

The Hidden Toll
Secondary Health Consequences of Natural
Disasters in Japan
A Systematic Analysis of 1,557 Studies

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Objectives

Clarify the current state and issues in disaster and health crisis management research addressing adverse health outcomes occurred after natural disasters in Japan and organize the knowledge obtained.

Scoping Review Summary

Current Status:

- **Health impact surveys due to disasters became common after 1995**
- **About 10,970 articles identified.**
- **11.2% (n=1,297) were quantitative studies targeting disaster victims**
- **More than 50% articles were about mental health**
- **9.7% (n=1,060) were in English**
- **5.6% (n=613) were cohort studies**

Scoping Review Summary

Identified Issues:

- Research design and data collection methods were often unclear
- Research design and data collection methods were often unclear
- Methodological issues e.g. analysis strategy
- General issues e.g. consistency between purposes and results

Methods

2024

June: Create search formula and register to OSF

July: Create database with Rayyan

July–August: First screening

September–November: Article collection

December–March: Second screening

March: Initial analysis

The screenshot shows the OSFHOME interface for a project titled "Mapping the Research Landscape of Disaster-Related Deaths and Health Effects in Japan: A Scoping Review". The page includes a header with the OSFHOME logo and navigation links (My Projects, Search, Support, Donate, Nahoko Harada). Below the header, there's a project title and a description: "Contributors: Nahoko Harada, Masahide Koda, Shuhei Nomura, mari makishi, Kanako Fujimoto, Ai TOMOTAKI. Date created: 2024-05-17 01:43 PM | Last Updated: 2024-06-14 02:03 PM. Category: Project. Description: Add a brief description to your project. License: Add a license." The main content area is divided into several sections: "Wiki" (Add important information, links, or images here to describe your project.), "Files" (Files can now be accessed and managed under the Files tab.), "Zotero" (Enter citation style (e.g. "APA") and Citation Actions), "Citation" (Citation), "Components" (Add components to organize your project. Add Component Link Projects), and "Tags" (Add a tag to enhance discoverability).

Methods: Data Collection & First Screening

Databases used:

MEDLINE

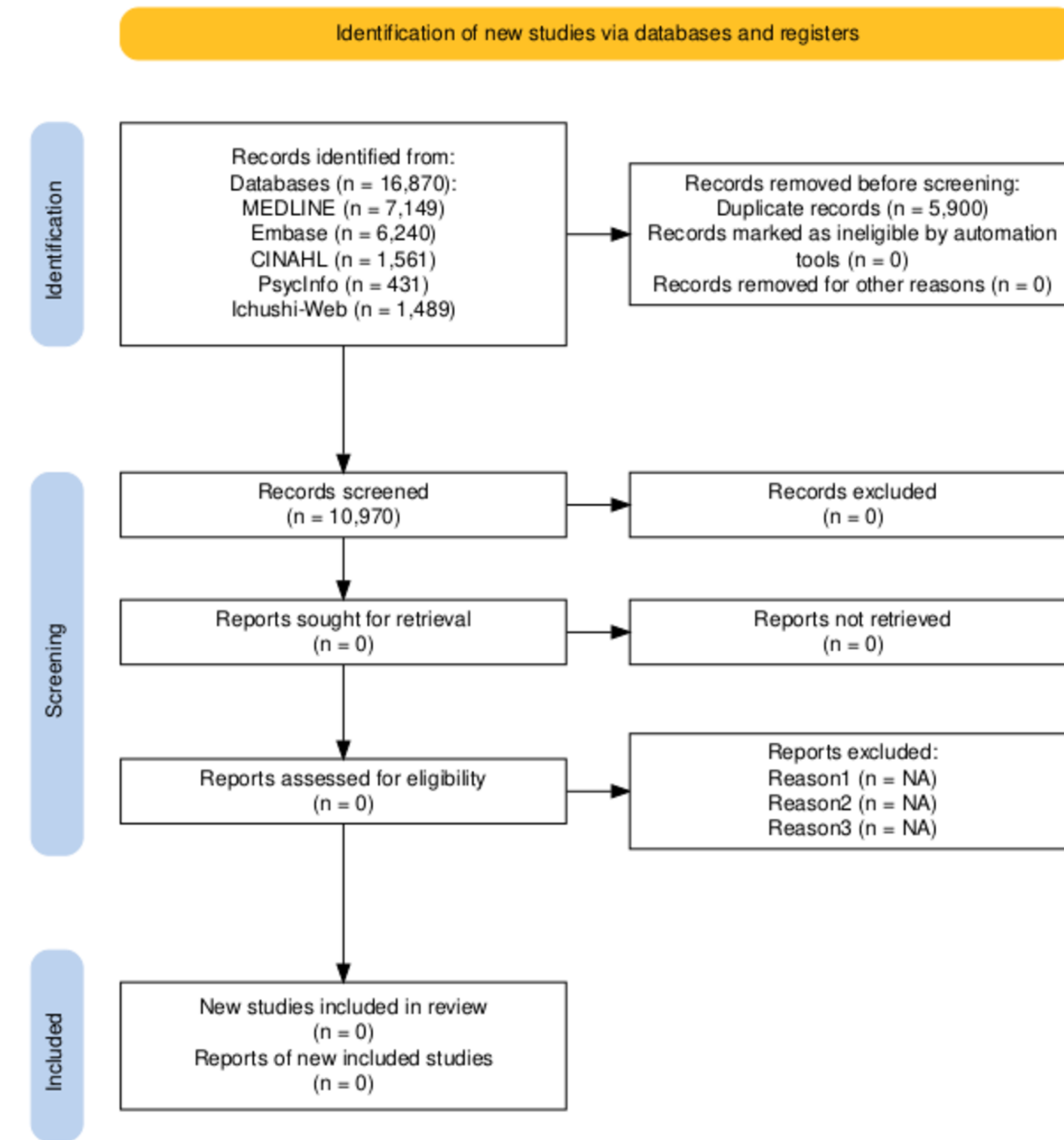
Embase

Ichushi (Japanese medical DB)

PsychInfo

CINAHL

**Total Titles/Abstracts Screened
10,970**



Methods: Data Collection & First Screening

Exclusion Criteria:

- 1. Subjects who are responders or supporters from outside the disaster area,**
- 2. Use of qualitative research methodology only,**
- 3. Not addressing disaster-related deaths, illnesses, or health-related symptoms of individuals affected by natural disasters,**
- 4. Surveillance reports not addressing disaster-related deaths, illnesses, or health-related symptoms of individuals affected by natural disasters,**
- 5. Conference proceedings, guidelines, commentaries, reviews,**
- 6. Written in languages other than English or Japanese.**

Methods: Second Screening & Data Extraction

Second screening articles: 1,557

Final included articles: 1,297

Data Points Extracted Beyond Basic Info:

- **Region of data collection**
- **Duration of data collection (start and end months)**
- **Response rate**
- **Dropout rate**

Overall Summary

Current Status:

