

Strategi Perbaikan Sistem Pernapasan pada Pasien PPOK Melalui Terapi Komplementer

Strategies for Improving the Respiratory System in COPD Patients Through Complementary Therapies

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Article History	Abstrak
Article info: Received: December 18th, 2023 Revised: January 17th, 2024 Accepted: January 17th, 2024 Corresponding author: Name: Ulfa Nur Rohmah Address: Sekolah Tinggi Ilmu Kesehatan RS Husada E-mail: ulfanrh@gmail.com Website: http://ejournal.stikesrshusada.ac.id/index.php/jkh/ http://dx.doi.org/10.33377/jkh.v8i1.182 pISSN 2548-1843 eISSN 2621-8704	Pendahuluan: Terapi komplementer saat ini telah menjadi bagian inovasi yang berperan pada pasien PPOK sehingga menjadi esensial sebagai pendukung pengobatan yang memiliki manfaat khususnya pada perbaikan system pernapasan terutama pada pasien PPOK yang Kembali setelah eksaserbasi. Tujuan: Studi ini memiliki tujuan untuk mengetahui strategi dalam perbaikan system pernapasan pada pasien PPOK melalui terapi komplementer. Metode: Seleksi artikel menggunakan panduan PRISMA dengan menggunakan databased berupa Scopus, CINAHL, Cochrane, ProQuest sehingga terbentuk narrative review. Kriteria artikel yang layak meliputi RCT atau non RCT with pre-test and post-test design, publish antara tahun 2018-2023, full text, English, tidak mempertimbangkan control grup, bukan studi terkait obat-obatan untuk mengobati penyakit dan komplikasi. Hasil: hasil yang didapatkan dalam studi ini setelah disesuaikan dengan kriteria studi yakni terdapat 9 artikel yang layak. Terapi komplementer pada pasien PPOK dapat berupa teknik pernapasan, teknik penekanan, terapi musik, teknik energi otot dan rehabilitasi paru. Adapun terapi komplementer pada studi tersebut hampir sebagian besar berdampak pada perbaikan status sistem pernapasan pasien PPOK. Kesimpulan: terapi komplementer pasien PPOK dapat menjadi pendekatan holistik yang harus menjadi perhatian yang dapat diimplementasikan ke berbagai perawatan tahap pasien PPOK dengan melibatkan tim multidisipin sehingga adanya pertahanan dan perbaikan system pernapasan Kata Kunci: Terapi Komplementer, Sistem Pernapasan, PPOK
	Abstract Introduction: Complementary therapies have now become part of innovations that play a role in COPD patients so that they become essential as treatment supporters that have benefits, especially in improving the respiratory system,

especially in COPD patients who return after exacerbations.

Objectives: This study aims to determine strategies in improving the respiratory system in COPD patients through comprehensive therapy. **Methods:** Selection of articles using PRISMA guidelines using databased in the form of Scopus, CINAHL, Cochrane, ProQuest so that a narrative review is formed. The criteria for eligible articles include RCT or non-RCT with pre-test and post-test design, published between 2018-2023, full text, English, not considering control group, not studies related to drugs to treat diseases and complications.

Results: The results obtained in this study after adjusting to the study criteria were 9 feasible articles. Complementary therapies in COPD patients can include breathing techniques, suppression techniques, music therapy, energy muscle techniques, and pulmonary rehabilitation. The complementary therapies in the study had almost mostly an impact on improving the respiratory system status of COPD patients

Conclusion: Complementary therapy of COPD patients can be a holistic approach that must be a concern that can be implemented into various stages of treatment of COPD patients by involving multidisciplinary teams so that there is defense and improvement of the respiratory system

Keywords:

Complementary Therapy, Respiratory System, COPD



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INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a lung condition that has abnormalities of the respiratory tract so that there are characteristics of chronic respiratory symptoms such as dyspnea, cough, expectorant and / or exacerbation (Agustí et al., 2023). COPD is indicated as the third cause of death in the world characterized by chronic progressiveness that can reduce the quality of life of COPD patients. The availability of medical treatment is known to only affect symptoms, but it turns out that non-pharmacological therapy is essential for the management of COPD patients (Hindelang et al., 2020).

