AI-Powered Identification, Access and Utility Mapping of Real-World Data Sources for Alzheimer's Disease in Asia Pacific



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INTRODUCTION

Alzheimer's Disease (AD) is a growing health crisis in Asia-Pacific (AP), driven by an aging population. The number of people with dementia in the region is projected to rise from 23 million in 2015 to nearly 71 million by 2050¹.

Conventional clinical trials often lack the diversity necessary to fully assess disease impact across populations, making RWE essential for understanding the spectrum of patient experiences and outcomes.

RWE is an increasingly accepted currency for healthcare decision making, but robustness and speed of insight are essential, not mutually exclusive.

OBJECTIVE

Our research aims to identify and evaluate RWD sources for AD in AP, with a focus on understanding their accessibility, coverage, and utility for evidence generation studies.

Our findings will inform the development of targeted evidence generation plans and guide the selection of appropriate data sources for RWE study designs.

By identifying and leveraging RWD from diverse sources we can address a broader array of research questions, enabling a comprehensive understanding of AD's clinical, economic, and societal impact in the region.

METHOD

An artificial intelligence (AI)-powered systematic literature review of academic publications (2014-2024, PubMed) was conducted to identify RWD sources for AD in AP.

Leveraging Large Language Models (LLMs), our proprietary Al system employed a semantic search protocol to identify relevant data sources and extract key information including database type, coverage, demographics, treatments, clinical, humanistic, and economic data. Results were manually validated by two independent reviewers.

Identified data sources were categorised into four key types: Cross-sectional studies² (including population surveys), patient registries,³ insurance databases and EMR/EHRs.

While vast amounts of RWD can be found in existing databases, identifying and evaluating reliable sources can be complex, time consuming and susceptible to bias.

Data sources cited more than once were prioritised for an in-depth assessment of data utility, focusing on variable coverage and availability across key RWD categories.

RESULTS

A total of 131 citations were retrieved, with 104 unique data sources identified after manual validation. Data sources spanned nine AP countries, with nearly one-third originating from South Korea (32%), followed by China (20%), Japan (19%), Taiwan (10%), Australia (9%), Thailand (7%), Hong Kong (2%), Malaysia (1%) and Singapore (1%). EMR/EHRs account for the largest proportion (43%), followed by patient registries (31%), cross-sectional studies (including population surveys; 22%) and insurance databases (4%) (Table 1).

18 data sources were prioritised for an in-depth utility assessment. Data utility, measured by the breadth of variables available, was the most substantial in South Korea, followed by Japan and Taiwan (Figure 1).

The reported variables were classified into ten key RWD categories:

1.	Demographics
2.	Clinical data
3.	Treatment-related dat
4.	Lifestyle data

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- 5. Quality of life (QoL) data
- 6. Direct cost data 7. Indirect cost data 8. AD-specific outcomes 9. Insurance claims data
- 10. Economic evaluation data

The most widely reported variables were AD-specific outcomes and clinical data, while QoL

To contextualise the utility of the available data, RWD sources were evaluated against key requirements for RWE and health economic and outcomes research (HEOR) studies. The corresponding studies that can be conducted with the available data demonstrate the potential for evidence generation to support access and value demonstration for AD interventions in each market (Table 2).

Across the region, the limited availability of QoL data and cost indicators pose challenges for conducting HEOR studies such as cost-effectiveness, cost of illness and burden of illness analyses.

Table 1. Summary table of all real-world data source types by country

Country	Cross-sectional study ²	EMR/EHR	Insurance database	Patient registry ³	Total
Australia	1	1	0	7	9
China	6	7	1	7	21
Hong Kong	0	1	0	1	2
Japan	4	10	1	5	20
Malaysia	1	0	0	0	1
Singapore	1	0	0	0	1
South Korea	4	20	1	8	33
Taiwan	5	0	1	4	10
Thailand	1	6	0	0	7
Total	23	45	4	32	104

data, as well as direct and indirect cost indicators, were less frequently captured.

Figure 1. RWD accessibility vs. utility by market



Table 2. RWE and HEOR study feasibility based on available data in each market

Type of Study	Data requirements	Australia	China	Japan	South Korea	Taiwan	Thailand
Cost of illness / Burden of illness	1, 2, 6, 7, 8						
Utility / HR QoL	4, 5, 8						
HCRU	3						
Patient segmentation	1, 3						
Clinical effectiveness / safety	2, 3						
Treatment pathway / compliance	3						
Budget impact analysis	9, 10						
Cost-effectiveness analysis	5, 6, 7, 10						

Feasible with comprehensive RWD (defined as at ≥ 2 data sources reporting the required variables i.e., robust coverage)

Moderate feasibility with some RWD (defined as at least 1 data source reporting the required variables i.e., less robust coverage)

Not feasible with no RWD detected in current search

CONCLUSIONS

There is significant value in mapping AD RWD for assessing the feasibility of RWE and HEOR studies to inform downstream evidence generation activities. Pharmaceutical companies must strategically navigate this complex RWD landscape to develop effective evidence generation plans and select robust data sources for retrospective, prospective and hybrid RWE studies.

South Korea, Japan, Taiwan, Australia, China and Thailand are key contributors of AD RWD, offering diverse datasets for better understanding and management of AD in AP. However, variability in RWD availability and utility across AP markets remains a challenge. While EMR/EHRs offer a solid foundation, gaps in other data sources and limited availability of certain variables limit comprehensive assessments of the clinical, economic and humanistic burden of AD.

Our findings underscore both the potential and challenges of leveraging RWD for AD research in AP. The growing RWD ecosystem broadens what is achievable but also increases the complexity, investment, and expertise required for successful deployment across the value chain.

Regional collaboration is essential to harmonise data collection, expand access to underrepresented data categories, and improve the overall utility of RWD. These efforts will enhance the quality of RWE studies and ultimately support better decision-making and improved patient outcomes in the region.

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