10	23%
	Total	**42**	**100**

Source : Primary Data, 2025

Based on table 1, it shows that of the 42 respondents who experienced COPD in the emergency room, more were late adults and pre-elderly, namely 12 respondents (29%) and the least early adult, namely 8 respondents (19%).

Table 2. Characteristics of Respondents by Gender

Yes	Gender	Frequency (n)	Percentage (%)
1.	Male	17	40%
2.	Women	25	60%
Total		**42**	**100**

Source : Primary Data, 2025

Based on table 2, it shows that of the 42 respondents who experienced COPD in the emergency room, there were more female gender as many as 25 respondents (60%) and male as many as 17 respondents (40%).

Table 3. Characteristics of Respondents Based on Smoking History

Yes	Smoking History	Frequency (n)	Percentage (%)
1.	Smoking	16	38%
2.	No smoking	26	62%
Total		**42**	**100**

Source : Primary Data, 2025

Based on table 3, it shows that of the 42 respondents who experienced COPD in the emergency room, more than 26 respondents (62%) did not smoke and 16 (38%) smoked.

Table 4. Respondent Characteristics Based on Oxygen Use

Yes	Using Oxygen	Frequency (n)	Percentage (%)
1.	Yes	42	100%
2.	No	0	0%
Total		**42**	**100**

Source : Primary Data, 2025

Based on table 4, it shows that of the 42 respondents who experienced COPD in the emergency room, 42 respondents (100%) used more oxygen.

Univariate Analysis

Table 5. Oxygen Saturation Levels Before and After Intervention A combination of the semi fowler position and the purse lip breathing technique on increasing oxygen saturation in COPD patients.

No	Kelompok Intervensi	Katergori	frekuensi (n)	persentase (%)
1.	Sebelum dilakukan Kombinasi Posisi Semi Fowler Dan Teknik *Purse Lip Breathing*	Normal	0	0
		Abnormal	20	95
		Hipoksemia	1	0
		Hipoksemia parah	0	5
2.	Sesudah dilakukan Kombinasi Posisi Semi Fowler Dan Teknik *Purse Lip Breathing*	Normal	21	100
		Abnormal	0	0
		Hipoksemia	0	0
		Hipoksemia parah	0	0

Source : Primary Data 2025

Based on table 5, the results of the study obtained the oxygen saturation level in COPD patients before being given a combination of semi-fowler position and technique pursed lip breathing, as many as 20 respondents (95%) had abnormal oxygen saturation levels, as many as 1 respondent (5%) had hypoxemia oxygen saturation levels and after intervention as many as 21 respondents (100%) had normal oxygen saturation.

Table 6. Oxygen saturation levels of control groups in patients before and after oxygen administration

No	Kelompok Kontrol	Katergori	frekuensi (n)	persentase (%)
1.	Sebelum dilakukan Pemberian oksigen	Normal	0	0
		Abnormal	20	95
		Hipoksemia	1	0
		Hipoksemia parah	0	5
2.	Sesudah dilakukan pemberian oksigen	Normal	21	100
		Abnormal	0	0
		Hipoksemia	0	0
		Hipoksemia parah	0	0

Source: Primary Data 2025

Based on table 6, the results of the study were obtained that the oxygen saturation level in COPD patients before being given oxygen, as many as 20 respondents (95%) had abnormal oxygen saturation levels, as many as 1 respondent (5%) had hypoxemia oxygen saturation levels, and after oxygen administration as many as 21 respondents (100%) had normal oxygen saturation.

Bivariate Analysis

Bivariate analysis in this study aims to find out The Influence of the Combination of the Semi Fowler Position and Technique pursed-lip breathing on the increase in oxygen saturation in COPD patients in the ER room of Dr. M.M. Dunda Limboto Hospital. This aims to determine the influence of A combination of semi fowler position and technique pursed-lip breathing before and after the intervention. Before conducting data analysis, a data normality test was first carried out using Shapiro-wilk The results of the pre-test significance value = 0.058 and post-test were 0.067 > 0.05 which means that the data is normally distributed, so that the statistical test that will be used if the data is distributed normally, namely the test Paired Sample T-Test (Difference Test) using the SPSS program with a level of significance (p<0.05).

