



PRACTICAL APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN GERIATRIC MEDICINE: A SCOPING REVIEW

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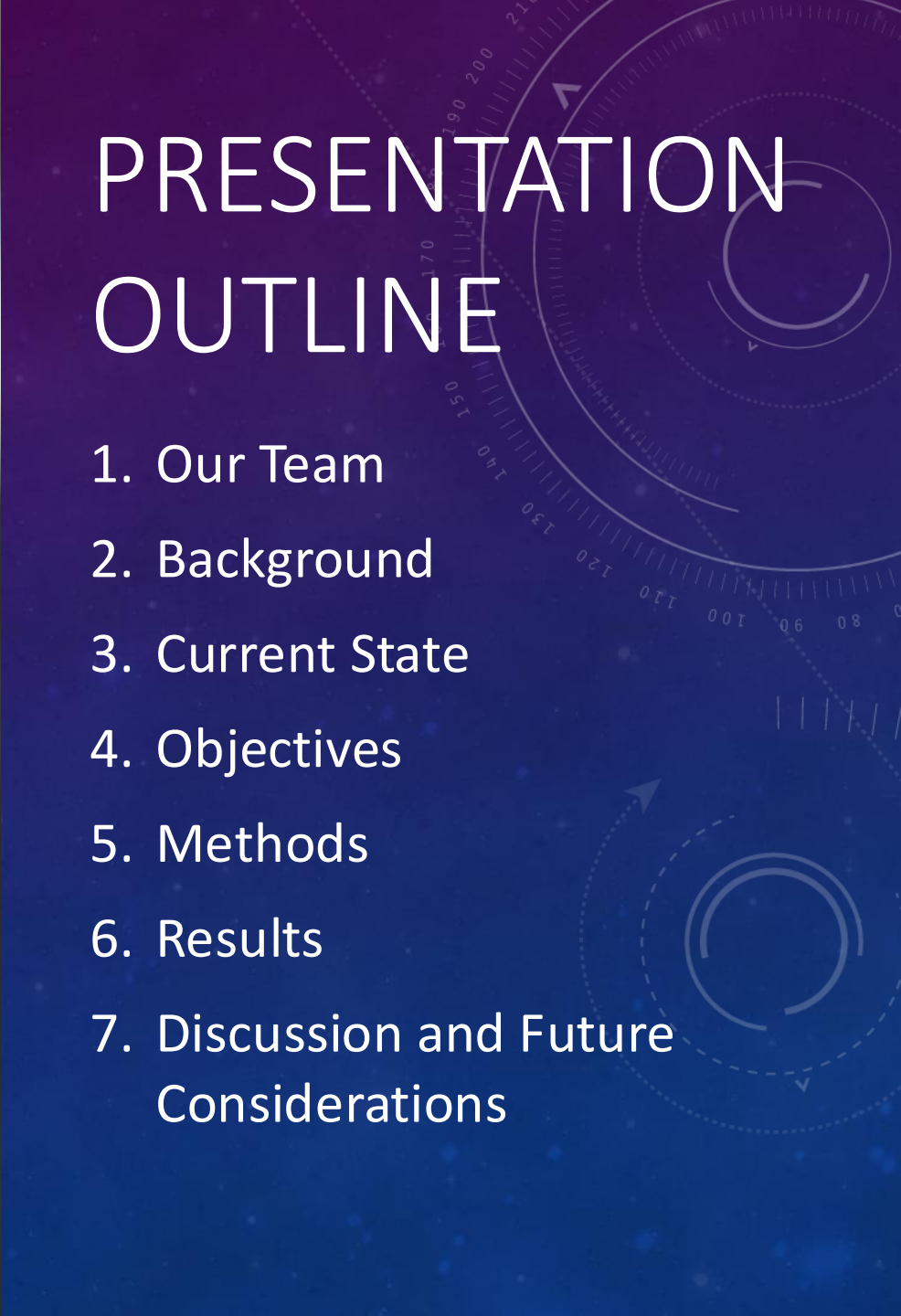
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PRESENTATION OUTLINE

1. Our Team
 2. Background
 3. Current State
 4. Objectives
 5. Methods
 6. Results
 7. Discussion and Future Considerations
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OUR TEAM



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BACKGROUND

- ❖ The advent of artificial intelligence (AI) and related technologies such as ChatGPT, have led to interest in research of AI applications in clinical medicine, including geriatrics
- ❖ Geriatrics is complex and a growing component of family medicine
- ❖ Geriatrics may especially benefit from AI interventions
- ❖ Clinical applications have not been thoroughly investigated

AI's Potential in Geriatric Medicine



CURRENT STATE



Much of the discussion of AI use in Geriatric Medicine remains theoretical, focusing on potential applications rather than real-world implementation



Geriatric patient care is complex. An algorithm may work well in theory but fail in practice.



