



European Road Safety Observatory

Facts and Figures - Seniors - 2021

This document is part of a series of 18 *Facts and Figures* reports. The purpose of these *Facts and Figures* reports is to provide recent statistics related to a specific road safety topic, for example a specific age group or transport mode. The *Facts and Figures* reports replace the Basic Fact Sheets series that were available until 2018 (containing data up to 2016). The most recent figures in this *Facts and Figures* report of 2021 refer to 2019.

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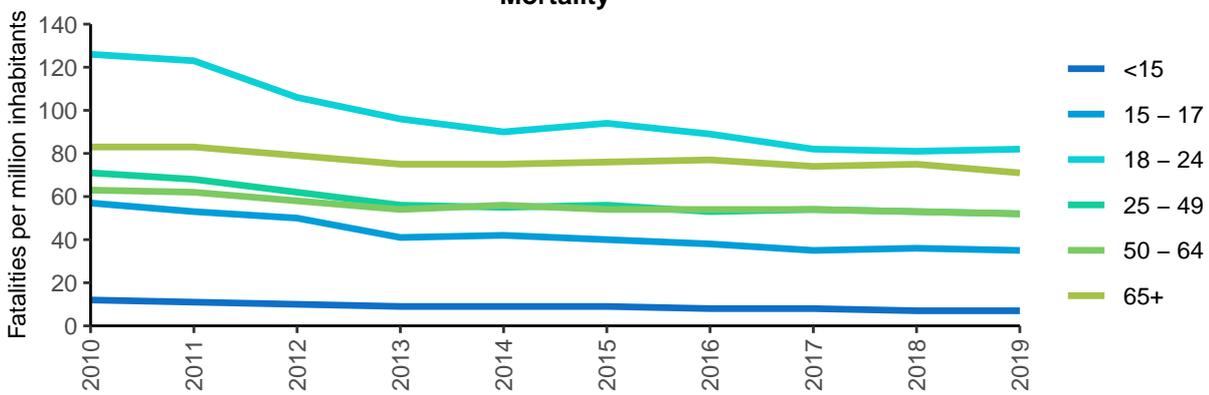
1 Key Facts

Senior Fatalities 2019

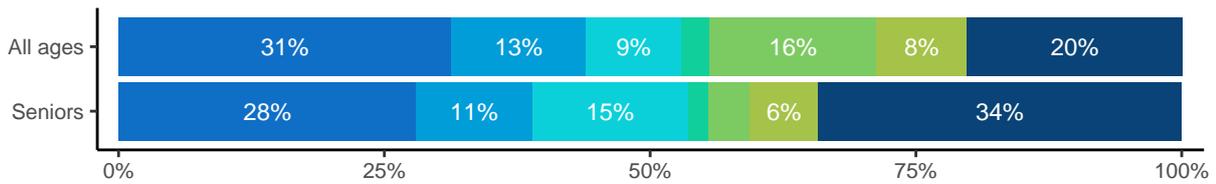


- 6,452 fatalities
- 28% of all road fatalities
- Highest vulnerability of all age groups
- Second highest mortality of all age groups

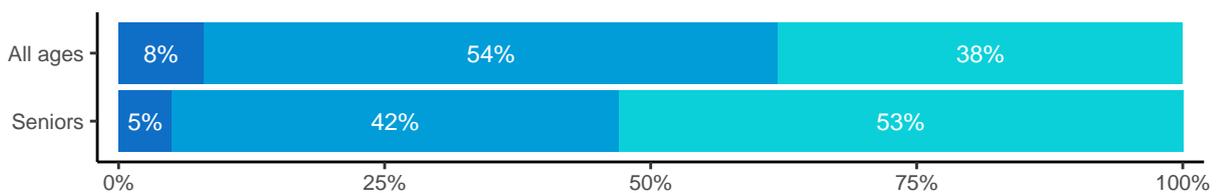
Mortality



Transport mode



Road type



In this Facts and Figures report, seniors are discussed. All differences reported were derived from the available data and not statistically tested.

Seniors – persons aged 65 years and older – stand out from other age groups because of their high **physical vulnerability**. With the same collision impact, they have a higher chance of dying than other age groups. They also have the **second highest mortality rate**. Only the 18-24 year old age group has a (slightly higher) number of fatalities per million inhabitants.

Comparison between EU countries gives a different picture depending on the indicator used. According to the mortality indicator the countries in the east of the EU had the worst scores, but in terms of the proportion of seniors within the total number of road fatalities other countries including those in Nordic countries tended to score less well. Nevertheless, there were also **countries that score below average on both indicators, such as Portugal, Italy, Greece and Romania**.

The absolute number of senior fatalities between 2010 and 2018 increased by 4% to more than 6,700 fatalities on the roads, but decreased slightly in 2019 (-4% compared to 2018). As the total number of road fatalities was decreasing, **their relative share increased even more sharply from 21% in 2010 to 28% in 2019**. Within the group of senior fatalities, the largest increase could be observed among the over-85s, with an absolute increase of 43% since 2010.

Compared to all fatalities combined, senior fatalities were more often women (34% among seniors versus 23% among all fatalities). In terms of transport mode, seniors had a very high death toll among the most vulnerable modes of transport: **34% of seniors killed were pedestrians, 15% were cyclists**. These are only EU averages, with even higher percentages in half of EU countries. In some central and east European Member States, namely Slovakia, Romania and Lithuania, more than one in two senior fatalities was a pedestrian. In the Netherlands, 39% of senior fatalities were cyclists.

Senior road fatalities also differed from all fatalities combined in terms of the time and location of the fatal crashes:

- Seniors were more often killed in daytime during the working week (72% versus 56% among all age groups).
- There were proportionately more fatalities on urban roads (53% versus 38%) and consequently fewer on rural roads and motorways.
- They were relatively more often killed at intersections (18% versus 13%) and less often (but still frequently) on road stretches (72% versus 79%).
- Fatalities among senior car drivers were less often involved in a single crash, i.e. a crash in which only one vehicle and no pedestrians are involved (38% versus 44%).

Basic definitions*Seniors:*

Persons aged 65 years and older.

Fatalities:

Total number of persons fatally injured; correction factors applied when needed. Death within 30 days of the road crash, confirmed suicide and natural death are not included.

More detailed data:

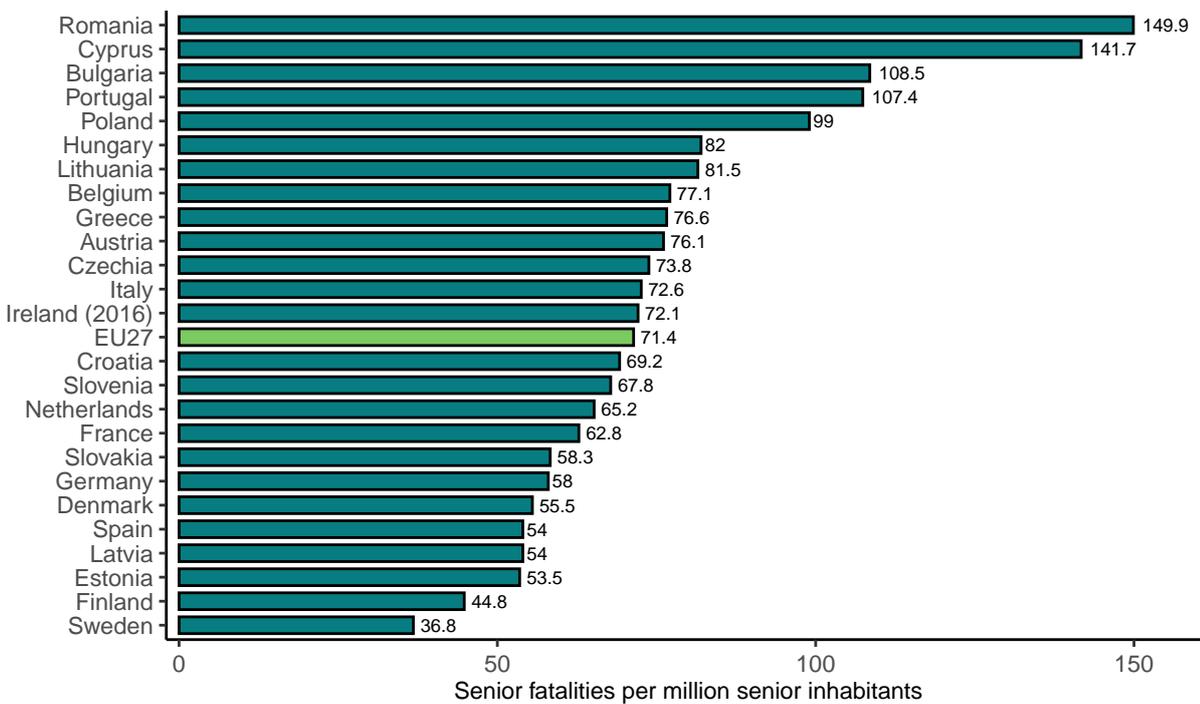
This Facts and Figures report is accompanied by an excel file (available online) containing a large set of additional detailed data. Each sheet in the excel file corresponds to a Figure/Table in the report.