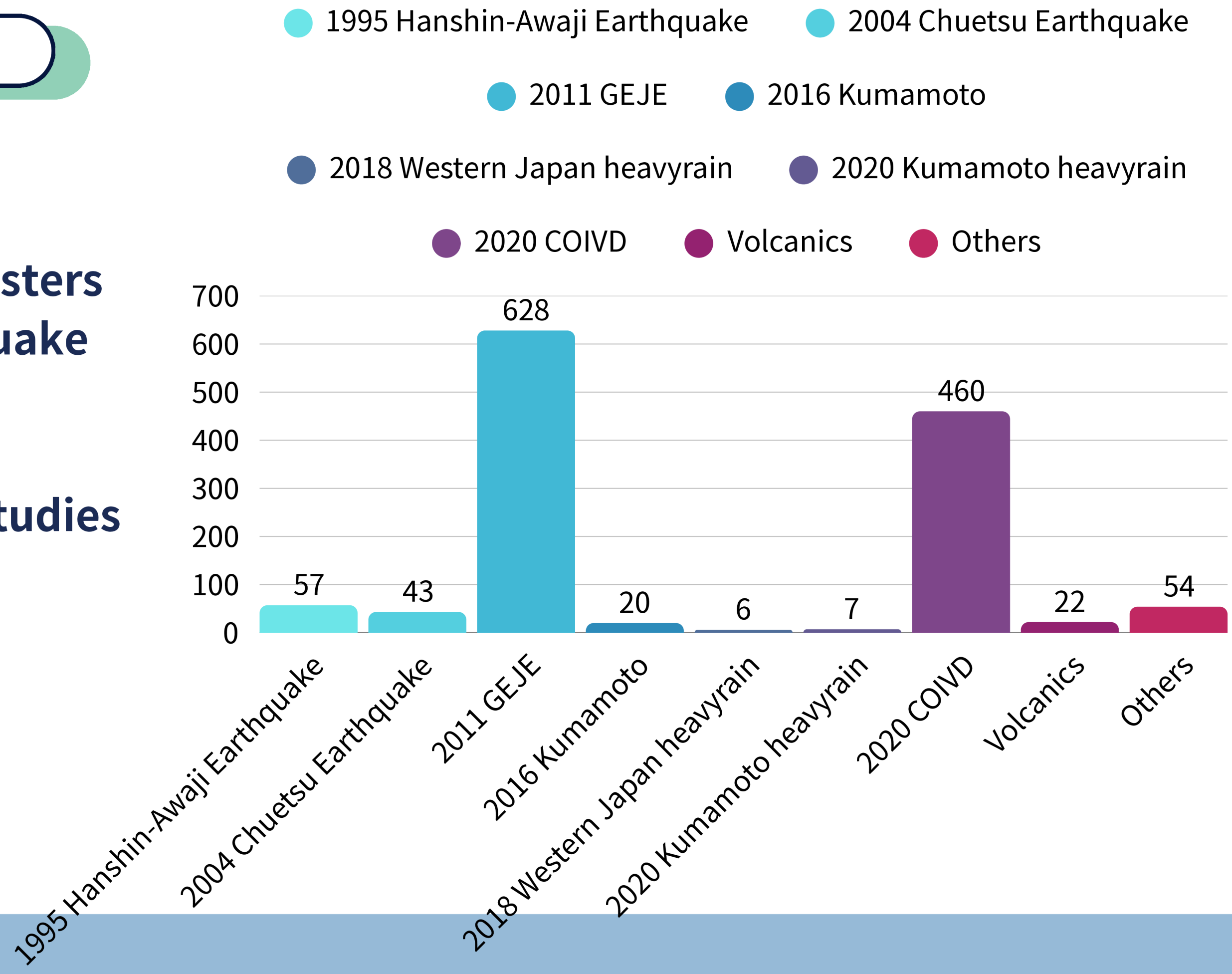
- Health impact surveys initiated after 1995
- 10,970 articles identified.
- 11.2% (n=1,297) were quantitative studies targeting disaster victims
- 9.7% (n=1,060) were in English
- 5.6% (n=613) were cohort studies

Identified Issues:

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Chronological Mapping

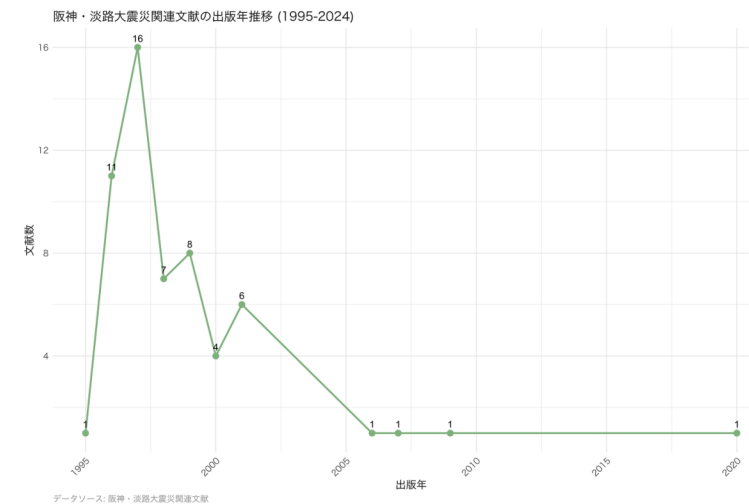
- No research before 1995
- Focused on large-scale disasters
- Few studies on non-earthquake disasters
- 22 volcanic disaster studies
- 2 meteorological disaster studies
- 68.1% (n=1,060) in English



