



European Road Safety Observatory

Facts and Figures - Seniors - 2020

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 2020 refer to 2018.

The topic "*Seniors*" is also addressed in the "*Road Safety Thematic Report Seniors*", presenting an overview of the most important research questions and results on this topic.

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Author	Nina Nuyttens (Vias institute)
Internal review	Frits Bijleveld (SWOV)
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Sources	Information in this document is based largely on data in the CARE database (Community database on Accidents on the Roads in Europe). Other data are taken from Eurostat. Date of extraction: 10 th December, 2020

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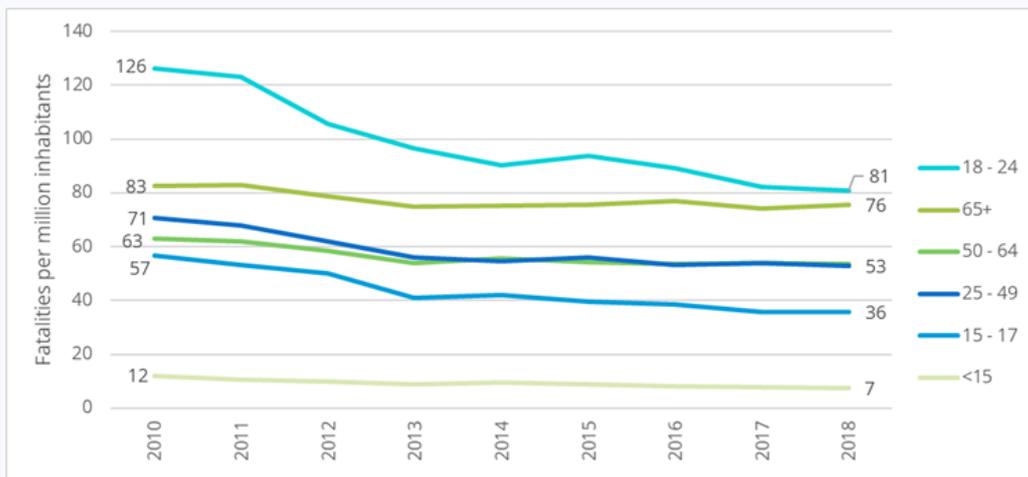
1 Key Facts

Senior Fatalities 2018

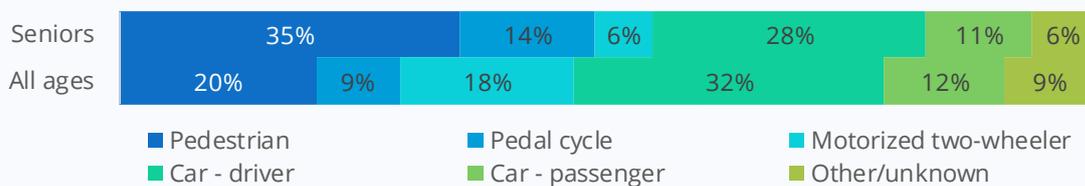


- 6727 fatalities
- 29% of all road fatalities
- highest vulnerability of all age groups
- second highest mortality of all age groups

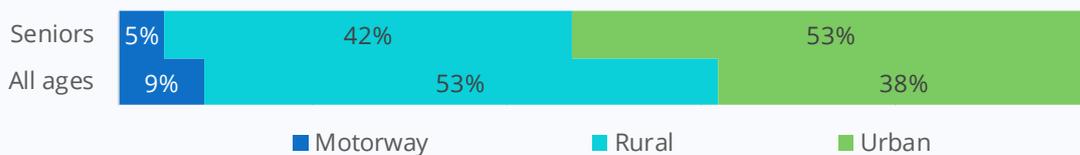
Mortality



Transport mode



Road type



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.

The absolute number of senior fatalities between 2010 and 2018 increased by 5% to more than 6,700 fatalities on the roads, but as the total number of road fatalities was decreasing, **their relative share increased even more sharply from 22% in 2010 to 29% in 2018**. Within the group of senior fatalities, the largest increase can be observed among the over-85s, with an absolute increase of 50% since 2010.

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 have 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 tend to score less well. Nevertheless, there are also **countries that score below average on both indicators, such as Portugal, Italy, Greece, Romania and Bulgaria**.

Compared to all fatalities combined, senior fatalities are more often women (34% among seniors versus 24% among all fatalities). In terms of transport mode, seniors have a very high death toll among the most vulnerable modes of transport: **35% of seniors killed are pedestrians, 14% are cyclists**. These are only EU averages, with even higher percentages in half of EU countries. In some central and east European Member States, namely Romania, Latvia and Lithuania, more than one in two senior fatalities is a pedestrian. In the Netherlands, 38% of senior fatalities are cyclists.

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

- Seniors are more often killed in daytime during the working week (72% versus 58% among all age groups).
- There are proportionately more fatalities on urban roads (53% versus 38%) and consequently fewer on rural roads and motorways.
- They are relatively more often killed at intersections (15% versus 10%) and less often (but still frequently) on road stretches (74% versus 81%).
- 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 (35% versus 44%).

Basic definition

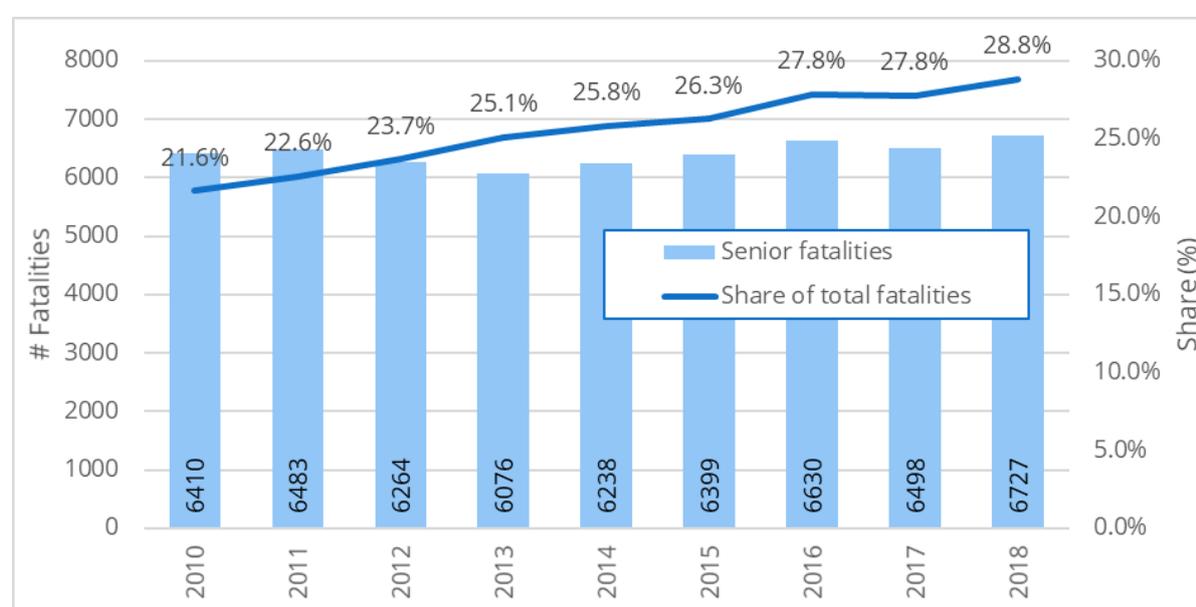
Seniors: in this report, seniors are understood to be persons aged 65 years and older.

2 Main trends

2.1 Fatalities

The number of senior fatalities increased between 2010 and 2018 from 6410 fatalities to 6727 fatalities. This corresponds to a percentage increase of 5%. Since the total number of road fatalities (all ages combined) decreased by 21% during the same period, the proportion of senior fatalities in the total number has increased sharply. **This share has grown from 22% in 2010 to 29% in 2018.** We have seen a fairly constant increase in this share since 2010 and so far this increase does not seem to be reversing. 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 2018.

Figure 1. Annual number of senior fatalities, and their share in the total number of fatalities in the EU27 (2010-2018). Source: CARE



Note: imputation (explained in "Notes") was used for missing values for specific combinations of years and countries.

