

Optimizing The Diagnosis and Management of Dementia Within Primary Care: A Systematic Review of Systematic Reviews

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Abstract

Background: To understand how best to approach dementia care within primary care and its challenges, we examined the evidence related to diagnosing and managing dementia within primary care.

Methods: Databases searched include: MEDLINE, Embase, PsycINFO and The Cochrane Database of Systematic Reviews from inception to 11 May 2020. English-language systematic reviews were included if they described interventions involving the diagnosis, treatment and/or management of dementia within primary care/family medicine and outcome data was available. The risk of bias was assessed using AMSTAR 2. The review followed PRISMA guidelines and is registered with Open Science Framework.

Results: Twenty-one articles are included. The Mini-Cog and the MMSE were the most widely studied cognitive screening tools. The Abbreviated Mental Test Score (AMTS) achieved high sensitivity (100%, 95% CI: 70%-100%) and specificity (82%, 95% CI: 72%-90%) within the shortest amount of time (3.16 to 5 minutes) within primary care. Five of six studies found that family physicians had an increased likelihood of suspecting dementia after attending an educational seminar. Case management improved behavioural symptoms, while decreasing hospitalization and emergency visits. The primary care educational intervention, Enhancing Alzheimer's Caregiver Health (Department of Veterans Affairs), was successful at increasing carer ability to manage problem behaviours and improving outcomes for caregivers.

Conclusions: There are clear tools to help identify cognitive impairment in primary care, but strategies for management require further research. The findings from this systematic review will inform family physicians on how to improve dementia diagnosis and management within their primary care practice.

Background

At any given time, 5–8% of the general population aged 60 and over are living with dementia, and it is expected that 152 million people will have dementia by 2050¹. The impact of dementia is far reaching, as it affects not only the person with dementia, but also their family carers, the healthcare system and society as a whole¹. Dementia is often unrecognized, and there is an underuse of diagnostic assessment tools and a lack of attention to the issues faced by family caregivers².

Time constraints are often an issue for family doctors as it relates to diagnosing and managing dementia. The time allocated for a typical office visit makes it challenging to perform a cognitive assessment³. Family physicians (FPs) often feel uncertainty regarding the management of dementia after a diagnosis has been made³. This highlights the current need to better optimize dementia care within primary care. The objective of this systematic review of systematic reviews was to determine the most effective evidence-based strategies to diagnose and manage dementia within primary care.

Methods

This systematic review was conducted in accordance to *PRISMA* (Preferred Reporting Items for Systematic Reviews and Meta-analyses) guidelines⁴, and the protocol is registered in Open Science Framework [DOI 10.17605/OSF.IO/E4AW5]. All data generated or analysed during this study are included in this published article in Supplementary Appendixes 1 and 2.

Data Sources

The systematic literature search was developed in consultation with a health sciences librarian, with the final search being completed 11 May 2020. The following databases were searched without a restriction to publication date: MEDLINE, EMBASE, PsycINFO and *The Cochrane Database of Systematic Reviews*. We searched the following clusters of search terms: *Family Practice* and *Dementia*. In each category, we used controlled vocabulary such as Medical Subject Headings (MeSH) as well as keywords. Within each cluster, terms were combined with OR, and between the clusters with AND. We then used a CADTH search terms for systematic reviews⁵ (Appendix 1). The reference list of a previous relevant systematic review of systematic reviews published in 2014 was also searched⁶.

Study Selection

Systematic reviews were considered if they met the following inclusion criteria.

- Population: Primary care or family practice settings seeing persons with dementia.
- Intervention: The detection, diagnosis, treatment and/or management of dementia including models of care, pathways and/or protocols.
- Comparators: Usual care, wait-list control or other interventions within the scope of the review.
- Outcomes: The description of the detection, diagnosis, treatment or management strategies, along with measures of their acceptability, efficacy or effectiveness in the provision of care.
- Study design: Systematic review.

Articles were also selected for inclusion if they were English-language articles, included relevant descriptions of the interventions used, and outcome data was available.

Two reviewers (B.F and J.H.-L.) independently screened the titles and abstracts for possible inclusion. If either reviewer thought the citation was relevant or potentially relevant, the full-text article was then retrieved for further evaluation. All full-text articles were assessed independently for inclusion by B.F and J.H.-L. Any conflicts were resolved through discussion. One reviewer (B.F.) independently extracted the following information from the included full-text studies using a standardized data extraction form: authors, year of publication, country where the review was conducted, number of studies included, study designs included, databases searched, time frame of article search, inclusion and exclusion criteria, population (mean age, SD and dementia diagnosis), intervention, comparator, sample size, setting (if the intervention was cognitive screening, the method of administration), time of administration (if

intervention was cognitive screening), cognitive outcome(s) measured, results (meta-analysis, Sn, Sp, accuracy), and other (Appendix 2).

Quality Assessment and Analysis

Two reviewers (B.F and J.H.-L.) independently assessed the quality of the included studies using the AMSTAR 2 Systematic Review Quality Appraisal Checklist 2020. Systematic reviews without a clear PICO were excluded. The AMSTAR 2 quality appraisal results for each of the included studies is available in Appendix 3. A qualitative descriptive summary of the literature is presented.