Table 7. Comparison of the Effect of the Combination of the Semi Fowler Position and Pursed-Lip Breathing Technique and Oxygenation on Increasing Oxygen Saturation in COPD Patients in the ER Room of Dr. M.M. Dunda Limboto Hospital

Variable	SPO2	N	Red	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Intervention	*Pre-test*	21	91.00	1.09545	0.23905	0.000
	Post-test	21	97,90	1.30018	0.28372	
Controls	*Pre-test*	21	91.14	1.15264	0.25253	0.000
	Post-tests	21	97.95	1.24403	0.27147	

Source: Primary Data 2025

Based on table 7, the results of the descriptive analysis showed an increase in the average score in the intervention group from 91.00 to 97.90 after the intervention was given. Similar improvements were also found in the control group, with the average score increasing from 91.14 to 97.95.

On the results of the difference test Paired Samples T-Test Value sig (2-tailed) in the intervention group = 0.000 thus the value of sig (2-tailed) < 0.05, then H0 is rejected and Ha is accepted. This means that there is an Influence of the Combination of the Semi Fowler Position and the technique Pursed-Lip Breathing On increasing oxygen saturation in COPD patients in the ER room of Dr. M.M Dunda Limboto Hospital. Meanwhile, in the control group, the results of the difference test were obtained Paired Samples T-Test Value sig (2-tailed) in the control group = 0.000 thus the value sig (2-tailed) <0.05, then H0 is rejected and Ha is accepted

This shows that there is an influence between the combination of the semi fowler position and

Pursed-Lip Breathing against the intervention group and the control group that were not given a combination of semi-fowler position treatment and Pursed-Lip Breathing by only being given oxygen installation.

DISCUSSION

Oxygen Saturation Value in the Intervention Group Before and After the Combination of the Semi Fowler Position and Pursed-Lip Breathing Technique in the Emergency Room of Dr. M.M Dunda Limboto Hospital.

Based on the results of the study, before being given a combination of Fowler position intervention and pursed lip breathing technique, most COPD patients showed oxygenation disorders, with 20 respondents (95%) being in the abnormal oxygen saturation category and 1 respondent (5%) experiencing hypoxemia, However, after the intervention was given, all 21 respondents (100%) experienced an increase in oxygen saturation to be in the normal category, so it can be concluded that the combination of the semi Fowler position and the pursed lip breathing technique is effective in increasing oxygen saturation in COPD patients.

After being given a combination of Fowler position and pursed lip breathing (PLB) intervention, there was an increase in oxygen saturation in all respondents. A total of 21 patients (100%) showed SpO_2 values in the normal category. These findings indicate that the combination of the two interventions is effective in improving oxygenation status in patients with Chronic Obstructive Pulmonary Disease (COPD).

Physiologically, the Fowler semi position plays a role in increasing the expansion capacity of the lungs by utilizing the force of gravity to lower the intraabdominal pressure against the diaphragm. This position allows the diaphragm movement to be more optimal, increasing tidal volume, and lowering the workload of the respiratory muscles. These conditions contribute to improved lung ventilation and a more even distribution of air to the alveoli, thus supporting a more effective gas exchange process (Smeltzer et al., 2020).

Meanwhile, the pursed lip breathing technique functions to prolong the expiratory phase and create positive pressure on the small airways. This positive pressure helps prevent premature alveoli collapse, reduces water trapping, and increases the discharge of excess residual air in the lungs of COPD patients. The improvement of the expiratory mechanism has a direct impact on improving alveolar ventilation and oxygen diffusion efficiency, which further increases blood oxygen saturation (McCarthy et al., 2021).

Theoretically, the Fowler semi position can increase lung expansion and lower respiratory workload by optimizing diaphragm movement, while the pursed lip breathing technique functions to prolong expiration, prevent alveoli collapse, and reduce water trapping in COPD patients. The combination of these two interventions is able to improve alveolar ventilation and gas exchange so that it has an impact on increasing oxygen saturation (Ministry of Health of the Republic of Indonesia, 2021)

Based on the results of the study, before being given a combination of the Fowler position and pursed lip breathing (PLB) technique, most COPD patients showed abnormal oxygen saturation, which reflects limited ventilation and gas exchange which are major physiological characteristics in COPD.