The group of seniors is broken down into age categories in the Table below. The number of fatalities has not increased in all age categories. **The strongest increase occurs in the two outer age categories: 9% among 65-70 year olds and no less than 50% 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.

All data (underlying the Figures) can be downloaded via the excel file "F&F Seniors".

Table 1. Annual number of senior fatalities by 5-year age categories (2010-2018). Sources: CARE & Eurostat

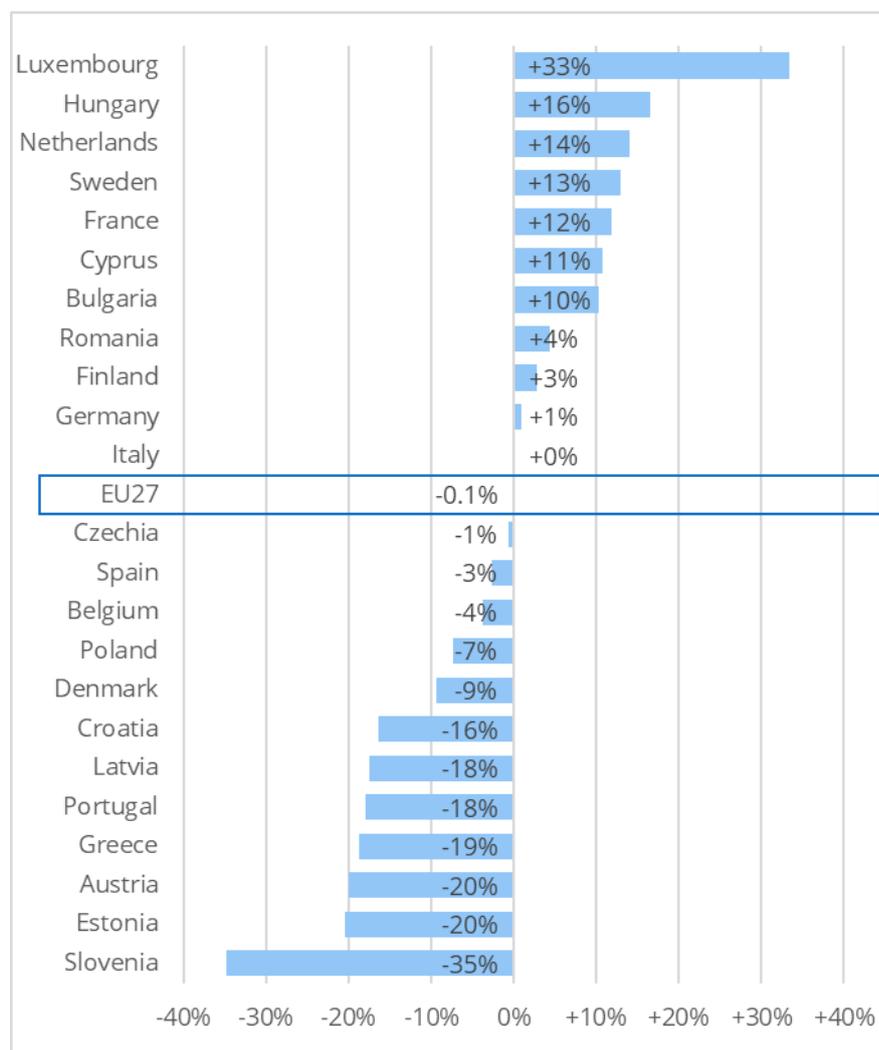
	2010	2016	2017	2018	Trend fatalities 2010-2018	Trend population 2010-2018
65-69	1349	1466	1423	1472	+9%	+21%
70-74	1478	1222	1224	1374	-7%	+5%
75-79	1462	1458	1369	1365	-7%	+8%
80-84	1303	1345	1313	1289	-1%	+13%
85+	818	1139	1169	1227	+50%	+35%
Total	6410	6630	6498	6727	+5%	+15%

Note: imputation was used for missing values for specific combinations of years and countries.

Because some countries with relatively small numbers of inhabitants have a low number of annual road fatalities (and therefore strong annual relative fluctuations), the evolution of senior fatalities for individual EU countries is not calculated by comparing 2018 with 2010 but by comparing three-year averages, i.e. 2016-2018 versus 2009-2011. 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 decrease of -0.1%, a factual status quo (see Figure below). The major difference between the two trend indicators lies in the fact that when comparing the three-year averages, the year 2009 is included in the calculation. The year 2009 is an outlier with a high number of senior fatalities (i.e. 6988).

Countries that show the least favourable trend are: Hungary, the Netherlands, Sweden, France and Bulgaria (Luxembourg and Cyprus are not mentioned because these are countries with a low number of fatalities). **Italy and Germany have the highest number of senior fatalities and show a stagnation since 2010.**

Figure 2. Percentage change in the number of senior fatalities per country in the EU27 (2016-2018 versus 2009-2011). Source: CARE



Notes:

- Imputation was used to compute the trend for EU27.
- Countries that are not included in the Figure are Ireland, Lithuania, Malta and Slovakia because these countries have missing values in the time series 2009-2018.

Table 2. Number and trend of senior fatalities per country in the EU27, EFTA and UK (2010; 2016-2018).

Source: CARE

	2010	2016	2017	2018	Trend (2016-2018 VS 2009-2011) (%)	Miniplot trend since 2010
Austria	140	137	101	121	-20%	
Belgium	155	162	151	169	-4%	
Bulgaria	147	140	178	151	+10%	
Croatia	97	83	79	78	-16%	
Cyprus	11	14	17	10	+11%	
Czechia	172	160	150	167	-1%	
Denmark	67	72	51	50	-9%	
Estonia	17	17	12	14	-20%	
Finland	64	69	73	79	+3%	
France	765	883	869	842	+12%	
Germany	910	1049	994	1045	+1%	
Greece	268	236	192	224	-19%	
Hungary	137	159	180	184	+16%	
Ireland	30	45	NA	NA	/	
Italy	1064	1045	1109	1061	+0%	
Latvia	36	35	29	30	-18%	
Lithuania	NA	NA	NA	NA	/	
Luxembourg	3	12	4	4	+33%	
Malta	0	5	9	2	/	
Netherlands	154	198	190	215	+14%	
Poland	674	656	673	699	-7%	
Portugal	277	201	181	230	-18%	
Romania	494	509	535	563	+4%	
Slovakia	48	49	44	45	/	
Slovenia	30	24	21	15	-35%	
Spain	527	515	467	498	-3%	
Sweden	71	89	78	120	+13%	
Total EU27	6410	6630	6498	6727	-0%	
Iceland	2	6	3	3	+71%	
Norway	42	32	32	NA	/	
Switzerland	101	68	70	93	-25%	
United Kingdom	377	456	477	487	+14%	