Hanshin Awaji Earthquake Mapping

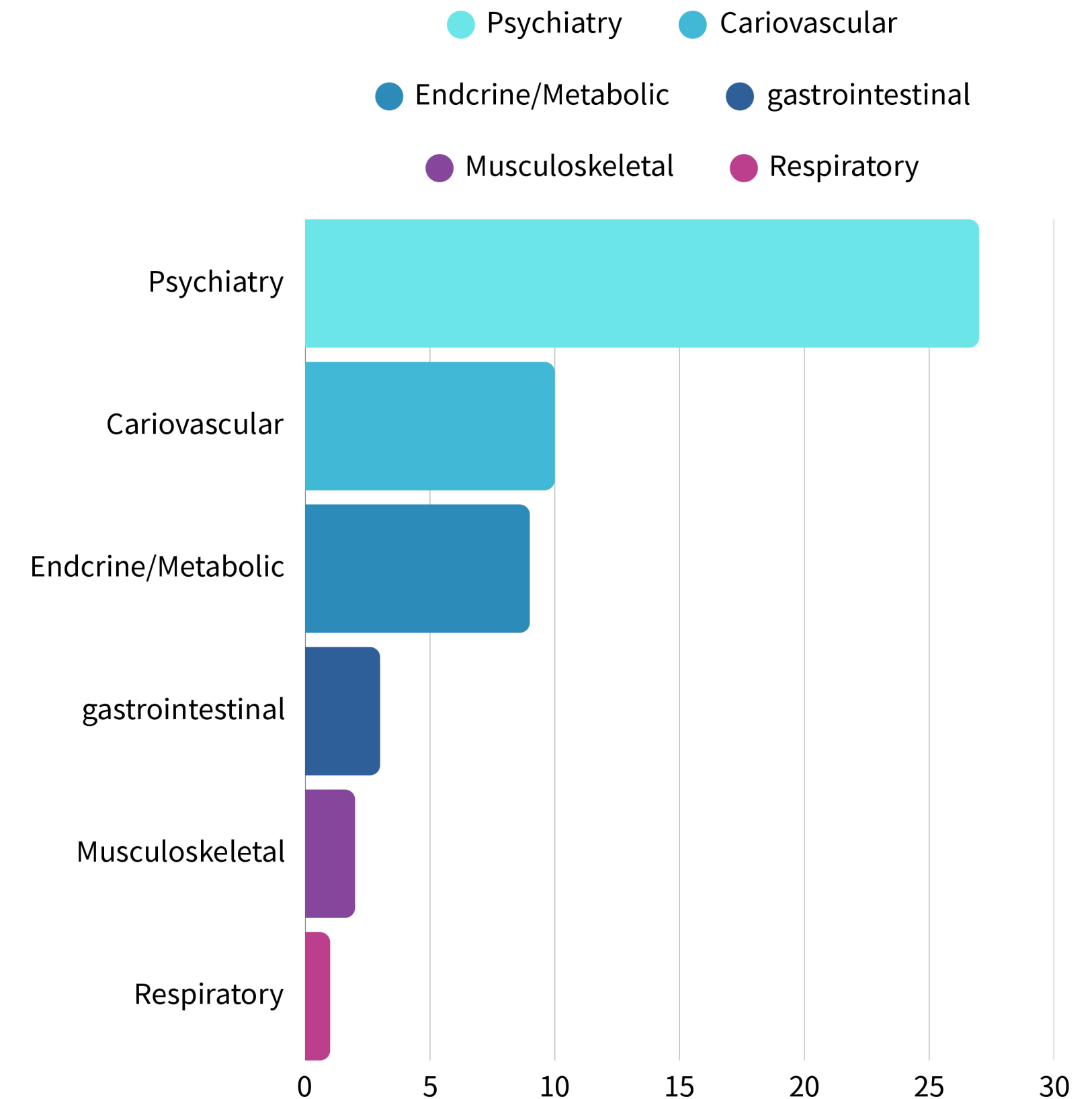
57 articles

- Peak in 1997
- 36.8% (n=21) in English



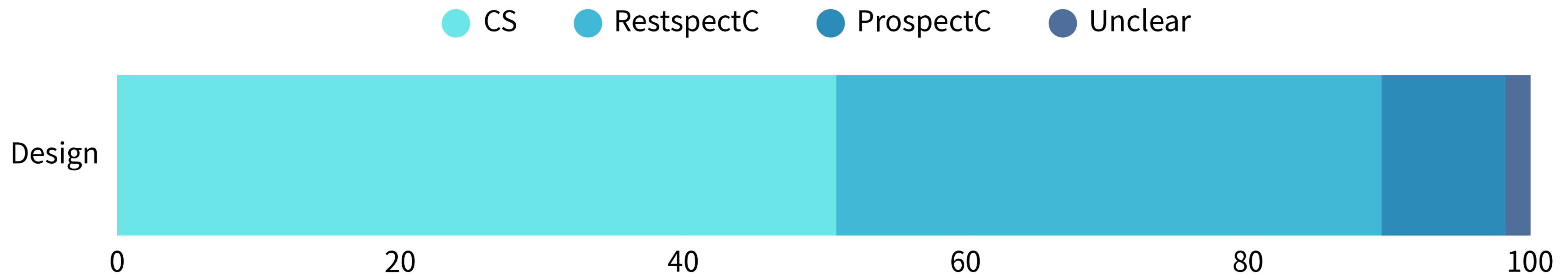
Health issues

- Psychiatry-related: 47.4% (n=27)
- Cardiovascular: 17.5% (n=10)
- Endocrine/metabolic: 15.8% (n=9)
- Gastrointestinal: 5.3% (n=3)
- Musculoskeletal: 3.5% (n=2)
- Respiratory: 1.8% (n=1)



Hanshin Awaji Earthquake Mapping

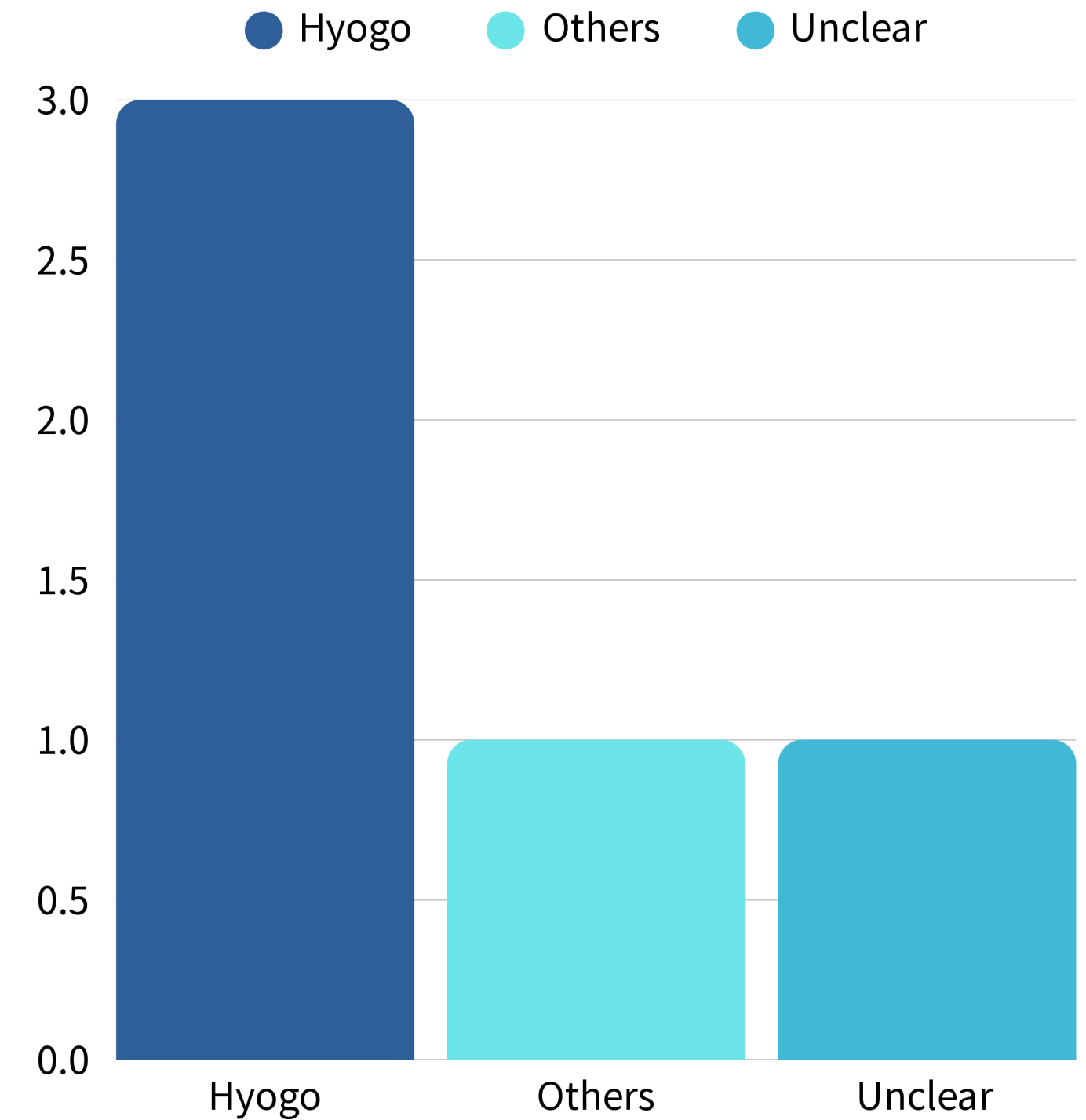
- **Cross-sectional: 50.9% (n=29)**
- **Retrospective cohort: 38.6% (n=22)**
- **Prospective cohort: 8.8% (n=5)**
- **Unclear: 1.8% (n=1)**