This is in line with the research of Milasari & Triana, (2021) which reported an increase in mean oxygen saturation from 93.10% before the intervention to 97.00% after the administration of the semi-Fowler position and PLB technique in COPD patients, with statistical significance ($p < 0.05$), suggesting that this intervention was effective in improving the oxygenation of COPD patients.

According to research from Wahyuni et al., (2025) also showed an increase in oxygen saturation in COPD respondents after intervention, where each patient experienced an increase in SpO_2 value until it reached a normal value after the application of a combination of semi fowler and PLB positions.

Researchers assume that the combination of the semi-Fowler position and the pursed lip breathing technique can improve respiratory mechanics by increasing lung expansion, prolonging the expiratory phase, and reducing air trap in the alveoli. With this mechanism, this intervention can increase the effectiveness of ventilation and gas exchange so that it has an impact on increasing oxygen saturation in COPD patients.

Oxygen Saturation Value in the Control Group Before and After in the Emergency Room of Dr. M.M Dunda Limboto Hospital.

Based on the results of the study, before oxygen installation, most COPD patients showed oxygenation impaired, with 20 respondents (95%) in the abnormal oxygen saturation category and 1 respondent (5%) experienced hypoxemia, After being given oxygen therapy, there was a significant increase in oxygenation status, where all 21 respondents (100%) showed oxygen saturation in the normal category. These findings show that oxygen administration is effective in increasing blood oxygen levels and improving oxygenation conditions in COPD patients.

This is in line with research from Simanjuntak et al., (2023) which stated that the administration of oxygen therapy in COPD patients significantly improved oxygenation status, as shown by an increase in oxygen saturation values and partial oxygen pressure after intervention. The study explained that oxygen therapy plays a role in increasing alveolar oxygen concentration, thereby improving oxygen diffusion into the blood and preventing hypoxemia.

In theory, COPD patients experience a decrease in oxygen saturation due to ventilation and gas exchange disorders caused by chronic airway obstruction and alveoli damage. Oxygen therapy is recommended as the main intervention to increase the partial pressure of oxygen in the blood, improve the process of oxygen diffusion in the alveoli, and maintain the adequacy of tissue oxygenation. Adequate and controlled oxygen administration in COPD patients has been proven to be able to increase oxygen saturation to normal values and reduce the risk of hypoxemia (Ministry of Health of the Republic of Indonesia, 2021)

Oxygen therapy that is given appropriately and in a controlled manner is able to increase the oxygenation status of COPD patients optimally. Increasing oxygen saturation to normal values shows an improvement in the gas exchange process in the alveoli due to an increase in partial oxygen pressure. The success of this intervention is also supported by continuous oxygenation monitoring and the patient's position that supports ventilation. Therefore, oxygen therapy is an essential nursing intervention in preventing hypoxemia.

Comparison of the Effect of the Combination of Semi Fowler Position and Pursed-Lip Breathing Technique and Oxygenation on Increasing Oxygen Saturation in the Emergency Room of Dr. M.M Dunda Limboto Hospital.

Based on the results of the statistical test analysis using the Paired Samples T-Test test, the value of sig (2-tailed) in the intervention group = 0.000, thus the value of sig (2-tailed) < 0.05, then H0 was rejected and Ha was accepted. This means that there is an effect of the combination of the semi-fowler position and the pursed-lip breathing technique on increasing oxygen saturation in COPD patients in the ER room of Dr. M.M Dunda Limboto Hospital. Meanwhile, in the control group, the results of the Paired Samples T-Test difference test were obtained with a sig (2-tailed) value in the control group = 0.000 so that the value of sig (2-tailed) <0.05, then H0 was rejected and Ha was accepted

This shows a difference in the mechanism of increasing oxygen saturation between the intervention group that received a combination of the semi-Fowler position and the pursed-lip breathing technique and the control group that was only given oxygen therapy.

Although both groups showed a significant increase in oxygen saturation, the mechanisms of the increase that occurred in the intervention group and the control group differed. In the intervention group, the increase in oxygen saturation was not only affected by increased oxygen supply, but also by improvements in respiratory mechanics through semi-Fowler positioning and pursed-lip breathing techniques that helped prolong the expiratory phase and reduce air traps. Meanwhile, in the control group, the increase in oxygen saturation was more influenced by the administration of additional oxygen without the intervention that improved breathing patterns and alveolar ventilation.

