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Advantage of Pulmonary Rehabilitation on Anxiety and Depression in Patients with Interstitial Lung Disease: 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.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 June 2024 and was last updated on 18 June 2024.

INTRODUCTION

Review question / Objective This study aims to conduct quantitative pooled analysis for exploring the efficacy of pulmonary rehabilitation(PR) on anxiety and depression in patients with interstitial lung disease(ILD).

Condition being studied The following information in the included studies was collected: general clinical characteristics, sample size, Hospital Anxiety and Depression Scale-Anxiety (HADS-A), Hospital Anxiety and Depression Scale-Depression (HADS-D), duration of PR, and main elements of PR.

METHODS

Search strategy Relevant English literature published before May 19, 2024 were systematically and comprehensively searched from such databases as PubMed, Web of Science, Scopus, Embase, Ovid, and Cochrane Library. The Search strategies mainly included but were not limited to "Interstitial Lung Disease", "idiopathic pulmonary fibrosis", "sarcoidosis", "hypersensitivity pneumonitis", "physical therapy", "pulmonary rehabilitation", "prescribed exercise", and "telerehabilitation".

Participant or population A total of 965 interstitial lung disease patients.

Intervention Pulmonary rehabilitation.

Comparator Not Applicable.

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

Eligibility criteria Eligibility criteria were as follows: (1) Prospective or retrospective studies; (2) ILD was diagnosed according to the clinical guidelines [14-17] in combination with medical history and multidisciplinary discussion; (3) The study results contained data before and after PR; (4) The anxiety and depression in patients with ILD were assessed based on the Hospital Anxiety and Depression Scale (HADS); (5) Quantitative data [mean \pm standard deviation (SD)] of HADS scores could be obtained or converted based by algorithm; (6) English literature.

Exclusion criteria were as follows: (1) Case report, review, meta-analysis, comment, letter, conference abstract, and animal or cell study; (2) Patients could not participate in or complete PR for various reasons; (3) The HADS scores (mean \pm SD) could not be obtained.

Information sources English literature related to PR and ILD published before May 19, 2024 were searched from such databases as PubMed, Web of Science, Scopus, Embase, Ovid, and Cochrane Library.

Main outcome(s) Changes of HADS-A/HADS-D scores before and after pulmonary rehabilitation.

Quality assessment / Risk of bias analysis Quality assessment: "Quality Assessment Tool for Before-After (Pre-Post) Studies With No Control Group".

Strategy of data synthesis A heterogeneity test was performed using the Cochran's Q statistic and inconsistency value (I²). $P < 0.05$ or $I^2 \geq 50\%$ indicated that the heterogeneity was significant, and the analysis should be conducted based on a random-effects model (REM) by the DerSimonian-Laird (DL) method. Otherwise, the analysis should be carried out based on a fixed effects model (FEM) by the inverse-variance (IV) method.

Subgroup analysis In accordance with the duration of PR, all included studies were divided into "less than 8 weeks of PR", "8 weeks of PR", and "more than 8 weeks of PR" for subgroup analysis respectively.

Sensitivity analysis The sensitivity analysis was calculated by eliminating each included study one by one and then combining the effect size (one-by-one elimination). If there was no significant impact

on the results after the elimination of a certain study, it indicated that the results were stable and reliable.

Country(ies) involved China.

Keywords Pulmonary Rehabilitation; Interstitial Lung Disease; Anxiety; Depression.

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