There is a need for a comprehensive review that examines the tangible applications of AI within geriatric medicine and, in particular, dementia care, frailty care and across other common geriatric syndromes.

RESEARCH QUESTIONS

01

What are the potential applications and risks of AI in the care of older adults?

02

Summarize current evidence relevant to the current and near-term clinical utility across five important geriatric themes: dementia, frailty, polypharmacy, home care, and falls.

03

What parameters ought to define acceptable use of AI in the care of older adults, and their caregivers?

METHODS



Identify Research Question

Potential applications and risks of AI in the care of older adults

01



Identify Relevant Studies

EBM Reviews, Ovid Healthstar, and Ovid MEDLINE

02



Study Selection

Only included original research studies meeting set inclusion criteria

03



Charting the Data

Two reviewers completed screening with conflicts resolved by two additional reviewers

04



Collating, Summarizing, and Reporting the Results

Key data from relevant studies were extracted and findings summarized

05

METHODS CONT'D

Followed the PRISMA
guidelines for this
scoping review

Initial Identification

1698 studies identified for review

Title & Abstract Review

1256 excluded after initial review

Full Text Review

442 studies assessed in full

Data Extraction

169 studies underwent data extraction

Inclusion Criteria Met

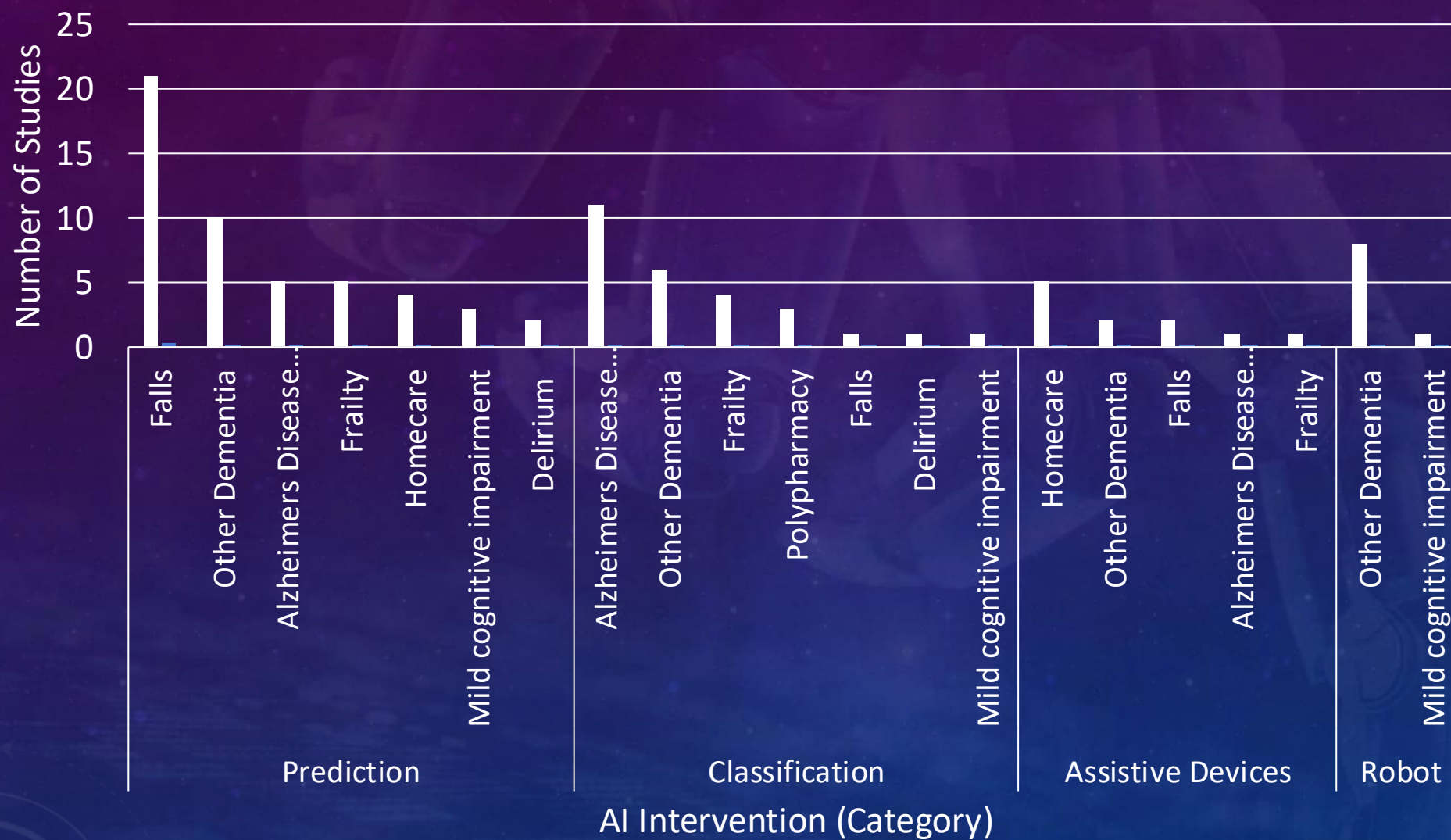
97 studies included* (Q2)