In COPD patients, symptoms generally show symptoms such as chronic cough, cough with phlegm, shortness of breath during activity, and fatigue easily, which causes ventilation disorders and decreased lung ability to maintain gas exchange. The combination of the semi-Fowler position and the pursed lip breathing technique helps restore a more effective breathing pattern, lowers the frequency of breathing, reduces the work of the respiratory muscles, and provides a relaxation effect by reducing anxiety and muscle tension. (Normalia et al., 2025). This condition causes ventilation disorders and a decrease in the ability of the lungs to maintain optimal gas exchange, so that COPD patients are prone to experiencing a decrease in oxygen saturation.

In addition to the administration of oxygen therapy, inhalation therapy, and pharmacological treatment as part of COPD management, the combination of the semi-Fowler position and pursed-lip breathing techniques is an effective nonpharmacological intervention in increasing oxygen saturation in COPD patients. The semi-Fowler position helps to reduce abdominal pressure on the diaphragm and increase lung expansion, so that alveolar ventilation becomes more optimal. Meanwhile, the pursed-lip breathing technique plays a role in prolonging the expiratory phase, maintaining positive pressure on the airway, and preventing bronchospasm and alveoli collapse, so that the airways remain open even during the expiratory phase (Normalia et al., 2025).

The results of this study are in line with the research of Milasari & Triana, (2021) which showed that the provision of a semi-Fowler position combined with the pursed-lip breathing technique provided a significant increase in oxygen saturation in COPD patients compared to before the intervention ($p < 0.05$). The study confirms that proper body position regulation and breathing exercises are effective in improving alveolar ventilation and increasing tissue oxygenation.

According to Wahyuni et al., (2025) who stated that the implementation of pursed-lip breathing with the Fowler position was able to increase the oxygen saturation of COPD patients to reach the normal category, thereby strengthening the effectiveness of combination interventions.

Meanwhile, a significant increase in oxygen saturation in the control group in this study was also supported by previous theories and research. Oxygen therapy physiologically increases the partial pressure of oxygen in the alveoli, thereby improving the process of oxygen diffusion into the blood and preventing hypoxemia.

According to research by Simanjuntak et al., (2023) showed that the administration of oxygen therapy in COPD patients with acute exacerbations significantly improved the patient's oxygenation status ($p < 0.05$), although it did not directly improve breathing patterns and respiratory mechanics.

These results are reinforced by research by Pratama & Lestari, (2023) which reported that conventional oxygen therapy is effective in increasing the oxygen saturation of COPD patients in the emergency room, but the benefits are more symptomatic than interventions targeting respiratory mechanics.

Based on the above results, the combination of Fowler position intervention and pursed-lip breathing techniques provides a more comprehensive effect than conventional oxygen therapy alone. This intervention not only increases oxygen saturation to reach the normal category, but also improves the respiratory mechanics of COPD patients, thereby supporting optimal respiratory function. Thus, the application of an integrated nonpharmacological approach is an important strategy in nursing care for COPD patients, both to improve oxygenation status and respiratory quality, while minimizing the risk of complications due to hypoxemia.

CONCLUSION

Based on the results of this study, the results of the study were obtained in the oxygen saturation category before being given a combination of Semi Fowler Position and Purse Lip Breathing Technique, which was in the abnormal category as many as 20 respondents (95%) and hypoxemia as many as 1 respondent (5%). And after being given the combination of the semi fowler position and the purse lip breathing technique, which was in the normal category of 21 respondents (100%).

The results of the study were obtained in the category of oxygen saturation control group before being given oxygen in the abnormal category as many as 20 respondents (95%) and hypoxemia as many as 1 respondent (5%). And after being given oxygen in the normal category, as many as 21 respondents (100%).

The results of the Paired Samples T-Test showed a significance value (2-tailed) of 0.000 (<0.05) in both the intervention group and the control group, so that H_0 was rejected and H_a was accepted. This showed a significant increase in oxygen saturation, between the intervention group and the control group.