Antibiotics, corticosteroids and bronchodilators are also known to treat COPD even for exacerbation states but it turns out that non-pharmacological interventions also have a significant role (Rodriguez-Roisin, 2006). Non-pharmacological treatments become important such as oxygen therapy treatments, non-invasive ventilation, rehabilitation so need to be considered (Elices et al., 2022). Non-pharmacological therapeutic components are known to play a major role such as education, rehabilitation, nutritional support, sleep hygiene, vaccination and so on for COPD sufferers, especially the needs of older patients (Incalzi & Fimognari, 2023).

People with COPD have evidence of decreased lung function so that it has an impact on airway obstruction (Tantucci & Modina, 2012). The higher the shortness of breath scale, the lower the expiratory peak current value obtained in COPD patients (Khairani & Qalbiyah, 2022). Health-related quality of life in COPD patients becomes impaired due to decreased lung function that contributes to the symptoms inflicted on the sufferer (Rohmah et al., 2020). So that the respiratory system becomes the main concern to be repaired because it relates to the impact of different dimensions on patients. But unfortunately also in respiratory disorders such as shortness of breath symptoms have received little attention in clinical practice or literature so knowledge from various resources is needed to reduce the symptoms of shortness of breath and improve the quality of life of COPD patients can be in the form of primary care or rehabilitation (Ambrosino & Fracchia, 2019).

Known complementary therapies such as yoga, mindfulness, tai chi, and so on have been part of innovations in improving the care of COPD patients helping to relieve symptoms, improve quality of life, and reduce depression and anxiety in people with COPD (G & Campbell, 2016). The management of COPD, including therapies outside pharmacology in long-term care facilities, shows some shortcomings, indicating a large gap between clinical practice and COPD treatment guidelines, so clear guidelines, improved care competence, appropriate priorities are needed to stabilize care, especially complementary therapies (Lundell et al., 2020). Many studies on complementary therapies have expressed hope that innovative approaches can have a positive impact in such improvements. Although there is a growing body of research related to complementary or non-pharmacological therapies for COPD already has existing evidence, it is unfortunately still limited in its presentation. This study aims to determine strategies in improving the respiratory system in COPD patients through complementary therapy

METHOD

We used the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) protocol selection method through searches using Scopus, CINAHL, Cochrane, ProQuest from 2018-2023. Search for articles using the PCC framework wizard. The population sought in this study is COPD patients, the concept used is complementary therapy, and the context used throughout hospital or home services. The keywords used in our study are combined and combined words based on MeSH namely Airflow Obstruction, Chronic OR COAD OR COPD OR "Chronic Airflow Obstruction" OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Chronic Obstructive Pulmonary Disease" OR "Chronic Obstructive Pulmonary Diseases" AND "Complementary Therapy" OR "Supportive Therapy" OR "Supporting Therapy", "Nonpharmacologic". The criteria for the article used are the type of RCT or non-RCT research with pre-test and post-test design, published between 2018-2023, full text, English, there is no consideration in the existence of a control group, not a study related to the main intervention with drugs to treat diseases and complications. This article selection process goes through identification and screening so as to get articles that are worthy of review and then outlined in the results of our study.