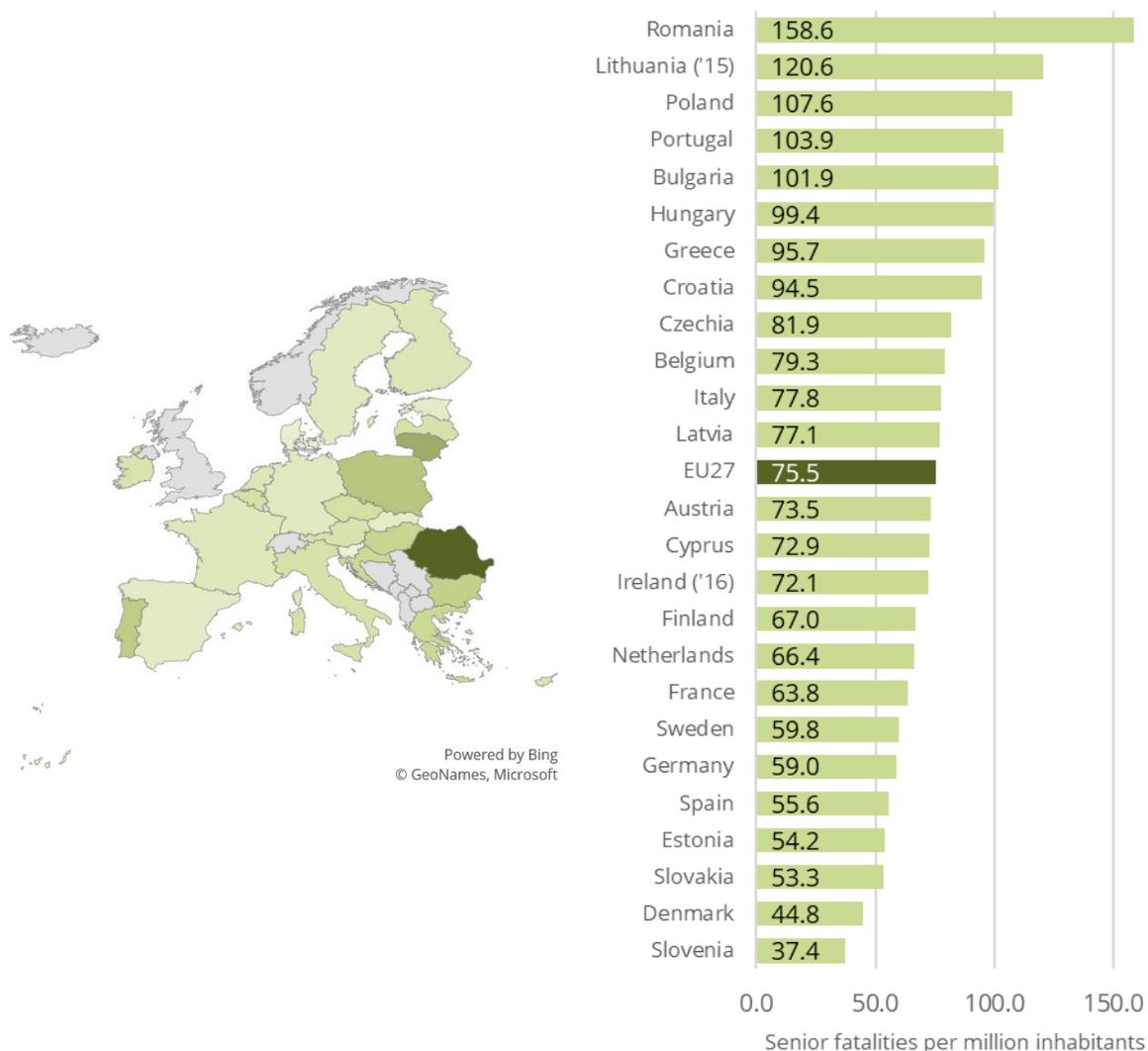
Notes:

- Imputation was used to compute the trend for EU27.
- For countries with missing values, no or less information is included about trends.

2.2 Mortality : number of senior road fatalities per million inhabitants

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

Figure 3. Senior fatalities per million senior inhabitants per country in the EU27 (2018). Sources: CARE & EUROSTAT



Notes:

- Imputation was used to compute the overall share for EU27.
- With the exception of Lithuania (2015) and Ireland (2016), data for 2018 were used.
- The population in the overseas territories was not excluded when calculating the mortality rate for France.
- Due to small numbers of fatalities, Malta and Luxembourg are not included.

2.3 Proportion of fatalities : number of senior fatalities in the total number of road 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. The proportion rate shows the relative incidence of senior fatalities for a specific country.

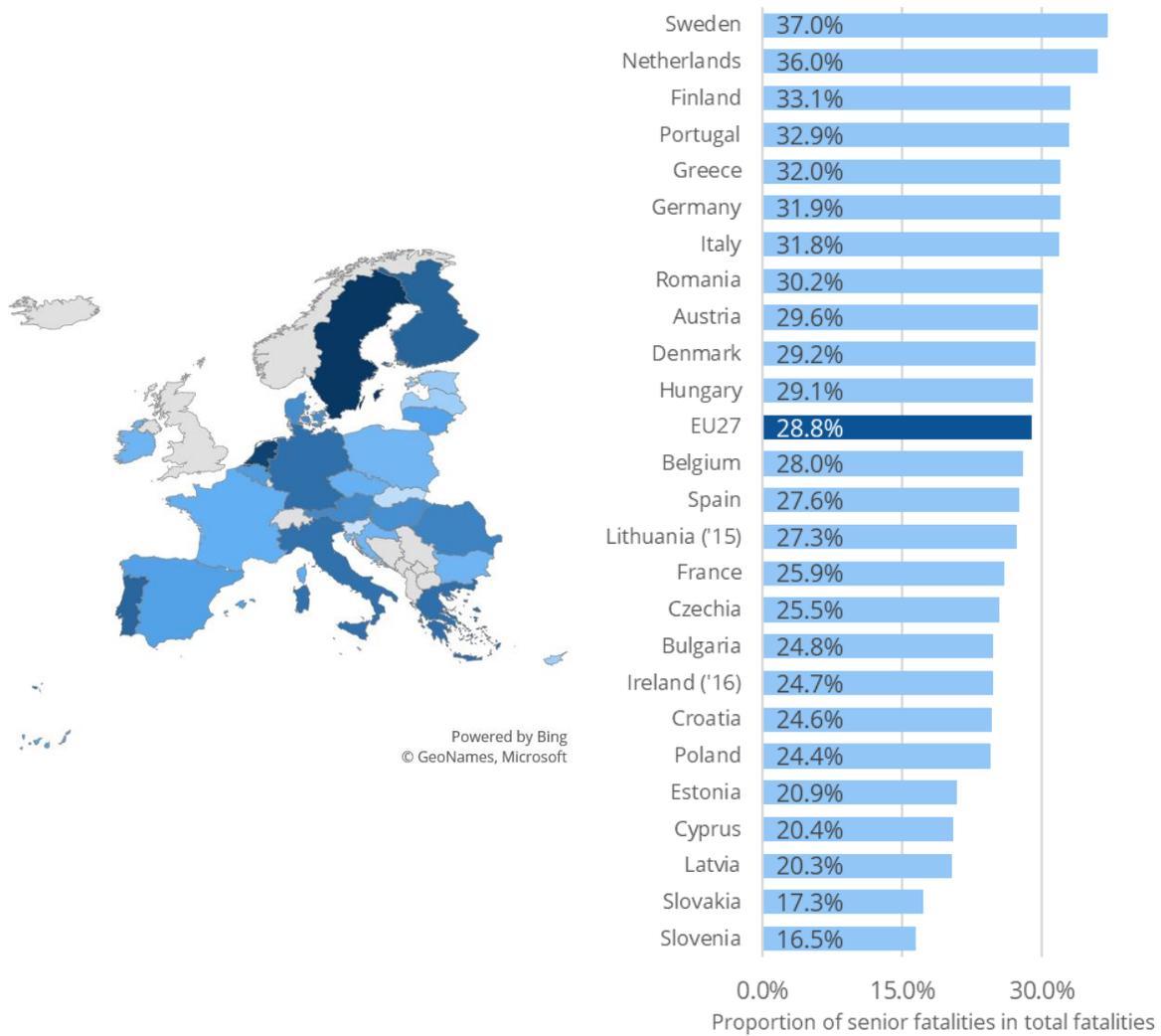
On the other hand, the proportion of senior fatalities in the total might be high because of the high proportion of this specific age group within the total population. This in turn is taken into account by the mortality rate. In other words, both the "proportion rate" and the "mortality rate" are important for correct interpretation of a road safety problem.

Observations for senior fatalities based on the proportion rate are different from those based on the mortality rate. Although **Sweden, the Netherlands and Finland** score better than average in terms of mortality, they score **worst in terms of proportion**: at least one in three fatalities is 65 years of age or older. Considering their populations, these countries do not score badly, but older people may merit more attention in these countries because of their relative share in all road fatalities.

Most **central and eastern European Member States** have a better ranking on the proportion rate 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, Greece, Romania and Hungary score below average for the two indicators. The high proportion is thus partly due to a disproportionately high mortality rate.