2 Main trends

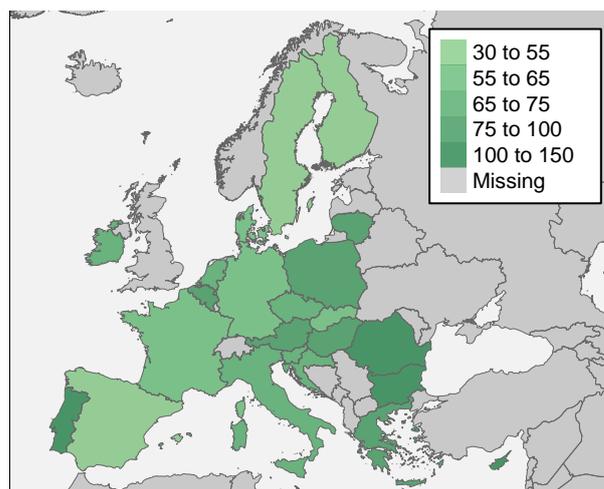
2.1 Mortality rate: number of road fatalities per million inhabitants

The number of senior fatalities per million senior inhabitants is above the EU27 average in the central and **east European Member States**. Portugal also lies well above the EU average.

Figure 1. Senior fatalities per million senior inhabitants per country in the EU27 (2019). Source: CARE, EUROSTAT



Note: countries that are not included in the Figure are Malta and Luxembourg because of small numbers



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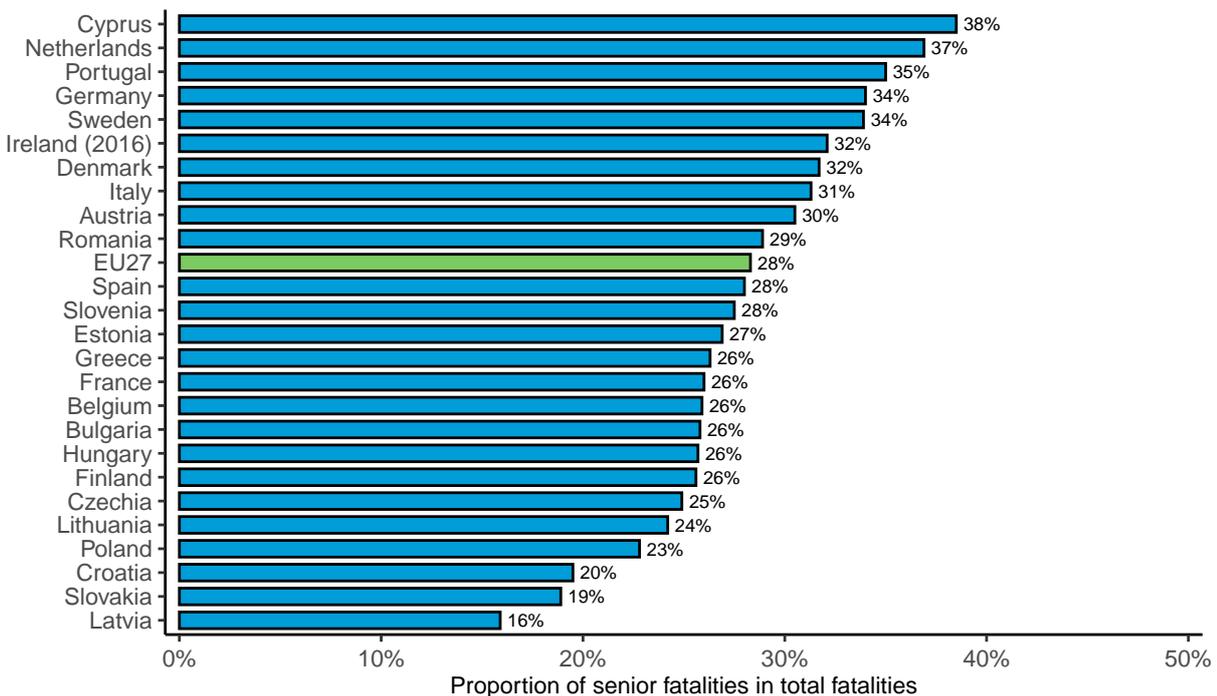
2.2 Number of fatalities among seniors as a proportion of total fatalities

Mortality is an important indicator, but does not take into account differences in the general state of road safety in countries. In other words, it is possible that the mortality for seniors is high because

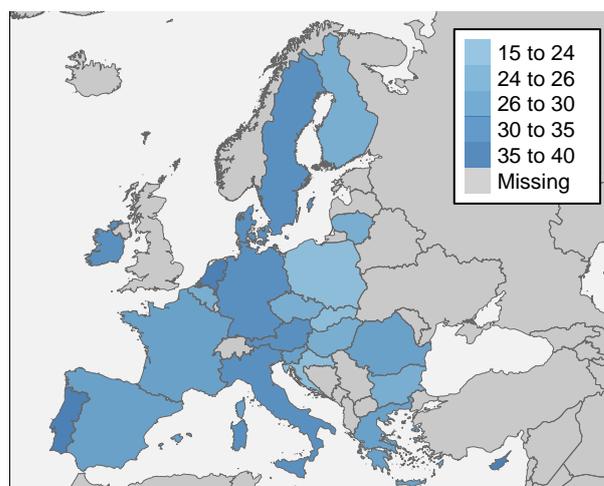
the total mortality for all age groups is high. Therefore, it is important to also look at the proportion or share of senior fatalities within the total number of road fatalities.

Observations for senior fatalities based on the share of senior fatalities in the total number of fatalities are different from those based on the mortality rate. Most central and eastern European Member States have a better ranking when it comes to the share of seniors killed in the total number of fatalities than on the mortality rate, which means that the high road mortality for seniors in those countries can partly be explained by the high mortality for all road users, regardless of their age. Portugal, Italy, Romania and Austria score below average for the two indicators. The high proportion of seniors in total road fatalities is thus partly due to a disproportionately high mortality rate.

Figure 2. Proportion of senior fatalities in the total number of fatalities, per country in the EU27 (2019). Source: CARE



Note: countries that are not included in the Figure are Malta and Luxembourg because of small numbers

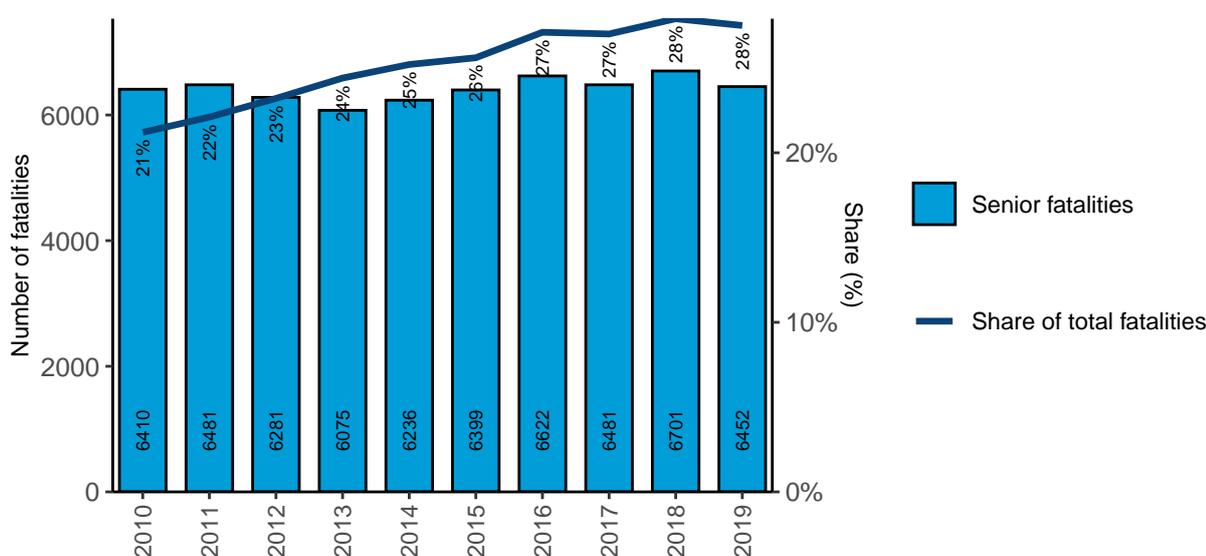


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2.3 Trend in the number of fatalities

