

Cognition and driving

When are people with dementia safe to drive?

- Diseases of old age, such as dementia, become more common as people live longer.
- At the same time, more elderly individuals are now driving.
- Since dementia can affect the ability to drive safely, clinicians are often asked to evaluate driver competence.
- Dr Lara Camilleri at Saint Vincent De Paul Long Term Care Facility in Malta reviewed the evidence available in an effort to better understand driving with dementia and how we should be evaluating it.

Thanks to modern science and healthcare, people worldwide are living longer than ever before. According to the World Health Organization (WHO), between 2015 and 2050, the world's population aged 60 years and over will almost double, from 12% to 22%. An ageing population, however, comes with an increased incidence of old-age-associated issues and diseases, such as dementia. Dementia is a condition that involves an ongoing decline of brain functioning, including memory loss, defective thinking processes, and reduced physical abilities. These symptoms, which can be more or less severe depending on the case, can interfere with elderly people's daily routines and gradually make their lives more challenging.

Dementia and driving

As the global population ages, the latest advances in healthcare allow the elderly to lead healthier and more active lives than before. This

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means that the number of elderly people driving is increasing, raising the question of safety. The relationship between cognition and driving is clear: driving is a complex skill that requires sensory, behavioural, and cognitive abilities such as coordination, fast reflexes, and good judgment. Since a moving vehicle can become a dangerous instrument in the hands of individuals who cannot handle it properly, dementia can have a severe impact on the individual's driving ability and public road safety. So why do physicians bother going through an assessment process rather than airing on the side of caution and advising driving cessation to patients during diagnosis?

Driving plays a vital role in modern life, essential in some cases for commuting and maintaining self-sufficiency. It has been shown that preventing the elderly from driving can socially isolate them and affect their quality of life and well-being. This, in turn, often leads to physical and mental health problems as well as higher chances of an individual requiring care. Additionally, there are different stages of dementia and the diagnosis, in itself, does not necessarily equate to the inability to drive. Therefore, it is crucial for doctors and other clinicians to balance the risks of driving cessation against the dangers of driving with dementia. For this, they would require a reliable clinical tool to help them assess their patients' driving competence and decide whether

they should be driving or not. But evaluating the driving abilities of people with dementia is a complex and difficult task for several reasons; dementia can be caused by different diseases and can have several symptoms that vary in severity. There are also inconsistent guidelines and legislation on driving with dementia that can make the decision-making process even more difficult for clinicians.

Studying the science and mechanisms behind dementia and driving is essential to help scientists understand how dementia can affect driving skills. Taking a step further, Dr Lara Camilleri at Saint Vincent De Paul Long Term Care Facility in Malta reviewed the available literature to identify studies on driving behaviours in dementia and compare different assessment methods. Through her research, Camilleri aims to better understand the process of evaluating driving competence for patients with dementia.

Deciding who can drive

After searching the scientific databases for all studies relevant to dementia and driving research, Camilleri and her team screened the papers for their quality. They eventually found a total of 48 appropriate papers to include in the review studies, which included a total of 1,967 participants with dementia. Data on driving behaviours and driving assessments were extracted from the papers, analysed, and compared.

A more comprehensive and individualised approach could be key to creating reliable patient assessment toolkits.

Different types of driving assessments were used in the studies, including tests carried out on the road, in specialised centres using a driving simulator, and in an office clinic including patient, relatives, and physician reporting. Other in-office tests included cognitive and visual assessment tools. Some studies used more than one assessment method while others used only one.

As expected, the comparison of the driving abilities between people with dementia and those without revealed that drivers with dementia performed worse on the road. More specifically, these drivers had difficulty maintaining a stable speed and driving within a lane, and they also found intersections and traffic stimuli challenging. Other common dementia-driving behaviours included a reduced reaction time as well

as poor response to distractions, difficulty in learning and following a specific route, inability to identify important landmarks, and following the vehicle in front of them too closely. In two of the studies, the drivers with dementia were less aware of their driving limitations compared to older adults without signs of dementia.

Camilleri and her team found the most accurate type of assessment for predicting driving performance to be the naturalistic driving and on-road assessments. Both methods involve real-time assessments while the individual under evaluation is driving a vehicle on the road. All other types of driving assessments had results that ranged dramatically. The review also revealed that both the driving behaviours and the results of the evaluations were affected by the severity of dementia and the disease that caused it, suggesting that these factors should be considered when choosing driving assessment tools for each individual.