Hanshin Awaji Earthquake Mapping

Sites

- Hyogo: 78.9% (n=45)
- Others: 7.0% (n=4)
- Unclear: 14.0% (n=8)



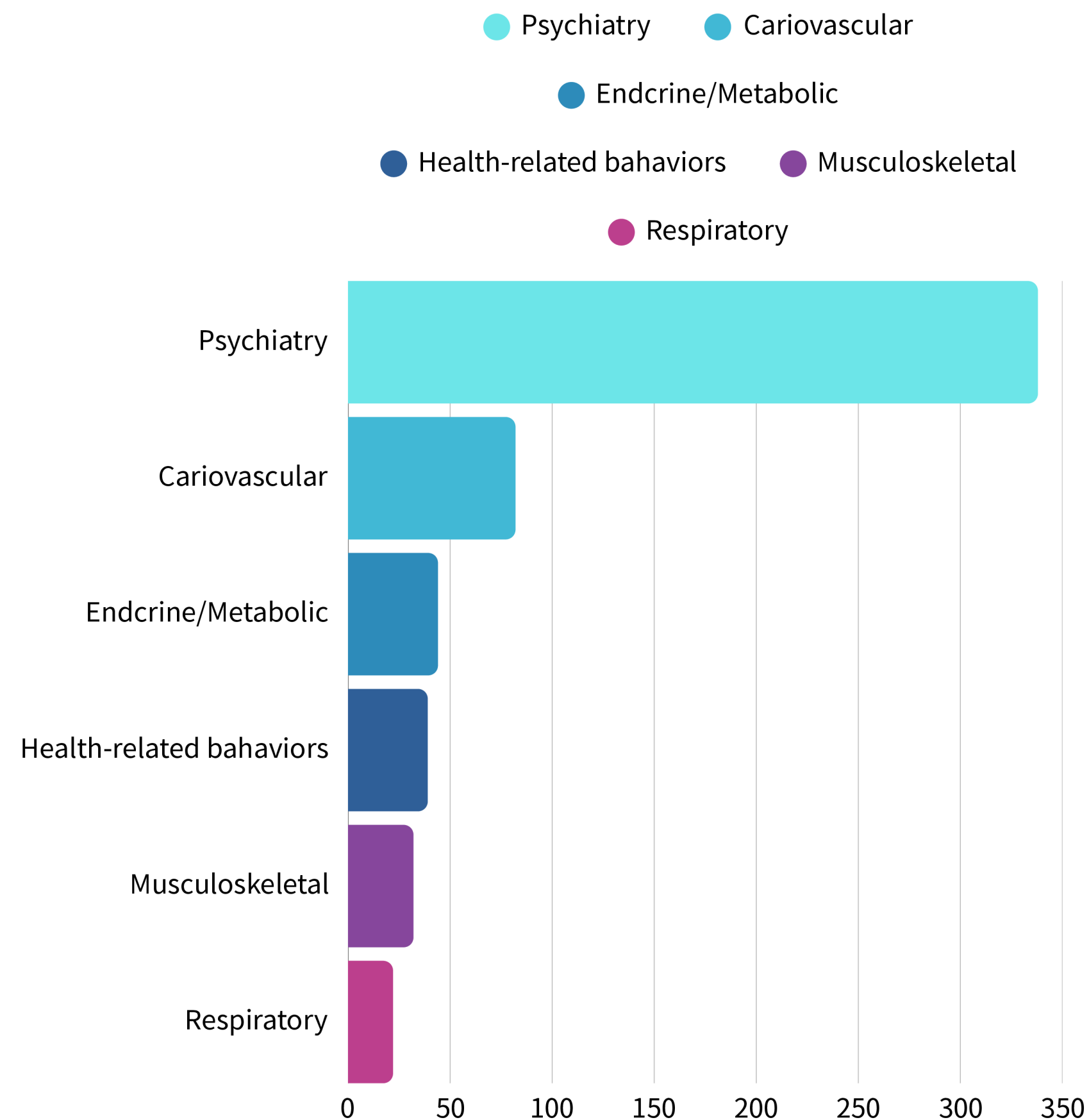
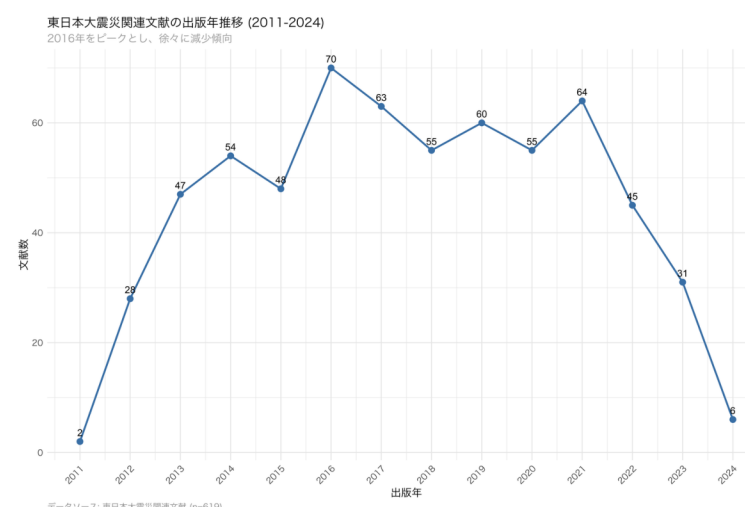
Mapping: Great East Japan Earthquake

628 articles

- Peak in 2016 and 2021
- 80% (n=497) in English

Health issues

- Psychiatry: 53.8% (338 studies)
- Cardiovascular: 13.1% (82)
- Endocrine/Metabolic: 7.0% (44)
- Health-related behaviors: 6.2% (39)
- Musculoskeletal: 5.1% (32)
- Respiratory: 3.5% (22)