Figure 4. Number of senior fatalities in the total number of fatalities, per country in the EU27 (2018). Source: CARE



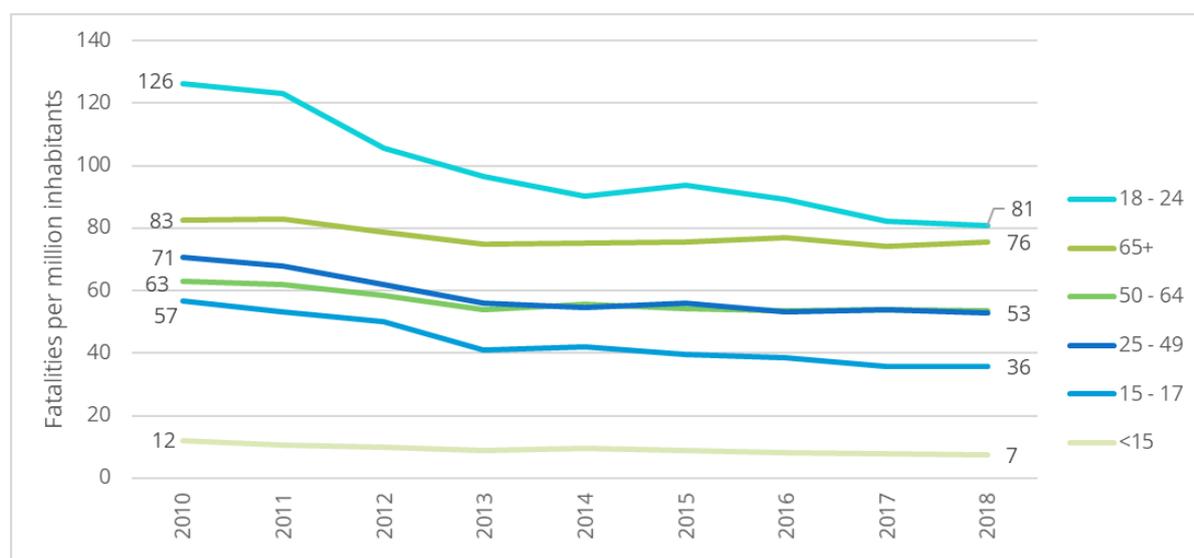
Notes:

- Imputation was used to compute the overall proportion for EU27.
- With the exception of Lithuania (2015) and Ireland (2016), data for 2018 were used.
- Due to small numbers of fatalities, Malta and Luxembourg are not included.

2.4 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 2018, only 18-24 year olds form an exception to this rule. In 2018 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 adults has decreased by more than a third since 2010, **the mortality for seniors has decreased by only a tenth, 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 5. Annual number of fatalities per million inhabitants (= mortality) by age group in the EU27 (2010-2018). Sources: CARE & EUROSTAT

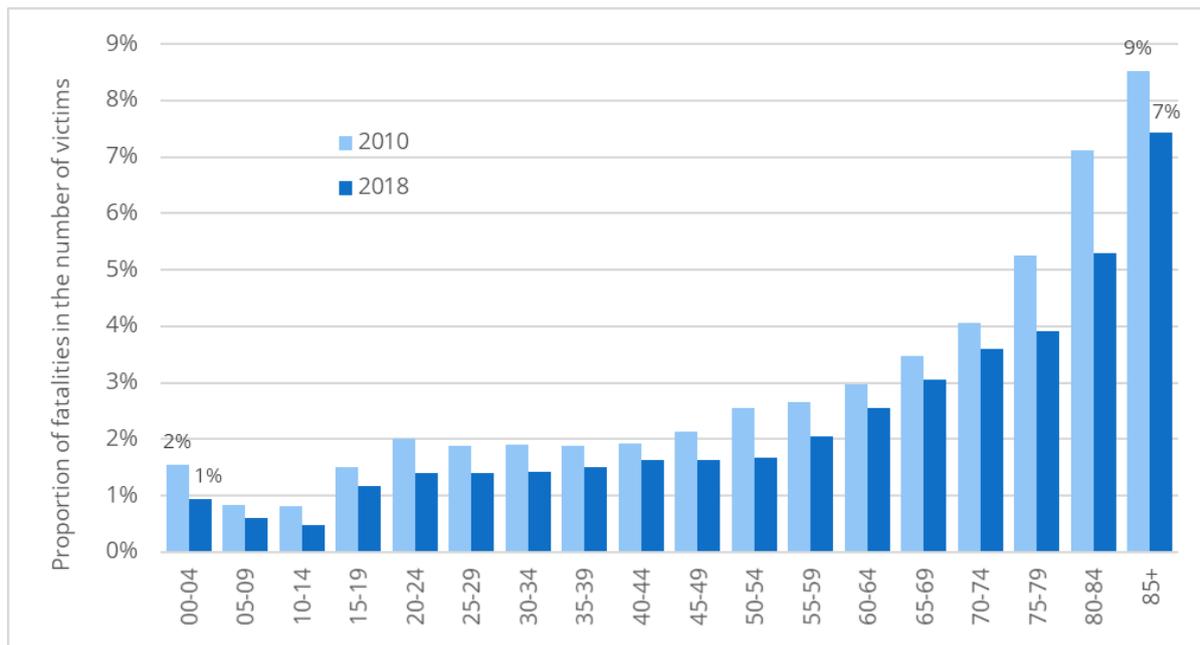


Note:

- Imputation was used for missing values for specific combinations of years and countries.

High physical vulnerability in seniors is one of the reasons for the high mortality 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 (cf. Thematic Report on Seniors). The Figure below shows the share of fatalities in the total number of registered traffic victims per 5-year age category. In 2018, 7 out of 100 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 6. Proportion of fatalities in the total number of reported victims (= vulnerability) by age group in the EU27 (2018). Source: CARE

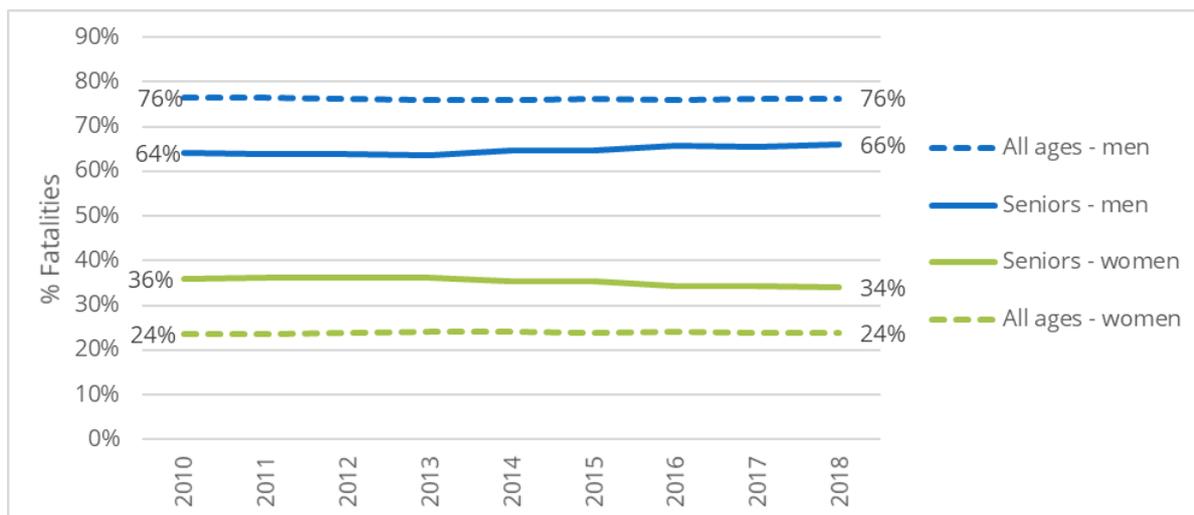


3 Road user

3.1 Gender

76% 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.

