

Cognitive Training: Vital for MCI/Dementia Management

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Introduction

The increasing global population of older adults brings a corresponding rise in age-related cognitive impairments, including Mild Cognitive Impairment (MCI) and dementia. These conditions pose significant challenges to individuals, their families, and healthcare systems, necessitating effective interventions. Over recent years, cognitive training has emerged as a promising non-pharmacological approach aimed at preserving or improving cognitive function in these vulnerable populations. Research has extensively explored the efficacy of various forms of cognitive training, ranging from traditional methods to innovative digital platforms, often employing systematic reviews and meta-analyses to synthesize the growing body of evidence.

Digital cognitive training, in particular, has garnered attention for its accessibility and potential for widespread application. Studies investigating its effectiveness for older adults facing MCI or dementia indicate that such digital interventions can significantly enhance global cognition and specific cognitive domains. This highlights a promising and accessible pathway for cognitive enhancement within this demographic [1].

Furthermore, other systematic reviews and meta-analyses have broadly affirmed the effectiveness of cognitive interventions for individuals with MCI and dementia. These studies consistently report modest yet significant improvements in cognitive function, thereby advocating for their inclusion as essential components of comprehensive care strategies [2].

The role of cognitive training extends beyond just intervention to encompass prevention and management of dementia. A comprehensive assessment of the literature suggests that cognitive training holds substantial promise for improving cognitive outcomes, not only in individuals already diagnosed with dementia but also in those at risk of developing the condition. This body of evidence strongly supports the integration of cognitive

training into broader public health strategies aimed at mitigating the impact of dementia [3].

When focusing specifically on MCI, randomized controlled trials have been scrutinized through systematic reviews and meta-analyses to evaluate the efficacy of diverse cognitive training programs. The consistent finding is that these programs lead to significant improvements in cognitive function, presenting a valuable non-pharmacological strategy to potentially delay the progression of cognitive decline [4].

For individuals already diagnosed with dementia, meta-analyses of randomized controlled trials demonstrate that cognitive training interventions can positively impact certain cognitive domains. This suggests its utility as an adjunctive therapy, aimed at improving daily functioning and ultimately enhancing the quality of life for these patients [5].

Further consolidating these findings, systematic reviews and meta-analyses focusing on patients with either MCI or dementia consistently show that cognitive training interventions result in significant improvements across various cognitive domains. This underscores the considerable potential of cognitive training as a therapeutic strategy [6].

The specific impact of digital platforms has also been thoroughly evaluated, with systematic reviews and meta-analyses highlighting their effectiveness in enhancing cognitive abilities. Digital cognitive training offers scalable and readily accessible solutions, making it a viable option for a wide array of patients struggling with MCI and dementia [7].

Beyond purely cognitive benefits, cognitive training has been shown to influence neuropsychiatric symptoms in older adults with dementia. Research indicates that such training can significantly improve cognitive performance while concurrently reducing the burden of neuropsychiatric issues. This dual benefit contributes to a better overall quality of life for affected individuals [8].

The broader category of non-pharmacological interventions, which includes cognitive training, has also been examined for its efficacy in older adults with mild cognitive impairment or mild dementia. Findings from these analyses emphasize the positive impact on cognitive function and daily living activities, reinforcing the argument for their integration into holistic care plans [9].

While the evidence largely supports the benefits of cognitive training, a critical analysis of interventions for individuals with dementia acknowledges methodological challenges and variable outcomes. It concludes that despite promising results, continued rigorous research is essential. The goal is to refine training protocols and establish clearer, evidence-based guidelines for clinical practice, ensuring that these interventions are implemented effectively and optimally benefit patients [10].

Description

The landscape of aging populations globally presents a growing concern regarding cognitive decline, encompassing conditions such as Mild Cognitive Impairment (MCI) and various forms of dementia. In response, cognitive training has emerged as a significant non-pharmacological strategy aimed at mitigating these effects and improving quality of life. This array of interventions, supported by numerous systematic reviews and meta-analyses, focuses on enhancing cognitive function and delaying decline in older adults. Comprehensive assessments indicate that cognitive training plays a crucial role in both preventing the onset and managing the progression of dementia, advocating for its broader integration into public health strategies and individual care plans [3, 9].

