

# Economic Evaluation in Alzheimer's Disease: a Systematic Review

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## INTRODUCTION

Alzheimer's disease is a progressive condition that imposes growing economic and societal burdens.

With increasing interest in non pharmacologic options such as acupuncture, especially in long-term care settings, there is a need to understand how such interventions are evaluated economically.

## OBJECTIVE

- to review the previous economic evaluation studies of Alzheimer's diseases
- to support future evaluations of acupuncture by examining the current landscape of economic evaluations in Alzheimer's diseases

## METHOD

Identification of full economic evaluations of Alzheimers' disease interventions

- Databases:** MEDLINE, EMBASE, and CENTRAL
- Search date:** May 1, 2025.
- Inclusion criteria:** cost-effectiveness, cost-utility, or cost benefit analyses targeting Alzheimer's disease, regardless of intervention type or setting
- Data extraction:** year of publication, country, economic evaluation model, target population, intervention type, comparison, time horizon, data source for costs/utilities/transition probabilities, utility outcomes, sensitivity analyses, results (e.g. ICER)

## RESULTS

**Thirty-four studies** were included. Most originated from high-income countries, particularly the United States, Sweden, and the United Kingdom.

Regarding the **interventions**, earlier studies (pre-2010) frequently evaluated cholinesterase inhibitors such as donepezil, while later studies incorporated memantine, rivastigmine, and non pharmacologic approaches, including caregiver training and cognitive therapy. More recent evaluations addressed disease-modifying treatments such as gene therapy and monoclonal antibodies.

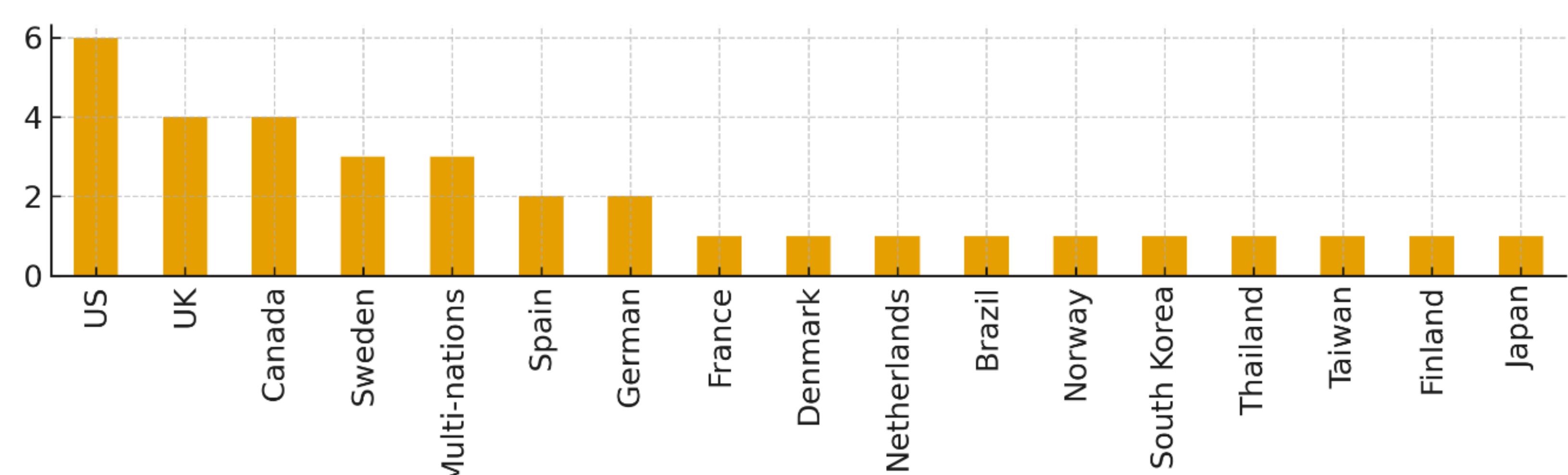
**Cost components** typically included both direct (e.g., medical services, medications) and indirect costs (e.g., caregiver time, productivity loss), drawn from national health databases, insurance claims, or literature.