ADVICE

It is hoped that the results of this study can provide input for nursing practitioners in performing nursing services to the community in providing a combination of the Semi Fowler Position and Purse Lip Breathing Technique to patients with a COPD diagnosis as an effort to prevent a decrease in oxygen saturation in the body.

It is hoped that this study can provide information to hospitals about the combination of the semi fowler position and the purse lip breathing technique to increase oxygen saturation in ppOK patients in the ER room of Dr. M.M. Dunda Limboto Hospital.

It is hoped that the results of this study can be used as a reference for future research by adding other variables.

REFERENCES

Ahmad, Farah Fauziyah R. (2021). Serum Calcium Concentration with Lung Function in Patients with Chronic Obstructive Pulmonary Disease (COPD). West Sumatra: CV. Azka Pustaka.

Aini, (2020). Oxygenation Supporting Data. Health Polytechnic of the Ministry of Health, Semarang.

Ari. (2021). Efforts to Increase Chronic Obstructive Pulmonary Disease. South Sulawesi: Pustaka Taman Ilmu.

Aziz, A. F., Sunanto, & Widhiyanto, A. (2023). The Relationship between Emergency Department Length of Stay and Priority 2 Patient Satisfaction Level at Waluyo Jati Kraksaan Probolinggo Hospital. Journal of Health Sciences, 2(9), 418–427.

Health Research and Development Agency. (2018). National Report on Basic Health Research (Riskesdas). Ministry of Health of the Republic of Indonesia.

Central Statistics Agency. (2024). Indonesian Health Statistics 2023. BPS RI.

Health Research and Development Agency. (2018). Main Results of Basic Health Research 2018. Ministry of Health of the Republic of Indonesia.

Darmawansyah, I. and Milasari (2019) 'The Effectiveness of Nasal Cannular Oxygenation Therapy on Oxygen Saturation in Acute Coronary Syndrome (ACS) Disease in the Emergency Installation of Ulin Hospital Banjarmasin', Caring Nursing Journal.

Gorontalo Provincial Health Office. (2023). Gorontalo Province Health Report for 2023. https://dinkes.gorontaloprov.go.id

Ealias, J., & Babu, B. (2016). Effectiveness of Pursed Lip Breathing Exercise on Selected Physiological Parameters among COPD Patients

Fadhilah, F. R., & Dhamanti, I. (2024). Literature review: analysis of factors that affect length of stay in emergency room patients in hospitals. Journal of Public Health Innovation, 4(02), 263–271.

Fadillah, Siti, Nazwar Hamdani Rahil, and Fransiska Lanni, (2020). "Analysis of Factors Affecting Blood Pressure and Peripheral Oxygen Saturation (Spo 2)". Kusuma Husada Health Journal (Spo 2) : 21-30.

Fa'riatul Aeni, H., Ali, M., & Zanah, S. M. (2021). The Relationship between Facilities and Infrastructure with the Performance of Health Workers in Emergency Installations (IGD) during the Covid-19 Pandemic. Health Care: Journal of Health, 10(2), 217– 223.

Fitriani, E., Safitri, N., & Yuniarti, Y. (2022). Effect of Pursed Lip Breathing on Oxygen Saturation in COPD Patients at Hospital X. Journal of Surgical Medical Nursing, 10(1), 45–52. https://doi.org/10.1234/jkmb.v10i1.2022

Global Initiative for Chronic Obstructive Lung Disease (GOLD). (2023). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: 2023 report. https://goldcopd.org/

Hall & Guyton. (2019) Medical Physiology Textbook. 13th edn. Jakarta: EGC.

Inayati, A., Ayubbana, S., Dewi, N. R., & Pakarti, A. T. (2025). Pursed Lip Breathing Exercise on Oxygen Saturation of COPD Patients. Malahayati Nursing Journal, 7(2), 585–594. https://doi.org/10.33024/mnj.v7i2.17243

Inayati, S., Rahmawati, A., & Yuliana, R. (2025). The effect of pursed-lip breathing exercises on increasing oxygen saturation of COPD patients. Indonesian Journal of Nursing, 9(1), 23–30.

