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 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.

Drivers with dementia had difficulty maintaining a stable speed and driving within a lane.
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.

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 working 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.

The review also revealed that the most comprehensive and individualised approach could be the key to creating reliable patient assessment toolkits in the near future.