

INPLASY

The Impact of Mind-Body Movement Complementary Therapies, Represented by Tai Chi, Yoga, and Pilates, on Patients with Parkinson's Disease: A Systematic Review and Meta-Analysis Based on Existing Evidence

INPLASY202490018

doi: 10.37766/inplasy2024.9.0018

Received: 4 September 2024

Published: 5 September 2024

Yang, L; Lai, XM; Cheng, HX; Ke, WH.

Corresponding author:

Liang Yang

dryangliang@163.com

Author Affiliation:

Chongqing Medical University.

ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202490018

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 5 September 2024 and was last updated on 5 September 2024.

INTRODUCTION

Review question / Objective P(Population): Adults (over 18 years of age) with idiopathic Parkinson's disease (at any stage) Adults diagnosed with Parkinson's disease.

I(Intervention): Mind-body exercise therapies, including Tai Chi, Yoga, and Pilates.

C(Comparator): No intervention, usual care, or other non-mind-body exercise therapies.

O(Outcomes): Improvements in motor symptoms (e.g., UPDRS motor score), balance, gait, non-motor symptoms (e.g., depression, sleep quality), quality of life, and adverse events.

Condition being studied Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor symptoms such as tremor, bradykinesia, rigidity, and postural instability. Non-motor symptoms, including cognitive impairment, mood disorders, and sleep disturbances, also significantly affect patients' quality of life.

METHODS

Participant or population Adults (18 years and older) diagnosed with Parkinson's disease based on established clinical criteria.

Intervention Tai Chi, Yoga, or Pilates as a standalone or combined intervention.

Comparator No intervention, usual care, or any other form of exercise not classified as Tai Chi, Yoga, or Pilates.

Study designs to be included Randomized controlled trials.

Eligibility criteria Inclusion Criteria

1. Study Population: Adults diagnosed with Parkinson's disease (PD) according to established clinical criteria.

2. Study Design: Randomized controlled trials (RCTs) that evaluate the effects of mind-body

exercises, such as Tai Chi, Yoga, or Pilates, on Parkinson's disease.

3. Interventions: Studies assessing mind-body exercises (e.g., Tai Chi, Yoga, Pilates) as the primary intervention.

4. Comparators: Studies comparing mind-body exercises with no intervention, usual care, or other non-mind-body exercise therapies.

5. Outcomes: Studies must report at least one relevant outcome, such as improvements in motor symptoms, non-motor symptoms (e.g., anxiety, depression), or quality of life.

Exclusion Criteria

1. Study Design: Non-randomized studies, reviews, case reports, and non-controlled trials.

2. Population: Studies involving animals or in vitro experiments.

3. Data Availability: Studies that do not report specific data or from which effective data cannot be extracted.

4. Publication Type: Duplicate publications, abstracts, or studies not published in peer-reviewed journals.

These criteria are designed to ensure the inclusion of high-quality studies that specifically examine the effects of mind-body exercises on patients with Parkinson's disease, while excluding studies that do not meet these standards.

Information sources Including PubMed, Cochrane Library, Embase, Web of Science, Scopus, CINAHL, Google Scholar, Cumulative Index to Nursing and Allied Health Literature, PsycINFO, China National Knowledge Infrastructure, Wanfang Data and VIP Database.

Main outcome(s) Primary Outcomes

1. Motor Symptoms Improvement: The study aims to evaluate the effectiveness of mind-body exercises, such as Tai Chi, Yoga, and Pilates, in improving motor symptoms in Parkinson's disease patients. This includes assessing changes in tremor, bradykinesia (slowness of movement), rigidity (muscle stiffness), and postural instability. One of the common measures for these symptoms is the Unified Parkinson's Disease Rating Scale (UPDRS) motor score.

2. Balance and Gait: Another primary outcome is the improvement in balance and gait. Mind-body exercises are believed to enhance patients' stability and walking ability, which are critical aspects of mobility and independence for Parkinson's disease patients.

Secondary Outcomes

1. Non-Motor Symptoms: The study also considers non-motor symptoms such as anxiety, depression, cognitive impairment, and sleep quality. These symptoms significantly affect the quality of life of

Parkinson's disease patients, and the study seeks to determine if mind-body exercises can provide benefits in these areas.