The number of senior fatalities increased between 2010 and 2018 with 4%, but decreased again in 2019 (with 4%). Since the total number of road fatalities (all ages combined) decreased by 23% during the same period, **the proportion of senior fatalities in the total number has increased sharply.** This share has grown from 21% in 2010 to 28% in 2019. We have seen a fairly constant increase in this share since 2010, while there is a stagnation of this share in 2019. The increase of seniors in the total number of road fatalities can only partly be explained by an increase in the share of seniors in the population, which increased by two percentage points from 18% to 20% between 2010 and 2019.

Figure 3. Annual number of senior fatalities, and their share in the total number of fatalities in the EU27 (2010-2019). Source: CARE



The group of seniors is broken down into age categories in the Table below. **The strongest increase in the number of fatalities occurs in the two outer age categories: 5% among 65-69 year olds and no less than 43% among people over 85.** These are also the two age categories in which the population has increased the most. In all these age categories, the population is growing faster than the number of road fatalities, except for people over 85.

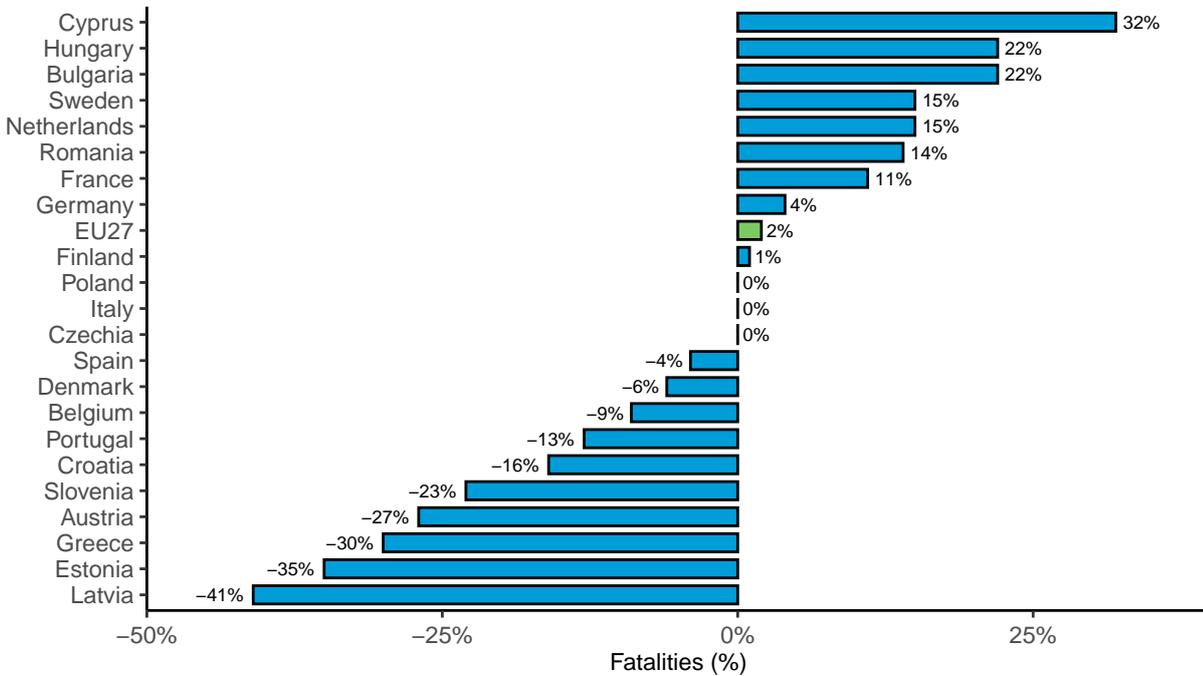
Table 1. Annual number of senior fatalities by 5-year age categories (2010-2019). Source: CARE

	2010	2017	2018	2019	Trend fatalities 2010 - 2019	Trend population 2010 - 2019
65-69	1,349	1,412	1,464	1,423	5%	21%
70-74	1,478	1,228	1,373	1,291	-13%	9%
75-79	1,462	1,370	1,362	1,320	-10%	8%
80-84	1,303	1,307	1,281	1,252	-4%	16%
85+	818	1,164	1,221	1,166	43%	37%
Total	6,410	6,481	6,701	6,452	1%	16%

The evolution of senior fatalities for individual EU countries is calculated by comparing three-year averages, i.e. 2017-2019 versus 2010-2012. Using this trend indicator we do not see the 5% increase in senior fatalities in the EU (as noted above) but rather a very slight increase of 2%, a factual status quo (see Figure below).

Countries that show the least favourable trend are: Hungary, Bulgaria, Sweden and the Netherlands. **Italy and Germany have the highest number of senior fatalities and show a stagnation or slight increase since 2010.**

Figure 4. Percentage change in the number of senior fatalities per country in the EU27 (2010-2012 and 2017-2019).
Source: CARE



Note: countries that are not included in the Figures are Ireland, Lithuania, Luxembourg, Malta and Slovakia because these countries have missing values in the time series 2010–2019

Table 2. Number of and trend in fatalities on motorways per country in the EU27 and EFTA (2010-2012 versus 2017-2019).
Source: CARE

	2010	2017	2018	2019	Trend 2017 - 2019 vs 2010 - 2012	Miniplot: trend since 2010
Austria	140	101	121	127	-21%	
Belgium	155	151	169	167	-8%	
Bulgaria	147	178	151	162	28%	
Croatia	97	79	78	58	-14%	
Cyprus	11	17	10	20	47%	
Czechia	172	150	167	154	0%	
Denmark	67	51	50	63	-6%	
Estonia	17	12	14	14	-26%	
EU27	6410	6481	6701	6452	2%	
Finland	64	73	79	54	1%	
France	765	869	842	845	13%	
Germany	910	994	1045	1037	4%	
Greece	268	192	224	181	-23%	
Hungary	137	180	184	155	28%	
Iceland	2	3	3	1		
Ireland	30	-	-	-		
Italy	1064	1109	1061	994	0%	
Latvia	36	29	30	21	-29%	
Lithuania	-	49	40	45		
Luxembourg	3	4	4	2		
Malta	0	9	2	-		
Netherlands	154	190	215	216	17%	
Norway	42	32	31	31	-12%	
Poland	674	673	699	664	0%	
Portugal	277	181	230	241	-11%	
Romania	494	535	563	539	17%	
Slovakia	48	44	45	51		
Slovenia	30	21	15	28	-19%	
Spain	527	467	498	492	-4%	
Sweden	71	78	120	75	17%	
Switzerland	101	70	93	75	-24%	

