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Summary

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Research report nr. 2014-R-14S-EN

D/2014/0779/75

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Responsible editor: Karin Genoe

Editor: Belgian Road Safety Institute – Knowledge Center Road Safety

Date of publication: 15/01/2015

Complete report available in Dutch and French:

Senioren in verkeer. Mobiliteit en verkeersveiligheid van ouderen in België.

Seniors dans la circulation. Mobilité et sécurité routière des seniors en Belgique.

Objective and methodology

The objective of this study is to answer a number of questions that have become pertinent due to the ageing society. How does mobility develop at higher age? Which transport modes are preferred by elderly road users? How do they behave in traffic? Are elderly road users involved in many accidents? Do they have an increased risk to become the victim in a traffic accident? Do they have an increased risk to cause an accident? Which situations in traffic are difficult – and therefore dangerous – for elderly road users?

To investigate these questions, the mobility, their attitudes and behaviour in traffic, and the accidents involving elderly road users were investigated. The results for seniors are compared to those of middle-aged road users or the development across different age-groups is given. The background of age-related changes in physical and cognitive functioning and their relevance to fitness to drive as well as the recommendation coming forth from analysis are supported are based on the international literature.

Main results

Age related impairments

A number of functions important for driving show an age-related decline: (peripheral) vision, the flexibility of movements and the speed of 1.) the perception and judgment of a situation, 2.) decision making, and 3.) execution of the actual reaction. This decline does not concern everyone at the same age and is does not necessarily compromise the fitness to drive.

Additional to the "normal" age related development many people at higher age have one or more chronicle affliction, like heart disease, dementia, depression, or arthritis which can also compromise the fitness to drive. While the impairment due to one condition can often still be compensated, the risk clearly rises in the case of two or more diseases (and the intake of the necessary medication).

Screening

From scientific point of view there is no indication that a regular screening of elderly drivers increases road safety. Road users who have lost their driver's license have to walk and cycle and are consequently exposed to a much higher injury and fatality risk than they were as a car-driver. The greatest risk is related to illness and impairments, which indeed become more frequent at higher age but can also occur with younger drivers. The normal age-related decline in fitness to drive can mostly be compensated by changes in driving behaviour: elderly drive more careful at less busy times and avoid complex and/or unknown situations. A general standardized (and consequently restricted) testing procedure cannot yield perfect decisions. For every candidate who is justly prohibited from driving, there are at least 10 persons who have to give up driving who would never have had an accident, with heavy consequences for social contacts and a retaining their autonomy.

Mobility

With increasing age mobility decreases, especially for women. Seniors reduce in particular the amount of car driving, while the number of trips made by foot increases. For women, the number of trips made as drivers is strongly decreasing and they are making a large part of their trips as a passenger. In the past 10 years, the share of seniors who still drive a car on a regular basis has been increasing – especially among the oldest group of drivers (85+).

Attitudes and behaviour in travel

Elderly people feel less safe in traffic than middle-aged people do. This is especially true for people between 65 and 74 who still travel a lot but might start to feel the first problems in traffic. Those aged 75 and above who are still mobile feel safer than the younger seniors between 65 and 74. This is probably due to the fact that elderly people who feel unsafe stop using the transport mode in question at some point.

Elderly drivers are less prone to show risky behaviours. Elderly drivers say more often than middle aged ones that they would never drive faster than the legal limit, follow too closely, ignore another road user's right off way, or overtake on the right side.

