

Effects of Yoga-Related Mind-Body Therapies on Cognitive Function in Older Adults: A Systematic Review with Meta-Analysis

BACKGROUND

Considering cognitive decline and dementia has no curative intervention available through modern medical management, alternative therapeutic symptomatic interventions are needed. Mind-body practices, such as yoga, have emerged as an alternative approach that positively impact cognition. Many studies have found that yoga, which consists of physical postures, breathing exercises, and meditation may have some beneficial effects on cognition as we age. Although one essential component may be emphasized over another in the different types of yoga, all types share the underlying theme of meditative postural exercises aimed at mind-body relaxation. This systematic review with meta-analysis evaluated whether yoga-related practices, as a preventive mind-body therapy, is effective for the management of cognitive decline in older adults. The goal of the current review is to help synthesize information on the effects of yoga practice on cognitive function and improve the efficacy of intervention project plans to help maintain cognition.

STUDY METHOD

Seven electronic databases (i.e., Abstracts in Social Gerontology, Age Line, CINAHL, PsycINFO, PubMed, Scopus, and Web of Science) were searched using specific inclusion and exclusion criteria to identify original research studies that investigated the effects of yoga-related mind-body

therapies on cognitive function, in the context of aging. A total of 430 articles were originally identified from the systematic review that utilized the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.

Analytic method. The Cochrane risk of bias tool was used to assess the standard of the study methodology. The potential risk of bias for each criterion was assessed as 1) low risk, 2) high risk, or 3) unclear risk of bias. A meta-analysis was also carried out calculating the overall effect sizes, expressed as standardized mean differences (i.e., Cohen's *d*) for each cognitive outcome. Estimates were calculated using the random-effects model, with confidence intervals set at 95% and *p*-value at .05.

FINDINGS

After assessing the articles for eligibility, a total of 12 studies were included in the qualitative synthesis and 11 in the quantitative analysis. The twelve studies identified included eleven randomized controlled trials (RCTs) and 912 participants (73.9% female; 239 with cognitive impairment). Studies involved a range of yoga practices with a common focus on meditative postural exercises. Ten of the twelve studies investigated the effects of yoga-related mind-body therapies on executive function, nine examined effects on memory status, and seven assessed attention and processing speed. Results revealed significant, positive effects on memory ($d=0.38$),

executive function ($d=0.40$), and attention and processing speed ($d=0.33$). No adverse effects for the use of yoga-related mind-body therapies were reported in any of the studies.

POLICY IMPLICATIONS

The results of this systematic review and meta-analysis suggest yoga-related mind-body therapies are beneficial for cognition in older adults with and without cognitive impairment. Despite various yoga interventions used in these studies, the findings consistently indicated that yoga-related mind-body interventions have a positive effect on cognitive function that is roughly moderate in magnitude. These effect sizes are similar to those observed in RCTs testing the efficacy of cholinesterase inhibitors, such as donepezil, in participants with a similar level of cognitive impairment. Combined with the lack of side effects and a wide range of benefits beyond cognition, this finding underscores the potential utility of yoga interventions in maintaining cognition. Practicing yoga can be a useful part of one's daily routine to maintain cognitive function in older age.

Future research should incorporate rigorous methodology, especially adequate randomization and blinded design with a longer follow-up period to refine ideal time and intensity of yoga-related

mind-body interventions to maintain cognitive health. Furthermore, there is a need to develop a better understanding of yogic science and its physical, psychological, and social consequences to improve the efficacy of intervention with yoga for cognitive benefit. With the increasing trend of yoga practice as a complementary approach, policy makers should promote the use of this alternative therapeutic practice as a supplement to medical management.

Original Article

Bhattacharyya, K.K., Andel, R., & Small, B.J. (2021). Effects of yoga-related mind-body therapies on cognitive function in older adults: A systematic review with meta-analysis. *Archives of Gerontology and Geriatrics*, 93(104319), 1-10. <https://doi.org/10.1016/j.archger.2020.104319>

This policy brief was written by K.K. Bhattacharyya, H.J. Rouse, and B.J. Small of the University of South Florida, School of Aging Studies and Florida Policy Exchange Center on Aging.

For further information contact author K. K. Bhattacharyya via email at kallolkumar@usf.edu