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Efficacy of pulmonary rehabilitation on health-related quality of life in patients with interstitial lung disease as assessed by SF-36: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202490086

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 September 2024 and was last updated on 21 September 2024.

INTRODUCTION

Review question / Objective This study aimed to address this gap by using the 36-Item Short Form Survey (SF-36) to assess the advantages and disadvantages of PR in improving the HRQoL of patients with ILD.

Condition being studied The efficacy of pulmonary rehabilitation (PR) in improving health-related quality of life (HRQoL) in patients with interstitial lung disease (ILD) is unclear. This study aimed to address this gap by using the 36-Item Short Form Survey (SF-36) to assess the advantages and disadvantages of PR in improving the HRQoL of patients with ILD.

METHODS

Participant or population 1289 ILD patients.

Intervention Pulmonary rehabilitation.

Comparator Self-comparison before and after pulmonary rehabilitation.

Study designs to be included single-arm self-controlled pre-post studies.

Eligibility criteria The eligibility criteria were as follows: (1) prospective or retrospective studies with a self-controlled before-and-after interventional design for PR treatment; (2) based

on the clinical guidelines [13, 14], the diagnosis of ILD was made by combing medical history, examination data, and, if necessary, multidisciplinary discussions; (3) studies with before-and-after PR outcomes; (4) HRQoL was assessed using SF-36; (5) quantitative data (mean \pm standard deviation) of SF-36 scores were available or could be converted by algorithm [15-17]; (6) English literatures.

The exclusion criteria were as follows: (1) duplicate literatures; (2) case report, review, meta-analysis, comment, letter, conference abstract, and animal or cell study; (3) studies unrelated to PR-treated ILD; (4) SF-36 was not used to evaluate HRQoL of patients with ILD treated with PR; (5) SF-36 scores (mean \pm standard deviation) were not directly available or obtained by algorithm.

Information sources Database: PubMed, Embase, Web of Science, Scopus, Ovid, and Cochrane Library.

Main outcome(s) Changes of SF-36 physical component summary (PCS) score and mental component summary (MCS) score after PR.

Quality assessment / Risk of bias analysis

Quality of the studies was evaluated using the quality assessment tool for pre-post studies with no control group.

Publication bias was evaluated using Egger's test, and the reliability of the studies was determined using the trim-and-fill method and funnel plot.

Strategy of data synthesis English literatures published from inception to May 19, 2024 were retrieved from PubMed, Web of Science, Embase, Scopus, Ovid, and Cochrane Library. The search strategy mainly included but was not limited to the following terms: "Interstitial Lung Disease", "pulmonary rehabilitation", "idiopathic pulmonary fibrosis", "sarcoidosis", "hypersensitivity pneumonitis", "physical therapy", "prescribed exercise", and "telerehabilitation".

Subgroup analysis To explore the effect of PR duration on HRQoL, we grouped patients with ILD according to PR time. Studies with PR time >3 weeks and ≤ 8 weeks and ≤ 12 weeks were grouped as PR time more than 8 weeks.

Furthermore, subgroup analysis was conducted based on ILD types to assess the impact of ILD types on HRQoL after PR. Patients with IPF were independently grouped and compared to other ILD groups.

Sensitivity analysis Sensitivity analysis was conducted by pooling the effect size after

excluding each study one by one (one-by-one elimination method).

Country(ies) involved China.

Keywords SF-36, pulmonary rehabilitation, interstitial lung disease, health-related quality of life Pulmonary Rehabilitation; Interstitial Lung Disease; Anxiety; Depression.

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