The Microbiota-Gut-Brain Axis and Alzheimer's disease:
A Bibliometric Analysis based on Web of Science Database from 2014 to 2023

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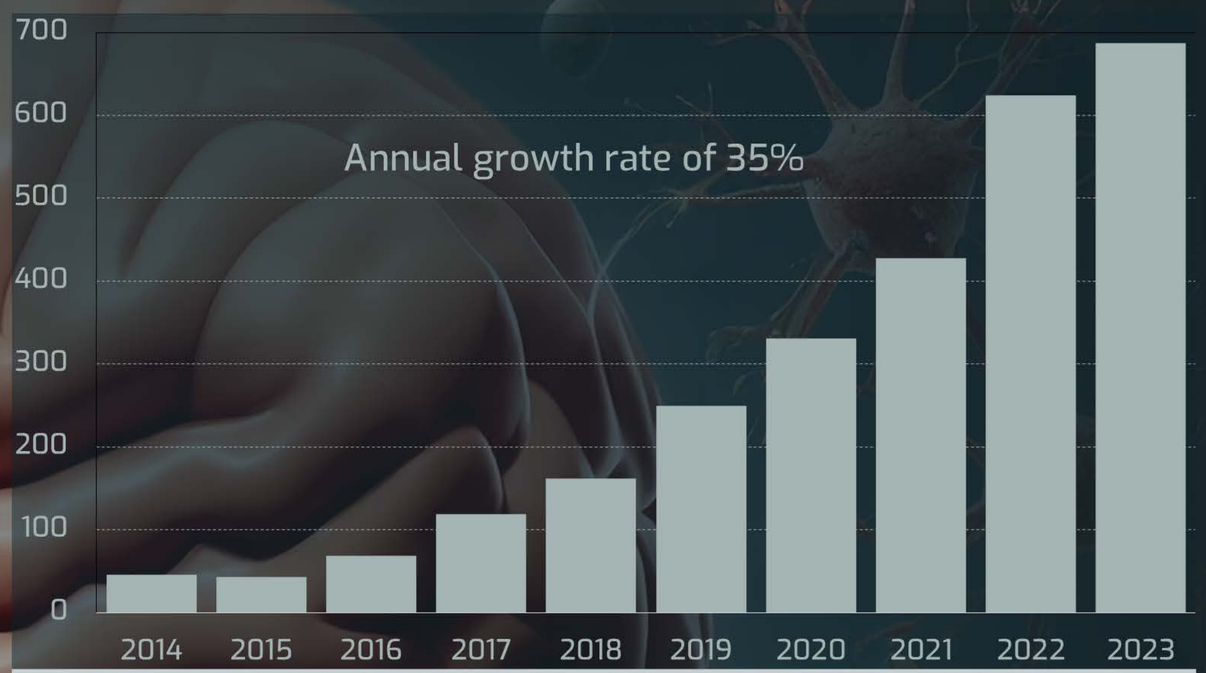
❖ Background ❖

- The microbiota-gut-brain axis is a bidirectional communication system between the gut microbiome and the central nervous system
- Clinical and epidemiological evidence suggests that gut microbiota can influence this relationship, affecting emotional and cognitive functions and contributing to the development and progression of neurodegenerative diseases, including Alzheimer's disease
- This bibliometric study investigated the relationship between the microbiota-gut-brain axis and Alzheimer's disease using the Web of Science database from 2014 to 2023



Annual trend of original articles on microbiota-gut-brain axis and Alzheimer's disease

❖ Methods ❖

Science Citation Index Expanded (SCI-E)
Web of Science Core Collection

Search topic: "gut-brain" and "Alzheimer*"