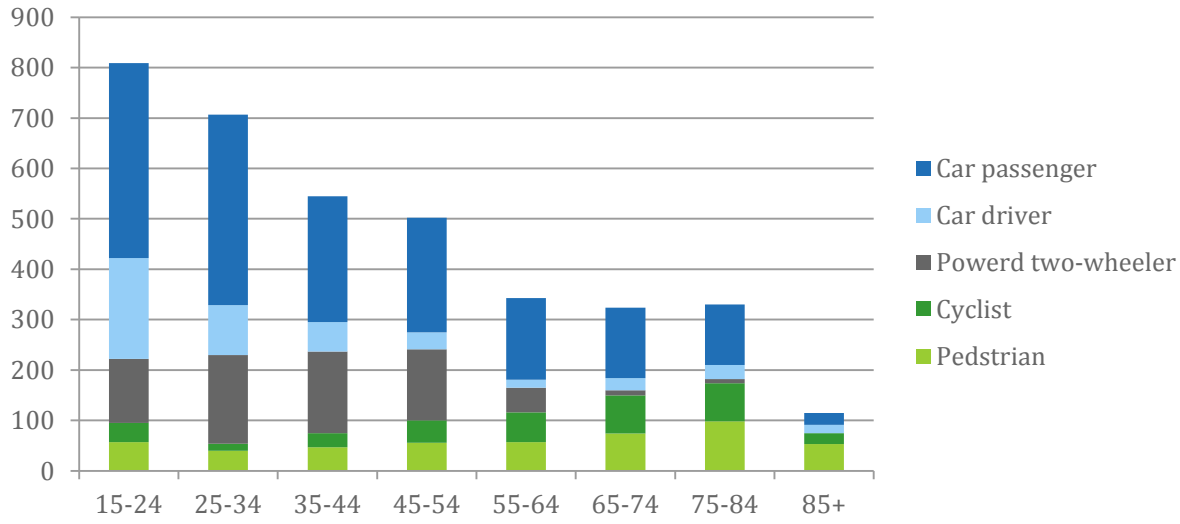
Concerning driving under the influence of alcohol, there are however, problems with elderly drivers as well. 1 out of 3 (27%) drivers between 65 and 74 admits to occasionally driving when having drunken more than the legal limit. Among senior drivers of 75 and older, almost 1 out of 10 sometimes drives when having taken sleeping pills or other medication. This is a lot more than in the other age groups. Moreover data from police controls suggest that the true proportion could be even higher.

Road accident victims

Figure A: Number of killed drivers by age-group and type of road user 2008-2012.

Source Statistics Belgium; Infographics BIVV-IBSR

The growing share of elderly people in the population is also reflected in the accident statistics. While in 1992 1 in 7 people (17%) dying in traffic was 65 or older, this is now 1 out of 5 (23%).



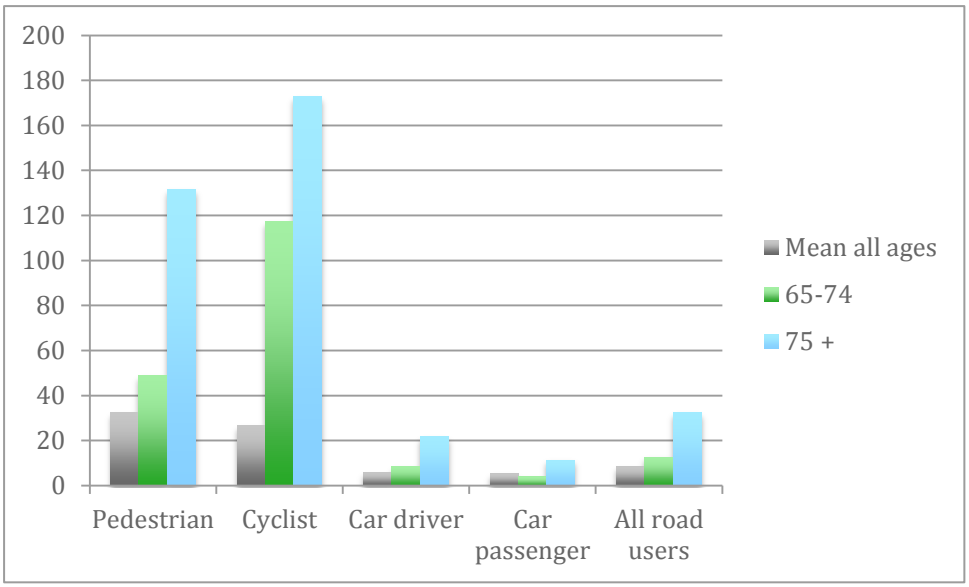
In spite of the recent increase, the absolute number of fatal victims among the elderly road users is still not particularly high. The most problematic modes of transport for elderly are cycling and walking. More than half of the killed elderly were either a pedestrian or a cyclist. For middle-aged road users this is only 1 in 5. On the contrary, the share of car drivers among the killed elderly is lower than among middle-aged victims.