2. Quality of Life: Overall quality of life is a critical outcome, as the study aims to assess how mind-body exercises impact the daily living and well-being of Parkinson's disease patients.

3. Adverse Events: Reporting any adverse events associated with the mind-body exercise interventions is also an essential outcome. Understanding the safety profile of these interventions is vital for providing evidence-based recommendations.

These outcomes help to comprehensively evaluate the potential benefits and safety of mind-body exercise therapies for individuals with Parkinson's disease, aiming to provide valuable insights into their effectiveness in both clinical and real-world settings.

Quality assessment / Risk of bias analysis The Cochrane Risk of Bias Tool will be used to assess the quality of included studies. Domains assessed will include sequence generation, allocation concealment, blinding, incomplete outcome data, selective reporting, and other biases. Each domain will be rated as "low risk," "high risk," or "unclear risk."

Strategy of data synthesis Two independent reviewers will extract data from the included studies using a standardized data extraction form. Extracted data will include study characteristics (e.g., authors, year, country), participant characteristics (e.g., age, sex, PD severity), intervention details (e.g., type, duration, frequency), outcome measures, and results. Any discrepancies will be resolved through discussion or consultation with a third reviewer.

Subgroup analysis Type of Mind-Body Exercise:
Tai Chi: Analyzing the effects of Tai Chi specifically on motor and non-motor symptoms in Parkinson's disease patients.

Yoga: Evaluating the impact of Yoga on outcomes such as balance, flexibility, and mental health in Parkinson's disease patients.

Pilates: Assessing the effectiveness of Pilates in improving physical strength, posture, and overall quality of life in Parkinson's disease patients.

Severity of Parkinson's Disease: Mild to Moderate Parkinson's Disease: Studies focusing on patients with early to moderate stages of Parkinson's disease, where symptoms are present but do not severely impact daily activities.

Severe Parkinson's Disease: Studies involving patients with advanced Parkinson's disease, where

motor symptoms are more pronounced and significantly affect daily functioning.

Duration of Intervention:

Short-Term Intervention: Studies with intervention durations of less than 12 weeks.

Long-Term Intervention: Studies with intervention durations of 12 weeks or more, allowing for the assessment of sustained effects of mind-body exercises.

Frequency of Intervention:

Low Frequency: Studies where the exercises are performed less frequently (e.g., once a week).

High Frequency: Studies where the exercises are performed more frequently (e.g., two or more times per week).

Age of Participants:

Younger Adults: Studies involving participants younger than 65 years.

Older Adults: Studies involving participants aged 65 years and older, to evaluate age-related differences in response to mind-body exercises.

Type of Control Group:

No Intervention or Waitlist Control: Studies comparing mind-body exercise therapies with a control group receiving no intervention or being on a waitlist.

Usual Care or Standard Therapy: Studies comparing mind-body exercises with standard care or conventional physical therapy.

Other Forms of Exercise: Studies comparing mind-body exercises to other forms of physical activity, such as aerobic or resistance training.

Geographic Location:

Western Countries: Studies conducted in Western regions, such as North America and Europe.

Eastern Countries: Studies conducted in Eastern regions, particularly in Asia, where mind-body exercises like Tai Chi and Yoga have cultural significance.

Setting of Intervention:

Home-Based Programs: Studies where interventions are conducted at the patients' homes.

Community or Group-Based Programs: Studies where interventions are conducted in community centers or group settings.

Clinical or Rehabilitation Settings: Studies conducted in formal health settings.

Outcome Measures:

Motor Symptoms: Studies primarily focusing on outcomes related to motor functions such as gait, balance, and tremor.

Non-Motor Symptoms: Studies primarily

Quality of Life: Studies.

Country(ies) involved China.

Keywords Parkinson's Disease, Mind-Body Exercise, Tai Chi, Yoga, Pilates.

Contributions of each author

Author 1 - Liang Yang.

Email: dryangliang@163.com, dryangliang@163.com

Author 2 - Lai XM.

Author 3 - Cheng HX.

Author 4 - Ke WH.

Sensitivity analysis Sensitivity analyses will be performed to assess the robustness of the results by excluding studies at high risk of bias.