

ABSTRAK

Efektivitas Penambahan Latihan Penguatan Otot Ekspirasi pada Senam Lansia terhadap Kemampuan Batuk Lansia *Pre-Frail*

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Latar Belakang: Proses penuaan menyebabkan penurunan massa dan kekuatan otot pernapasan, terutama otot-otot ekspirasi, penurunan elastisitas paru-paru, serta komplians dinding dada, sehingga menurunkan kemampuan batuk lansia. Senam lansia merupakan salah satu latihan yang dapat mencegah *frailty*, suatu kondisi yang sangat berhubungan dengan kemampuan batuk lansia. Namun, senam lansia tidak secara khusus melatih otot-otot ekspirasi. Penambahan latihan penguatan otot ekspirasi dengan *Positive Expiratory Pressure/PEP* berpotensi meningkatkan kekuatan otot pernafasan dan meningkatkan bersihan jalan nafas. Tujuan dari penelitian ini adalah untuk mengetahui efektivitas penambahan latihan penguatan otot ekspiratori pada senam lansia terhadap kemampuan batuk lansia *pre-frail*.

Metode: 24 subjek yang memenuhi kriteria penelitian dibagi secara acak menjadi kelompok perlakuan (n=12) yang mendapat *PEP* 5 kali per minggu + senam lansia 3 kali per minggu selama 6 minggu dan kelompok kontrol (n=12) yang hanya mendapat senam lansia 3 kali per minggu selama 6 minggu. Kemampuan batuk diukur sebelum dan setelah intervensi dengan menggunakan *peak cough flow* (PCF).

Hasil: Terdapat peningkatan skor PCF sebelum dan sesudah perlakuan baik pada kelompok perlakuan (p<0,001) dan kontrol (p<0,001). Perbandingan antar kelompok menunjukkan skor PCF yang signifikan lebih besar untuk kelompok perlakuan dibanding kontrol (p<0,001).

Kesimpulan: Terdapat peningkatan yang lebih baik pada nilai PCF setelah melakukan latihan penguatan otot ekspirasi dan senam lansia selama 6 minggu dibandingkan hanya senam lansia.

Kata kunci: pre-frail, senam lansia, *Positive Expiratory Pressure* (PEP), kemampuan batuk

ABSTRACT

Effectiveness of adding expiratory muscle strengthening exercise to senam lansia on coughing ability of pre-frail elderly

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Background: The aging process causes a decrease in the mass and strength of respiratory muscles, especially expiratory muscles, decrease in lung elasticity, and also decrease chest wall compliance, thus reducing coughing ability in elderly. Senam lansia is one of the exercises that can prevent frailty, a condition closely related to the coughing ability of the elderly. However, senam lansia doesn't specifically train the expiratory muscles. Adding expiratory muscle strengthening exercises with Positive Expiratory Pressure (PEP) has the potential to increase respiratory muscle strength and improve airway clearance. This study aimed to determine the effectiveness of expiratory muscle strengthening exercises addition to senam lansia on coughing ability of pre-frail elderly.

Method: 24 subjects who met the study criteria were randomly divided into a treatment group (n=12) receiving PEP 5 times per week + senam lansia 3 times per week for 6 weeks and a control group (n=12) receiving only senam lansia 3 times per week for 6 weeks. Coughing ability was measured before and after the intervention using the peak cough flow (PCF).

Results: There was an increase in PCF scores before and after intervention both in the intervention group ($p < 0.001$) and control group ($p < 0.001$). Comparison between groups showed a significantly greater PCF score for the intervention group compared to the control group ($p < 0.001$).

Conclusion: The addition of expiratory muscle strengthening exercises to senam lansia for 6 weeks had a better improvement in PCF scores compared to having only senam lansia.

Keywords: pre-frail, geriatric exercise, Positive Expiratory Pressure (PEP), coughing ability.