Mapping: Great East Japan Earthquake

Design

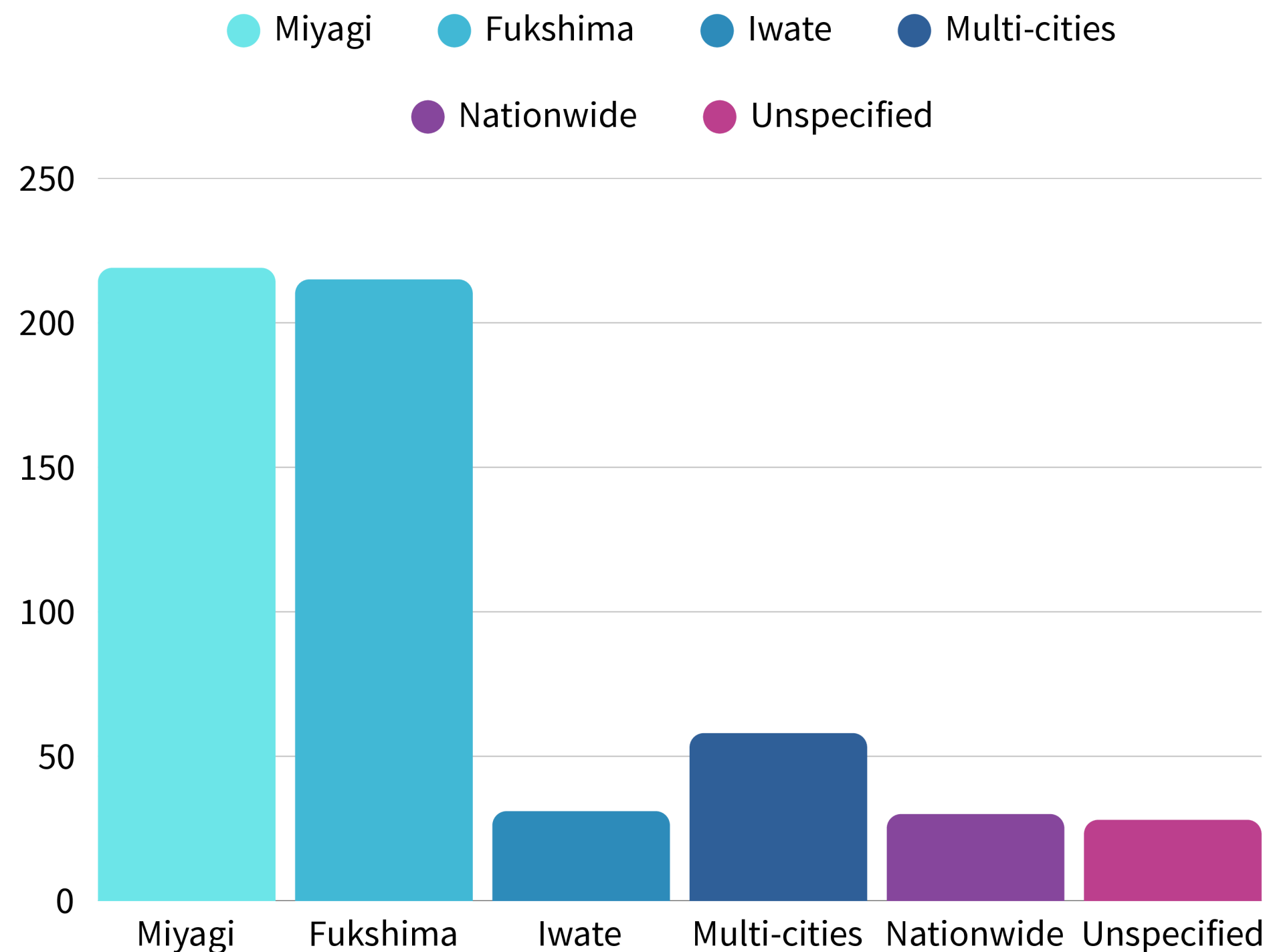
- **Cross-sectional: 41.5% (n=261)**
- **Prospective cohort: 30.7% (n=193)**
- **Retrospective cohort: 22.5% (n=141)**
- **Case-control: 1.1% (n=7)**
- **Interventional: 0.8% (n=5)**



Mapping: Great East Japan Earthquake

Sites

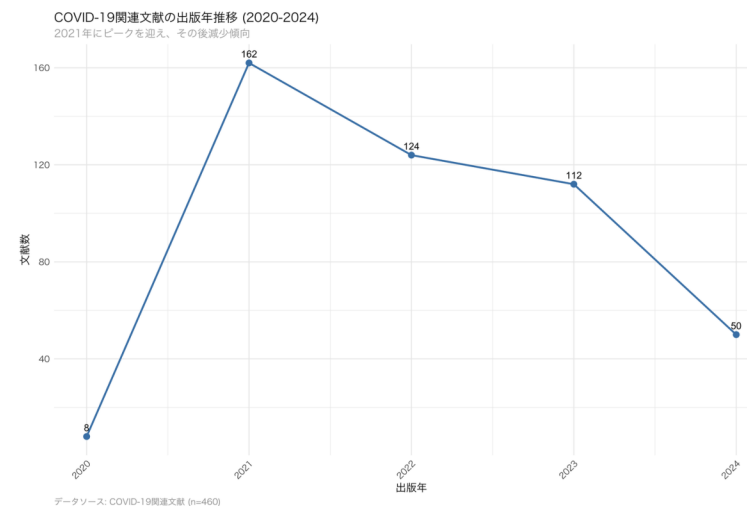
- **Miyagi: 34.9% (n=219)**
- **Fukushima: 34.2% (n=215)**
- **Iwate: 4.9% (n=31)**
- **Multi-cities: 9.2% (n=58)**
- **Nationwide: 4.8% (n=30)**
- **Unspecified: 4.5% (n=28)**