Results

The initial search identified 417 unique citations for possible inclusion after duplicates were removed. After searching the reference list of a relevant previous systematic review of systematic reviews⁶, three additional citations were collected and screened for eligibility. After screening the 420 citations, 369 were excluded because they did not meet the inclusion criteria. From the 51 full-text articles screened, 30 articles were excluded. Reasons for exclusion include not being a systematic review (n = 20), describing a setting other than primary care (n = 1), failing to describe the intervention (n = 3), or a poor AMSTAR 2 rating (n = 6). This resulted in the inclusion of 21 articles for qualitative synthesis. The included studies were published between June 2003 and July 2019.

Screening tools

Nine⁷⁻¹⁵ out of the 21 included systematic reviews describe screening tools for use in primary care (Table 1). Various screening tools, assessing cognitive impairment or dementia, were compared in terms of cognitive outcomes assessed, time to administer, and sensitivity and specificity. The MMSE was used as a reference standard in the majority of the included studies. The Mini-Cog (n = 5) and the MMSE (n = 7) were the most widely studied tools among the included reviews. The Mini-Cog takes approximately 3 minutes to administer, and sensitivity ranges from 76%-100% and specificity from 27%-93%^{7,9,11,14} depending upon the cut-off value used.

Five systematic reviews examining the MMSE found that it took between 4 to 15 minutes to administer depending upon the severity of dementia⁹⁻¹³. One study found a cut point of 17 had a higher specificity (93%, 95% CI: 89%-96%) than a cut point of 24 (46%, 95% CI: 40%-52%), while the sensitivity fell from 100% (95% CI: 95%-100%) to 70% (95% CI: 59%-80%) respectively¹³.

The Abbreviated Mental Test Score (AMTS) achieved high sensitivity (100%, 95% CI: 70%-100%) and specificity (82%, 95% CI: 72%-90%)⁹ compared to a clinical reference standard, and took the shortest amount of time (3.16 to 5 minutes)^{9,11} within primary care. The AMTS was validated for use in general practice⁹.

Diagnostic accuracy and physician education

The diagnosis of dementia by FPs varies but is generally low, as reported in 3 different systematic reviews^{8,13,16}. In an (urban/rural) study, when following usual practice, only half of cases of mild dementia were diagnosed by the FP¹⁶. In a separate review, un-diagnosed dementia accounted for 50% – 66% of all cases of dementia in three primary care samples studied^{8,17-19}. Another review reported that the recognition of cognitive impairment in usual practice achieved a detection sensitivity of 62.8% (95% CI: 38.0%-84.4%) and specificity of 87.3% (n = 3; 95% CI: 84.9%-89.4%)¹³. However, medical record notations mentioning dementia were present in only 37.9% (95% CI: 26.8%-49.6%) and FPs recorded a definitive dementia diagnosis in the medical record in only 10.9% (95% CI: 6.8%-15.7%) of mild cognitive impairment (MCI) cases¹³.

Five of six studies found that FPs had an increased likelihood of suspecting dementia after attending an educational seminar^{20,21}. One study found that the length of the educational seminar impacted the degree of knowledge about dementia management²¹.

Management of dementia

Decision aids, advanced care planning (ACP), collaboration with a case manager (CM) and practice guidelines are all interventions with variable impact on helping facilitate the management of dementia in primary care^{20,22-26} (Table 2). A CM in particular, such as a nurse specialized in care of older adults, can be an asset to a primary care team with the collective goal of collaborating towards meeting the needs of the patient-caregiver dyad²⁸. In the case management intervention group of a randomized controlled trial, neuropsychiatric symptoms of dementia decreased (Mean Effect Size (MES) = 0.88), as well as the numbers of hospital (MES = 0.66) and emergency department admissions (MES = 0.17)²³. However, it was found that there was a lack of successful implementation of a CM into care teams within primary care because of the absence of CMs within the primary care setting, and 52% of CMs reported ineffective communication between the CM and FPs²³.

Only one systematic review looked at pharmacological treatments in the context of primary care⁸. There was no clinically important difference observed on neuropsychiatric symptoms between patients with mild to moderate Alzheimer's disease taking cholinesterase inhibitors versus placebo⁸.

Supporting caregivers of people with dementia

FPs reported feeling highly involved in dementia care²⁹. However, family caregivers reported that communication with the FPs was unsatisfactory, specifically around awareness of daily care problems (e.g. neuropsychiatric symptoms)²⁹. The primary care educational intervention, Resources for Enhancing Alzheimer's Caregiver Health (Department of Veterans Affairs) (REACH VA), involves a trained coach who provides sessions to the caregiver on topics relating to self-care, problem solving, mood management and stress management³⁰. REACH VA was successful at increasing carer ability to manage problem behaviours and improved outcomes for caregivers, such as decreased burden, depression and caregiving frustrations^{28,29}. A meta-analysis showed that 58% (95% CI: 43%-72%) of family caregivers were in favor

of early dementia diagnosis, 50% (95% CI: 35%-65%) needed education on dementia, and 23% (95% CI: 17%-31%) needed in-home support³¹.

