Research Project
By Dr Kayla Stefanidis

Dementia Australia™
Research Foundation

Digital screening tool to assess cognitive fitness to drive

What is the focus of the research?

Developing an online screening tool that identifies when older people may no longer be cognitively safe to drive.

Why is it important?

Fitness to drive assessments can be confronting for older adults. They are faced with the possibility of losing their licence and independence, which is crucial for maintaining a good quality of life.

However, with Australia's ageing population, there is an urgent need for reliable measures that screen for a person's fitness to drive. GPs are responsible for determining their patients' driving capacity. Unfortunately, there are no gold-standard assessment measures or procedures to help them detect when their older patients are no longer cognitively safe to be behind the wheel. When a person's fitness to drive is questioned, a time-consuming and costly on-road driving assessment conducted by an occupational therapist or driving assessor may be required.

In this unique project, Dr Stefanidis and her team will use measures of cognition associated with performing complex tasks to identify people who may no longer be cognitively capable of driving. She will assess participants' executive functions of decision making and planning, attentional control, reaction time, spatial orientation and working memory, to determine the combination of cognitive measures that best-predict driving capacity. Dr Stefanidis will use sensitive and reliable measures to detect subtle changes in cognitive function that occur before the onset of noticeable cognitive impairment.

She will develop an online screening tool using the tests which most strongly relate to impaired driving performance. It will allow GPs to accurately assess and identify at-risk adults who require a formal on-road driving assessment.

Being online, the tool will be low-cost, time efficient and easily accessible in metropolitan, regional, rural and remote areas. Since driving is crucial to maintaining independence in old age, this project will take into consideration the needs, feelings and experiences of older adults. Dr Stefanidis will consult an advisory group consisting of a GP, occupational therapist and carers of dementia patients, to ensure that the project considers all points of view. The information and feedback provided will also be used to inform future research on fitness to drive assessments in her research lab.

How will this happen?

Stage 1: recruit 200 people aged 60 years and over with confirmed mild cognitive impairment, subjective cognitive changes or no cognitive impairment. Send them comprehensive questionnaire packs covering education, occupation history, medical history, prescription medications, mental health, activities of daily living and self-reported driving behaviour/history.

Stage 2: participants to undergo a series of neuropsychological assessments and a simulated driving test.

Stage 3: use a specific statistical analysis to determine the relationship between the cognitive measures and driving performance measures. Participants to receive a report describing their cognitive test results, evaluated by a clinical neuropsychologist who specialises in ageing and dementia.

What will it mean for older drivers?

- An accurate method of testing their cognitive fitness to drive.
- Fewer unnecessary driving tests in older adults who are cognitively safe to drive.

> **“This project is critical to the development of an online screening tool that assesses cognitive fitness to drive”**
>
> **— Dr Kayla Stefanidis**

Who’s undertaking the research?

Dr Kayla Stefanidis, University of the Sunshine Coast

Dr Stefanidis is a research fellow within the Road Safety Research Collaboration Unit at the University of the Sunshine Coast. She holds a Bachelor of Psychology (with honours) and a PhD in cerebrovascular function and age-related cognitive decline. Dr Stefanidis is head of the Cognitive Testing Laboratory at the Road Safety Research Collaboration Unit and leads two programs of research within the field of neuropsychology, fitness to drive and impaired driving.

The title of Dr Stefanidis’ project is *The Australian Road Safety Study for Older Adults: The ROADSAFE Study Identifying neuropsychological correlates of fitness to drive in older adults.*