Risk per kilometre

Even if the absolute number of fatal victim among elderly road users are relatively small, this does not mean that they are travelling more safely. Senior citizens make much fewer trips than younger persons. Consequently it is important to calculate the risk per kilometre travelled.

Figure B: Number killed per billion km travelled by type of road user and age-group.

Source BELDAM (2009), Statistics Belgium (2007-2011); Infographics BIVV-IBSR

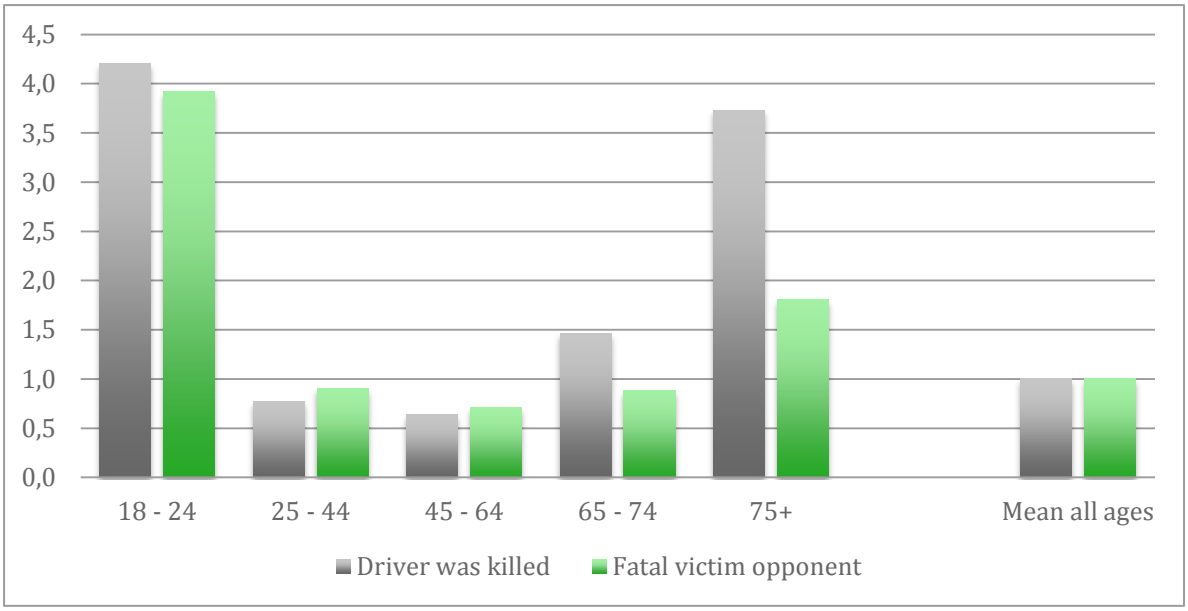


For people aged 75 or above, the risk of being fatally injured is increased in all modes of transport as compared to the average risk calculated across all age groups. For elderly car passengers the risk is doubled, for pedestrians it is four times as high and elderly cyclists have a risk that is 6 times higher than the average risk. Road users between 65 and 74 also have an elevated risk, but the increase is much smaller. Only as cyclists, the "younger" elderly have a substantially higher risk (4 times as high as the average across all ages).

For drivers we can differentiate between the risk to become an accident victim oneself and the risk to be involved in an accident in which someone else becomes a victim (the opponent). For fatal accidents, these two types of risks are presented across the age groups. The number "1" indicates an average risk. A smaller number indicates that the age group in question has a low risk and a number greater than 1 signifies a higher risk.

Figure C: Relative risk of fatal accidents* by age category: risk to oneself and risk to others.