Mapping: COVID

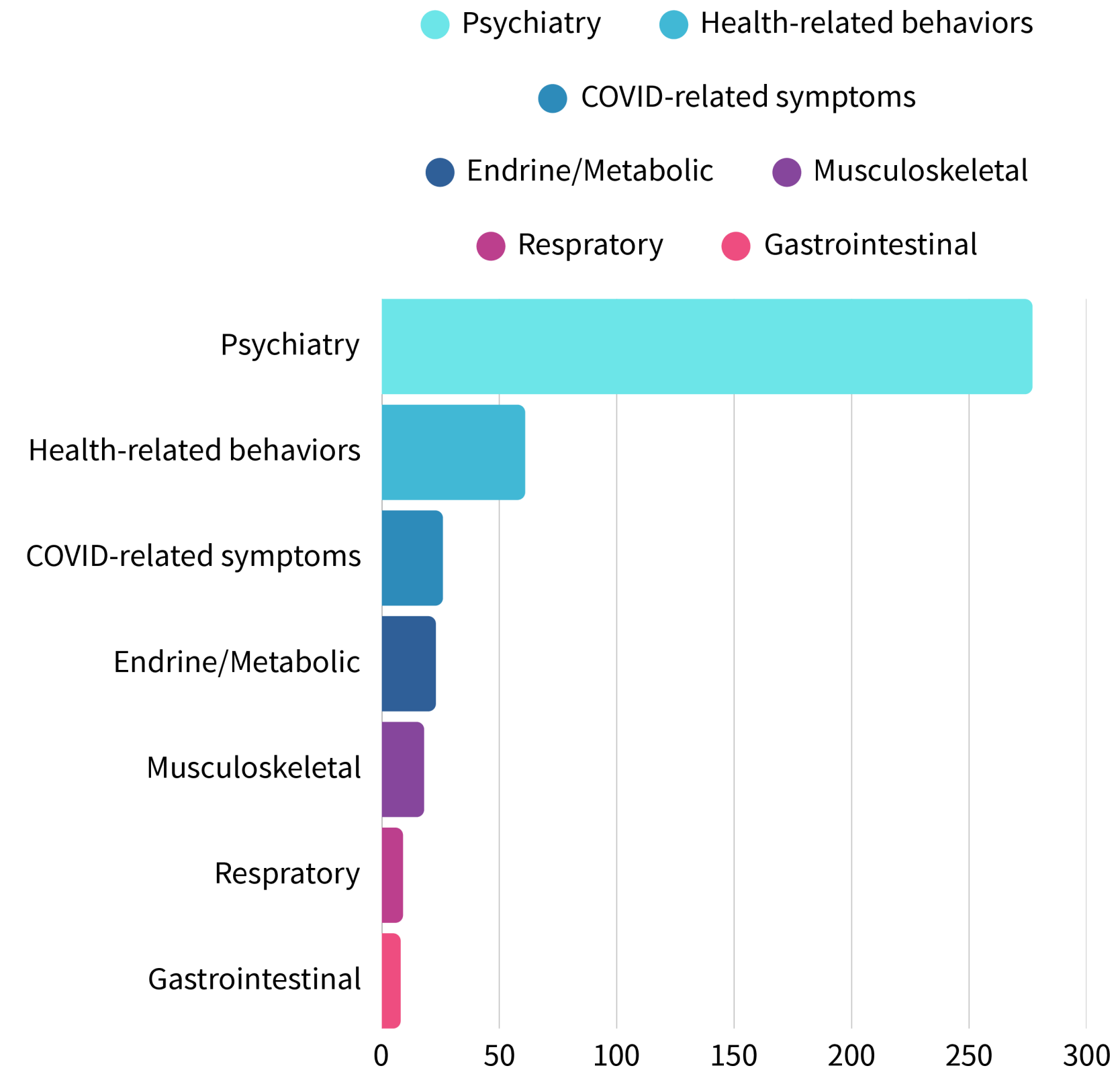
460 articles

- Peak in 2021
- 99.6% (n=458) in English
-



Health issues

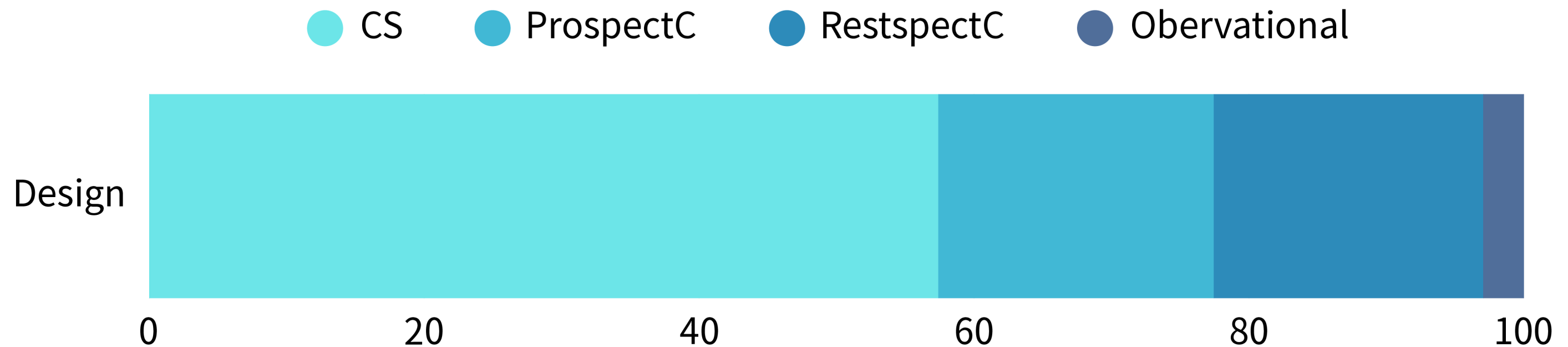
- Psychiatry-related: 60.2% (n=277)
- Health-related behaviors: 13.3% (n=61)
- COVID-related symptoms: 5.7% (n=26)
- Endocrine/metabolic diseases: 5.0% (n=23)
- Musculoskeletal disorders: 3.9% (n=18)
- Respiratory diseases: 2.0% (n=9)
- Gastrointestinal diseases: 1.7% (n=8)



Mapping: COVID

Design

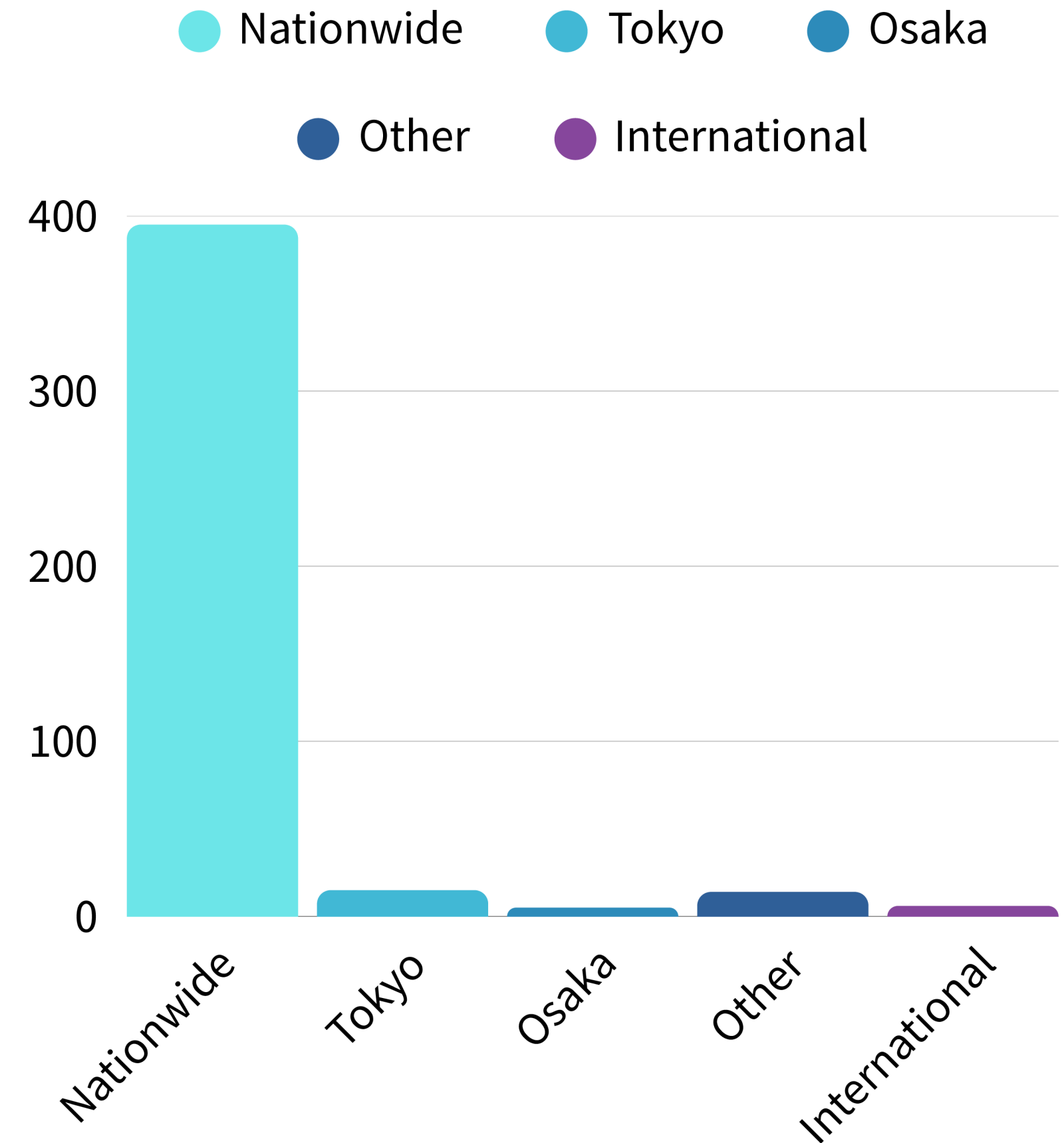
- **Cross-sectional studies: 54.8% (n=252)**
- **Prospective cohort studies: 19.1% (n=88)**
- **Retrospective cohort studies: 18.7% (n=86)**
- **Observational studies: 2.8% (n=13)**
- **Intervention studies: 0.2% (n=1)**
- **Unclear: 2.6% (n=12)**



