



## Car accidents involving older drivers during 2010-2019 - A Swedish nationwide study

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### Introduction

Due to improved health and increased life span, the number of older drivers is steadily increasing. Many older drivers tend to adapt their driving and avoid, for example, driving in the dark, rush-hour traffic and driving in bad weather or road conditions. However, driving in more familiar traffic environments can sometimes pose a safety risk and traffic situations are constantly changing and contains many uncertain factors such as vulnerable road users. Moreover, natural aging also involves a gradual change in certain cognitive functions, e.g., mental speed, focused attention and responsiveness in complex situations. Thus, the aim was to examine what types of car crashes elderly drivers had been involved in, the injury severity, where the accidents had occurred and other circumstances.

### Research methodology

This retrospective national wide, registry-based study included older drivers ( $\geq 65$  years old) involved in car accidents from 2010-2019, based on the Swedish Traffic Accident Data Acquisition database (Strada). In total 21 150 older drivers had been involved in a car crash. The older drivers were compared to younger individuals, aged 40–55 years old ( $n=55\ 855$ ). Strada data contain the coordinates for the accident site and the drivers' postal code at the time of the accident. Thus, it was possible to estimate the distance in a straight line between the drivers' residential area and the accident site.

### Results

Older drivers were more likely to suffer fatal or serious injuries in intersection accidents with other motor vehicles (Figure 1). Older drivers who were not injured in the accident were more involved in accidents with vulnerable road users (Figure 2). An analysis of the accident severity involving older drivers showed that 21% of accidents with fatal or serious injuries had occurred with pedestrians, cyclists, or mopeds.

The distance between the drivers' postal code and the accident site decreased with driver age. The median distance was about 8 km for drivers between 40 and 55 years old, 7 km for older drivers between 65 and 74, and from the age of 75 the distance drops significantly (Figure 3).



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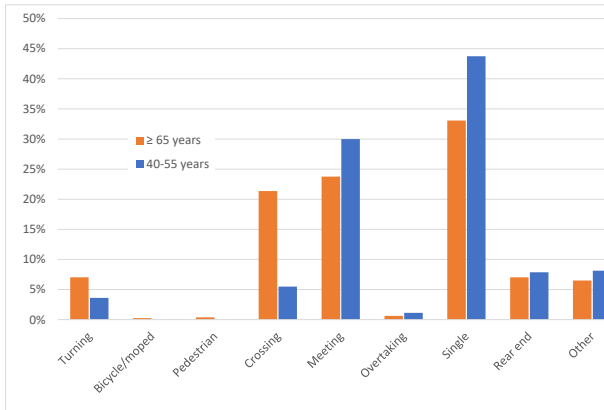


Figure 1. Share of fatally and seriously injured (ISS 9-) drivers of passenger cars in different accident types 2010–2019, divided into drivers aged 65 and above (n: 798) and 40–55 years (n: 800).

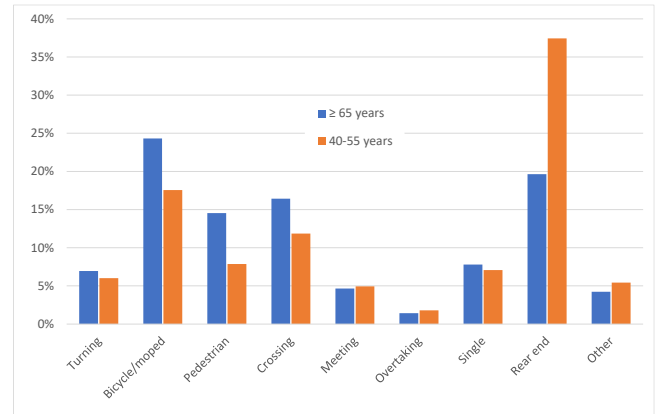


Figure 2. Share of uninjured drivers of passenger cars in different types of accidents, by drivers aged 65 and above (n: 9,545) and 40-55 years (n: 21,031).

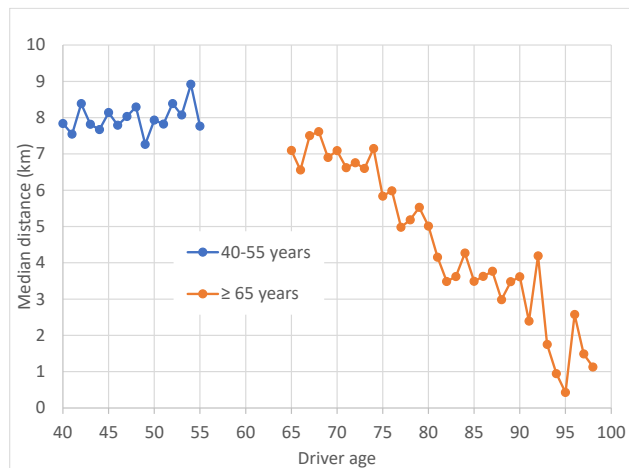


Figure 3. Median distance in kilometers between the driver's postal code and the accident site distributed over the driver's age.

Discussion and conclusions

There was no increased number of accidents among older car drivers during the ten-year period. However, gender differences increased with age. Women who were 75 years and older made up a smaller proportion of those involved in accidents, compared to women between 65-75 and the younger comparison group. The types of accidents differed, with the oldest drivers being more often involved in turning/crossing accidents and accidents with vulnerable road users. The elderly drivers were more often fatally and seriously injured in intersection accidents with crossing paths. Elderly drivers were more often involved in accidents involving vulnerable road users who suffered serious injuries. It is somewhat more common for the elderly to be involved in accidents on roads with lower speed limits. Elderly drivers are more commonly involved in accidents during daylight. The distance between the drivers' homes and the accident site, that indicates that drivers stay closer to their home with decreasing age.