APPLICATION OF TRIPOD POSITION IN NURSING PROBLEMS OF INEFFECTIVE BREATHING PATTERN IN THE JASMIN WARD OF ARIFIN ACHMAD REGIONAL HOSPITAL, RIAU PROVINCE

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Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a long-term respiratory disorder characterized by progressive and irreversible airway obstruction, which remains one of the leading causes of death globally and a major health problem in Indonesia. Patients with COPD often experience shortness of breath or dyspnea, which leads to ineffective breathing patterns and impaired oxygenation. To address this problem, non-pharmacological nursing intervention as such as the tripod position are needed to improve chest expansion, optimize respiratory muscle function, and increase oxygen saturation. This study aimed to describe the application and effectiveness of the tripod position in patients with ineffective breathing patterns due to COPD at the Jasmin Ward of Arifin Achmad Regional Hospital, Riau Province. The implementation used a descriptive case study approach within the framework of Evidence-Based Nursing Practice (EBN). The tripod position was applied once daily for three consecutive days to three COPD patients, each session lasting approximately ten minutes and repeated three times with rest intervals between sessions. Evaluation was conducted by measuring respiratory rate and oxygen saturation before and after the intervention, and the results were analyzed descriptively using the Indonesian Nursing Outcome Standards (SLKI). The results showed a positive effect of the tripod position on respiratory function. The patients experienced decreased respiratory rate and improved oxygen saturation after the intervention. One patient's respiratory rate decreased from 24 to 20 breaths per minute with an increase in oxygen saturation from 95% to 98%, while another patient's respiratory rate decreased from 22 to 18 breaths per minute with oxygen saturation increasing from 95% to 97%. The patients also reported reduced dyspnea and greater comfort during breathing. In conclusion, the application of the tripod position proved effective as a non-pharmacological nursing intervention for COPD patients with ineffective breathing patterns. This intervention can enhance chest expansion, improve oxygenation, and provide greater comfort, making it an important component of nursing care for patients with respiratory disorders.

Keywords: Chronic Obstructive Pulmonary Disease, tripod position, ineffective breathing pattern, nursing intervention, oxygen saturation, evidence-based nursing practice

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a long-term lung disease that causes gradual narrowing of the airways, which cannot return to normal completely. This disease is one of the leading causes of death and health problems worldwide, especially in Indonesia, with an increasing incidence rate due to risk factors such as smoking, air pollution, and exposure to harmful substances (WHO, 2023).

According to the World Health Organization (WHO), COPD is a major global health problem and the third leading cause of death worldwide. In 2023, there were 392 million cases of COPD globally, among which 3.23 million resulted in death and 74.4 million led to disability (WHO, 2023). The Global Initiative for Chronic Obstructive Lung Disease (GOLD) reported that the global prevalence of COPD is 10.3% and continues to rise each year (GOLD, 2023). The Asia Pacific COPD Round Table Group estimated that the number of moderate to severe COPD patients in Asia-Pacific countries has reached 56.6 million, with a prevalence of 6.3%. The prevalence ranges from 3.5–6.7%, with China having 38.16 million cases, Japan 5.014

million, and Vietnam 2.068 million. In Indonesia, it is estimated that 4.8 million people suffer from COPD, with a prevalence of 5.6%.

Based on data from Arifin Achmad Regional Hospital, Riau Province, in 2023 there were 1,428 COPD patients recorded. This number is expected to increase along with the growing number of smokers, as 90% of COPD patients are active or former smokers (PDPI, 2023). The main complaint among COPD patients is shortness of breath or dyspnea, which contributes to an ineffective breathing pattern, disrupts the oxygenation process, and increases the respiratory workload (Pleasants et al., 2024). Therefore, non-pharmacological interventions are needed to improve the breathing pattern and enhance the quality of life of COPD patients. The ineffective breathing pattern experienced by COPD patients occurs due to an imbalance between oxygen demand and pulmonary ventilation capacity. This condition is characterized by increased respiratory rate as a compensatory mechanism, excessive use of accessory respiratory muscles, and decreased oxygen saturation. These challenges require prompt and appropriate interventions to prevent complications such as respiratory muscle fatigue and prolonged hypoxia (Wahyuni & Dewi, 2023). One commonly recommended intervention is the tripod position—performed by sitting slightly leaning forward with the hands resting on the thighs or a table—to assist respiratory muscles and improve their efficiency.