Mapping: COIVD

Sites

- **Nationwide: 85.9%(n=395)**
- **Tokyo: 3.3% (15 cases)**
- **Osaka: 1.1% (5 cases)**
- **Others: 3.0% (14 cases)**
- **International studies: 1.3% (6 cases)**



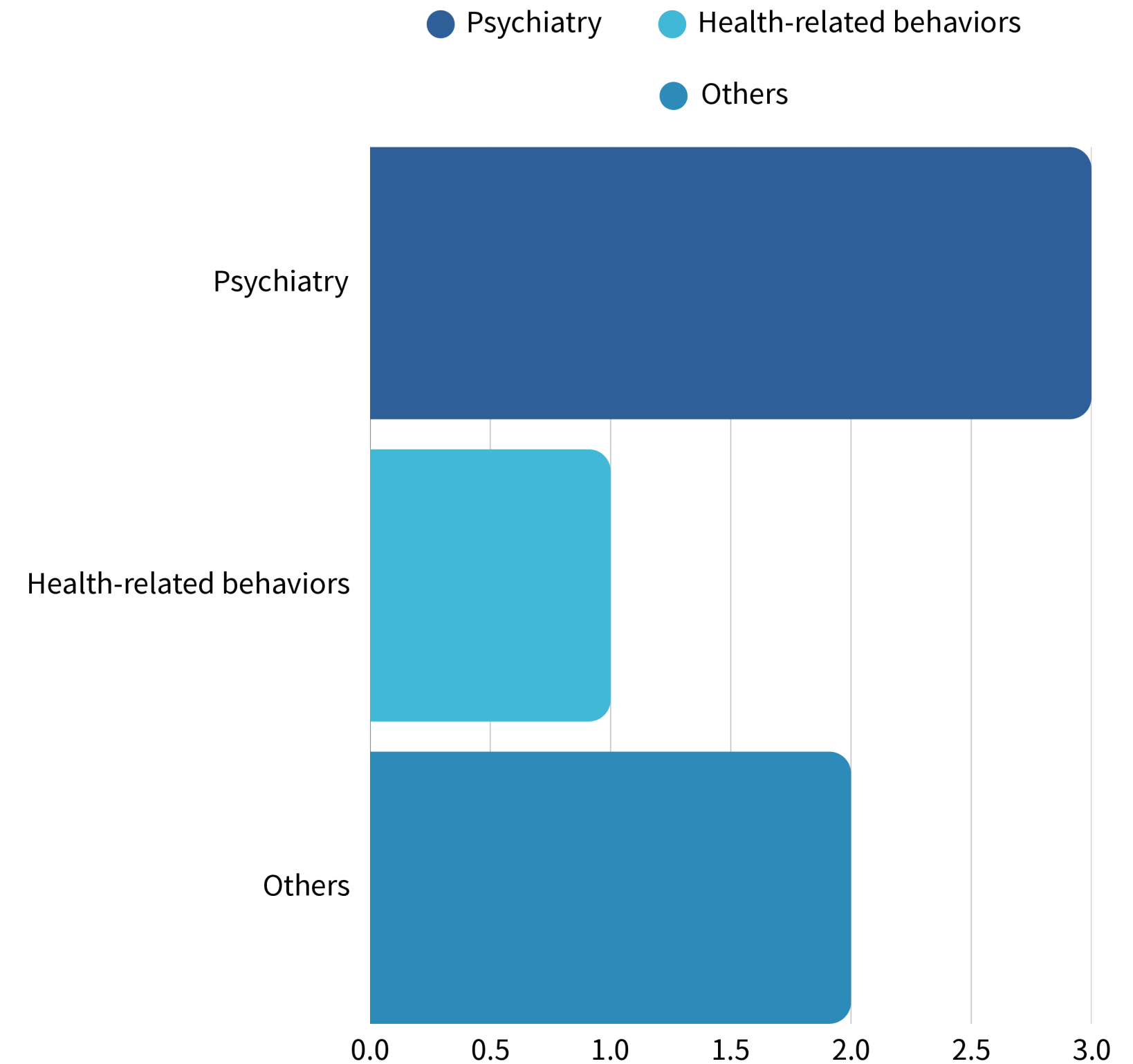
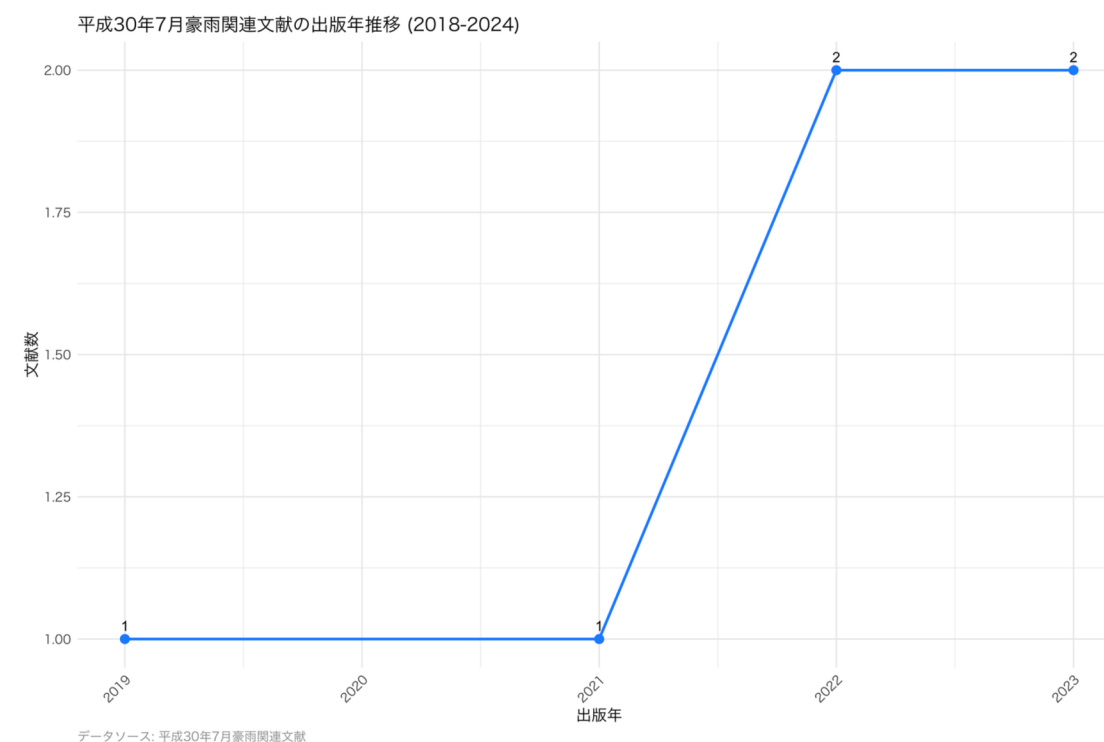
Mapping Western Japan Heavy Rain

