



European
Commission



Facts & Figures Report
Car Occupants



This document is part of a series of 20 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 most recent figures in this Facts and Figures report of 2024 refer to 2022. These reports can be found on the ERSO website (https://road-safety.transport.ec.europa.eu/statistics-and-analysis/data-and-analysis/facts-and-figures_en).

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Contents

1.	Key facts.....	4
2.	Summary	5
3.	Main Trends.....	7
3.1	Absolute number of road fatalities.....	7
3.2	Mortality rate: number of road fatalities per million inhabitants	8
3.3	Share of car occupant fatalities in the total number of road fatalities.....	9
3.4	Trend in the number of fatalities.....	11
3.5	Comparison with other transport modes.....	15
4.	Road user	16
4.1	Gender	16
4.2	Age	18
4.3	Transport modes involved	22
4.4	Single vehicle crashes.....	23
5.	Location.....	25
5.1	Road type.....	25
5.2	Junction	26
6.	Time	27
6.1	Period of the week	27
6.2	Day of the week, time of the day and hour	27
6.3	Road surface.....	28
7.	Notes	29
7.1	Definitions	29
7.2	Data source	31
7.3	Small cells	31
7.4	Missing data.....	31
7.5	Data cleaning.....	32

1. Key facts

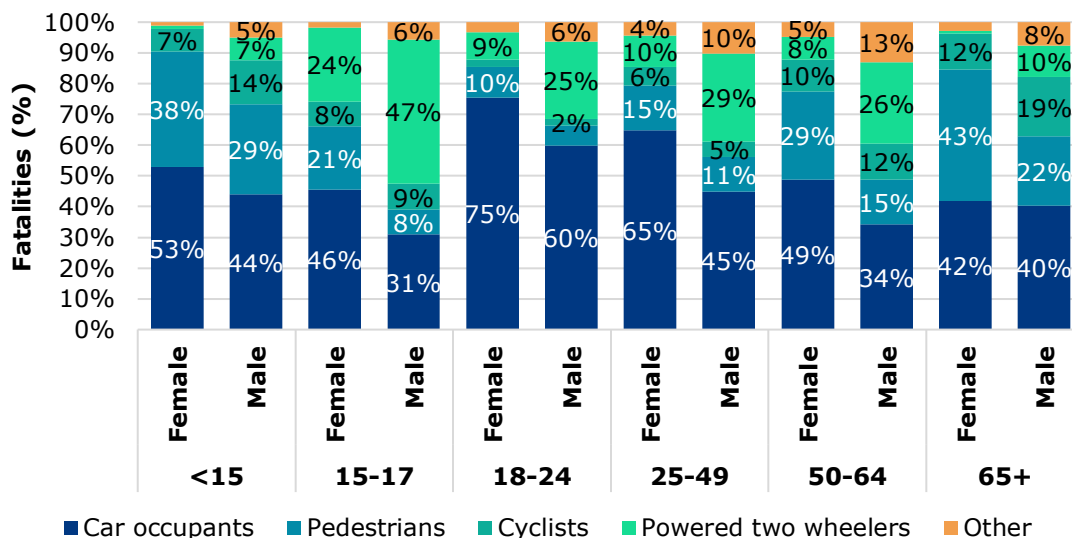
This Facts and Figures report looks at fatalities of car occupants on European roads. Occupants are car drivers as well as car passengers (front or rear seat). All observations reported were derived from the available data, the statistical significance of differences or relations between values has not been tested.

Car occupant fatalities in the EU27 2022

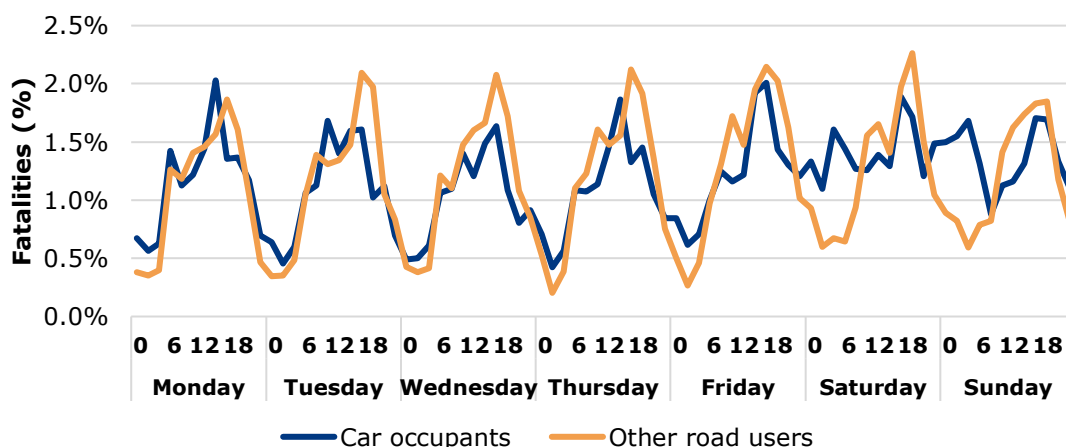


- 9,217 fatalities
- 45% of all road fatalities
- Slightly larger decrease (-25%) since 2012 versus decrease of all road users (-22%)

Gender, age and transport modes



Day of the week and hour



2. Summary

In 2022, the highest mortality rates (number of fatalities per million inhabitants) were observed in Bulgaria, Croatia, Romania, Luxembourg and Latvia. Switzerland, Slovenia and Sweden recorded the lowest mortality rate. **The mortality rate for car occupants is mainly higher in the east of the EU compared to other parts.** The share of car occupant fatalities within the total number of road fatalities is highest in Luxembourg, Lithuania, and Ireland. **The total number of car occupant fatalities in the EU27 has decreased by 9% since 2019.**

45% of all road fatalities in the EU27 in 2022 were car occupants. This portion has been somewhat stable over the past decade (46% in 2012 and 44% in 2019). Among the car occupant fatalities, drivers account for 72% compared to passengers (front and rear seat) and **37% were single vehicle crashes** with no crash opponent.