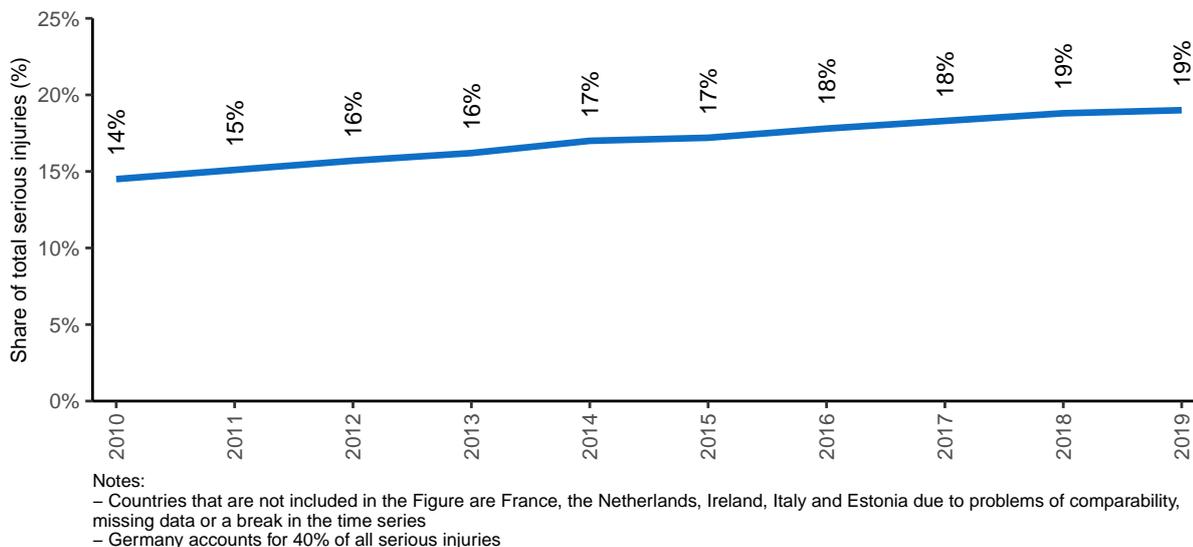
Note:

The trend is not shown if there are less than 10 fatalities in one year or if there is data missing in the time period 2010-2019

2.4 Trend in the number of serious injuries

Of all serious injuries in the EU27 in 2019, 19% are seniors. The relative proportion of serious injuries has increased in the time period 2010-2019.

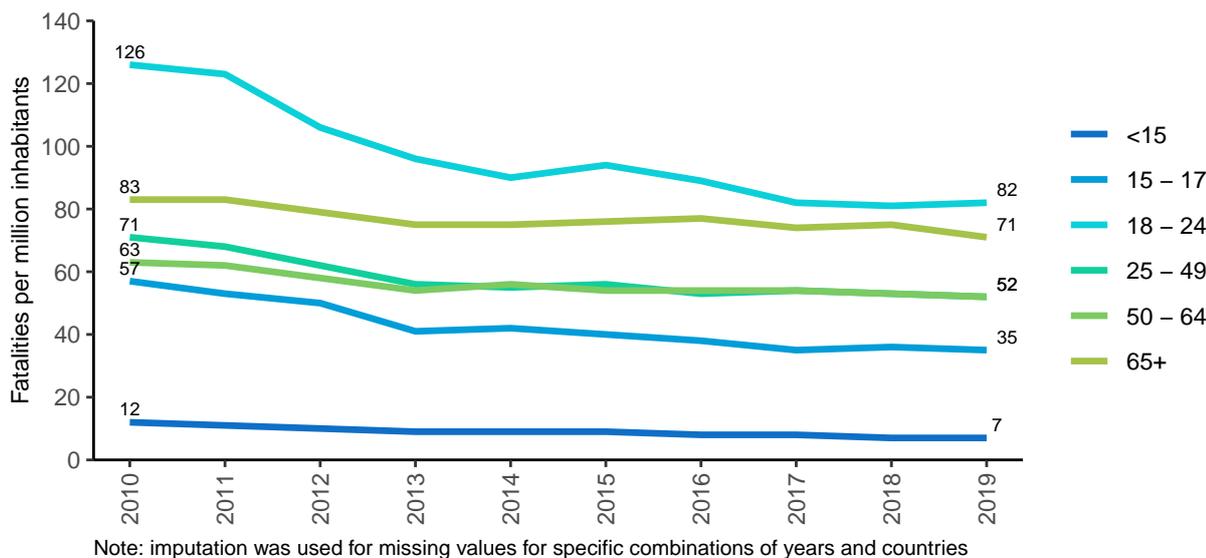
Figure 5. Share of serious injuries for seniors in the total number of serious injuries in the EU27 (2010-2019). Source: CARE



2.5 Comparison of seniors with other age groups

The following rule generally applies: the higher the age, the higher the mortality. This is demonstrated by the Figure below. In 2019, only 18-24 year olds form an exception to this rule. In 2019 they have the highest mortality - still slightly higher than for seniors. However, these two age groups show different trends since 2010: while the mortality of young people has decreased by more than a third since 2010, **the mortality for seniors has decreased by only 14%, which is the least positive trend across all age groups.** If these trends continue, mortality among 18-24 year olds will drop below that of the over-65s in the coming years.

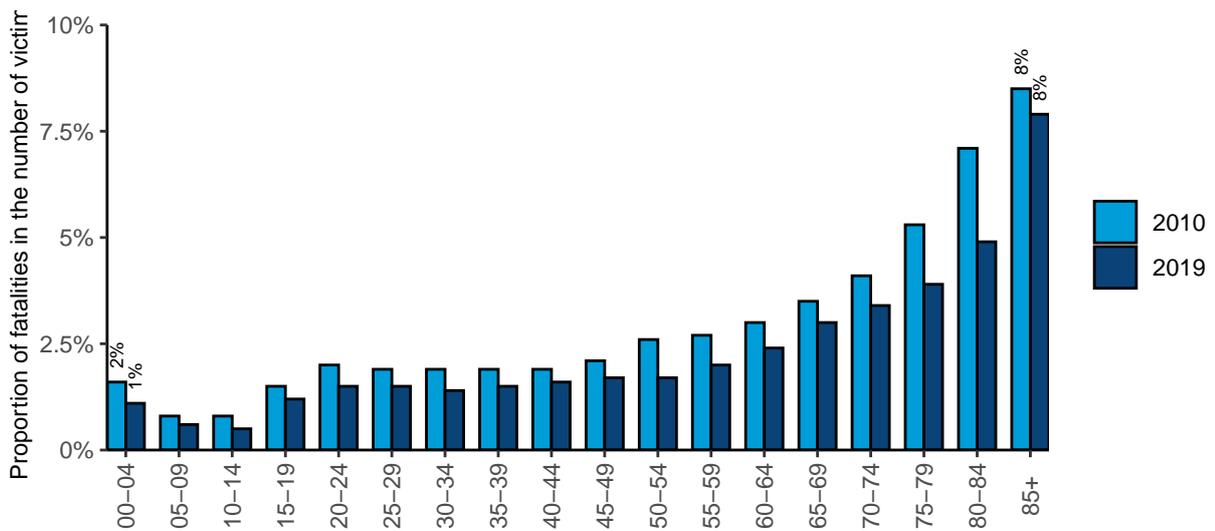
Figure 6. Annual number of fatalities per million inhabitants (=mortality) by age group in the EU27 (2010-2019). Source: CARE & EUROSTAT



High physical vulnerability in seniors is one of the reasons for the high mortality rate in this

group: with the same collision impact, seniors usually suffer more severe injuries relative to other age groups (e.g. seniors are prone to hip fractures). And with a similar injury, older people take longer to heal (*Road safety thematic report Seniors*). The Figure below shows the share of fatalities in the total number of registered traffic victims per 5-year age category. In 2019, 8% of registered victims of at least 85 years of age died in the crash, compared to 0.5% of 10-14 year olds, the age category with the lowest score on this indicator. Note that traffic victims are underreported in accident statistics and that the ratio “number of fatalities” to “number of victims” would be lower for all age groups if there were no underreporting.