6 articles

- 66.7% (n=4) in English

Health issues

- Psychiatry-related: 50.0% (n=3)
- Health-related behaviors: 16.7% (n=1)
- Others: 33.3% (n=2)



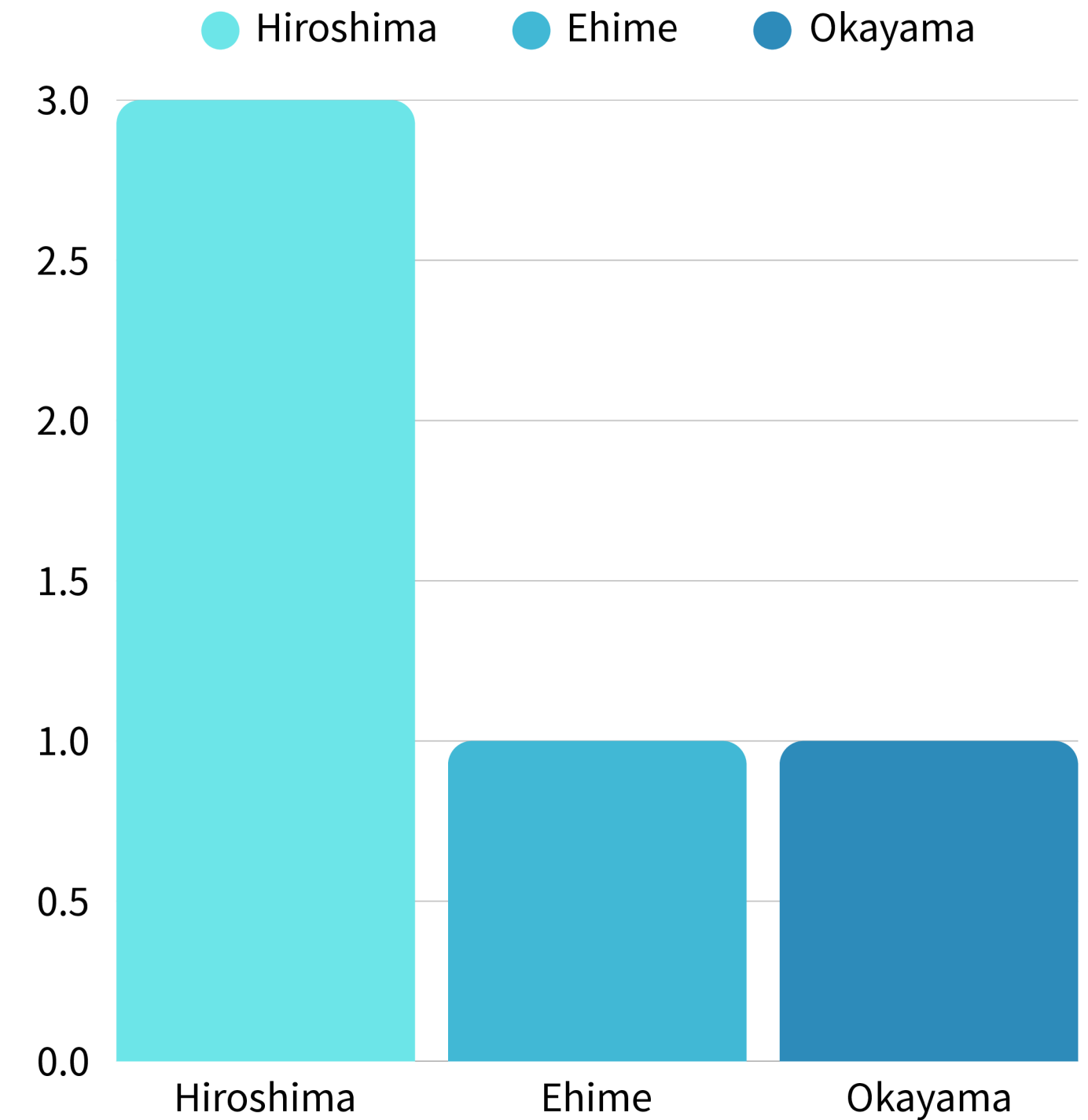
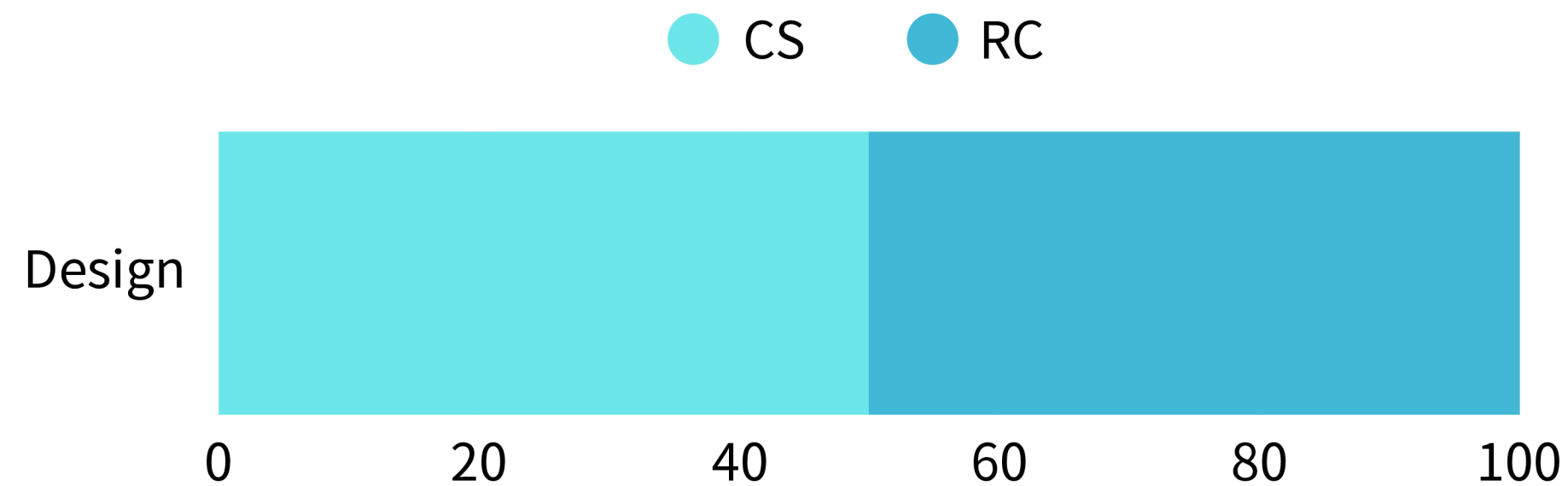
Mapping: Western Japan Heavy Rain

Design

- Cross-sectional studies: 50.0% (n=3)
- Retrospective cohort studies: 50.0% (n=3)

Site

- Hiroshima: 66.8% (n=3)
- Ehime: 16.6% (n=1)
- Okayama: 16.6% (n=1)



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