A majority of 82% of fatally injured car drivers in the EU27 are men, while almost half of the car passenger fatalities are female (49%). Looking at the car occupant fatalities in the EU 27, 74% are men. This ratio varies considerably between the Member States. **Further, the age group of 20 to 24 years has the highest share among car driver fatalities in single car crashes.**

Two thirds of car occupant fatalities in the EU can be attributed to crashes on rural roads (66% in 2022), and about a quarter occurs on urban roads (23%). The vast majority of fatal car crashes in 2022 occurred on road stretches (87%) rather than on junctions. Furthermore, in 26% of the car occupant fatalities in 2022 the road surface was not dry at the time of the crash.

COVID-19 pandemic

The impact of the global COVID-19 pandemic on the CARE data for 2020 and 2021 is evident. Overall traffic volumes dropped sharply during the pandemic, which was associated with a significant drop in road traffic crashes and fatalities. However, the pattern was not homogeneous throughout the EU-27. For example, the number of fatalities actually increased in three Member States in 2020 during COVID-19. Therefore, the impact varied from country to country and there were also behavioural changes - for example there is some evidence of increased speeding. Further research is needed to understand the impact of the pandemic on road safety.

More data

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

3. Main Trends

3.1 Absolute number of road fatalities

Table 1. Car occupant fatalities per country in the EU27 and EFTA (2022). Source: CARE

Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	LT*	ST*
Belgium	402	367	392	375	343	285	275	306	221	213	215	-47%	-30%
Bulgaria	335	367	379	396	456	369	341	348	260	307	323	-4%	-7%
Czechia	368	308	347	365	328	279	333	329	269	244	278	-25%	-16%
Denmark	81	79	89	74	96	99	65	87	80	54	68	-16%	-22%
Germany	1,791	1,588	1,579	1,624	1,537	1,437	1,424	1,364	1,170	1,118	1,192	-33%	-13%
Estonia	42	41	33	35	33	27	21	20	7	22	24	-43%	20%
Ireland	90	107	103	89	106	78	59	81	-	-	-	-	-
Greece	383	347	289	314	340	285	267	202	205	226	-	-41%	12%
Spain	871	716	722	693	754	799	732	641	544	611	681	-22%	6%
France	1,881	1,615	1,663	1,796	1,760	1,767	1,637	1,622	1,243	1,414	1,565	-17%	-4%
Croatia	186	195	141	164	148	187	154	141	126	129	143	-23%	1%
Italy	1,695	1,491	1,497	1,476	1,477	1,472	1,423	1,411	1,018	1,192	1,375	-19%	-3%
Cyprus	18	16	15	24	10	14	15	14	18	20	11	-39%	-21%
Latvia	72	71	91	85	71	59	70	62	64	-	-	-	-
Lithuania	-	108	118	115	85	84	73	84	78	87	59	-	-30%
Luxembourg	22	30	24	16	19	13	19	16	9	15	23	5%	44%
Hungary	253	254	256	304	269	277	291	273	219	267	273	8%	0%
Malta	-	-	-	4	5	9	5	7	1	3	-	-	-
Netherlands	218	180	171	214	225	194	245	240	198	180	225	3%	-6%
Austria	282	194	191	241	191	182	181	200	146	161	180	-36%	-10%
Poland	1,615	1,448	1,346	1,332	1,417	1,295	1,291	1,333	1,162	1,094	913	-44%	-32%
Portugal	255	214	223	214	225	204	238	235	198	203	211	-17%	-10%
Romania	798	721	724	787	785	812	737	682	617	800	698	-13%	2%
Slovenia	53	40	41	38	45	30	32	28	29	32	21	-60%	-25%
Slovakia	-	-	-	-	127	156	120	124	128	129	132	-	7%
Finland	147	152	121	159	150	133	146	123	127	127	-	-14%	3%
Sweden	142	144	122	144	138	131	181	103	106	-	-	-	-
EU	12,239	10,924	10,808	11,205	11,140	10,677	10,375	10,076	8,324	8,899	9,217	-25%	-9%
Iceland	6	11	3	12	13	9	12	3	5	4	3	-	-
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	73	105	72	67	67	57	61	61	41	40	58	-21%	-5%
Switzerland	104	103	97	75	75	78	79	65	71	65	87	-16%	34%

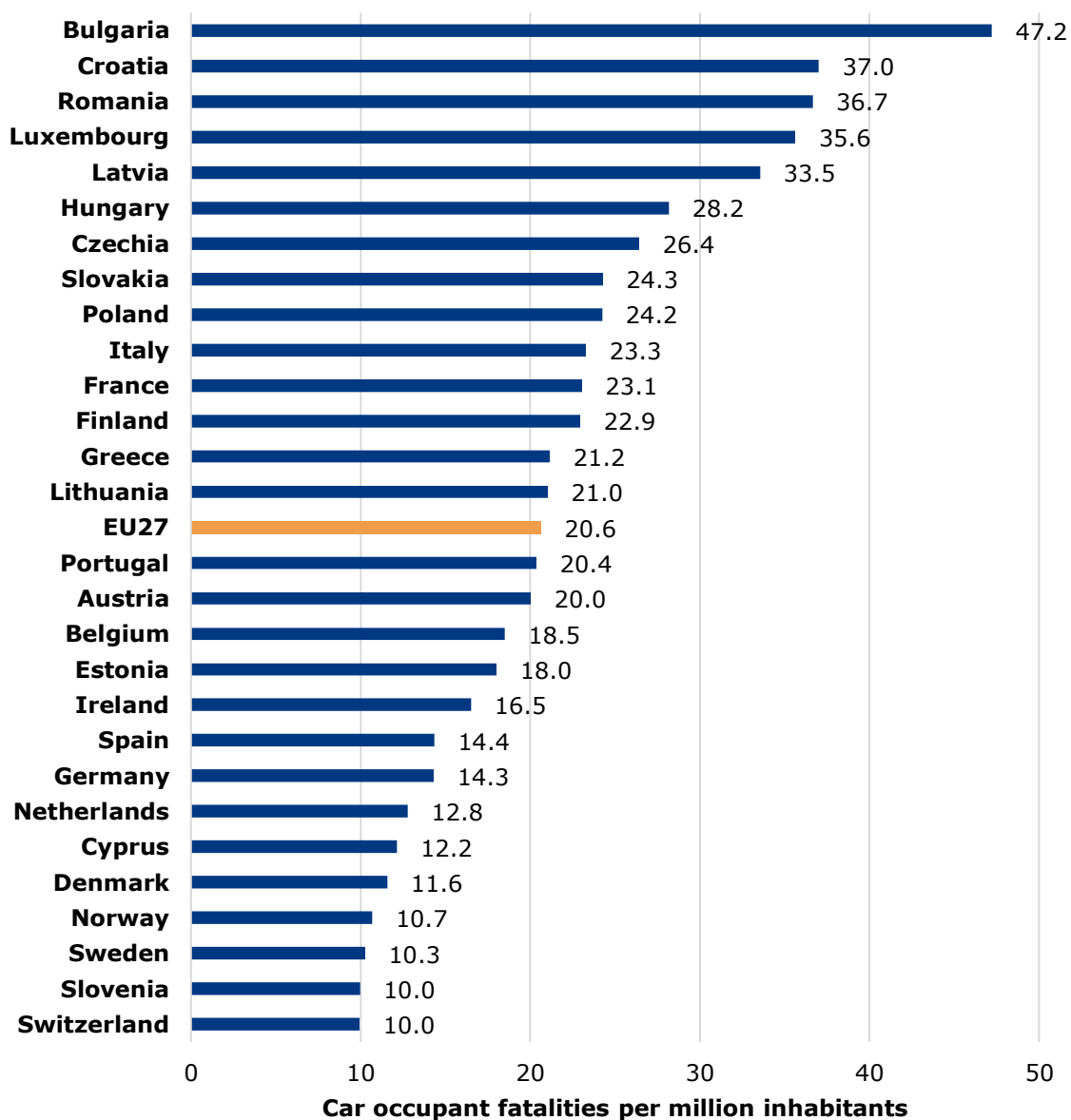
*LT = Long term change of last available year over 2012.