Figure 7. Proportion of fatalities in the total number of reported victims (=vulnerability) by age group in the EU27 (2010 &2019). Source: CARE

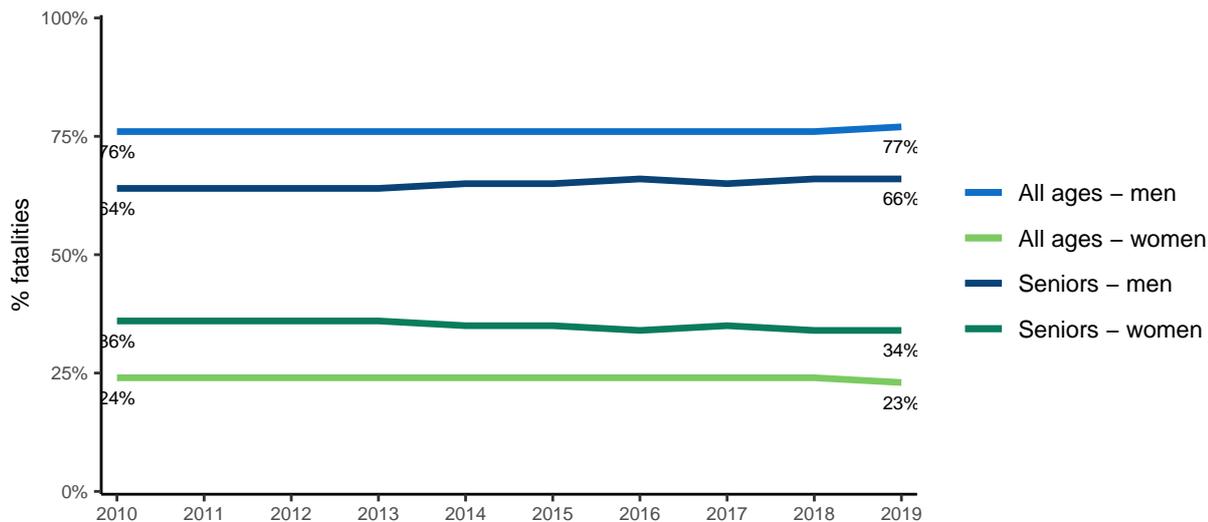


3 Road user

3.1 Gender

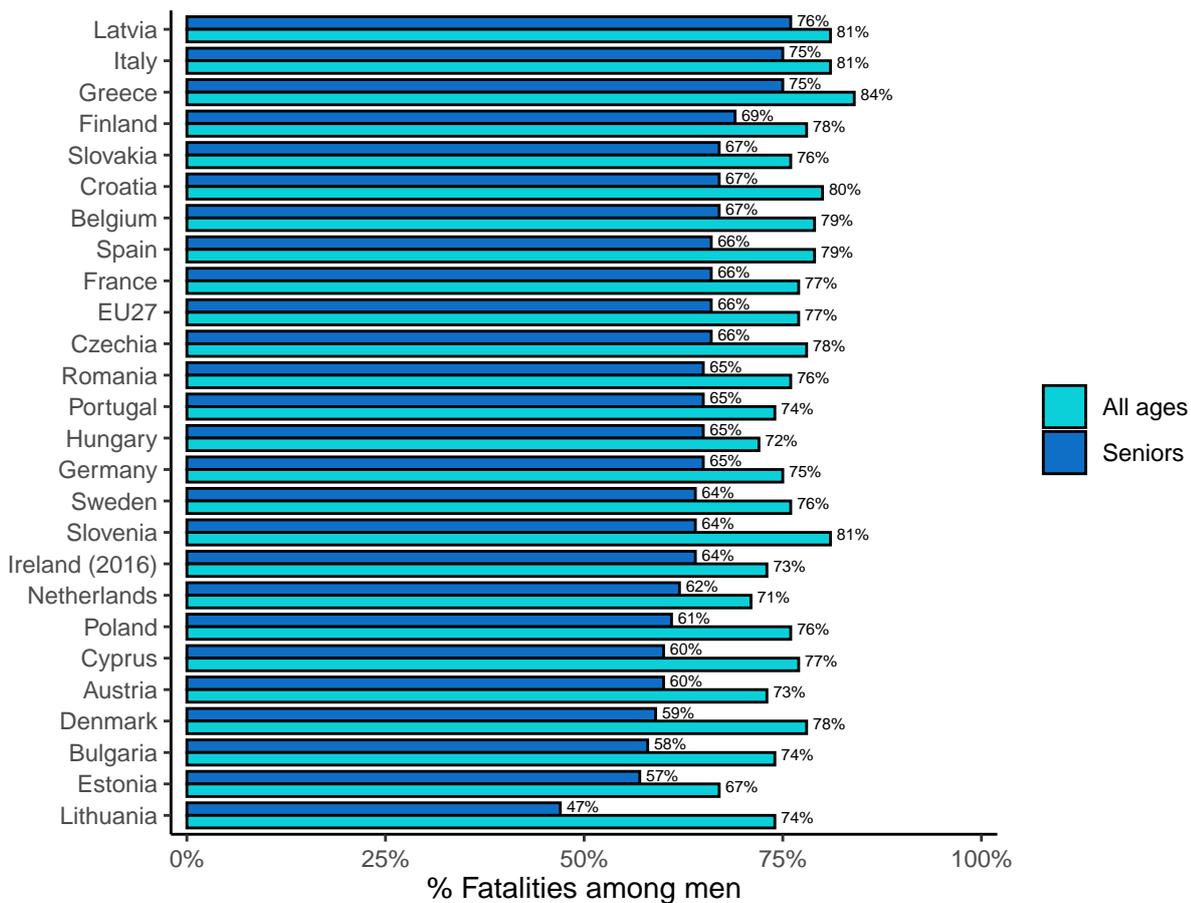
77% of all road fatalities in the EU are male. At 66%, the proportion of senior citizens is slightly lower. Both shares have remained relatively stable since 2010. The different proportions are mainly due to the fact that women are in the majority among seniors, especially in the oldest age strata for seniors.

Figure 8. Distribution of senior fatalities and all fatalities by gender in the EU27 (2010-2019). Source: CARE



In Italy and Greece, the proportion of men among senior fatalities is 75% or higher, which is notably higher than the European average. In Estonia, Bulgaria, Denmark, Austria and Poland it is notably lower (61% or less).

Figure 9. Share of men among senior fatalities per country in the EU27 (2019). Source: CARE

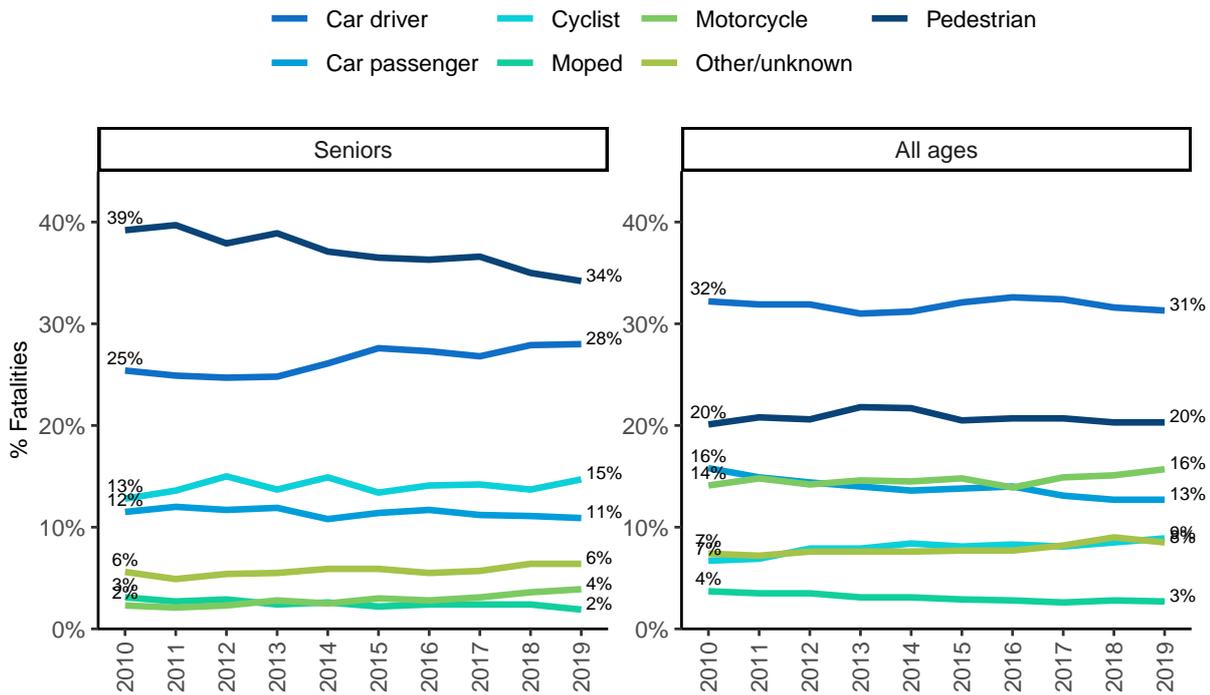


Note: countries that are not included in the Figure are Malta and Luxembourg because of small numbers