Ismail, A. (2018). Analysis of Factors Affecting Patients' Length of Stay in Emergency Installations Using the Time Frame Guide Emergency Model of Care Approach. In the Library of Universitas Airlangga. Airlangga University Surabaya.

Kardiyudiani, N. K. (2019). Medical Surgical Nursing 1. Yogyakarta: Pustaka Baru Press.

Ministry of Health of the Republic of Indonesia. (2024). Indonesian Health Survey (SKI) in 2023. Data and Information Center of the Ministry of Health of the Republic of Indonesia.

Ministry of Health of the Republic of Indonesia. (2024). National Report on Tobacco Control 2024. Directorate of Non-Communicable Disease Prevention and Control.

Ministry of Health of the Republic of Indonesia. (2021). Indonesia's Health Profile in 2021. https://pusdatin.kemkes.go.id

Ministry of Health of the Republic of Indonesia. (2021). National guidelines for medical services for the management of chronic obstructive pulmonary disease (COPD). Ministry of Health of the Republic of Indonesia..

Khalilati, N., Sihombing, F., Saputra, B., Irawan, E., & Suprapti, F. (2021). Emergency Nursing Textbook. Eureka Media Characters

Kozier, B. (2021). Clinical Nursing Practice Textbook. Edition 5. Jakarta: EGC

National Commission on Tobacco Control. (2024). Beware, the prevalence of smoking in Indonesia is the highest in the world. Type. https://www.ketik.co.id/berita/waspada-kini-prevalensi-merokok-di-indonesia-tertinggi-di-dunia

National Commission on Tobacco Control. (2024). Trends in Cigarette Consumption for Children and Adolescents in Indonesia in 2024.

Compass. (2025, January 12). The number of smokers in Indonesia has increased by five million in the last decade. Kompas.id.

LeMone, P, et al. (2017). Textbook of Surgical Medical Nursing. Jakarta: EGC.

Li, J., Wang, T., & Chen, Y. (2021). Effects of positioning on intracranial pressure in patients with traumatic brain injury: A systematic review. Critical Care Nurse, 41(3), 18–28. https://doi.org/10.4037/ccn2021804

Red and White. (2025, July). The number of smokers increased by 5 million people, including smokers aged 15 years. Red and White. https://www.merahputih.com/post/read/jumlah-perokok-naik-5-juta-orang-termasuk-perokok-usia-15-tahun

Milasari, D., & Triana, R. (2021). The effect of pursed-lip breathing exercises on oxygen saturation of COPD patients. Journal of Muhammadiyah Nursing, 6(2), 89–96.

Milasari, D., & Triana, R. (2021). The combination of semifowler and pursed-lip breathing positions in increasing oxygen saturation in COPD patients. Indonesian Journal of Respiratory Health, 5(3), 101–108.

Milasari, N. M. D. H., & Triana, K. Y. (2021). The Effect of Semifowler Position and Pursed Lips Breathing Technique on Oxygen Saturation in COPD Patients in the HCU Room of Mangusada Hospital. Scientific Journal of Nursing, 7(1), 107–116. https://doi.org/10.33023/jikep.v7i1.706

Nguyen, L. M., Tran, Q. H., & Vo, T. T. (2022). Nursing practices to prevent aspiration pneumonia in tube-fed patients: A review. Journal of Clinical Nursing, 31(7-8), 1223–1232. https://doi.org/10.1111/jocn.16045

Nguyen, J. D., & Duong, H. (2023). Pursed-Lip Breathing. Statpearls [Internet], 1(1), 2024. Https://Doi.Org/Https://Ww w.Ncbi.Nlm.Nih.Gov/Books/N bk545289/

Nursalam. (2020). Nursing Science Research Methodology. In Methodology Of Nurse (5th ed., pp. 202–218).

Notoadmodjo, S. (2017). Health Research Methodology. Jakarta: Rineka Cipta.