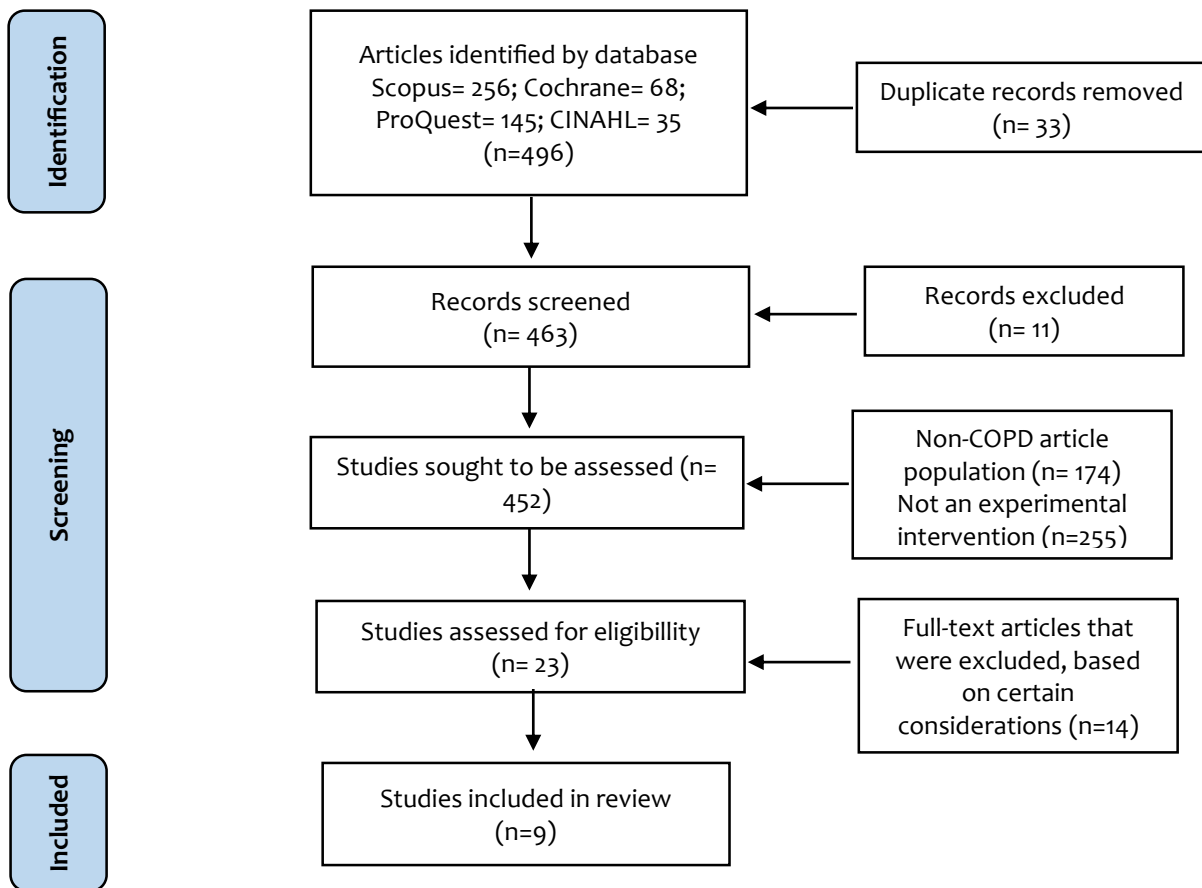


Figure 1.

Flow Chart Diagram PRISMA

RESULT

The results of our study obtained 496 articles using 4 *databases* so that there are 9 articles that have criteria in accordance with our study relavan. Complementary therapies that can be done for COPD patients are breathing techniques, compression techniques, music therapy, energy muscle techniques, and pulmonary rehabilitation. The complementary therapies in the study had almost mostly an impact on improving the respiratory system status of COPD patients. The secondary outcome of our review was fatigue and quality of life, the daily activities of COPD patients improved. A study summary of our findings can be seen in table 1.

Tabel 1.
Study Results of Complementary Therapy Strategies for COPD Patients (n=9)

No	Author and Year	Location	Research Design	Subject	Intervention	Control	Complementary therapy	Outcome	Research Results
1	(Endrian et al., 2019)	Indonesian	One Group Pre-Post Test Design	25	Pursed lips breathing for 2 times a day in 7 days	None	Pursed lips breathing	Peak Expiratory Flow Rate (PEFR)	There was a difference between before and after treatment where PEFR experienced an increase in mean and significance values between the first day and the post/seventh day with a p-value of < 0.05.
2	(Sakhaei et al., 2018)	Iran	A three-group clinical trial study with experimental and control	60 20 Intervention Group 20 Control Group 20 Intervention Group in healthy patients	Group 1: Giving purse lips breathing to COPD patients for 30 minutes Group 2: Giving purse lips breathing to healthy people for 30 minutes	Provision of routine care and usual medication in COPD patients	Pursed lips breathing	Respiratory indicators: FVC, FEV ₁ , FEV ₁ %, FEV ₁ /FVC %, VC, PEF, PEF 2575 Cardiac indicators: Temperature (T); Pulse Rate (PR); Blood Pressure Systole (BPS); Blood Pressure Diastole (BPD); Arterial Mean Pressure (AMP); Rate Pressure Product (RPP). oxygenation indicators: Saturation of Peripheral Oxygen (SPO ₂); Respiratory Rate (RR)	In the intervention group of SpO ₂ COPD patients, there was an increase, decrease in breathing frequency and decrease in pulse rate In the intervention group of healthy subjects there was an increase in systolic blood pressure
3	(Sobana et al., 2020)	Malaysia	interventional trial with pre post one group	-	Music therapy in the form of vocal exercises and monotonous OM singing each session is given for 20 minutes by the	None	Music therapy	Lung function (FVC and FEV ₁ /FVC) Dyspnea Perceived stress	There was a significant improvement in lung function, reduction of dyspnea, and stress levels in COPD patients (p≤0.01)