3.2 Transport mode

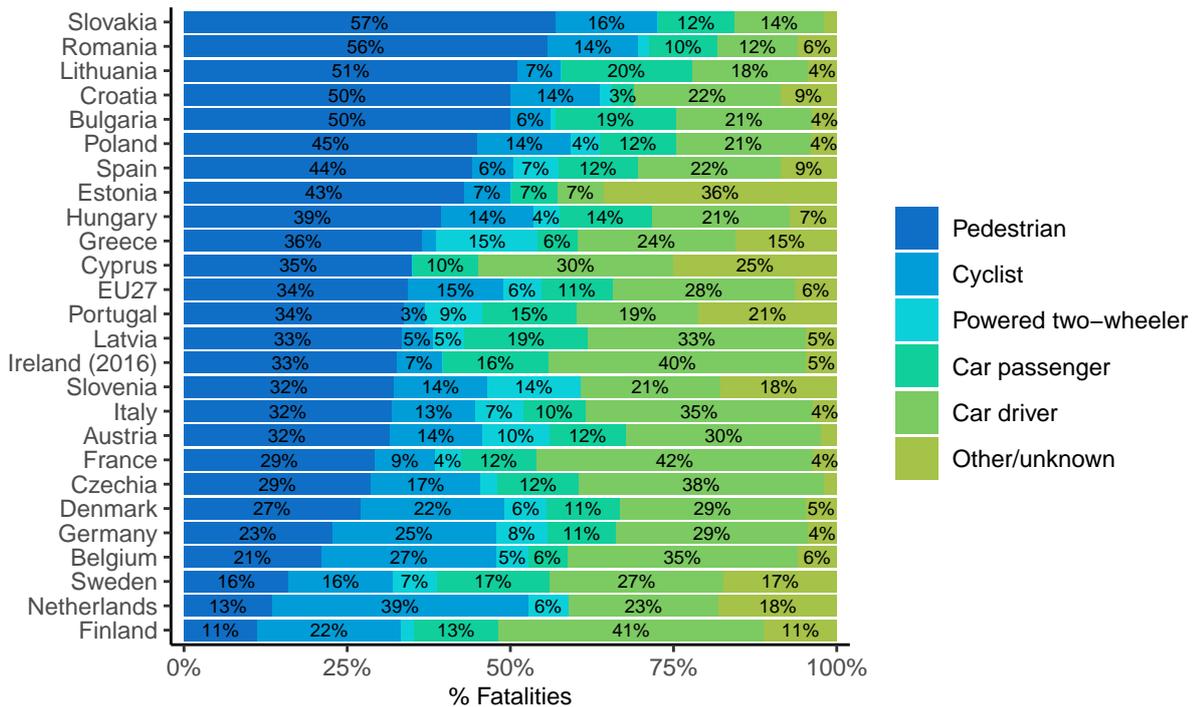
Half of all fatalities among seniors are either pedestrians (34% of all senior fatalities) or cyclists (15%). For all road fatalities combined, regardless of age, this amounts to 33%, namely 20% for pedestrians and 13% for cyclists. Compared to all fatalities together, seniors have proportionally fewer fatalities as car driver and motorcycle rider. The differences between the percentages for seniors and all fatalities reflect the mobility behaviour of seniors and their above-average vulnerability as a vulnerable road user. While the trend per transport mode is relatively stable for all fatalities (with the slight exception of the decreasing proportion of fatalities among car passengers), we see a **slight decrease of senior fatalities for pedestrians and a small increase for car drivers and cyclists.**

Figure 10. Distribution of senior fatalities and all fatalities by transport mode in the EU27 (2010-2019). Source: CARE



The distribution of senior fatalities across various transport modes differs from country to country. Some countries in the east of the EU have a particularly high proportion of pedestrians among senior fatalities. In some Central and Eastern European Member States, namely Romania and Lithuania, more than one in two senior fatalities is a pedestrian. It is noteworthy that countries with a high proportion of cyclists among senior fatalities (more than 20%) have a lower than average proportion of pedestrians among senior fatalities. This applies, for example, to the Netherlands, Belgium, Denmark, Germany and Finland. A possible explanation is that in countries with many cyclist fatalities, seniors travel proportionally fewer kilometres on foot. Finally, countries with a high proportion of senior fatalities amongst car occupants are Sweden and Finland. Again, these national differences can probably be explained, in part, by the specific mobility behaviour of seniors in each specific country.

Figure 11. Distribution of senior fatalities by transport mode per country in the EU27 (2019). Source: CARE



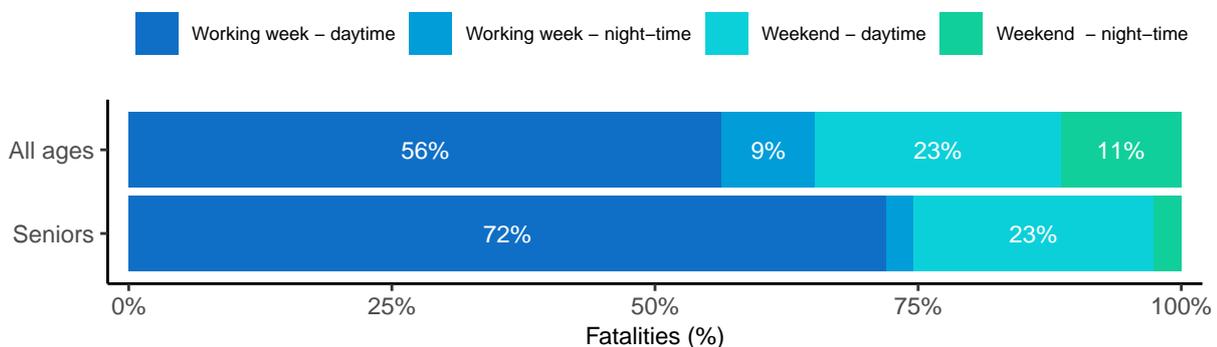
Note: countries that are not included in the Figure are Malta and Luxembourg because of small numbers

4 Time

4.1 Period of the week

Compared to all fatalities combined, senior fatalities occur more often during the working week (when 75% of all seniors are killed). The proportion of road fatalities among seniors during night-time (from 10 p.m. to 5.59 a.m.) is much lower, at 6% compared to 20% for all fatalities combined.

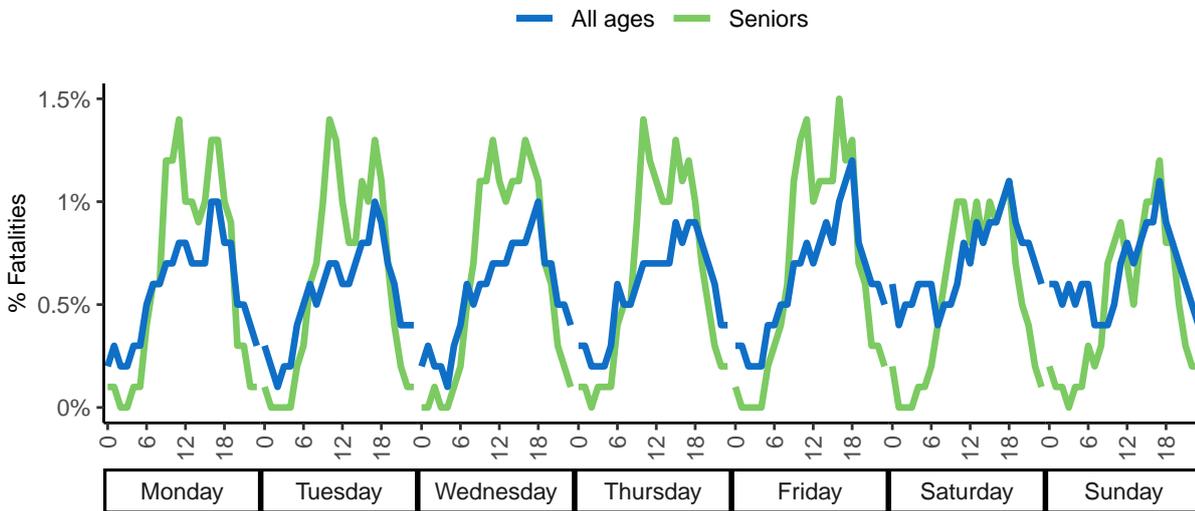
Figure 12. Distribution of senior fatalities and all fatalities according to period of the week in the EU27 (2019). Source: CARE



4.2 Day of the week and hour

The Figure below shows that there are two peaks in senior fatalities in a day: during the **morning from 9 to 11 am, and in the late afternoon from 3 to 6 pm**. The distribution of senior fatalities over a day is not very different as between the working week and the weekend.

