Spatial Navigation Skills in Parkinson's Disease – A Meta-Analysis

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Abstract

Background:

. Parkinson's disease is a neurodegenerative condition characterized by tremors, stiffness, and difficulty in movement.

. Research indicates that Parkinson's affects approximately one million Americans and 10 million individuals globally.

. It stands as the 14th-leading cause of death in the United States. Moreover, many of individuals with Parkinson's disease eventually experience the onset of dementia.

. Research indicates that individuals with Parkinson's disease often exhibit compromised spatial skills due to abnormalities in brain regions responsible for motor control and spatial cognition.

. These impairments can significantly impact the quality of life for those affected, making tasks such as driving, walking, or navigating unfamiliar places challenging. Retaining independence is particularly reliant on intact spatial navigation abilities.

Methods: This study investigates the differential performance of older adults with Parkinson's Disease and cognitively healthy older adults in spatial navigation tests. Factors such as the year of publication, the country of research, and demographic details including age, gender, and level of education among participants are being examined.

Results: We are in the process of collecting and extracting the data.

Methods

Literature Search and Information Sources:

A comprehensive literature search was conducted across PsycInfo, Pubmed, Ageline, Web of Science, and ERIC databases using consistent search terms. Due to the lack of a precise definition for spatial navigation in the literature, the phrase "spatial orientation" was also incorporated in the search to ensure a thorough exploration of the existing body of work. We are also examining factors such as the year of publication, the study's country, as well as the age, gender, and educational attainment of the participants.

Data Collection:

The screening process for the studies involved three steps: initial screening of titles and abstracts, a thorough review of full texts, and data extraction, all conducted within the Covidence software.

Consensus between two reviewers on the data at each screening step was required for the study to progress to the next stage. In instances of disagreement, a third reviewer made the final determination.

Population Data:

Beyond basic characteristics such as the year of publication, study location, participant age, gender, education, and publication status (published/unpublished), we will also categorize data based on Parkinson's Disease diagnostic criteria, the mode of test administration (real-world, virtual reality, computer screen, paper-pencil), test type (environment navigation, maze, Hidden Goal Task, arena, Money Road Map, matrix), measurement type (time, accuracy), and any supplementary spatial tasks associated with the primary spatial navigation test.

Healthy   Parkinson's Disease before symptoms   Parkinson's Disease after symptoms
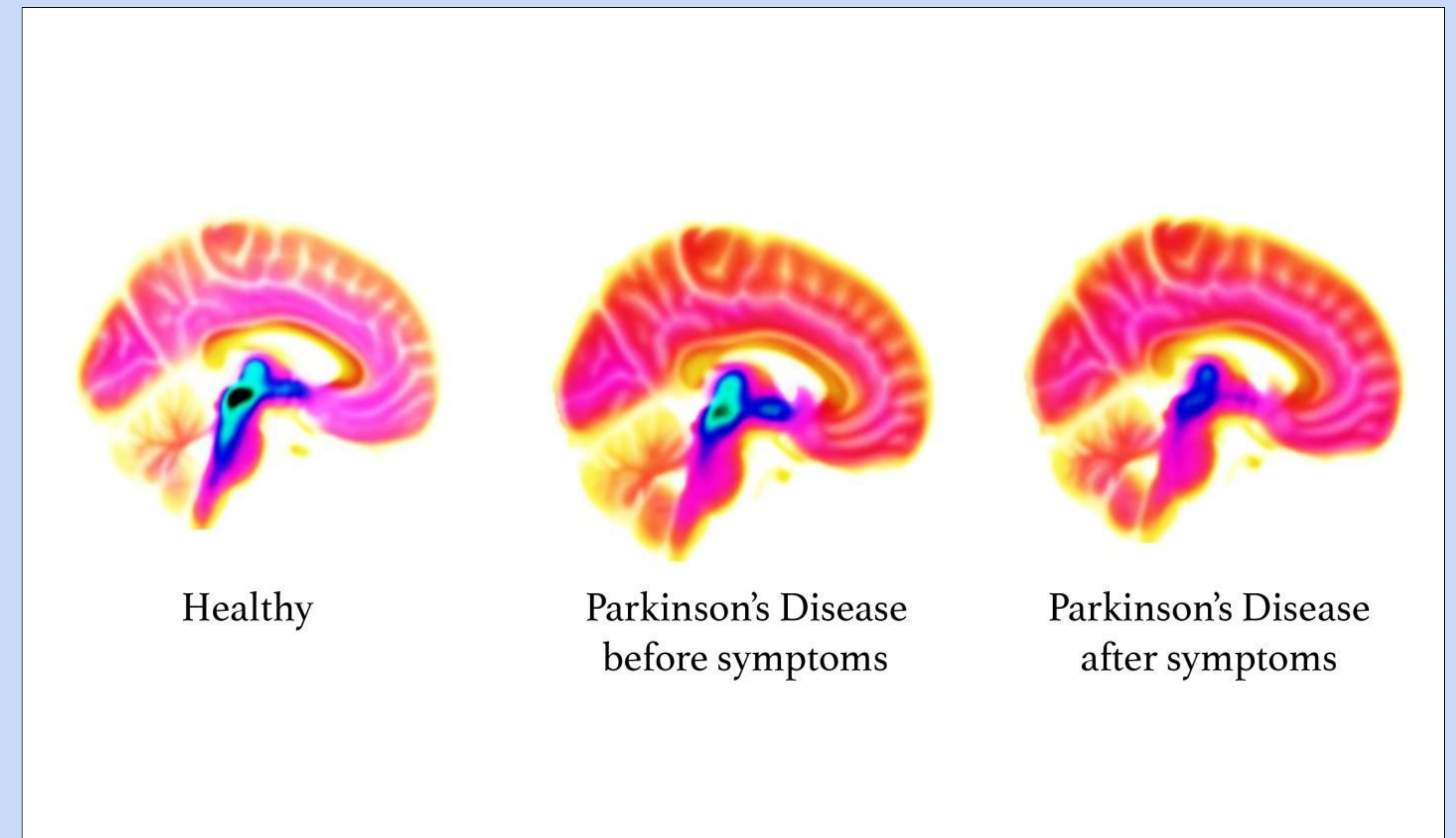
Results

We are in the process of collecting and extracting the data. In the future, we will be comparing our extracted articles and drawing conclusions from the data given.

References

Allocentric Spatial Memory Test   Example blocks (1-5)