



ORIGINAL ARTICLE

## Effect of a Pulmonary Rehabilitation Program on the levels of anxiety and depression and on the quality of life of patients with chronic obstructive pulmonary disease



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### KEYWORDS

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### Abstract

**Objective:** To analyze the effect of a Pulmonary Rehabilitation Program (PRP) on the levels of anxiety and depression and the quality of life of patients with chronic obstructive pulmonary disease.

**Method:** Patients with chronic obstructive pulmonary disease (COPD) who completed the PRP of 3 weekly sessions of 60 min duration for 12 weeks, a total of 36 sessions, were assessed using Beck Inventory (BAI and BDI) and *Saint George's Respiratory Questionnaire* (SGRQ).

**Results:** A total of 125 individuals, with an average age of  $63.7 \pm 8.8$  years,  $FEV_1$ :  $1.17 \pm 0.57$  L ( $43.18 \pm 18.79\%$  predicted), 61.6% male and 38.4% female, were analyzed. The BAI and BDI before and after PRP were, respectively,  $10.15 \pm 6.32$  vs.  $7.67 \pm 7.21$ ;

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**PALAVRAS-CHAVE**

DPOC;  
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$p=0.0041$  and  $12.60 \pm 7.99$  vs.  $8.96 \pm 7.29$ ;  $p=0.00016$ . The results of the SGRQ domains were, respectively, Before and After symptoms ( $48.53 \pm 20.41$  vs.  $32.58 \pm 18.95$ ), Activity ( $69.15 \pm 20.79$  vs.  $52.42 \pm 23.70$ ), Impact ( $32.92 \pm 18.29$  vs.  $20.27 \pm 16.70$ ), Total ( $46.69 \pm 16.90$  vs.  $32.07 \pm 16.96$ ). When correlating the BDI to the domains of the SGRQ, weak correlations were observed (Symptoms  $r=0.22$ ;  $p=0.01$ ; Activity  $r=0.28$ ;  $p=0.001$ ; Impact  $r=0.52$ ;  $p=2.72$ ; Total  $r=0.44$ ;  $p=0.17$ ). In the same way, weak correlations were observed when correlating the BAI to the SGRQ (Symptoms  $r=0.28$ ;  $p=0.0009$ ; Activity  $r=0.32$ ;  $p=0.0005$ ; Impact  $r=0.42$ ;  $p=7.33$ ; Total  $r=0.43$ ;  $p=0.74$ ).

**Conclusion:** Although the PRP improves levels of depression and anxiety as well as the quality of life in patients with COPD, no significant correlation of these analyzed variables was observed.

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### Efeito de um Programa de Reabilitação Pulmonar nos níveis de ansiedade e depressão e na qualidade de vida de pacientes com doença pulmonar obstrutiva crônica

**Resumo**

**Objetivo:** Analisar o efeito de um programa de reabilitação pulmonar (PRP) nos níveis de ansiedade e depressão e na qualidade de vida de doentes com doença pulmonar obstrutiva crônica (DPOC).

**Método:** Os doentes com DPOC que completaram o PRP de 3 sessões semanais de 60 minutos de duração, durante 12 semanas, num total de 36 sessões, foram avaliados usando o Inventário de Beck (BAI e BDI) e o *Questionário Saint George na Doença Respiratória* (SGRQ).

**Resultados:** Foram analisados 125 doentes com uma idade média de  $63,7 \pm 8,8$ , FEV<sub>1</sub>:  $1,17 \pm 0,57$  L ( $43,18 \pm 18,79\%$  previsto), 61,6% homens e 38,4% mulheres. O BAI e o BDI antes e depois do PRP foram, respectivamente,  $10,15 \pm 6,32$  vs.  $7,67 \pm 7,21$ ;  $p=0,0041$  e  $12,60 \pm 7,99$  vs.  $8,96 \pm 7,29$ ;  $p=0,00016$ . Os resultados dos domínios do SGRQ foram, respectivamente, antes e depois dos sintomas ( $48,53 \pm 20,41$  vs.  $32,58 \pm 18,95$ ), Atividade ( $69,15 \pm 20,79$  vs.  $52,42 \pm 23,70$ ), Impacto ( $32,92 \pm 18,29$  vs.  $20,27 \pm 16,70$ ), Total ( $46,69 \pm 16,90$  vs.  $32,07 \pm 16,96$ ). Quando correlacionamos o BDI aos domínios do SGRQ, foram observadas ligeiras correlações (Sintomas  $r=0,22$ ;  $p=0,01$ ; Atividade  $r=0,28$ ;  $p=0,001$ ; Impacto  $r=0,52$ ;  $p=2,72$ ; Total  $r=0,44$ ;  $p=0,17$ ). Também foram observadas correlações ligeiras quando correlacionamos o BAI com o SGRQ (Sintomas  $r=0,28$ ;  $p=0,0009$ ; Atividade  $r=0,32$ ;  $p=0,0005$ ; Impacto  $r=0,42$ ;  $p=7,33$ ; Total  $r=0,43$ ;  $p=0,74$ ).

**Conclusão:** Apesar de o PRP melhorar os níveis de depressão e ansiedade, bem como os níveis de qualidade de vida dos doentes com DPOC, não foram observadas correlações significativas destas variáveis analisadas.

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**Introduction**

In the past few years, interest in assessing quality of life of patients with chronic illnesses has increased. This is especially true of health matters supported by the understanding of fundamental needs, material and spiritual, and referring to the ability of living without illness or overcoming difficulties due to morbid conditions. Quality of life related to health is defined, therefore, as the value given to life span, when modified by the perception of physical, psychological, and social limitations and limited opportunities, which are influenced by illness or health problems.<sup>1</sup>

Patients with chronic obstructive pulmonary disease (COPD) show changes in pulmonary function, dyspnea, and peripheral muscle dysfunction. These factors lead to intolerance to exercise and progressive worsening of physical

conditioning, even limiting daily activities. This can lead to social isolation, anxiety, depression, and dependence. Physical disability, loss of productivity, and decrease in quality of life are substantially aggravated by the progression of COPD.<sup>2</sup> Anxiety and depression are important psychiatric disorders in patients with COPD, showing percentages that vary, respectively, from 21% to 96% and from 27% to 79%.<sup>3</sup> The depressive symptoms have been associated with reduced quality of life, longer hospital stay, more frequent readmissions, and even higher mortality rates.<sup>4</sup>

Documents in the literature show that Pulmonary Rehabilitation Programs (PRP) promote improvements in functional exercise capacity and quality of life, and reduce the sensation of breathlessness, frequency and duration of hospitalizations, apart from reducing the frequency of exacerbations.<sup>3,5-9</sup> The goal of this study was to evaluate

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