					therapist once a day for 3 weeks						
4	(Ceyhan & Tekinsoy Kartin, 2022)	Turkey	Randomized Controlled Trial	67 32 Intervention Group 35 Control Group	Twice a day for 4 weeks for purse lips berathing exercise and training using inhalaer technique	Using inhaler drug	Pursed breathing	lips	CAT (quality of life) and mmRC (shortness of breath)	There is a difference between before and after the intervention in intervention group 1 and intervention 2 There were significant differences in mean CAT and mMRC scores, quality of life in both groups before and after the intervention PLB exercises and inhaler training applied to patients with COPD improve breathing exercises and inhaler skills use, reduce the negative effects of COPD on individuals, reduce the severity of dyspnea, and improve quality of life.	
5	(Zuriati & Surya, 2020)	Indonesia	quasi-experimental with two pre-test-posttest design groups	30 15 Intervention Group 15 Control Group	Active Breathing Technique (ACBT) and tripod positioning	Cycle Tripod position with PLBT	Active Breathing Technique (ACBT) and tripod position, Pursed lips breathing	Cycle	Oxygen saturation	There was a difference in the increase in oxygen saturation of COPD patients in the tripod position group with Active Cycle Breathing Technique (ACBT) with a p-value of 0.00 while in the tripod position group with Active Respiratory and Lip Cycle there was a difference in p value of 0.023	
6	(Baskan & Tan, 2020)	Turkey	Semi-experimental	80 40 Intervention	Acupressure interventions were carried out as many	None	Acupressure		Fatigue	There was a mean difference between the intervention group and	

			study with pretest-posttest	tion Group 40 Control Group	as 5 sessions at points Lu 1, Lu 7, St 36, Li4 for 5 days during the week Each session consists of precise positioning, warming up and applicative acupressure techniques				the control group. Fatigue scores were found to be lower in the intervention group
7	(Maekura et al., 2019)	Japanese	Open Experimental Study	16	Giving to the following 11 standard acupuncture points were selected based on previous research: lung meridian, LU1 (Zhongfu) and LU9 (Taiyuan); meridian of the colon, LI18 (Futu); fertilization blood vessels, CV4 (Guanyuan) and CV12 (Zhongwan); abdominal meridian, ST36 (Zusanli); renal meridian, KI3 (Taixi); gallbladder meridian, GB12 (Wangu); and the bladder meridian, BL13 (Feishu), BL20 (Pishu), and BL23 (Shenshu)	None	Acupuncture	Exercise performance parameters, including peak oxygen uptake in supplemental exercise tests (IETs) and time to tolerance limits measured in constant rate of exercise tests (CWRETs) at 70% IET peak work rate second outcome: forced expiratory volume in one second (FEV ₁), MIP, MEP, total lean body mass, and total energy expenditure	There was a significant increase in peak oxygen uptake and minute ventilation in supplemental exercise tests (IET) After 12 weeks endurance time is obtained significantly increased and oxygen uptakes at terminated exercise were significantly lower than at baseline measurements in the Constant work rate exercise test (CWRET). There was a significant decrease in decreases in oxygen uptake and minute ventilation (VE) and improvements in dyspnea scale values were also observed during CWRETs after acupuncture Decreased scale of dyspnea and minute