The majority of studies used **Markov models** to capture disease progression and treatment effects. A few studies employed decision tree models or discrete event simulations. Some analyses relied on trial-based evaluations without additional modeling.

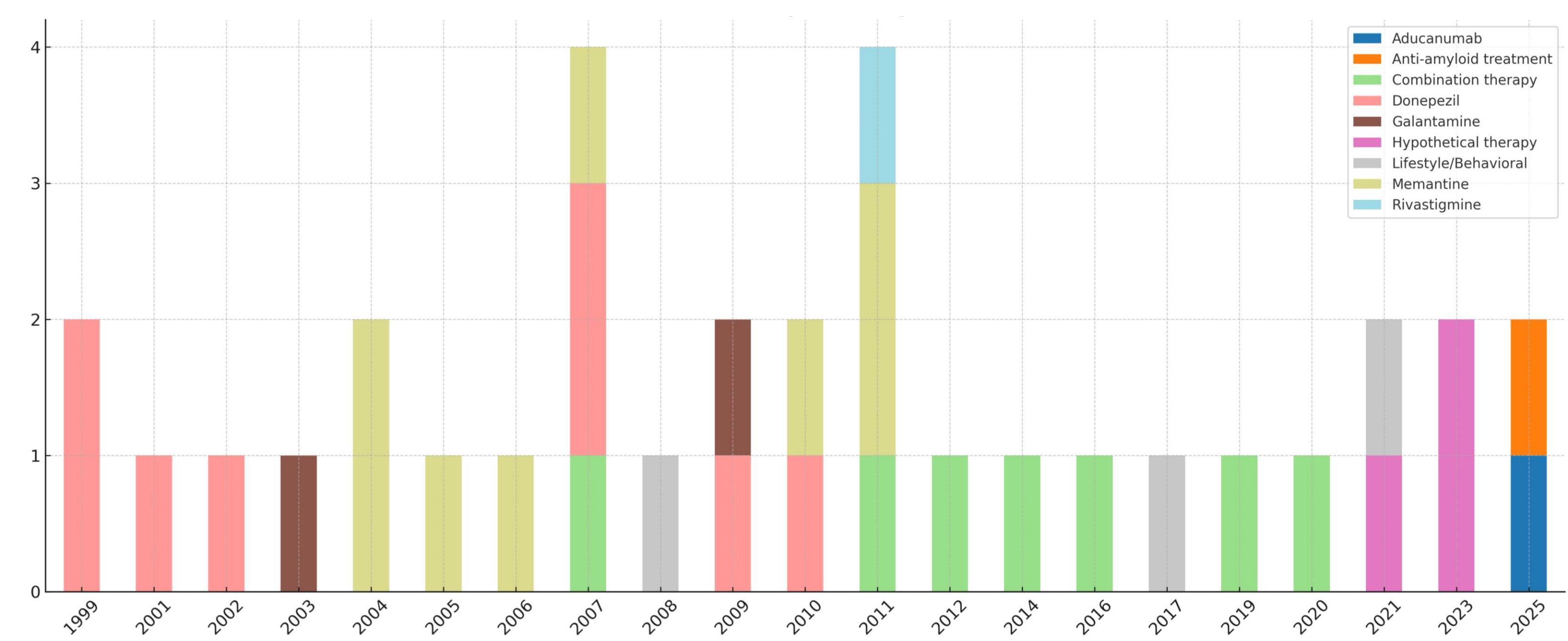
**Quality-adjusted life years (QALYs)** were the predominant outcome measure across the majority of studies, reflecting their central role in economic evaluations; in contrast, some studies adopted alternative endpoints such as cognitive scores, time to full-time care, or non-caregiving hours per day.

**Transition probabilities** were obtained from clinical trials, registry data, or modeled using cognitive metrics such as MMSE scores.

Number of Studies by Country



Trends in Interventions for Alzheimer's disease by year



## CONCLUSIONS

Through out this review, economic evaluations in Alzheimer's disease reflect shifting treatment paradigms and methodological innovation.

These insights provide a valuable reference **framework for designing future economic evaluations of integrative Korean medicine interventions such as acupuncture, cupping, and moxibustion**, ensuring methodological rigor and comparability with existing studies.

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