* Number of fatal accidents per billion km driven. Source BELDAM (2009), Statistics Belgium (2007-2011); Infographics BIVV-IBSR



Older drivers are especially at risk of getting killed themselves in an accident. Older drivers aged 75 or more as well as young drivers (18-25) both have four times as high a chance to die in an accident as compared to the average across all ages. The risk of an accident killing the opponent is "only" twice as high for drivers of 75 and above. For young drivers this is four times higher as well. The conclusion is that older drivers are a danger mostly to themselves rather than to others.

The reasons for an increased risk for elderly drivers are mostly based on 3 factors. (1) Frailty: elderly people will break something more easily and quickly, injuries heal more slowly and can moreover lead – in interaction with prior health conditions - to complications that exceed by far the severity of the original injury. In an accident in which a younger person gets only slightly injured an older person can get severely injured or even die of the consequences. For Belgium, we estimate that at least half of the risk-increase for severe accidents is actually due to the higher frailty of elderly drivers. (2) Lower mileage: older drivers travel less than middle-aged ones. In general drivers travelling fewer kilometres have a higher risk per kilometre driven – independent of their age. This is especially due to the types of road one mostly travels (few kilometres on motorways) but also to being a less practiced driver. (3) Fitness to drive: although older drivers are generally more cautious, they nevertheless have a higher risk to cause accidents because of the impairments mentioned above.

Accidentology

For elderly road users complex traffic situations can become even more challenging than for younger ones. Their reactions can be slowed down and due to a reduced field of vision (less peripheral vision and more trouble to compensate by turning their head) it can become more difficult to keep an overview. Moreover, estimating the distance and velocity of other road users can become more problematic. Crossings are therefore a challenge for senior road users. Accidents as pedestrians crossing the road or as drivers/cyclists turning left become more frequent among older road users, as compared to middle-aged ones.

Most important results

Half of all traffic victims among the elderly are pedestrians and cyclists. The risk for elderly in traffic is most increased for these modes of transport.

As car drivers, elderly have an increased risk to get injured or killed in traffic as well. Half of this increase in risk is due to their physical frailty. This means older drivers put themselves at risk much more than others.

Keeping an overview can become more difficult for elderly road users. Crossings are the most challenging situations for them. Most dangerous mannoeuvres: pedestrians crossing and left turns for cyclists/drivers.

Most important recommendations

Infrastructure

Even more than younger road users, seniors profit from a clear layout for crossings. Important aspects are:

- good prior visibility and possibility to anticipate
- rectangular design because roads that meet in a sharp angle make it more difficult to obtain an overview
- conflict free regulation for turning left at traffic lights
- traffic islands for pedestrians
- clear signposting (right of way, lane-use, directions) long way ahead of crossings
- high contrast signposting and lane markings
- lowered speed

Vehicle

More attention has to be paid to adjustments of the vehicles to possible physical restrictions of elderly users in particular with respect to the height and width of the doors and seats. Moreover the use of automatic transmission, power steering and wide-angle mirrors has to be stimulated among elderly drivers.

New technologies, like collision warning, blind-angle detection or gap-assistant support the driving rask at a technical level. More research is necessary to indicate whether senior road users are able to (learn to) work with these technologies.

A staged evaluation procedure, e.g., starting with a self-assessment, via the advice of a (primary care) physician and a rigorous multidisciplinary assessment for those patients only where the physicians cannot judge their fitness to drive. Such a procedure would be more suited to address the actual risks and needs of elderly drivers.

Education

Senior road users have to be made aware of.

- possible impairments and the resulting increased risk for all types of road users
- how to remain mobile as long and as safe possible – trainings, exercises for mental and physical fitness, use of public transport
- how they can use new vehicle technologies to increase their safety

Physicians (and pharmacists) can play a major role in conveying the risk to road safety posed by different medical conditions and the medication involved.

Screening

Striving for the road safety of elderly road users, BIVV-IBSR proposes a staged system of screening, that starts with a simple selftest and /or a visit to the primary care physician. If the primary caretaker doubts the patient's fitness to drive or driving aptitude, he can refer them to a specialist for a more thorough examination. This procedure is more efficient than a mandatory evaluation of all senior drivers.

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