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A meta-analysis on the correlation between dysbiosis and mental health: the effects of probiotics/prebiotics /synbiotics on memory, with a specific focus on Alzheimer's disease

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2021
https://hdl.handle.net/10539/32520

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ABSTRACT/SUMMARY

Alzheimer's disease (AD) influences the elderly in all societies of the world, both due to its prevalence and influence on quality of life. Considering that no cure is currently available and several theories regarding the pathogenesis of Alzheimer's disease exist, it is worth considering the use of supplementary probiotics/ prebiotics/ synbiotics due to the possibility of a gut-brain link. This research attempted to find more certainty about the use of probiotics/ prebiotics/ synbiotics as a supplementary treatment for memory impairment –specifically in AD/dementia –from already existing studies. Data was pooled using a random effects meta-analysis to find the overall outcomes from included studies for total cognition as well as subsets of neurocognitive functions. The overall results for short term and delayed memory proved a small but significantly improved standardized mean difference of experimental outcomes compared to control outcomes, whereas the total cognition scores were significant, but had too much heterogeneity among the included study results, indicating inconsistency of intervention effects across studies. It was concluded that ingestion of microbial supplements may be beneficial as supplementary treatment for AD patients, but larger scale studies are needed.