*ST = Short term change of last available year over 2019.

3.2 Mortality rate: number of road fatalities per million inhabitants

Bulgaria has the highest rate of fatally injured car occupants per million inhabitants, while Switzerland and Slovenia have the lowest mortality rate in this road user group. The mortality rate for car occupants is somewhat higher in Eastern Europe compared to other parts of the EU.

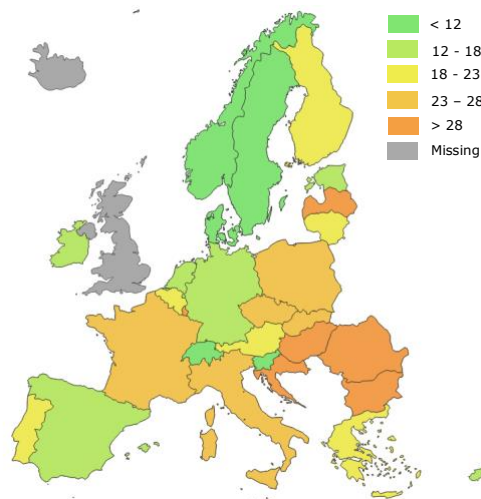
Figure 1. Car occupant fatalities per million inhabitants per country in the EU27 and EFTA (2022). Source: CARE, EUROSTAT



Notes:

- Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.

- For Ireland, Greece Latvia, Finland and Sweden the missing value for 2022 was imputed with the last known value in the series.



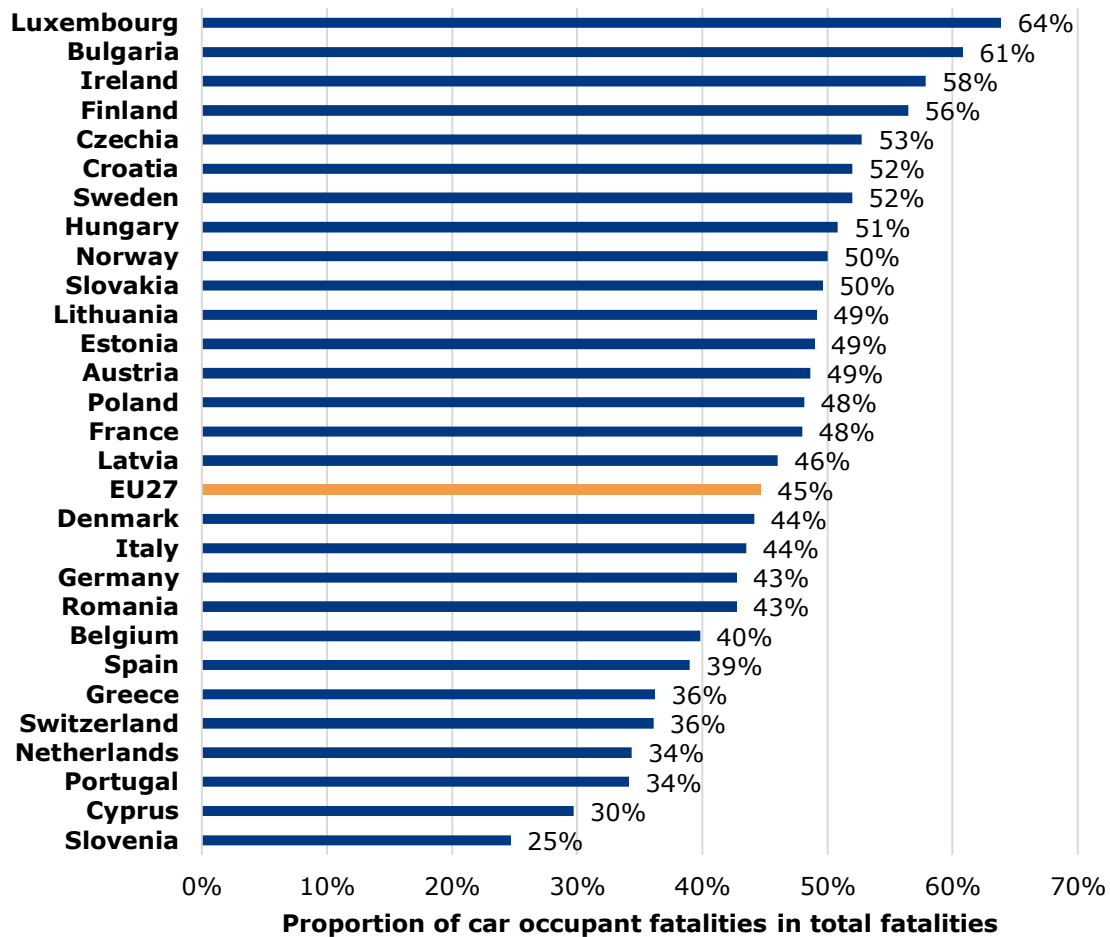
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3.3 Share of car occupant fatalities in the total number of road fatalities

The mortality rate as a road safety indicator is important, however, it can be insightful to also look at the share of car occupant fatalities as measured by the total number of road fatalities (all transport modes).