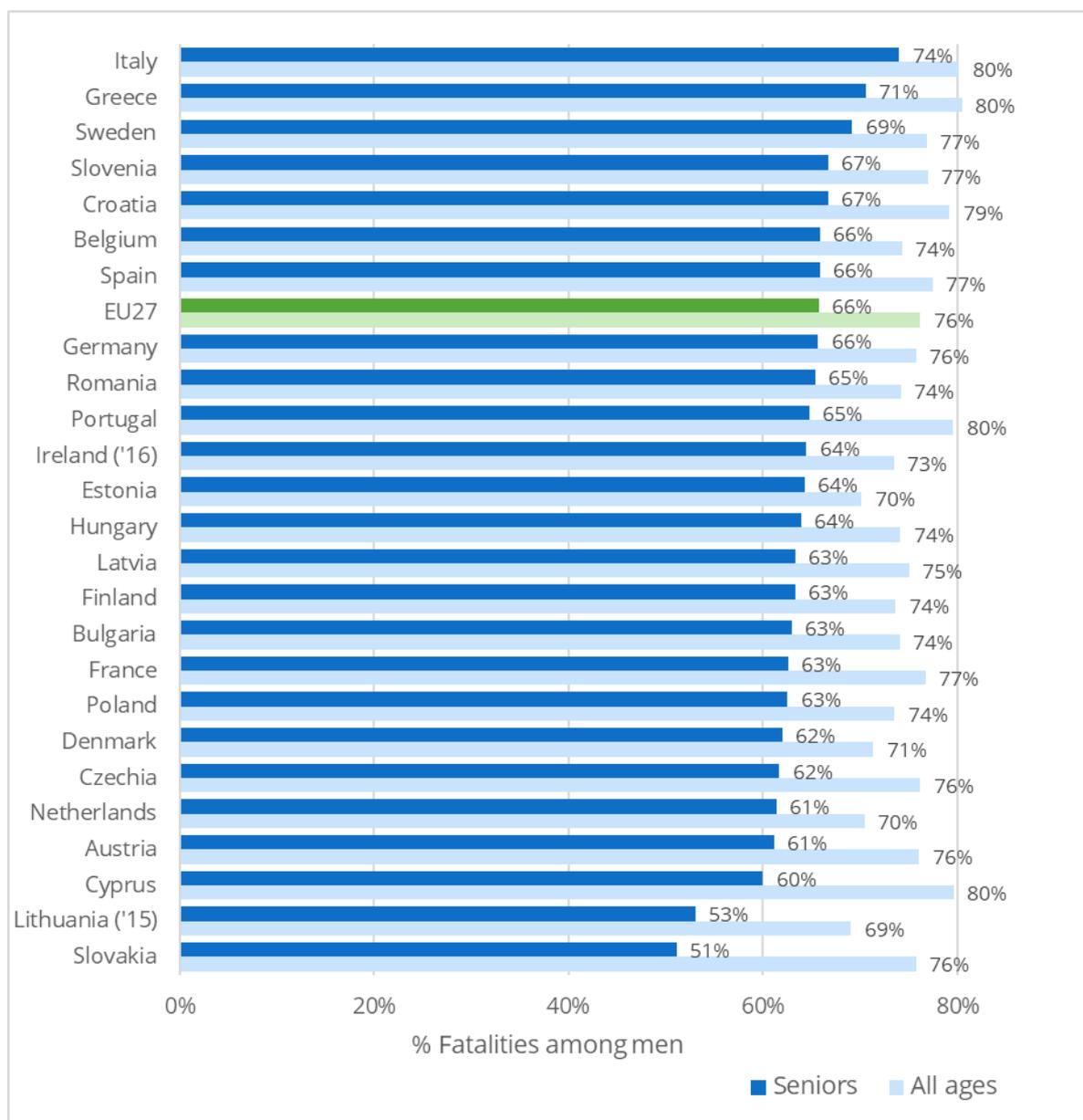
Figure 7. Distribution of senior fatalities and all fatalities by gender in the EU27 (2010-2018). Source: CARE



Note: the relative share of fatalities with gender "unknown" is 0.2% in 2018. Therefore, the category "unknown" is omitted from the Figure.

In Italy and Greece, the proportion of men among senior fatalities is 71% or higher, which is notably higher than the European average. In the Netherlands, Austria, Lithuania and Slovakia it is notably lower (61% or less).

Figure 8. Share of men among senior fatalities and among all fatalities per country in the EU27 (2018).
Source: CARE



Notes:

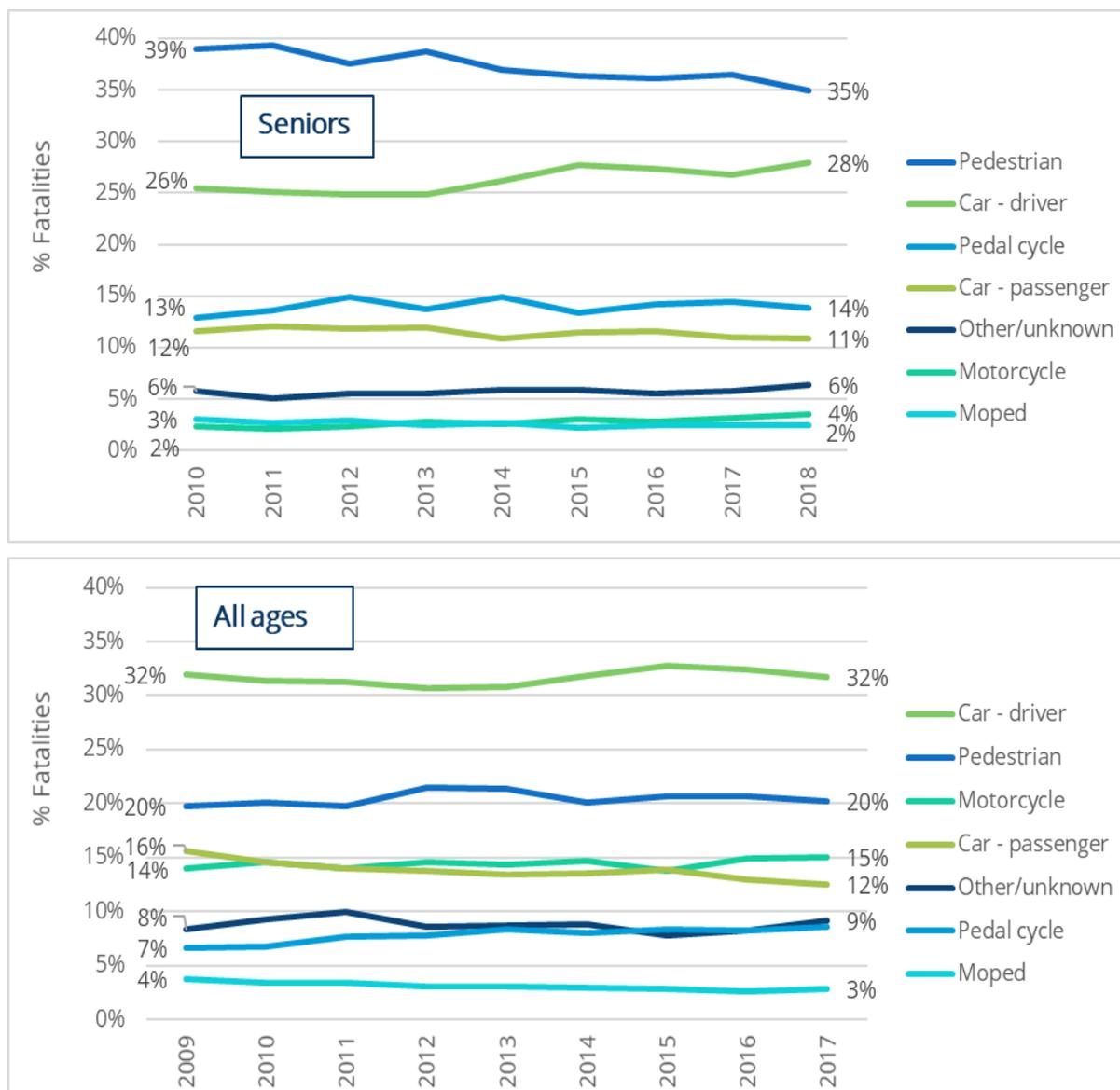
- The relative share of fatalities with gender "unknown" is 0.2% in 2018. Therefore, the category "unknown" is omitted from the Figure.
- Due to small numbers of fatalities, Malta and Luxembourg are not included.

3.2 Transport mode

Half of all fatalities among seniors are either pedestrians (35% of all senior fatalities) or cyclists (14%). For all road fatalities combined, regardless of age, this amounts to 29%, namely 20% for pedestrians and 9% for cyclists. Compared to all fatalities together, seniors have proportionally fewer fatalities than drivers of cars and motorized two-wheelers.