The tripod position enhances the effectiveness of accessory respiratory muscles by facilitating chest expansion and improving ventilation, thereby helping to reduce respiratory rate and increase comfort in breathing for COPD patients (Wahyuni & Dewi, 2023). A quasi-experimental study by Manurung et al. (2021) showed that the use of the tripod position significantly increased oxygen saturation in COPD patients, with an average rise from 93.4% to 97.6%, making it more effective than the Fowler's position. This finding demonstrates that the tripod position improves oxygenation through better breathing patterns and respiratory mechanics (Manurung et al., 2021).

Furthermore, Wahyuni and Dewi (2023) found that combining the tripod position with pursed-lip breathing (PLB) techniques significantly reduced the respiratory rate of COPD patients from 28.8 breaths per minute to 23.2 breaths per minute ($p = 0.000$). This indicates that the tripod position not only increases oxygen saturation but also reduces respiratory workload by slowing the breathing rate and improving alveolar ventilation (Wahyuni & Dewi, 2023). Thus, this position is an important nursing intervention to address ineffective breathing patterns in COPD patients.

The implementation by Windartik and Soemah (2022) also showed that combining the tripod position with pursed-lip breathing significantly reduced respiratory rate among COPD patients in Bangil Regional Hospital. This position is believed to enhance ventilation efficiency through activation of accessory respiratory muscles, thereby reducing respiratory workload and facilitating smoother breathing patterns (Windartik & Soemah, 2023).

Moreover, a study by Pleasants et al. (2024) demonstrated that body posture has a significant effect on respiratory parameters such as Peak Inspiratory Flow (PIF). PIF is an important indicator for assessing inhalation effectiveness and lung performance. The results indicated that standing produced the highest PIF compared to sitting upright or semi-upright positions similar to the tripod position. This finding suggests that body position greatly influences airflow into the lungs, highlighting the importance of considering posture in COPD care to enhance lung function and the effectiveness of inhalation therapy (Pleasants et al., 2024).

Considering these findings, the implementation of the tripod position for COPD patients has great potential to address ineffective breathing patterns, particularly in the Jasmin Ward of Arifin Achmad Regional Hospital, Riau Province. It is expected that this position can improve oxygen saturation, reduce respiratory rate, and optimize the patient's respiratory mechanics.

Therefore, the objective of this implementation is to investigate the effectiveness of the tripod position as a nursing intervention for COPD patients experiencing ineffective breathing patterns, with the hope of improving the quality of nursing care in the hospital.

RESEARCH METHODS

A. Implementation Method

This implementation used a descriptive approach with a case study design to explore nursing care related to ineffective breathing patterns. The Evidence-Based Nursing Practice (EBN) applied was the use of the tripod position to manage ineffective breathing patterns in COPD patients. The success of the intervention was evaluated by measuring the condition before and after the implementation of the tripod position.

B. Time and Place of Implementation

The intervention was carried out once daily for three consecutive days in the Jasmin Ward of Arifin Achmad Regional Hospital, Riau Province.

C. Subjects of Implementation

The subjects consisted of three COPD patients who experienced shortness of breath and had ineffective breathing pattern problems in the Jasmin Ward of Arifin Achmad Regional Hospital, Riau Province.

D. Data Analysis Process

The data analysis used in this EBN implementation was descriptive analysis, which described the results of pre-test and post-test assessments. The outcomes were presented in the form of distribution and frequency tables using the Indonesian Nursing Outcome Standards (SLKI).

RESEARCH RESULTS

The implementation of the tripod position was carried out on two patients diagnosed with Chronic Obstructive Pulmonary Disease (COPD) who experienced ineffective breathing patterns. Both patients—Mr. R (54 years old) and Mr. J (53 years old)—were treated in the Jasmin Ward of Arifin Achmad Regional Hospital, Riau Province. The intervention was administered for three consecutive days, from August 18 to August 20, 2025. Each session lasted approximately ten minutes, repeated three times per day with five-minute rest intervals between sessions. Before and after each intervention, the patients were evaluated by measuring their respiratory rate (RR) and oxygen saturation (SpO_2).