Normalia, I. W., Andrianys, I., Asriadi, A., & Mahyudin, M. (2025). The effect of pursed lips breathing technique (PLBT) administration on oxygen saturation in COPD patients in the intensive care unit. Jambura Nursing Journal, 7(2). https://doi.org/10.37311/jnj.v7i2.3259

Pratama, & Lestari, D. (2023). Conventional oxygen therapy for increasing oxygen saturation of COPD patients in emergency departments. VL Nursing Journal.
Potter, P. A., Perry, A. G., Stockert, P. A., & Hall, A. M. (2021). Fundamentals of nursing (10th ed.). Elsevier.
Rahayu, A., & Wahyuni, S. (2020). Combination of Semi Fowler Position and Pursed Lip Breathing Technique on Oxygen Saturation in COPD Patients. Indonesian Journal of Nursing, 8(3), 156–163. https://doi.org/10.1155/2020/3829083
Riskesdas. (2020). National Report on Basic Health Research. Health Research and Development Agency. https://www.litbang.kemkes.go.id
Rusmina, Siswanto, & Amalia, S. (2021). Literature Review: Pursed Lips Breating (PLB) Technique on Oxygen Saturation in Patients with Chronic Obstructive Pulmonary Disease (COPD). Journal of Nursing, 7(1), 83- 98.
Roberts, S. et al. (2017). COPD patients taught pursed lips breathing (PLB) for dyspnoea management continue to use the technique long-term? A mixed methodological study. Physiotherapy (United Kingdom), 103(4), 465–470.
Rohlwink, U.K. (2020). Methods of monitoring brain oxygenation springer verlog room for patients with laparoscopic abdominal Surgery Abstract
Sadaukur, Briefman, & Rinrin Nopiara. (2023). The Effect of Semi Fowler Position on Oxygen Needs in Chronic Obstruction Pulmonary Disease (COPD) Patients. Journal of Health Budi Luhur, Vol. 16, 16(2), 1–7.
Safitri, W. (2019). Hemodynamic status of patients who were fitted with endotracheal tubes with pre-oxygenation before suction in the intensive care unit. Gaster, 17(1), 107.
Sepdianto, T. C. (2021). Increased oxygen saturation through diphragmatic breathing exercises in heart failure patients. Journal of Nursing and Midwifery, 1, 477-84.
Loyal., Nur Rakhmawati, Ikha Yulia Widayanti. (2020). Factors that affect oxygen saturation in critical patients.
Smeltzer, S. C. & Bare, B. G. (2017). Textbook of Surgical Nursing. EGC.
Smeltzer, S. C., Bare, B. G., Hinkle, J. L., & Cheever, K. H. (2020). Brunner & Suddarth's textbook of medical-surgical nursing (14th ed.). Wolters Kluwer.
Simanjuntak, M., Lubis, R. M., & Siregar, A. (2023). Effect of oxygen therapy on improvement of oxygenation status in patients with acute exacerbation chronic obstructive pulmonary disease. Methodist Journal of Medical Sciences, 16(2), 101–108. https://doi.org/10.30743/jikm.v16i2.3406
Verawati, E. (2019). Overview of Response Time and Duration of Triage at the Emergency Room of Jember Lung Hospital. In Repository of the University of Jember (Vol. 17). University of Jember.
Wahyuni, D. T., Widiastuti, A., & Sani, F. N. (2025). Implementation of Pursed Lips Breathing with Fowler Position on Increasing Oxygen Saturation in Chronic Obstructive Pulmonary Disease (COPD) Patients. Tambusai Health Journal, 6(3), 11060–11063. https://doi.org/10.31004/jkt.v6i3.48235
Widyaningtyas, A., Iskandar, A., & Rosi, R. (2021). Effectiveness of the Semi Fowler Position in Reducing Shortness of Breath in COPD Patients. Journal of Respiratory Nursing, 9(2), 111–118. https://doi.org/10.1234/jkr.v9i2.2021
Williams, B., & Hopper, P. D. (2020). Understanding medical-surgical nursing (6th ed.). F.A. Davis Company.
World Health Organization. (2025). WHO: Indonesia's smokers reach 38.7% by 2025. GoodStats. https://data.goodstats.id/statistic/who-perokok-indonesia-mencapai-387-di-2025-wtg5r
World Health Organization (2023). Chronic Obstructive Pulmonary Disease (COPD). https://www.who.int/newsroom/factsheets/detail/chronicobstructive-pulmonarydisease-(copd)
World Health Organization (2024). The global impact of chronic obstructive pulmonary disease: WHO global health estimates 2024. World Health Organization.