					Acupuncture is performed once a week for 12 weeks Acupuncture needles are inserted for 10 seconds to 1 minute during the 50-minute treatment period Follow up weeks 12, 16 and 24				ventilation (VE) associated with increased endurance time The positive effects of acupuncture on dyspnea on exertion were associated with increased endurance time influenced by increased oxygen utilization and reduction ventilation during exercise
8	(Xu et al., 2021)	China	quasi-experimental with pre-test-posttest design one group	42 20 Intervention Group 22 Control Group	Routine pulmonary rehabilitation during hospitalization in the form of COPD education, psychological nursing intervention, oxygen therapy with nasal cannula 1-2 l at least 15 hours a day, diet care is a semi-liquid diet, easy to digest, smooth, low lemak, low salt, high protein, high vitamin and cellulose Breathing exercises consist of purse lip breathing and abdominal breathing Limb strength exercises training is done for 5-10 minutes two days at a time	usual treatment	Pulmonary rehabilitation	Physical status of COPD, dyspnea, FEV ₁ %,	Pulmonary rehabilitation can decrease the status of COPD symptoms. Dyspnea and FEV ₁ increase prediction before and after intervention There was a decrease in CAT between the intervention and control groups

					Discharge guidance on knowledge and precautions at home					
9	(Sevasta et al., 2023)	China	<i>A parallel group randomised controlled trial</i>	108 54 Interven tion Group 54 Control Group	MET (Muscle Energy Techniques) interventions with each session having a 30-minute time, three-times weekly for 4 consecutive weeks	Treatment standards	Muscle Technique	Energy	Lung function Chest measurement Daily activities	There was an improvement in lung function status, chest measurements and daily activities in the intervention group

DISCUSSION

The results of our study divide complementary therapies that can be done for COPD patients in the form of breathing techniques, suppression techniques, music therapy, and pulmonary rehabilitation that have a major influence on improving the status of the patient's respiratory system. The secondary results do not make it narrower because a small percentage of our studies explain that fatigue and quality of life, daily activities of COPD patients improve.

The first complementary therapy is breathing techniques that can impact COPD patients. The majority of the studies we found chose purse lips breathing, although there was ACBT as another option Breathing techniques noted in our study summary. It is known that many studies that provide evidence that purse lips breathing can improve respiratory status can be changes in PEFR, lung function, and dyspnea (Ceyhan & Tekinsoy Kartin, 2022; Endrian et al., 2019; Sakhaei et al., 2018; Zuriati & Surya, 2020). This purse lips breathing exercise has an impact on increasing oxygen saturation (Sumedi et al., 2021; Yari et al., 2023). This technique benefits the reduction of carbon dioxide retention and the improvement of oxygenation by creating a back pressure that produces a small amount of positive final expiratory pressure (Nguyen & Duong, 2023). The implementation of this therapy varies in implementation starting from 2 days once to one week. As a consideration, many other breathing exercises have actually been applied, but the evidence purse lips breathing is most commonly done by COPD patients. So that this breathing exercise option can be an option as a complementary therapy for COPD patients.

Music therapy is also known as a complementary therapy that affects patients. It is proven that Music therapy is effective in reducing dyspnea and anxiety in COPD patients. The implementation of interventions can be varied, such as being given once a week for 6 weekly sessions or every day for up to 3 weeks (Huang et al., 2021; Sobana et al., 2020). Music therapy rhythmically supports the patient's inhalation and breathing to change irregular breathing and reduce hyperventilation. Even critically ill patients can have an impact on anxiety during mechanical ventilation, lowering cardiac workload and oxygen consumption leading to more effective ventilation (Huang et al., 2021). The use of music interventions in the context of music therapy can be distinguished based on their emphasis on live music, the preferred style of music of the patient, and the improvisation of clinical music so that at the time of administration of therapy can provide maximum results in patients (Canga et al., 2015).

