

INPLASY PROTOCOL

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None declared.

Bayesian network meta-analysis of intervention effect of traditional Chinese sports in patients with stable chronic obstructive pulmonary disease

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Review question / Objective: The purpose of this study was to compare the intervention effects of different traditional Chinese sports on patients with stable chronic obstructive pulmonary disease, explore the best exercise regimen, and select the research method as RCT experiment.

Condition being studied: Chronic obstructive pulmonary disease (COPD) is a lung disease characterized by inflammation that causes airflow obstruction. In terms of pathology, the clinical manifestations of COPD are diverse, in addition to common cough and sputum, persistent airflow restriction and decreased physiological function of the lungs and pulmonary fibrosis changes are also considered to be the main pathological symptoms, and severe patients are prone to deteriorating into pulmonary heart disease and respiratory failure. According to the "China Adult Lung Health Research", there are nearly 100 million COPD patients in China, of which the incidence rate of people over 40 years old is as high as 13.7%, which has become the fourth leading cause of death in China, bringing heavy economic pressure to patients and their families, and becoming a national public health problem.

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INTRODUCTION

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METHODS

Participant or population: Patients with stable chronic obstructive pulmonary disease (2072 patients).

Intervention: Traditional Chinese sports.

Comparator: Traditional drug treatment.

Study designs to be included: RCT.

Eligibility criteria: Criteria for diagnosing chronic obstructive pulmonary disease.

Information sources: CNKI, Wanfang, PubMed, Web of science, Cochrane library.

Main outcome(s): 1. FEV1%: maximum exhalation after maximum deep inhalation, volume of exhaled volume in the first second of maximum exhalation 2. FEV1/FVC: proportion of forced expiratory volume in the first second to all expiratory volume; 3.6 minutes walking distance (6MWD, 6-minute walking distance).

Quality assessment / Risk of bias analysis: The researchers assessed the quality of the included studies against the Cochrane Manual of Systematic Review. Evaluation items include random sequence generation, allocation concealment, blind experimentation, data integrity, selective

reporting, and other biases. The quality assessment of the included studies was based on three options: high risk, low risk, and unclear knowledge.

Strategy of data synthesis: R language and JAGS 4.3.0 are used for model operation and testing, and StataSE15.1 is used to draw network evidence maps. FV1%, FEV1/FVC%, and 6MWT were continuous, and effect sizes were expressed as mean differences (MD) and 95% confidence intervals (CI). When the 95% CI was not 0, there was a statistically significant difference between the two groups. The Bayesian Markov chain-Monte Carlo model was used to compare the intervention effects of different motion schemes, and the network meta-analysis and probability ranking were performed using 4 chains and the consistency model, with the initial value set to 0.5, the step size was 10, and the number of iterations was 50,000. The first 20,000 iterations are used for annealing to eliminate the influence of the initial values, and the last 30,000 iterations are used for sampling. Calculate the potential scale coefficient (PSRF) to assess convergence by comparing the variance between and within chains. PSRFs close to 1 indicate good convergence and more reliable results for consistency model analysis [19]. Nodal analysis is used for inconsistency testing, and if $P > 0.05$, consistency model is used for analysis. At the same time, the nodal splitting method was used to test for local inconsistency. By comparing the surface under the cumulative ranking (SUCRA), the ranking between the interventions was obtained, where $0 \leq \text{SUCRA} \leq 100$, 100 is the most effective therapy, 0 is the worst and ineffective, that is, the larger the value, the better the intervention effect.

Subgroup analysis: This study was a network meta-analysis with group analyses based on different traditional Chinese movements.

Sensitivity analysis: Sensitivity analyses were performed by stata software, and the sensitivity of articles was reflected by

changes in effect sizes from deleted articles.

Country(ies) involved: China.

Keywords: Traditional sports, chronic obstructive pulmonary disease, respiratory function, exercise tolerance, and network meta-analysis.

Contributions of each author:

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