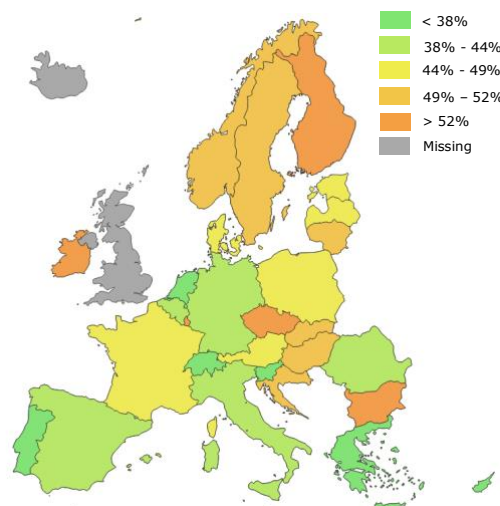
The share of car occupant fatalities among all road deaths is relatively high in parts of northern and eastern Europe. Luxembourg has the highest share of car occupant fatalities (64%) and it is the lowest in Slovenia with 25%. The individual distribution of fatalities by transport mode is, however, also depended on the country's modal split, which should be considered when interpreting these numbers.

Figure 2. Proportion of car occupant fatalities in the total number of fatalities, per country in the EU27 and EFTA (2022). Source: CARE



Notes:

- Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.
- For Ireland, Greece Latvia, Finland and Sweden the missing value for 2022 was imputed with the last known value in the series.

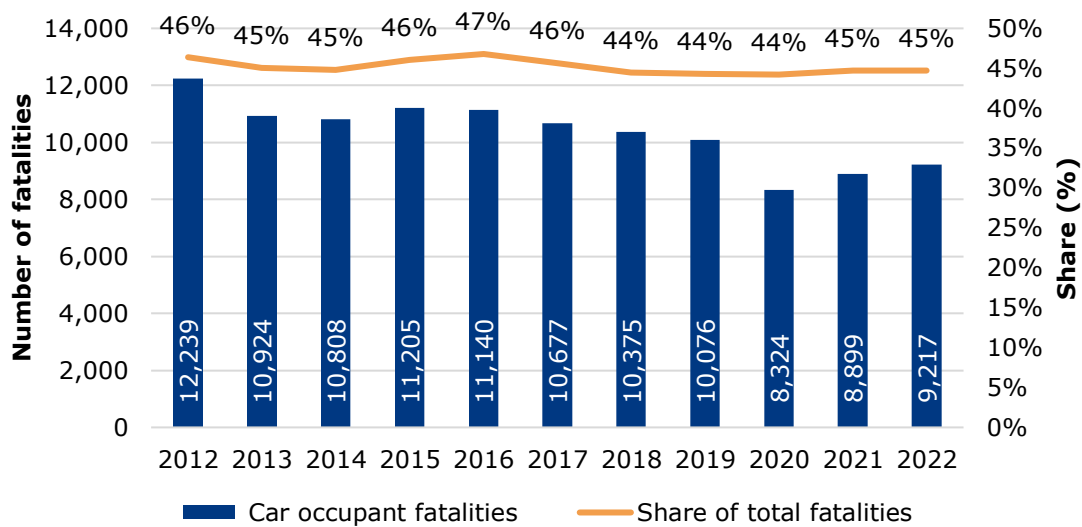


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3.4 Trend in the number of fatalities

45% of all road deaths in the EU27 in 2022 were car occupants. This share of car occupant fatalities has been stable between 2012 and 2022 (46% in 2012 and 45% in 2022). **The absolute number of car occupant fatalities decreased by 25% in this time period, while the total number of all road fatalities decreased by 22% over the same time period.**

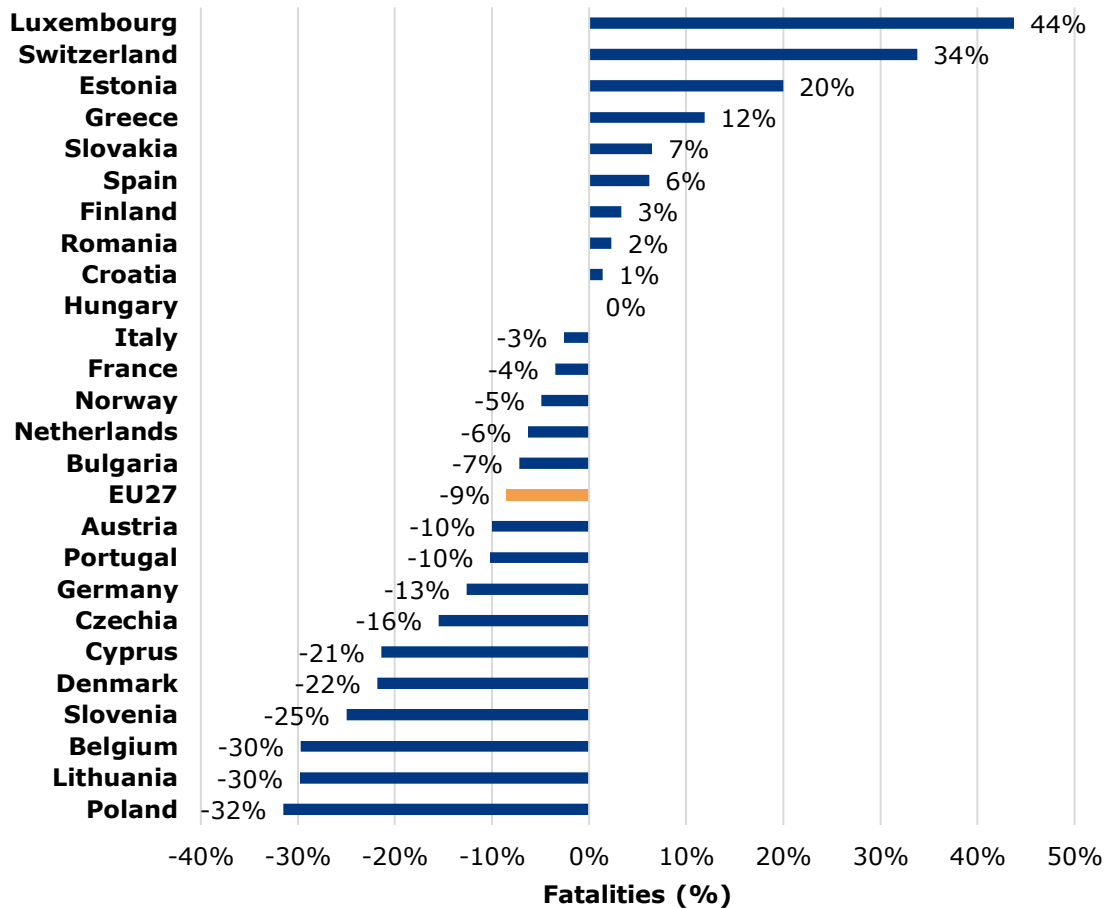
Figure 3. Annual number of car occupant fatalities, and their share in the total number of fatalities in the EU27 (2012-2022). Source: CARE



