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Older drivers' crashes in Queensland, Australia

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ABSTRACT

Background: The growing proportion of older adults in Australia is predicted to comprise 23% of the population by 2030. Accordingly, an increasing number of older drivers and fatal crashes of these drivers could also be expected. While the cognitive and physiological limitations of ageing and their road safety implications have been widely documented, research has generally considered older drivers as a homogeneous group. Knowledge of age-related crash trends within the older driver group itself is currently limited.
Objective: The aim of this research was to identify age-related differences in serious road crashes of older drivers. This was achieved by comparing crash characteristics between older and younger drivers and between sub-groups of older drivers. Particular attention was paid to serious crashes (crashes resulting in hospitalisation and fatalities) as they place the greatest burden on the Australian health system.
Method: Using Queensland Crash data, a total of 191,709 crashes of all-aged drivers (17–80+) over a 9-year period were analysed. Crash patterns of drivers' aged 17–24, 25–39, 40–49, 50–59, 60–69, 70–79 and 80+ were compared in terms of crash severity (e.g., fatal), at fault levels, traffic control measures (e.g., stop signs) and road features (e.g., intersections). Crashes of older driver sub-groups (60–69, 70–79, 80+) were also compared to those of middle-aged drivers (40–49 and 50–59 combined, who were identified as the safest driving cohort) with respect to crash-related traffic control features and other factors (e.g., speed). Confounding factors including speed and crash nature (e.g., sideswipe) were controlled for.
Results and discussion: Results indicated that patterns of serious crashes, as a function of crash severity, at-fault levels, road conditions and traffic control measures, differed significantly between age groups. As a group, older drivers (60+) represented the greatest proportion of crashes resulting in fatalities and hospitalisation, as well as those involving uncontrolled intersections and failure to give way. The opposite was found for middle-aged drivers, although they had the highest proportion of alcohol and speed-related crashes when compared to older drivers. Among all older drivers, those aged 60–69 were least likely to be involved in or the cause of crashes, but most likely to crash at interchanges and as a result of driving while fatigued or after consuming alcohol. Drivers aged 70–79 represented a mid-range level of crash involvement and culpability, and were most likely to crash at stop and give way signs. Drivers aged 80 years and beyond were most likely to be seriously injured or killed in, and at-fault for, crashes, and had the greatest number of crashes at both conventional and circular intersections. Overall, our findings highlight the heterogeneity of older drivers' crash patterns and suggest that age-related differences must be considered in measures designed to improve older driver safety.

1. Introduction

The population distribution in Australia and internationally is gradually shifting towards a larger representation of older people (ABS, 2003; King et al., 2007). By the year 2030, it is estimated that 23% of Australia's population will be comprised of adults aged 65 years and over (see Fig. 1). Likewise, the proportion of older drivers can be expected to increase over the next two decades. Research has indicated that anywhere between 54% (Ross et al., 2009) and 96% (Williams, 2005) of older adults in Australia consider themselves active drivers. However, they are also at an age where the skills that they need to drive safely begin to deteriorate. In Australia, roughly half of this age group (51%) have some sort of disability and a further 19% have a profound or severe core-activity limitation (ABS, 2003). While this aged share of the population continues to grow, an increase in the number of elderly road fatalities is also anticipated.

It is well established that various age-related cognitive, visual and physical limitations can impede older adults' driving

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