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.

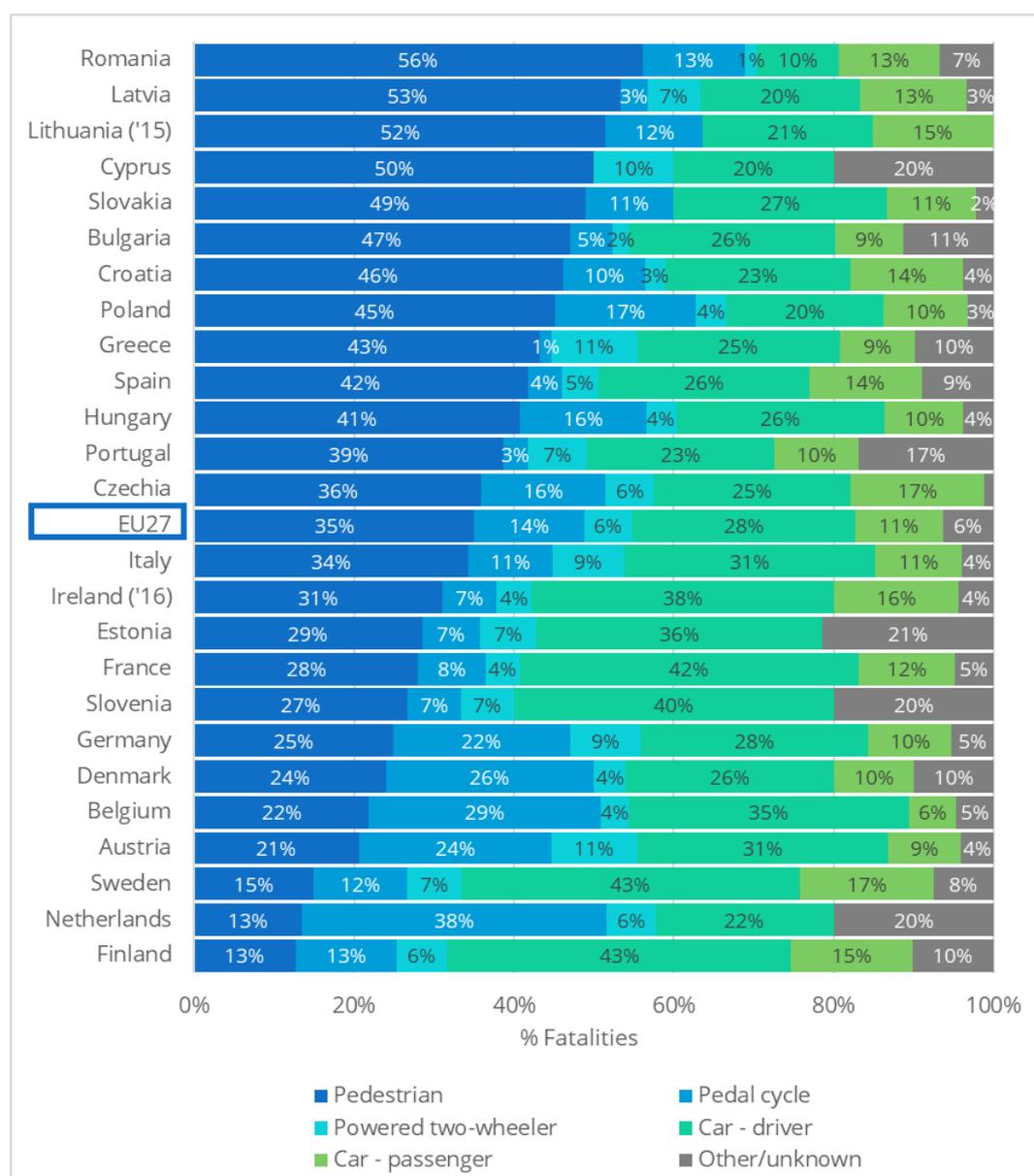
Figure 9. Distribution of senior fatalities and all fatalities by transport mode in the EU27 (2010-2018).
Source: CARE



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 east-European Member States, namely Romania, Latvia 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 Austria. 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 10. Distribution of senior fatalities by transport mode per country in the EU27 (2018). Source: CARE



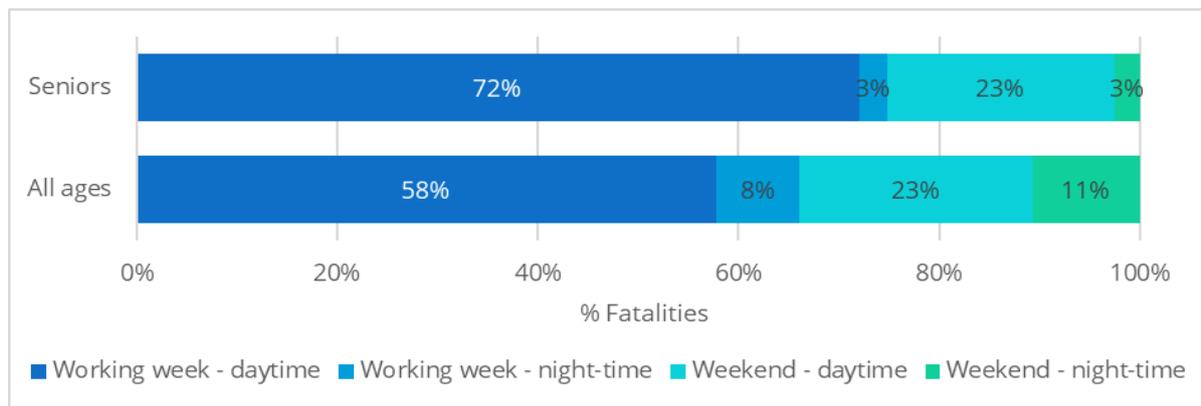
Note: due to small numbers of fatalities, Malta and Luxembourg are not included.

4 Time

4.1 Period of the week

Compared to all fatalities combined, senior fatalities occur more often during the working week (when 72% 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 19% for all fatalities combined.

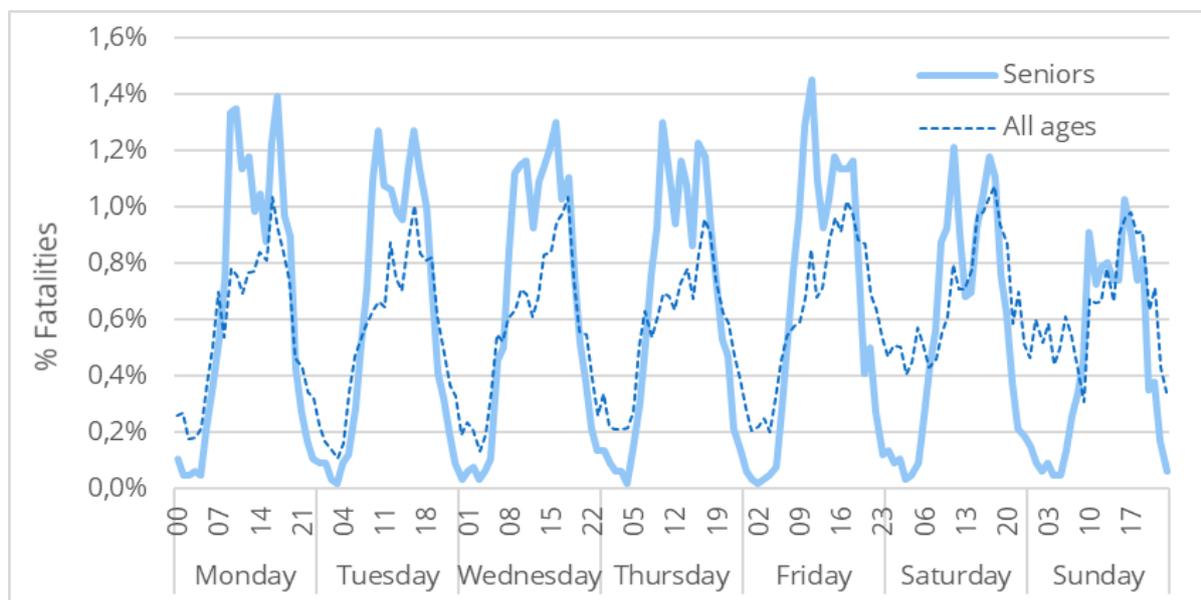
Figure 11. Distribution of senior fatalities and all fatalities according to period of the week in the EU27 (2018). Source: CARE



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.

