

Movement-based mind-body practices and cognitive function in middle-aged and older adults: Findings from the Midlife in the United States (MIDUS) study

BACKGROUND

Research is increasingly finding evidence of cognitive decline among middle-aged and older adults. It is argued that a reduction in blood flow in various areas of the brain is a major underlying factor for age-related cognitive decline. However, non-drug interventions focusing on physical activities, such as mind-body practices (MBP), appear to be effective in improving cognitive performance in later ages. Yoga, Tai Chi, and Pilates are examples of MBP activities that improve muscle strength and body flexibility and promote physical and psychological benefits by increasing the cerebral blood flow. The present study examines the relationship between movement-based MBP and cognitive functions, especially executive functions and episodic memory, in middle-aged and older adults during a 10-year follow-up period.

STUDY METHOD

Participants. We used data from the Midlife in the United States (MIDUS) study, a large-scale longitudinal study spanning 20 years. MIDUS initially surveyed a national probability sample of community-living adults aged between 24 and 75 years in 1995-96 (Wave1). The present study used Waves 2 (2004-05) and 3 (2013-14) of the MIDUS, which included cognitive tests measuring executive functions and episodic memory. Participants' data were collected through the phone and mailed self-administered questionnaires (SAQ).

Measures. The MBP was used as the independent variable. To quantify the prevalence of MBP, the responses were interpreted to indicate if the respondent engaged in any form of MBP or not. Episodic memory was examined through immediate and delayed free recall of 15 words, while executive functions were measured through tests of inductive reasoning, category verbal fluency, working memory span, processing speed, and attention switching. Six demographic variables were used as covariates. These included age group, gender, racial status, marital status, education, and employment status. Health and function variables were also used as covariates. These included current physical and mental health, difficulty in activities of daily living and instrumental activities of daily living, use of moderate and vigorous physical activities, body mass index, use of tobacco and alcohol, number of chronic diseases, and having diabetes, high blood pressure, heart problem, chronic sleep problem or depression in the last 12 months.

Statistical Analyses. We used multivariate linear regression models to examine the effect of MBP on the episodic memory and executive function while controlling for covariates (sociodemographic factors, health, and cognitive function).

FINDINGS

A total of 2,097 individuals aged 42-92 years (56 % women) were included. Overall, 83% participants reported they had not used MBP in the past 12 months. The results revealed that after controlling

for sociodemographic factors, health and functional status, and prior levels of cognitive function, participating in MBP was independently associated with a smaller decline in episodic memory ($b = 0.11$, $p = .03$), but not in executive function ($b = 0.03$, $p = .34$).

POLICY ANALYSIS

The results provide the first population-based evidence supporting the cognitive benefits of MBP over time among middle-aged and older adults in the US. Taken together, our findings suggest that MBP may help older adults to maintain episodic memory, an important aspect of memory and understanding. More research is needed to confirm these results. However, given the ease of use of MBP, more work is needed to help older adults understand these practices and their potential to improve both physical and cognitive health.

Original Article

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