The EU Member States with the highest absolute number of car occupant fatalities in 2022 are France, Italy, Germany and Poland. Looking at the short-term comparison (2019 – 2022), these countries show a decrease in the number of car occupant fatalities, as well as many other countries. However, the number of car occupant fatalities increased between 2019 and 2022 in a few countries, such as Luxembourg, Switzerland, Estonia and Greece.

Figure 4. Percentage short term change in the number of fatalities among car occupants per country in the EU27 and EFTA (2019-2022).

Source: CARE



Notes:

- Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.
- Ireland, Latvia and Sweden are not included in the figure because there is no data on fatalities in the years 2021 and 2022.
- For Greece and Finland the missing value for 2022 was imputed with the last known value in the series.
- For some countries with comparatively low numbers of fatalities, caution is required when interpreting the data due to considerable annual fluctuations.

Table 2. Number of and trend in car occupant fatalities per country in the EU27 and EFTA (2012-2022). Source: CARE

	2012	2019	2020	2021	2022	ST*	Miniplot: trend since 2012
Belgium	402	306	221	213	215	-30%	
Bulgaria	335	348	260	307	323	-7%	
Czechia	368	329	269	244	278	-16%	
Denmark	81	87	80	54	68	-22%	
Germany	1,791	1,364	1,170	1,118	1,192	-13%	
Estonia	42	20	7	22	24	20%	
Ireland	90	81	-	-	-	-	
Greece	383	202	205	226	-	12%	
Spain	871	641	544	611	681	6%	
France	1,881	1,622	1,243	1,414	1,565	-4%	
Croatia	186	141	126	129	143	1%	
Italy	1,695	1,411	1,018	1,192	1,375	-3%	
Cyprus	18	14	18	20	11	-21%	
Latvia	72	62	64	-	-	-	
Lithuania	-	84	78	87	59	-30%	
Luxembourg	22	16	9	15	23	44%	
Hungary	253	273	219	267	273	0%	
Netherlands	218	240	198	180	225	-6%	
Austria	282	200	146	161	180	-10%	
Poland	1,615	1,333	1,162	1,094	913	-32%	
Portugal	255	235	198	203	211	-10%	
Romania	798	682	617	800	698	2%	
Slovenia	53	28	29	32	21	-25%	
Slovakia	-	124	128	129	132	7%	
Finland	147	123	127	127	-	3%	
Sweden	142	103	106	-	-	-	
EU27	12,239	10,076	8,324	8,899	9,217	-9%	
Norway	73	61	41	40	58	-5%	
Switzerland	104	65	71	65	87	34%	

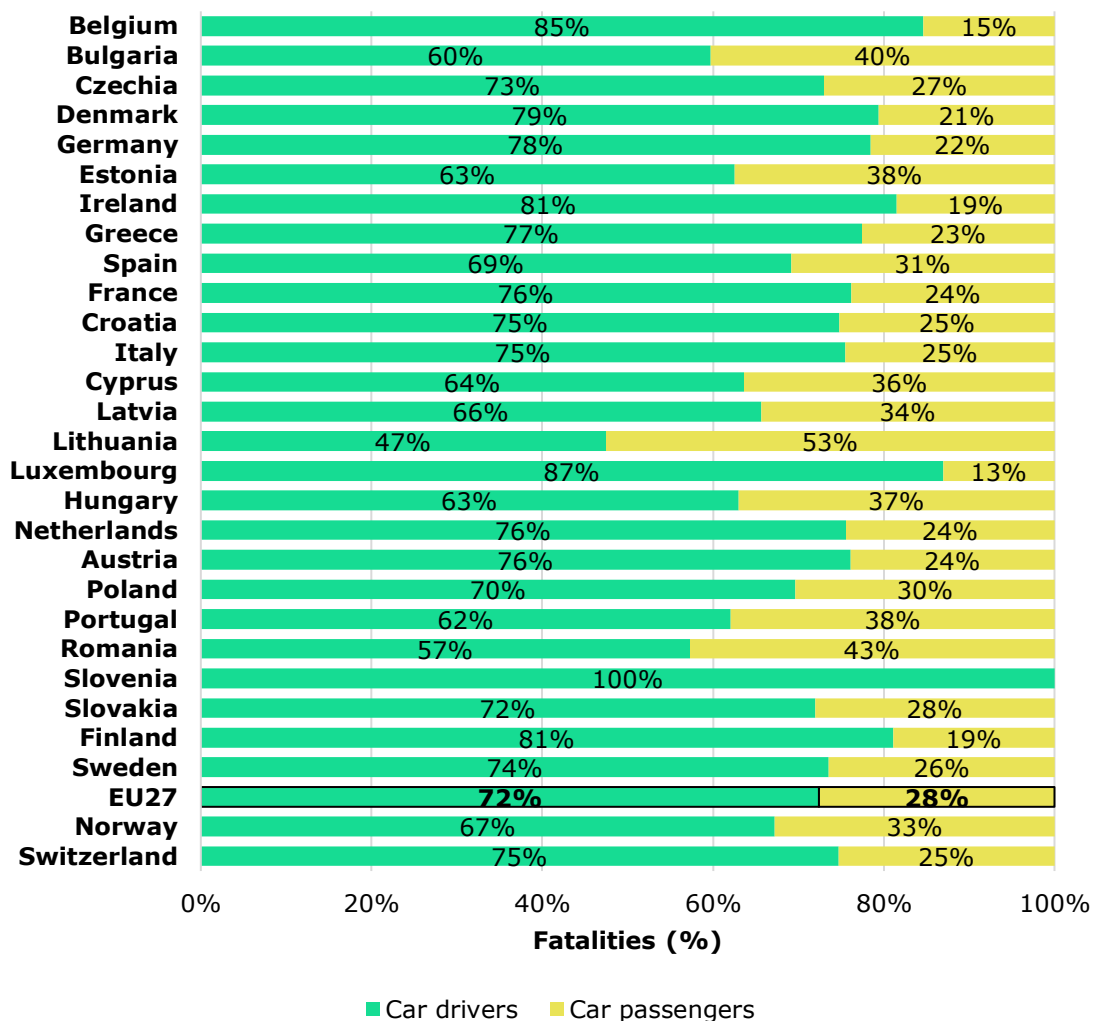
*ST = Short term change of last available year over 2019.