Discussion

This systematic review of systematic reviews identified evidence to inform processes for diagnosis and management of dementia within primary care. While the diagnostic accuracy of a tool may be high, the time taken to administer the tool and copyright limitation for tool use are also important to consider in the context of a busy primary care office. The MMSE, which is copyrighted, may not be the best test for use in general practice. Instead, the AMTS appears to be the most suitable tool for use in a busy primary care office, as it has good diagnostic accuracy, does not appear to be copyright protected and takes less time to administer than the MMSE^{9,11,12}. The Mini-Cog is also quick to administer, and a Cochrane systematic review evaluating the Mini-Cog across care settings recommended that the Mini-Cog be used initially as a case finding test to identify patients who would benefit from additional cognitive evaluations for dementia³². However, the sensitivity of the Mini-Cog may not be high enough to be considered useful in primary care¹⁴, as too many cases would be missed.

The current literature suggests that the implementation of case management directly into the primary care setting can be of great benefit to the patient-caregiver dyad, as well as to the health care system. The CM can help facilitate the advanced care planning process²⁶, as well as decrease the frequency of neuropsychiatric symptoms of dementia, symptoms of depression, hospital admissions and length of stay in hospital; caregivers can also benefit by experiencing decreased burden and depression²³. A Cochrane review evaluating the effectiveness of case management in community settings lends support to dementia case management, finding that carer burden decreased and fewer patients were institutionalized after 6 months³³. Further, there was a reduction in residential home and hospital use after 6 months of case management implementation³³. There is however a lack of evidence related to cost effectiveness of case management. Facilitating successful case management and advanced care planning includes early implementation while cognitive decline is mild, involving all stakeholders (caregiver, patient, family and FP), and fostering a good relationship between the FP and patient-caregiver dyad²⁶. The CM should be physically present in the primary care setting, clearly explain their role to all stakeholders, implement high-intensity case management, and communicate frequently to all stakeholders in order to ensure positive outcomes for the patient-caregiver dyad^{23,24}.

Combining educational seminars for FPs with dementia case management may be the best management strategy^{20,21}. Educational interventions focused on dementia diagnosis and management in the context of primary care increased the likelihood of FPs suspecting dementia, while also improving the experience of the family caregiver and the patient^{20,21}.

There was limited evidence concerning the use of pharmacological interventions for the treatment of dementia within the primary care setting. Unfortunately, many pharmacologic studies do not focus on

primary care or FPs, making it difficult to draw conclusions about the approach to take regarding the use of medications in this context. One systematic review found no clinically important differences between groups receiving cholinesterase inhibitors and those receiving a placebo in the development of behavioral and neuropsychiatric symptoms of Alzheimer's disease⁸. Similarly, cholinesterase inhibitor use was found to have uncertain clinical benefit in a recent systematic review that explored the benefits and harms of prescription drugs for the treatment of Alzheimer disease, regardless of care setting³⁴. This recent review also found limited benefit for memantine.

Conclusion

The AMTS is suitable for detecting dementia within primary care given its high sensitivity and short administration time. To improve dementia identification, FPs should participate in educational interventions. Incorporation of CMs into the primary care team can help with dementia management and result in improved outcomes. There is limited evidence supporting the benefit for pharmacological treatments in the context of primary care.

Limitations and Future Research

A limitation of this systematic review of systematic reviews includes the exclusion of possibly relevant pharmacological reviews, given the fact that we focused on studies conducted in the primary care setting. Future pharmacological studies conducted in the specific context of primary care are needed. Additionally, the results from our review are limited to literature from countries that clearly distinguish primary care from specialist care, given the focus of the search strategy. Lastly, many of the studies included within the identified systematic reviews inappropriately used the MMSE as a reference tool when determining the sensitivity and specificity of various screening tools. Further studies should compare commonly used screening tools within primary care to a recognized gold standard.

Abbreviations

FPs (Family physicians), *PRISMA* (Preferred Reporting Items for Systematic Reviews and Meta-analyses), MMSE (Mini-Mental State Examination), AMTS (Abbreviated Mental Test Score), ACP (Advanced Care Planning), CM (Case Manager), MES (Mean Effect Size), REACH VA (Resources for Enhancing Alzheimer's Caregiver Health (Department of Veterans Affairs)).

Declarations

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Competing interests: The authors have no conflicts of interest to declare.

Authors' contributions: All 3 authors derived the study. BF and JHL reviewed all retrieved citations and manuscripts. All 3 authors analysed the findings. BF drafted the manuscript; JHL and ZG provided critical edits. All 3 authors approved the final version of the manuscript.

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Tables

Due to technical limitations, table 1 and table 2 is only available as a download in the Supplemental Files section.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SearchStategySupplementaryInformationAppendix1.pdf](#)
- [AMSTAR2SupplementaryInformationAppendix3.pdf](#)