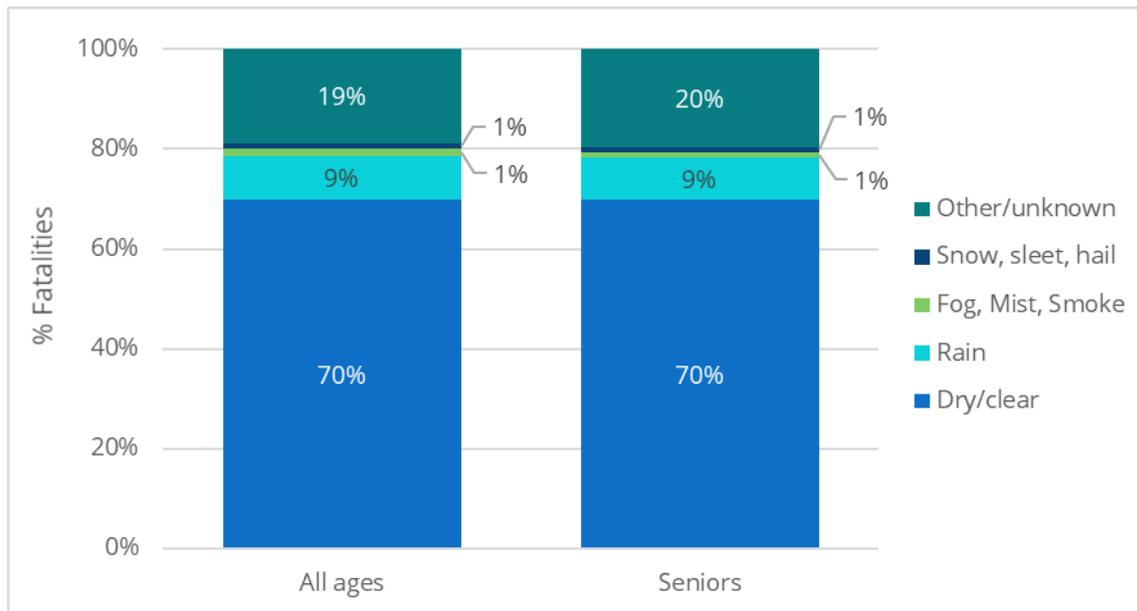
Figure 12. Distribution of senior fatalities and all fatalities by day of the week and hour in the EU27 (2018). Source: CARE



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. **70% of senior fatalities are killed in dry/clear weather**, 9% in rain. Very rarely do fatalities occur in less prevalent weather conditions such as fog, fog, snow or hail.

Figure 13. Distribution of senior fatalities and all fatalities according to weather conditions during the crash in the EU27 (2018). Source: CARE

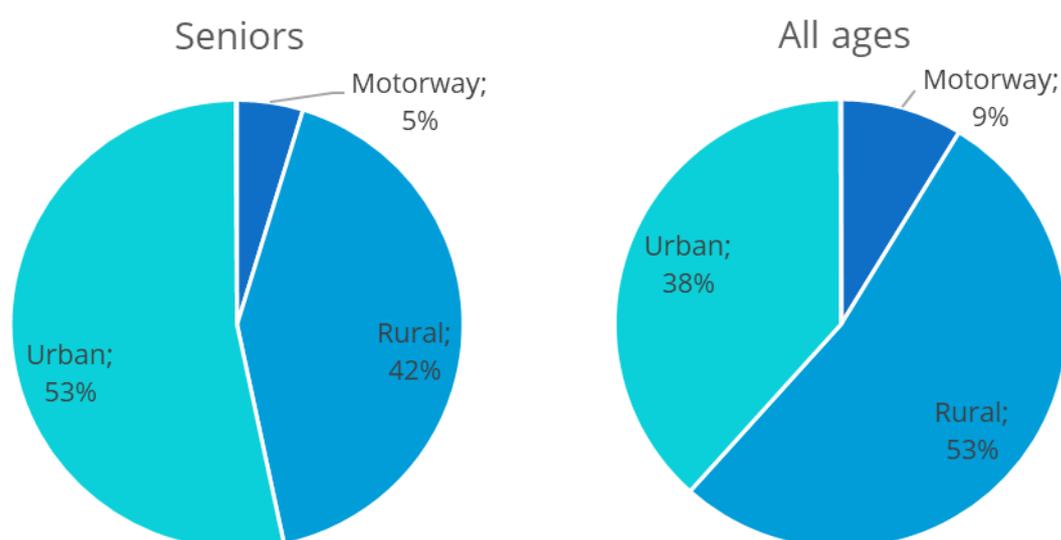


5 Location

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 9%) and on rural roads (42% versus 53%).

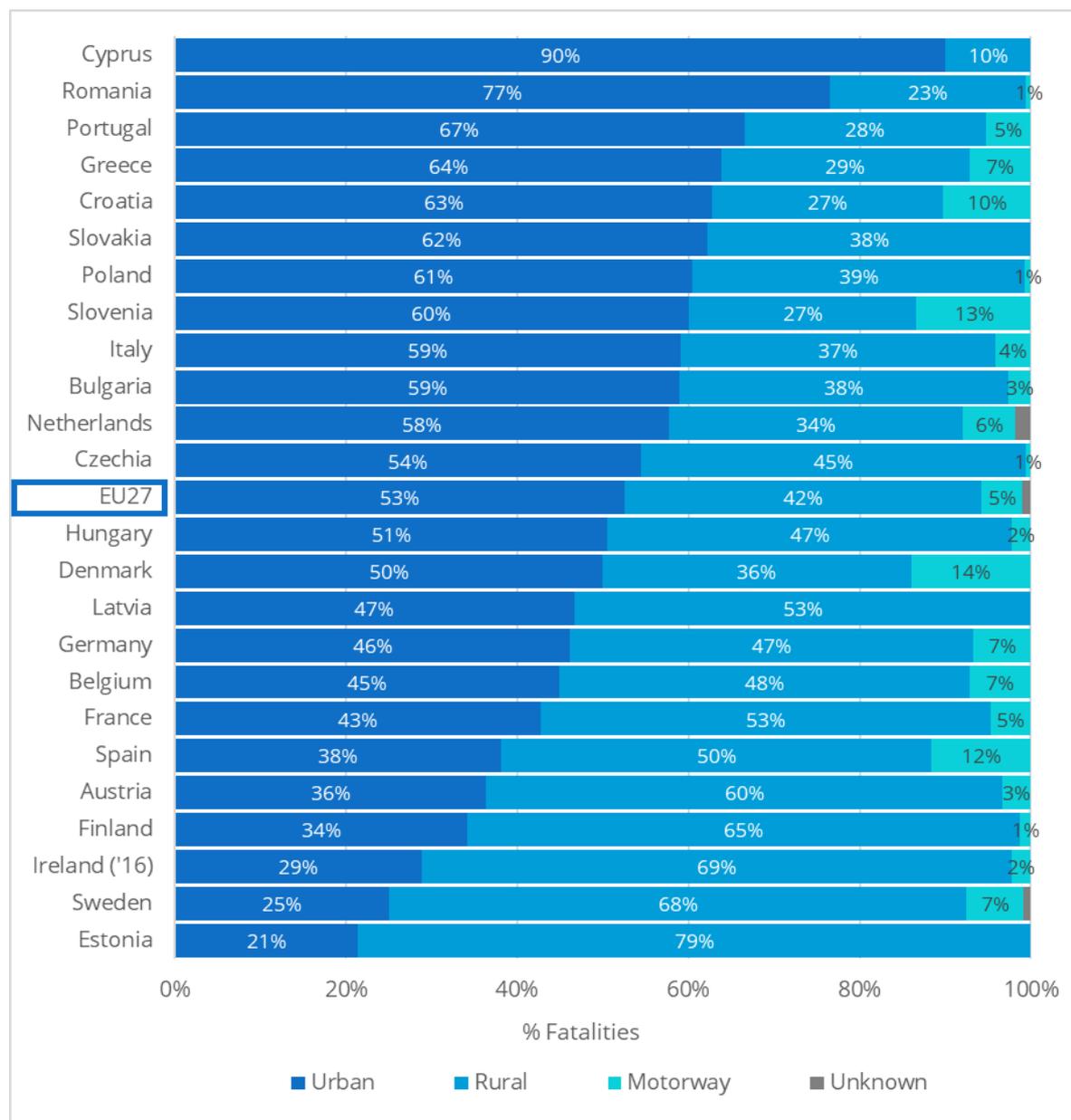
Figure 14. Distribution of senior fatalities and all fatalities by road type in the EU27 (2010-2018). Source: CARE



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, Portugal and Greece. 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 (12%).