A notable advancement in this field is the development and evaluation of digital cognitive training. These digital platforms offer a promising, accessible, and scalable approach to cognitive enhancement. Systematic reviews and meta-analyses have consistently found that digital interventions can significantly improve both global cognition and specific cognitive domains in older adults diagnosed with either MCI or dementia [1, 7]. This emphasizes the potential for widespread adoption, providing effective solutions that can reach a broad patient demographic, overcoming geographical and logistical barriers often associated with traditional therapies.

Beyond digital tools, the general efficacy of cognitive interventions has been thoroughly assessed. Studies, including systematic reviews and meta-analyses of Randomized Controlled Trials (RCTs), conclude that these interventions lead to modest but significant improvements in cognitive function for individuals with MCI and dementia [2, 4, 6]. For those specifically diagnosed with MCI, various cognitive training programs have been shown to significantly enhance cognitive function, positioning them as valuable non-pharmacological options for delaying further cognitive decline [4]. Similarly, for individuals living with dementia, meta-analyses of RCTs have indicated positive effects on certain cognitive domains, suggesting that cognitive training can serve as an effective adjunctive therapy, supporting improved daily functioning and overall quality of life [5].

The benefits of cognitive training extend beyond core cognitive functions. Research highlights its impact on broader aspects of well-being for older adults with dementia. For instance, systematic reviews have explored the effect of cognitive training not just on cognitive performance but also on neuropsychiatric symptoms, which are often co-occurring and highly distressing. The findings suggest that such training can significantly reduce the burden of these symptoms, leading to an improved overall quality of life for patients and their caregivers [8]. This multifaceted benefit underscores the holistic potential of cognitive training as a therapeutic strategy that addresses both cognitive and behavioral challenges associated with dementia [6, 8].

While the evidence overwhelmingly supports the positive impacts of cognitive training, the field also acknowledges certain complexities and areas requiring further investigation. Critical analyses of cognitive training interventions for individuals with dementia highlight existing methodological challenges and the variability in outcomes across different studies. This necessitates continued rigorous research to refine current training protocols, develop more targeted interventions, and establish clearer, evidence-based guidelines for clinical practice. This ongoing commitment to scientific inquiry ensures that cognitive training interventions are optimized for effectiveness, providing the best possible support for individuals experiencing

cognitive decline and dementia [10]. The integration of these interventions into comprehensive care strategies, alongside other non-pharmacological approaches, is consistently supported by evidence, reinforcing their value in a multidisciplinary approach to cognitive health [9].

Conclusion

Cognitive training, encompassing both traditional and innovative digital methods, consistently demonstrates significant promise for older adults experiencing Mild Cognitive Impairment (MCI) or dementia. Extensive systematic reviews and meta-analyses broadly affirm its efficacy in significantly improving both global cognition and specific cognitive domains. Digital interventions, offering a highly accessible and scalable approach, have shown particular effectiveness in enhancing cognitive abilities across a wide spectrum of patients in this population. These programs reliably lead to modest yet significant improvements in cognitive function, establishing them as valuable non-pharmacological tools. They not only help in delaying further cognitive decline but also play a crucial role in managing existing conditions and improving cognitive outcomes.

Beyond the direct cognitive gains, specific research highlights the potential of cognitive training to positively impact neuropsychiatric symptoms often associated with dementia, ultimately contributing to an improved overall quality of life for affected individuals. The robust evidence supports the integration of cognitive training into comprehensive care strategies, where it functions effectively as both a preventative measure and an adjunctive therapy aimed at enhancing daily functioning. While the benefits of these interventions are clear and well-documented, ongoing rigorous research is crucial. This continued inquiry is essential for refining training protocols, overcoming methodological challenges, and establishing clearer, evidence-based guidelines for clinical practice, thereby ensuring optimal patient outcomes. This collective body of evidence strongly underscores cognitive training's vital and evolving role in addressing the complex challenges of cognitive decline in aging populations.

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