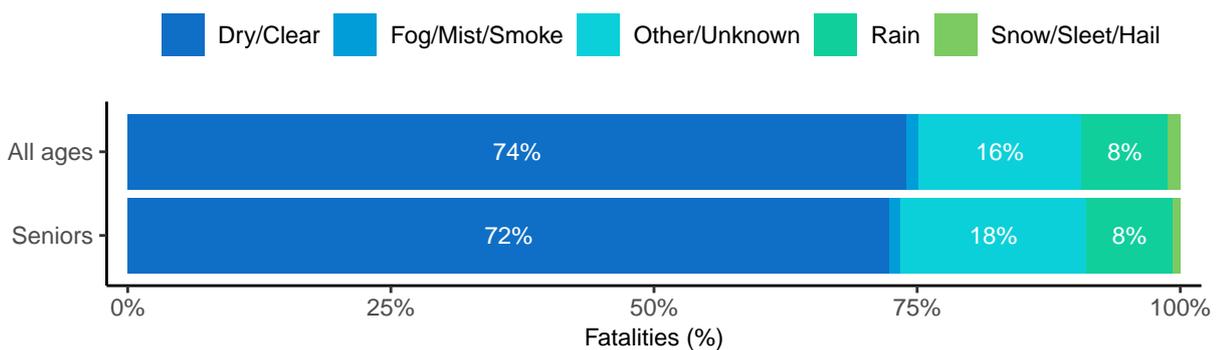
Figure 13. Distribution of senior fatalities and all fatalities by day of the week and hour in the EU27 (2019). Source: CARE



4.3 Weather

The Figure below shows that there is no difference in the weather conditions between fatal crashes involving seniors and all fatal crashes regardless of the age of those involved. **72% of senior fatalities are killed in dry/clear weather**, 8% in rain. Very rarely do fatalities occur in less prevalent weather conditions such as fog, fog, snow or hail.

Figure 14. Distribution of senior fatalities and all fatalities according to weather conditions during the crash in the EU27 (2019). Source: CARE



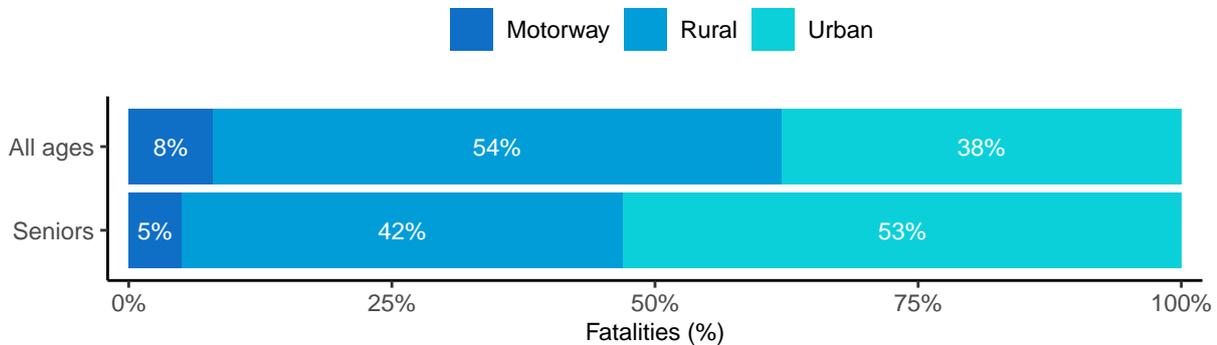
5 Location

5.1 Road type

The majority (53%) of senior road fatalities are on urban roads. This is considerably more than for all fatalities combined (38%). Compared to the distribution for all fatalities combined, senior

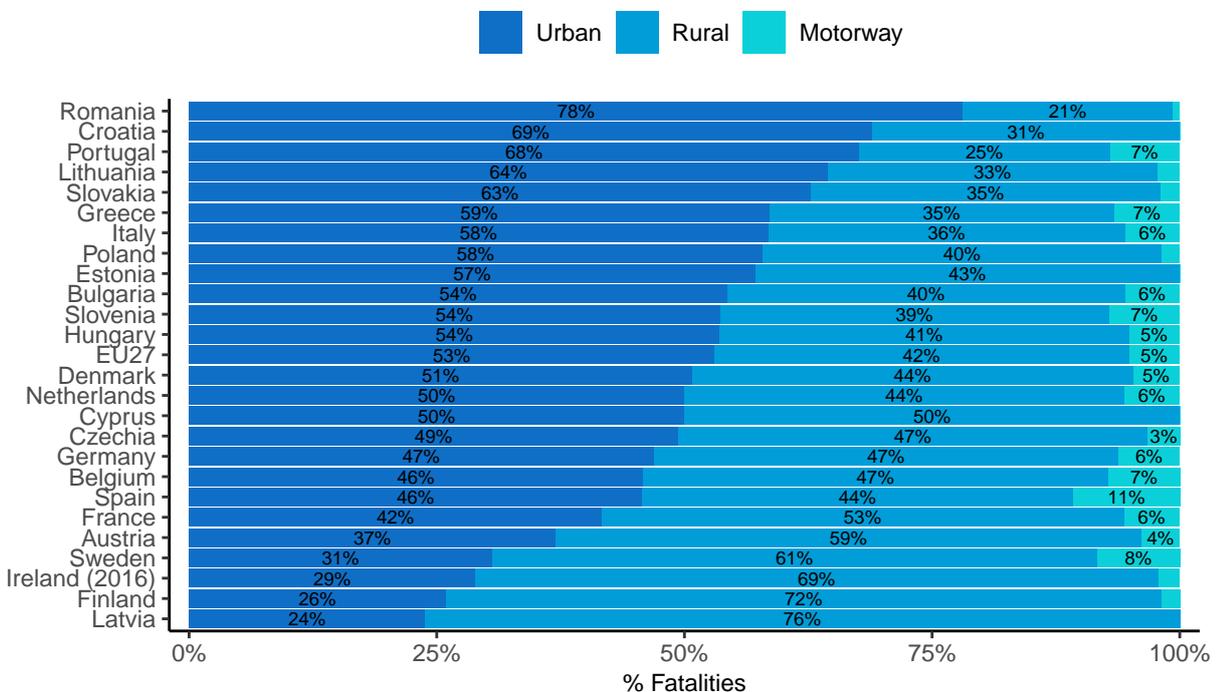
fatalities are also characterized by a lower proportion on motorways (5% versus 8%) and on rural roads (42% versus 54%).

Figure 15. Distribution of senior fatalities and all fatalities by road type in the EU27 (2019). Source: CARE



There are large differences between EU countries in terms of distribution across the various road types. Countries with a high proportion of seniors killed on urban roads (64% or more) include Romania, Croatia and Portugal. These are also countries with an above-average proportion of pedestrian fatalities among seniors. Countries with the highest proportion of seniors killed on rural roads (65% and more) include Ireland, Sweden and Finland. In the chapter on transport mode, Sweden and Finland were also found to have the highest proportion of senior fatalities among car occupants. Finally, Spain has a relatively high proportion of senior fatalities on motorways (11%).