Before the intervention, both patients exhibited shortness of breath, shallow and rapid breathing, and decreased oxygen saturation. Mr. R had a respiratory rate of 24 breaths per minute with an oxygen saturation of 95%, while Mr. J had a respiratory rate of 22 breaths per minute and an oxygen saturation of 95%. Both patients appeared fatigued and used accessory muscles to support breathing, indicating an ineffective breathing pattern.

After three consecutive days of implementing the tripod position, significant improvements were observed. Mr. R's respiratory rate decreased to 20 breaths per minute, and his oxygen saturation increased to 98%. Similarly, Mr. J's respiratory rate decreased to 18 breaths per minute, and his oxygen saturation rose to 97%. Both patients reported a noticeable reduction in shortness of breath and expressed feeling more comfortable while breathing, particularly when maintaining the tripod position.

These findings suggest that the tripod position effectively enhances pulmonary ventilation and oxygen exchange by optimizing the function of accessory respiratory muscles and facilitating chest expansion. The intervention helped reduce respiratory workload, stabilize breathing frequency, and improve patient comfort.

Overall, the application of the tripod position proved to be an effective non-pharmacological nursing intervention for COPD patients with ineffective breathing patterns. It

improved respiratory effectiveness, increased oxygenation, and reduced dyspnea, contributing to better overall respiratory function and patient well-being.

DISCUSSION

The findings of this evidence-based practice show that the application of the tripod position has a significant impact on improving the breathing pattern of COPD patients who experience ineffective breathing patterns. Both patients in this study demonstrated a decrease in respiratory rate (RR) and an increase in oxygen saturation (SpO_2) after the intervention. This result supports previous studies indicating that body position plays an essential role in optimizing lung expansion and improving oxygen exchange.

Before the implementation of the tripod position, both patients reported shortness of breath and demonstrated the use of accessory respiratory muscles with rapid and shallow breathing. The average respiratory rate in Patient 1 (Mr. R) was 24 breaths per minute with oxygen saturation of 95%, while Patient 2 (Mr. J) had a respiratory rate of 22 breaths per minute and oxygen saturation of 95%. After three consecutive days of tripod position intervention, both patients showed improvement — RR decreased to 20 and 18 breaths per minute, while SpO_2 increased to 98% and 97%, respectively. These findings are consistent with Manurung et al. (2021), who found that the tripod position significantly increased oxygen saturation in COPD patients from 93.4% to 97.6%.

The improvement observed in this study can be explained physiologically. The tripod position facilitates greater activation of accessory respiratory muscles, such as the sternocleidomastoid, scalene, and pectoralis major muscles, which contribute to expanding the thoracic cavity and increasing lung volume. This position also reduces the load on the diaphragm, allowing more efficient breathing and improving ventilation-perfusion balance. Wahyuni and Dewi (2023) also emphasized that combining the tripod position with pursed-lip breathing can reduce respiratory rate significantly and improve alveolar ventilation, resulting in better gas exchange and patient comfort.

Additionally, the results indicate that the tripod position helps patients achieve a more stable breathing rhythm and reduces dyspnea. Subjectively, both patients reported that they felt more comfortable breathing while sitting and leaning forward, supporting findings from Devia et al. (2023) that the tripod position increases chest wall expansion and reduces respiratory effort. Pleasants et al. (2024) also found that physical posture strongly influences Peak Inspiratory Flow (PIF), which determines the efficiency of air entry into the lungs.

From a nursing perspective, this intervention provides an effective, simple, and non-pharmacological approach that can be applied in both hospital and home settings. The tripod position requires no special equipment, only proper guidance and supervision from nurses. It also promotes patient independence and engagement in self-care, which is essential for long-term COPD management.

The overall outcomes from this evidence-based practice demonstrate that consistent implementation of the tripod position can help improve respiratory parameters, reduce shortness of breath, and enhance comfort in COPD patients. This aligns with the standards of the Indonesian Nursing Outcome Standards (SLKI), specifically on improving the “Effective Breathing Pattern” indicators, such as decreased use of accessory muscles, reduced respiratory rate, and improved oxygen saturation levels.

Therefore, this practice reinforces the importance of incorporating postural management interventions like the tripod position into the nursing care plan for patients with ineffective breathing patterns. Future implementations could explore combining the tripod position with other breathing exercises such as pursed-lip breathing or diaphragmatic breathing to further enhance respiratory function and patient outcomes.

CONCLUSION

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