METHODS CONT'D

Inclusion Criteria:

- ❖ Older adult population (55+)
- ❖ Topics relevant to the older adult (i.e. dementia, falls, frailty, polypharmacy)
- ❖ AI-related health care services and interventions (i.e. practical solutions with imminent clinical applicability, explainability, novel use, interprofessional perspectives, natural language processing)
- ❖ Unsupervised machine learning (i.e. results from data sets independent of a prior formula)
- ❖ Practice facing outcomes and practices' applicability (i.e. screening, identification, clinical decision making)
- ❖ Equity-seeking populations (i.e. Black, Indigenous, etc.).

Number of Studies by AI Intervention Category



RESULTS

RESULTS CONT'D

% of Studies Reporting Area Under the Curve (AUC)
by Threshold (0.8)

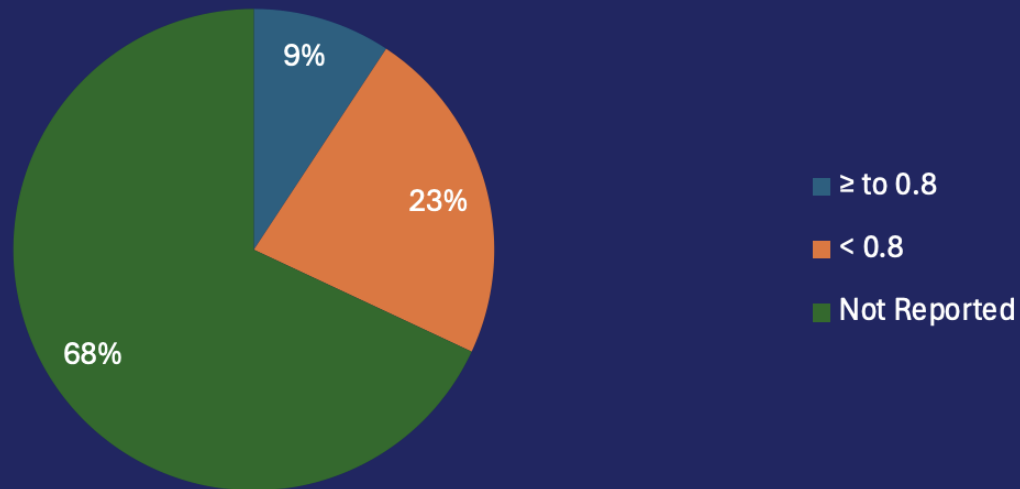


Figure 1.

- ❖ Across all studies, only 9% reported an area-under-the-curve (AUC) value greater than or equal to 0.8, suggesting limited studies demonstrating clinical utility (Figure 1).
- ❖ Few studies were randomized-controlled trials (RCTs) (9.3%), Most studies focused on dementia (26.8%), or specifically Alzheimer's disease (17.5%), falls (24.7%) and frailty (10.3%).
- ❖ No studies compared AI performance with non-AI technologies and 75.2% of studies did not report the ethnicity of participants.
- ❖ One study reported on Black participants and no studies included Indigenous participants.

DISCUSSION AND FUTURE CONSIDERATIONS

- ❖ Most AI studies focused on older adults remain theoretical, lacking near-term clinical utility.
- ❖ Future research should emphasize RCTs, AUC reporting, comparison against established non-AI clinical tools and AI use among participants of different ethnicities to support real-world application.



THANK YOU FOR
LISTENING