Notes:

- Malta, Iceland and Liechtenstein are not included in the table because there are fewer than 10 fatalities in the year 2022.

The Figure below shows the share of car *drivers* versus car *passengers* (passenger and rear seat) among car occupant fatalities. On average (EU27), **around three quarters of killed car occupants are car drivers (72%)**. However, there are considerable differences between the single countries. In Belgium, for example, 85% of car occupants killed in 2022 were driving at the time of the crash while this share is 47% for Lithuania.

Figure 5. Distribution of car drivers and car passengers among all car occupant fatalities in the EU27 (2022). Source: CARE



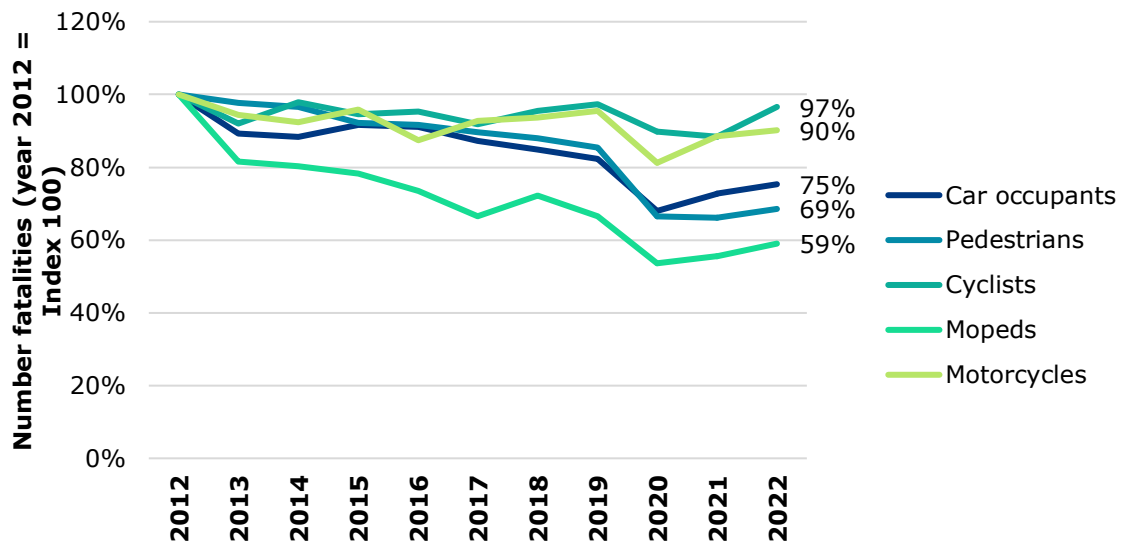
Notes:

- Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.
- For Ireland, Greece Latvia, Finland and Sweden the missing value for 2022 was imputed with the last known value in the series.

3.5 Comparison with other transport modes

Figure 6 below shows the number of road crash fatalities involving various modes of transport over the period 2012-2022. **The reduction in fatalities involving cars is in line with the average**, with the biggest reduction in moped crashes (59% of the base value in 2012) and the least improvement for cyclist and motorcycle crashes.

Figure 6. Trend in the number of car occupant fatalities and fatalities of other transport modes in the EU27 (2012-2022). Source: CARE