Figure 16. Distribution of senior fatalities and all fatalities by road type per country in the EU27 (2010-2019). Source: CARE

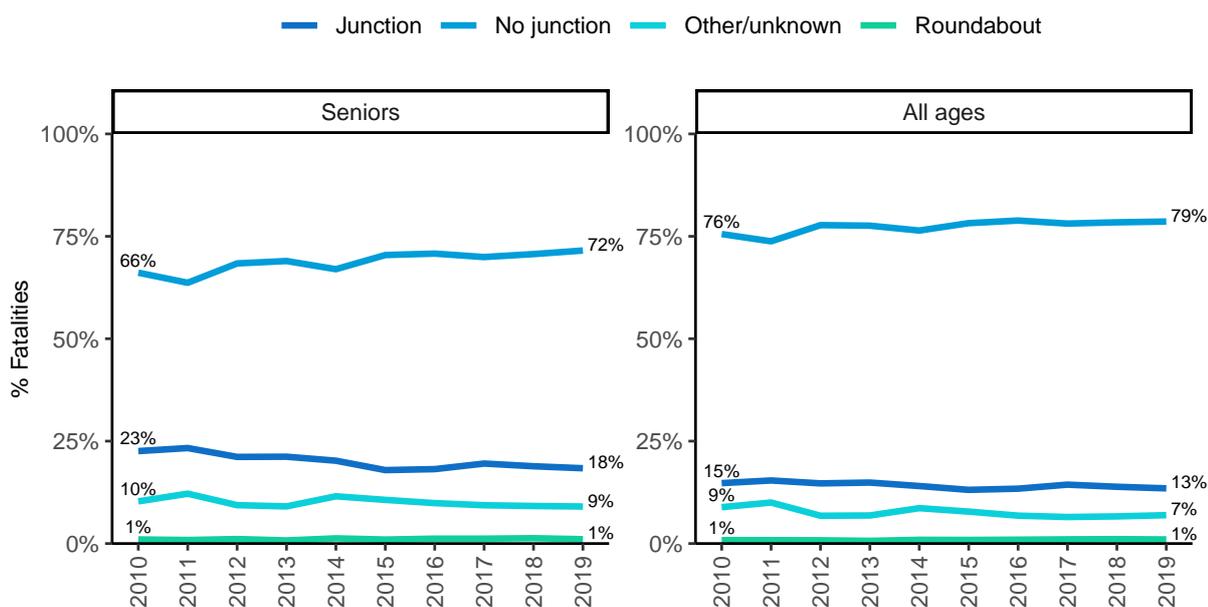


Note: countries that are not included in the Figure are Malta and Luxembourg because of small numbers

5.2 Junction type

The vast majority of fatalities, regardless of their age, are on road stretches and not at junctions or roundabouts. This is also the case for senior fatalities, but to a lesser extent: **72% were killed on a road stretch** in 2019 against 79% for all fatalities combined. **Among seniors, there are relatively more fatalities at junctions** (18% versus 13% for all fatalities). Older pedestrians are overrepresented in crashes at intersections where they have been struck by a turning vehicle. And compared to all drivers combined, seniors drivers of motorised vehicles have proportionally more crashes when turning across oncoming traffic at an intersection (*Road safety thematic report Seniors*).

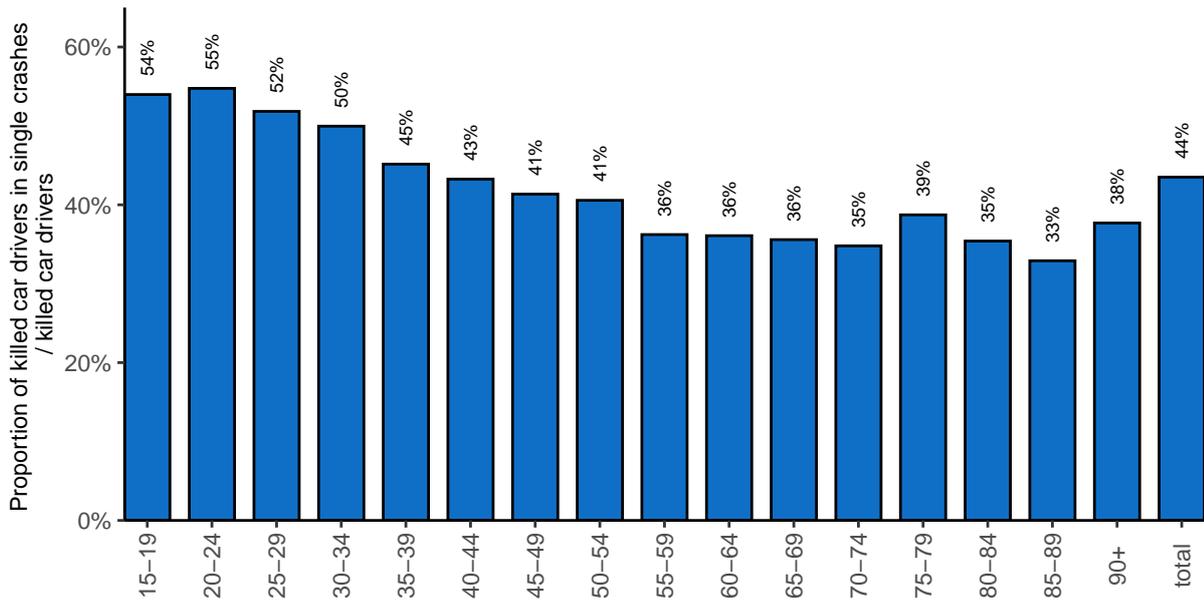
Figure 17. Distribution of senior fatalities and all fatalities by junction type in the EU27 (2010-2019). Source: CARE



6 Type of collision

Amongst car drivers over 65 years of age who died, 36% had a single crash (i.e. crashes in which only one vehicle and no pedestrians are involved). This percentage is fairly constant over the entire age group, from 65 to 90+. This percentage is much higher for younger adults and exceeds 50% for those under 35 years of age, decreasing steadily as they get older.

Figure 18. Proportion of killed car drivers in single car crashes in the total number of car drivers killed, by 5-year age categories, in the EU27 (2017-2019). Source: CARE



7 Notes

7.1 Definitions

The definitions below are taken from the CADAS Glossary and the UNECE Glossary.

CADAS Glossary: https://ec.europa.eu/transport/road_safety/system/files/2021-07/cadas_glossary_v_3_8.pdf

UNECE/ITF/Eurostat Glossary: <https://www.unece.org/index.php?id=52120>

Accident / crash

Definition: injury road accident, concerns an incident on a public road involving at least one moving vehicle and at least one casualty (person injured or killed). Note: the definition of “injury” varies considerably among EU countries thus affecting the reliability of cross country comparisons.

Fatalities

Definition: total number of persons fatally injured; correction factors applied when needed. Death within 30 days of the road crash, confirmed suicide and natural death are not included.

Victims

Total of fatalities, seriously injured and slightly injured and injured.

Motorway

Public road with dual carriageways, and at least two lanes each way. Entrance and exit signposted. Road with grade separated interchanges. Road with a central barrier or central reservation. No crossing permitted. No stopping permitted unless in an emergency. Entry prohibited for pedestrians, animals, bicycles, mopeds, agricultural vehicles.

Working week – daytime

Monday to Friday 6.00 a.m. to 9.59 p.m.

Working week – night

Monday 10 p.m. to Tuesday 5.59 a.m.

Tuesday 10 p.m. to Wednesday 5.59 a.m.

Wednesday 10 p.m. to Thursday 5.59 a.m.

Thursday 10 p.m. to Friday 5.59 a.m.

Weekend – daytime

Saturday to Sunday 6.00 a.m. to 9.59 p.m.

Weekend – night

Friday 10 p.m. to Saturday 5.59 a.m.

Saturday 10 p.m. to Sunday 5.59 a.m.

Sunday 10 p.m. to Monday 5.59 a.m.

7.2 Data source

The main data source for this report is CARE (Community database on Accidents on the Roads in Europe). The database contains data obtained from national data sources, not only EU members but also from the UK (up to 2018) and the 4 EFTA countries (Switzerland, Norway, Iceland, and Liechtenstein). The data in the report were extracted on 6 September 2021. As the database is not complete

for all countries and all years, additional data were provided by the European Commission in order to be able to calculate the general total for fatalities for the EU27.

7.3 Small cells

Absolute numbers of fatalities can be very small for small countries, which can strongly influence trend indicators and other derived indicators such as mortality. Care should be taken when interpreting these numbers. When commenting on the Figures, countries with small numbers were omitted.

7.4 Missing data

Some countries did not provide data for all years and/or all variables to the CARE database. When data are missing for specific combinations of years and countries, imputation is used to fill in the empty cells. Imputation results for individual countries are never published in the Facts and Figures reports, but they are aggregated to generate an imputed number at EU27 level. The following imputation method for individual countries is used:

- Values missing at the end of a time series are given the last known value in the series.
- Values missing at the beginning of a time series are given the first known value in the series.
- If values are missing in the middle of a time series, linear extrapolation is used.