Figure 15. Distribution of senior fatalities by road type per country in the EU27 (2018). Source: CARE



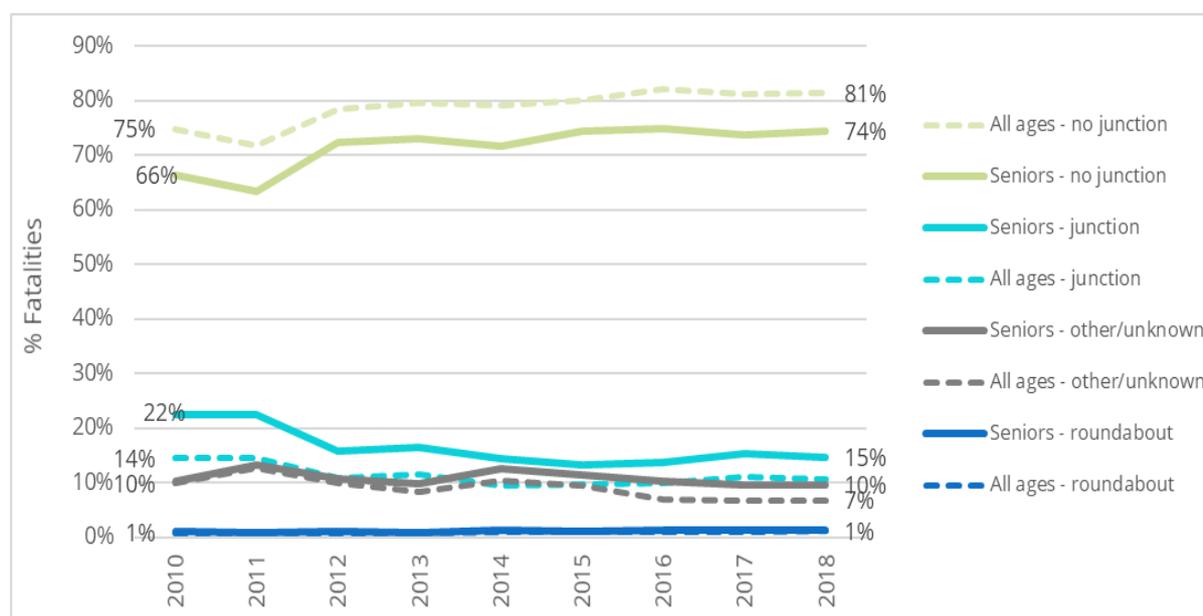
Notes:

- Lithuania is not included because for all 66 senior fatalities in Work2015, "road type" is unknown.
- Due to small numbers of fatalities, Malta and Luxembourg are not included.

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: **74% were killed on a road stretch** in 2018 against 81% for all fatalities combined. **Among seniors, there are relatively more fatalities at junctions** (15% versus 10% for all fatalities). Older pedestrians are overrepresented in crashes at intersections where they have been struck by a turning vehicle (cf. Thematic Report on Seniors). And compared to all drivers combined, seniors drivers of motorised vehicles have proportionally more crashes when turning across oncoming traffic at an intersection (cf. Thematic Report on Seniors).

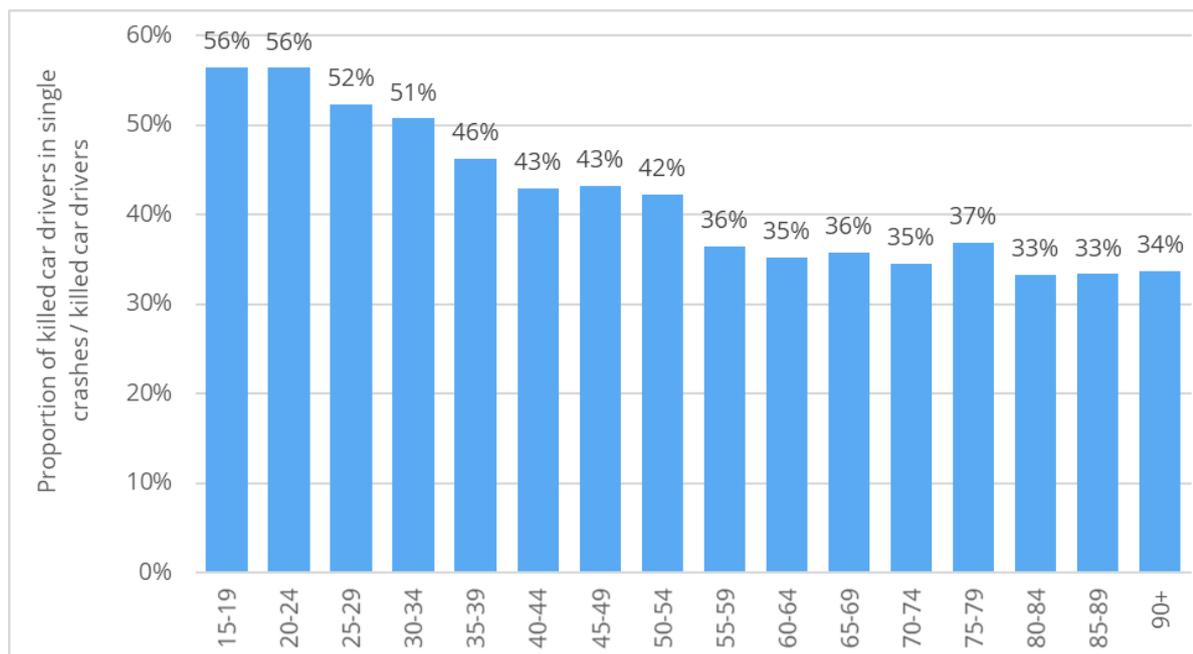
Figure 16. Distribution of senior fatalities and all fatalities by junction type in the EU27 (2010-2018). Source: CARE



6 Type of collision

Amongst car drivers over 65 years of age who died, 35% 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 17. 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 (2016-2018). Source: CARE



Notes

Definitions

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

CADAS Glossary: https://ec.europa.eu/transport/road_safety/sites/road-safety/files/pdf/statistics/cadas_glossary.pdf

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

Crash (Source: UNECE/ITF/Eurostat Glossary)

Any accident involving at least one road vehicle in motion on a public road or private road to which the public has right of access, resulting in at least one injured or killed person.

Fatality (Source: CADAS Glossary)

Death within 30 days of the road accident; confirmed suicide and natural death are not included.

Victims (Source: CARE database)

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

Vulnerable road users

In the Facts and Figures reports vulnerable road users refer to pedestrians, cyclists, riders of mopeds and motorcyclists.

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.

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 and the 4 EFTA countries (Switzerland, Norway, Iceland, and Liechtenstein). The data in the report were extracted on 10 December 2020.

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.

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.

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.

Figures that only contain information on the relative distribution of fatalities have not been obtained through imputation. These are mostly the Figures from section 3 onwards. The report always mentions in footnotes when imputation was used. If this is not mentioned in the footnotes, no imputation was used.

Countries included

The Figures in this report present the information for the countries that are members of the EU at the time of publication of the report. In December 2020, 27 countries were members of the European Union, excluding the UK. The EFTA countries and the UK are included in Table 2.

Liechtenstein is excluded from this report because no recent accident data containing breakdowns according to transport mode and other variables data are available for this country.

