Interventions to enhance driving skills in older adults: design of a randomized controlled trial of efficacy

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Abstract

Recent statistics from the National Road Safety Review suggests that with the increasing population of older road users crash rates are also rising, whereas these rates are declining for younger drivers. This is likely due to intensive investment in driver education targeting youth driving issues, with comparative lack of knowledge on effective methods to maintain older driver skills. We designed a randomized controlled trial (RCT) to investigate the efficacy of individually tailored refresher lessons against a group-based refresher course, on on-road driving performance and safety in older adults.

Background

Current road safety strategies for older drivers include mandatory testing, license restriction or removal. License review based on a single test is often unfair and inaccurate, as a proportion of these drivers fail due to increased anxiety and poor performance on the day. There is no clear evidence that mandatory testing lowers crash rates amongst older drivers (Dugan et al. 2013), and driving cessation in older adults is associated with increased rates of depression (Windsor et al. 2007), social isolation (Marottoli et al. 2000), and general health decline (Edwards et al. 2009). A number of different approaches to improve older driver safety have been trialed with varying success. These include: (1) self-screening and self-awareness interventions (Ackerman et al. 2010), (2) class-room based driver education sessions (Jones et al. 2012), and (3) On-road 'behind the wheel' training (Bedard et al. 2008; Marottoli et al. 2007). Of these, only on-road training has been shown to improve on-road driving performance. Most trials have only examined changes over a few weeks, so it is not clear whether tailored on-road interventions result in long-term improvement in driver safety, and under naturalistic conditions.

Aim

To test whether a program of classroom based driver education along with tailored driving lessons will improve older drivers' (1) on-road test performance, and (2) driving performance under naturalistic conditions, when compared to a control group that receives only classroom based driver education.

Method

Sixty drivers aged 65 years and above will be recruited from the community, who are fully licensed, not planning to cease driving, and have not undertaken driver education in the past 6 months. The study will use a two arm stratified (gender: male/female, age: 65-75 years, 76-100 years) parallel-groups design, with balanced random allocation ratio of 1:1 into the intervention and control groups.

Participants will be assessed at baseline for cognitive and sensory function, on-road driving skills, and collect naturalistic driving footage over two-weeks using a DashCam installed in their own car. They will then attend a 2-hour Road Rules refresher course. This constitutes the only intervention for the control group. The Road Rules session is conducted by a qualified driving instructor and include information on the effects of ageing on driver safety, and an update on road rules. Following randomisation, the Tailored Lessons group will receive two one hour lessons with a

qualified driving instructor. Following intervention, all participants will have a cognitive and sensory assessment, two-week naturalistic driving footage, and on-road test. Participants will then provide monthly reports on driving incidents for 6 months after the intervention.
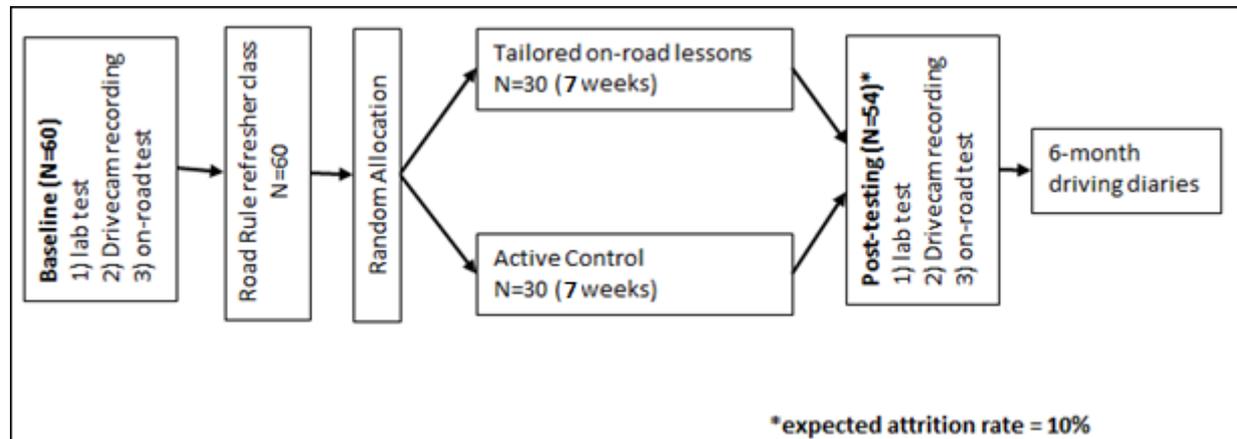

Figure 1. Trial Design Flow Chart.

Results

An occupational therapist (OT) blind to allocation will score all on-road tests and naturalistic footage using a standardised scoring method. Intention to treat analyses will compare changes in on-road scores, DashCam scores and incidents over 6-months for the two groups

Conclusions

The findings will demonstrate the efficacy of tailored lessons over a group refresher course, and whether effects translate to everyday driving and safety over a 6 month period.

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