Pressure techniques that are part of complementary therapies are acupuncture and acupressure. Although there are differences, both have evidence to have a positive impact on patients with COPD (Baskan & Tan, 2020; Maekura et al., 2019). Another study also expressed a similar opinion that acupuncture can reduce shortness of breath in COPD patients in various review studies (von Trott et al., 2020). Acupuncture can be used in hospitals because it is safe and proven to have no association with unwanted events in COPD patients, especially a decrease in the scale of dyspnea (Levy et al., 2022). The same situation we know is acupressure, acupressure techniques in the management of COPD patients have a good effect on patients as well. Another study mentions acupressure therapy can reduce sympathetic excitability and improve symptoms of dyspnea and anxiety felt in chronic obstructive pulmonary disease patients who use mechanical ventilation (Tsay et al., 2005). Acupressure also has various health benefits, especially in reducing pain, chronic diseases, psychology, neurology, and various symptoms of disease (Komariah et al., 2021). The selection of complementary therapies of acupuncture and acupressure is one indication that can be applied to COPD patients.

This type of muscle energy therapy can impact COPD patients as an alternative to complementary therapies. This muscle energy therapy involves the active muscle joints of the patient, the strength of resistance controlled by the therapist, relaxation aimed at muscle flexibility that does not have an adverse effect on COPD patients although it has not had an impact on lung function in real (Baxter et al., 2019). But the case in our study found that This muscle energy technique helps reduce shortness of breath, lung function, to the improvement of daily activities (Sevasta et al., 2023). We agree that this technique has a good effect, we argue that we know that COPD often has muscle wasting which has muscle weakness and loss of muscle mass. Muscle wasting can be overcome with several strategies to control muscles in COPD patients such as muscle energy techniques and other muscle therapies. However, further research related to muscle energy therapy should be carried out again for the broad scope of proving benefits for COPD patients.

Pulmonary rehabilitation emerged as the purview of complementary therapies in the care of COPD patients. Individual pulmonary rehabilitation is a much more comprehensive program. According

to (Agustí et al., 2023), pulmonary rehabilitation consisting of pulmonary rehabilitation has become evidence for COPD patient guidelines. Pulmonary rehabilitation is a type of comprehensive intervention based on a comprehensive assessment of the patient. This pulmonary rehabilitation consists of therapies tailored to the patient that are not limited to sports training, education, and behavior change only. The benefits of pulmonary rehabilitation are designed to improve the physical and psychological condition of people with chronic respiratory diseases and to encourage long-term adherence to behaviors that improve the health of COPD patients (Shenoy & Paul, 2023). In addition to many studies that have been proven, pulmonary rehabilitation has been shown to improve quality of life and exercise capacity in COPD patients. One of the safe interventions for COPD patients especially since they have experienced exacerbations (Puhan et al., 2016). In line with other studies, pulmonary rehabilitation relieves shortness of breath and fatigue, affects the increase in emotional functioning and control of one's condition. Rehabilitation serves as an important component in the management of COPD and is beneficial in improving health-related quality of life and exercise capacity (McCarthy et al., 2015).

There is no doubt that the treatment of COPD relies on pharmacological and non-pharmacological procedures. Chronic care for COPD patients should be part of their management such as education, self-management interventions and pulmonary rehabilitation, other complementary therapies that are personalized at all stages of their disease. Comprehensive care should be provided by integrated pulmonary care with the collaboration of multidisciplinary teams for the care of COPD patient types. In addition, a holistic approach to COPD patients and their involvement in therapy and collaboration with health professionals will also have an impact on improving the quality of life of COPD patients (Dębczyński et al., 2021). The expected improvement in the respiratory system in COPD patients can be applied with various implementation strategies including complementary therapies. We also add that it is even more important to look at other types that are not recorded in our searches. Collaboration from multidisciplinary teams, patients, and families is expected to achieve a condition of stable respiratory system improvement and even increase in COPD patients.

CONCLUSION

Strategies that can be performed on COPD patients with complementary therapies are breathing techniques, suppression techniques, music therapy, muscle energy techniques and pulmonary rehabilitation. these complementary therapies have a major impact on improving the patient's respiratory system. We hope that complementary therapy for COPD patients can be a holistic approach that should be a concern that can be implemented into various stages of treatment of COPD patients by involving a multidisciplinary team so as to maintain and improve the respiratory system of COPD patients. There is also a need for serious attention from policy makers to support the initiation of complementary care as an integral part of the treatment of COPD patients.

Conflict Interest

There is no conflict of interest in this study.

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