Personal response

What inspired you to review the literature on driving with dementia?

As a geriatrician, I see a lot of patients with cognitive impairment and dementia. A common question, often asked by the patient's relatives, is: 'Should they stop driving?' The easiest answer would be to say 'yes', but the idea of driving cessation is often met with disagreement by the patients. The reason is often linked to the loss of independence and the feeling of being a burden to their relatives. As doctors, we are responsible to make a decision in the best interest for our patients. However, when using a holistic and patient-centred approach, best-interest decisions may be quite subjective which goes against most principles of decision-making in medicine. In fact, in the majority of cases, any decision you make is associated with certain risks.

However, in order to make an appropriate risk assessment, one should have the appropriate knowledge. Whenever I was faced with driving-related questions, I was not confident in counselling my patients since I felt that I lacked the knowledge on the subject. Moreover, when I asked my colleagues for advice, they also did not feel comfortable approaching the subject with their patients. As a result, I decided to take up this project to improve the knowledge on driving behaviours and assessments in dementia patients.

Knowledge, in fact, is power. As a result, I aimed at empowering physicians to be more comfortable discussing the subject with patients suffering with dementia and their families. Moreover, improved knowledge can potentially lead to better decisions for the patients with the hope to strike a balance between quality of life and safety.

How will physicians know if their assessment tools are accurate enough to rely on without unnecessarily restricting personal freedom?

Unfortunately, this study has shown that knowledge and research about driving assessment in dementia is limited and has yielded inconsistent results. On the other hand, on-road assessment was shown to be the most predictive measure of driving safety. Consequently, when in doubt about a patient's driving safety, physicians should refer to formal on-road driving assessments. Moreover, when making a decision regarding referral, they should involve the multi-disciplinary team (MDT). This is especially important for patients suffering with dementia, especially elderly patients with multimorbidity and polypharmacy where various factors may affect driving ability and performance.

Physicians must also factor the patient's social circumstances. For instance, someone living in a small and densely

populated area, with availability of public transport and amenities close by, might not be greatly impacted by driving cessation. In such cases, the risk of driving might be greater than that of cessation. On the other hand, someone who lives in a cabin in the woods with their spouse who does not drive, with no availability of public transport and the closest market being miles away, might be greatly impacted by driving cessation even if they would fail an on-road assessment. However, these are two extreme scenarios, and most cases fall somewhere in between. As a result, physicians should use the basic principles of geriatric medicine when assessing driving in patients with dementia, including a comprehensive assessment involving the MDT, focusing on a holistic and patient-centred approach.

Moreover, different members of the MDT can help the patient adopt compensatory strategies such as restricted driving in certain conditions only, driving accompanied if getting lost is an issue, or provision of community services or transportation in case of cessation. These could be means to either delay driving cessation or enable independence if driving is no longer safe. On the other hand, this greatly depends on the availability of services in the area where a particular

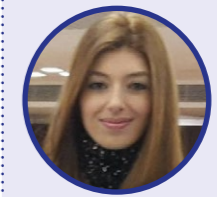
Advancing driving assessment

Understanding the relationship between cognition and driving as well as dementia-specific driving behaviours is crucial for clinicians to be able to identify the patients at risk of dangerous driving. Since driving requires a complex set of skills and the mechanisms behind dementia are still waiting to be entirely understood, the process of identifying these patients can be tricky. According to Camilleri, this is not

helped by the fact that the data extracted from the various existing studies are diverse and inconsistent, making the creation of guidelines even more challenging. She believes that it is time for further quality research on driving with dementia. Perhaps a more comprehensive and individualised approach could be the key to creating reliable patient assessment toolkits in the near future.



Details



e: lara-camz@hotmail.com
t: +35 679701032

Bio

Lara Camilleri obtained her MD from the University of Malta in 2014. Since then, she has worked in various hospitals in Malta. She finished her Core Medical Training in 2018, after which she began her speciality training in geriatric medicine. She obtained specialisation in Geriatric Medicine in January 2023. She also completed her master's degree in Care of the Elderly with the University of Wales Trinity Saint David in 2022.

Collaborators

This research was done as part of Dr Camilleri's thesis for the MSc Care of the Elderly, done with the University of Wales Trinity Saint David.

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