Inclusion criteria: Jan 1, 2014 to Dec 31, 2023
Original articles in English

Analyzed using Bibliometrix & VOSviewer

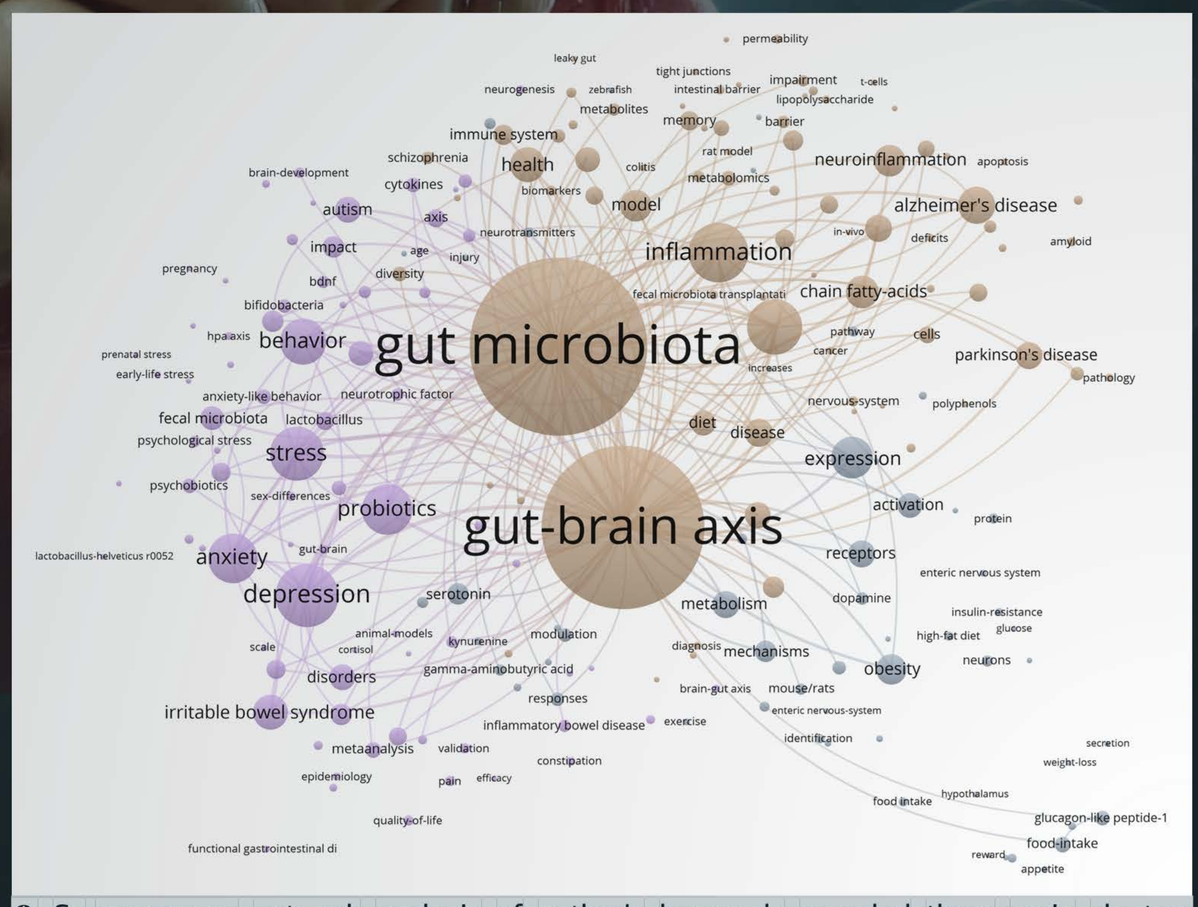
Top 10 countries contributing articles on microbiota-gut-brain axis & Alzheimer's disease

❖ Results ❖

- A total of 2,759 original articles were analyzed in this study
- The number of published papers on microbiota-gut-brain axis and Alzheimer's disease is increasing each year, with an annual growth rate of 35% from 2014 to 2023
- The articles were published in 64 countries/regions and 850 academic journals by 17,387 authors
- The journal *Nutrients* published the most papers (102 articles), followed by *Brain Behavior and Immunity* (73 articles)
- The most prominent author was Cryan, John F., who had published 77 original articles
- The University College Cork (314 articles) and China (837 articles) were the major institution and country, respectively
- Keywords co-occurrence network analysis revealed three main clusters: depression, inflammation, and gene expression

Top 10 journals publishing articles on microbiota-gut-brain axis & Alzheimer's disease

Rank	Journal [publisher]	Articles, n (%)
1	***Nutrients*** [MDPI]	102 (3.7)
2	***Brain Behavior and Immunity*** [Elsevier]	73 (2.6)
3	***Scientific Reports*** [Springer Nature]	65 (2.4)
4	***Frontiers in Microbiology*** [Frontiers Media]	49 (1.8)
5	***International Journal of Molecular Sciences*** [MDPI]	47 (1.7)
6	***Frontiers in Neuroscience*** [Frontiers Media]	38 (1.4)
7	*Frontiers in Cellular and Infection Microbiology* [Frontiers Media]	33 (1.2)
8	***Gut Microbes*** [Taylor & Francis]	33 (1.2)
9	***Frontiers in Psychiatry*** [Frontiers Media]	31 (1.1)
10	***Frontiers in Nutrition*** [Frontiers Media]	28 (1.0)



Co-occurrence network analysis of author's keywords revealed three main clusters

❖ Conclusion ❖

- Interest in the microbiota-gut-brain axis and its connection to Alzheimer's disease has significantly increased over the past decade
- Our findings showed the multidisciplinary nature of this research field. Network analysis of keywords demonstrated that gut health impacts psychological and behavioral aspects, plays a critical role in regulating systemic and neuroinflammation, and influences molecular and metabolic pathways involved in the pathogenesis of Alzheimer's disease
- These results suggested that gut microbiota could be a potential therapeutic approach to address Alzheimer's disease