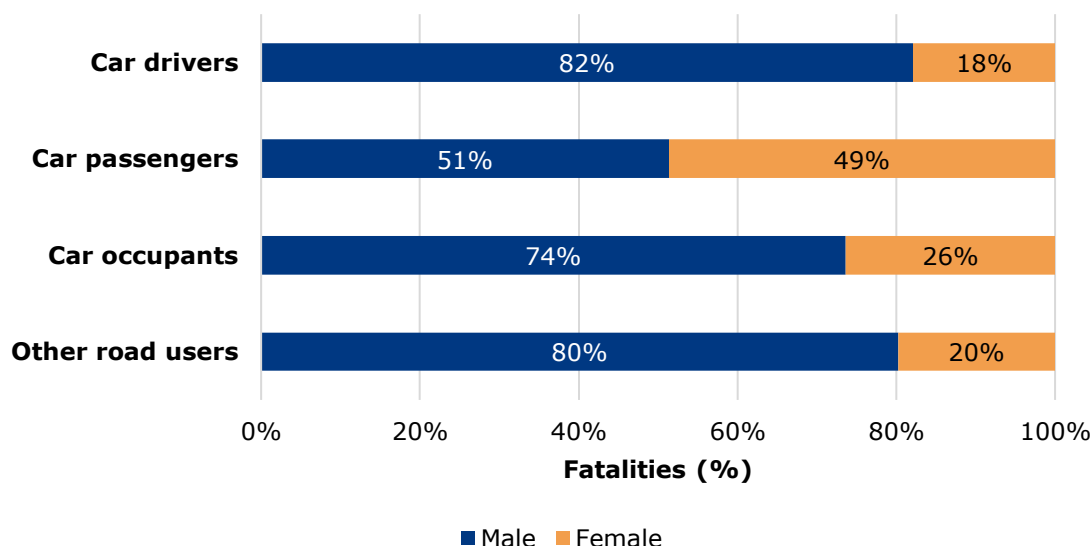


4. Road user

4.1 Gender

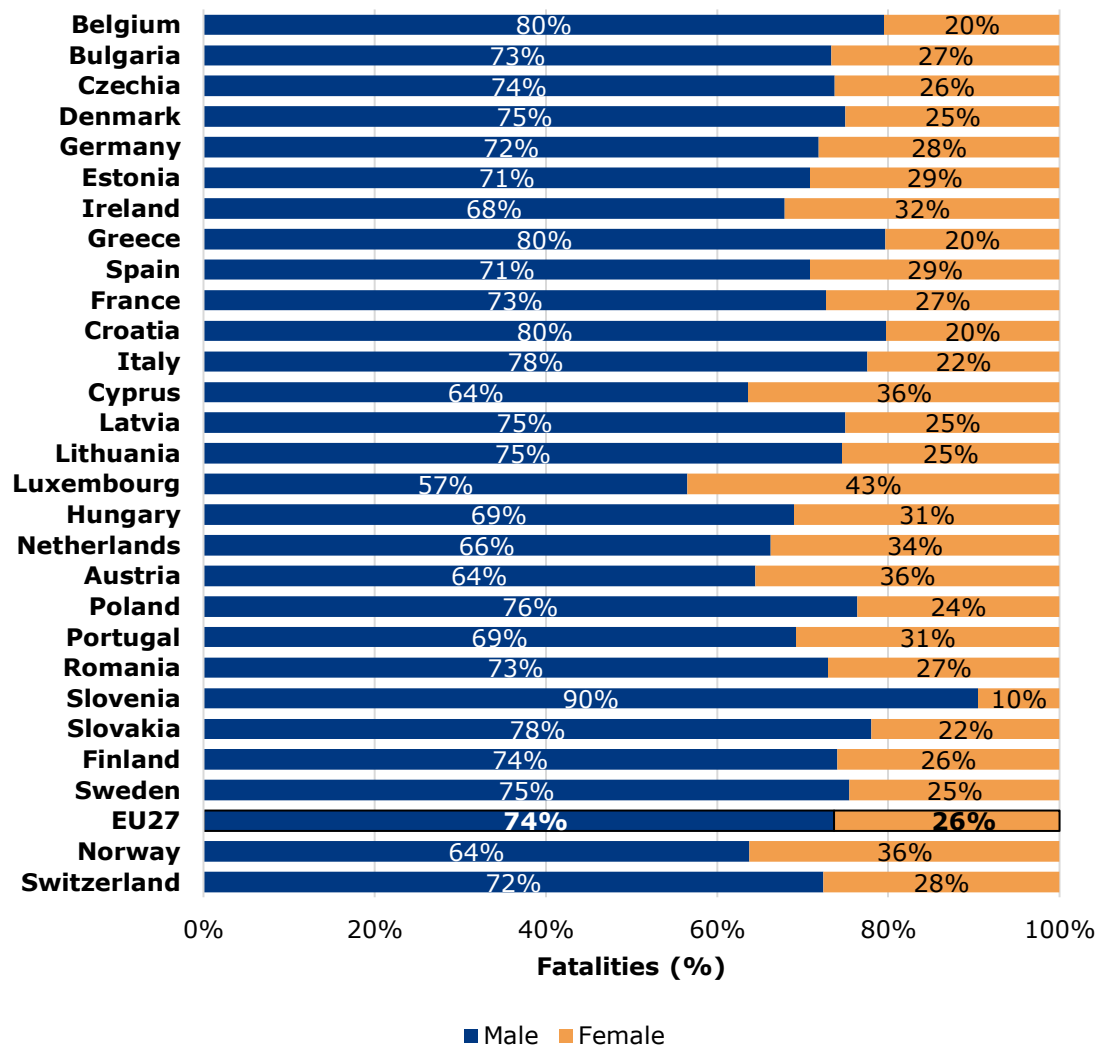
The share of fatally injured male car occupants (drivers and passengers) is 74% in the EU27 for 2022. For all other modes of transport, this share is slightly higher with 80% on an average. **Almost half of fatally injured car passengers are female (49%). The proportion of fatally injured female car drivers is much lower at 18%.**

Figure 7. Distribution of car driver, car passenger, car occupant and other road user fatalities by gender in the EU27 (2022). Source: CARE



Considerable differences are apparent between EU Member States. The lowest proportion of fatally injured female car occupants can be found in Slovenia, where they account for 10% of all car occupant fatalities.

Figure 8. Distribution of car occupant fatalities by gender per country in the EU27 and EFTA (2022). Source: CARE



Notes:

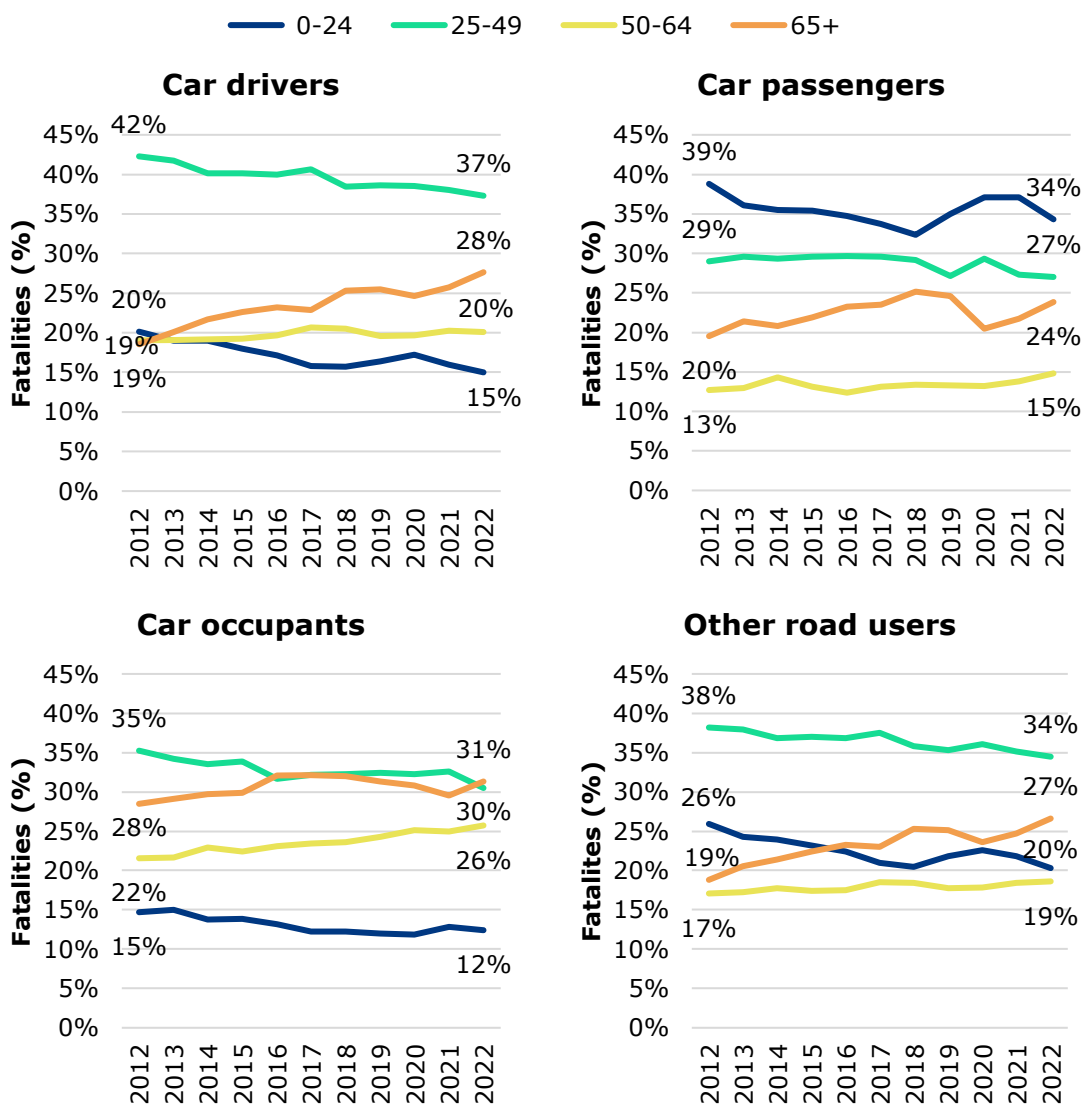
- Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.
- For Ireland, Greece Latvia, Finland and Sweden the missing value for 2022 was imputed with the last known value in the series.

4.2 Age

The proportion of 65+ year olds among car driver fatalities has increased from 19% in 2012 to 28% in 2022, whereas the proportion of young drivers (up to 24 years) has decreased from 20% in 2012 to 15% in 2022. The share of fatally injured senior drivers has been continuously above the share of young drivers (since 2014).

The distribution of age groups differs between passengers and drivers, with the age group 0-24 years having the highest share in car passenger fatalities (34% in 2022).

Figure 9. Trend of car driver, car passenger, car occupant and other road user fatalities by age group in the EU27 (2012-2022). Source: CARE



The figure 10 & 11 below provide a more detailed picture of the age distribution of car driver versus car passenger fatalities, **with car driver fatalities peaking at age 20 to 24.**

Among car passengers, a peak in fatalities is reached earlier, at the age 15-19. After that, the number of fatalities hits a plateau up to the age of 24 and then decreases sharply.

Figure 10. Distribution of fatalities over 5-year age categories for car drivers, car passengers, car occupants and other road users, in the EU27 (2022). Source: CARE

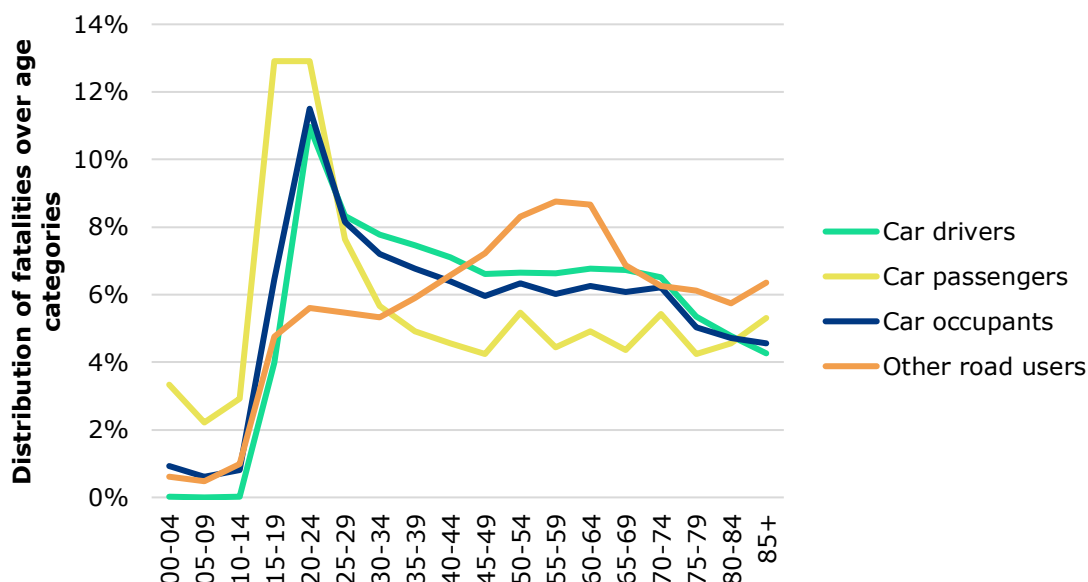
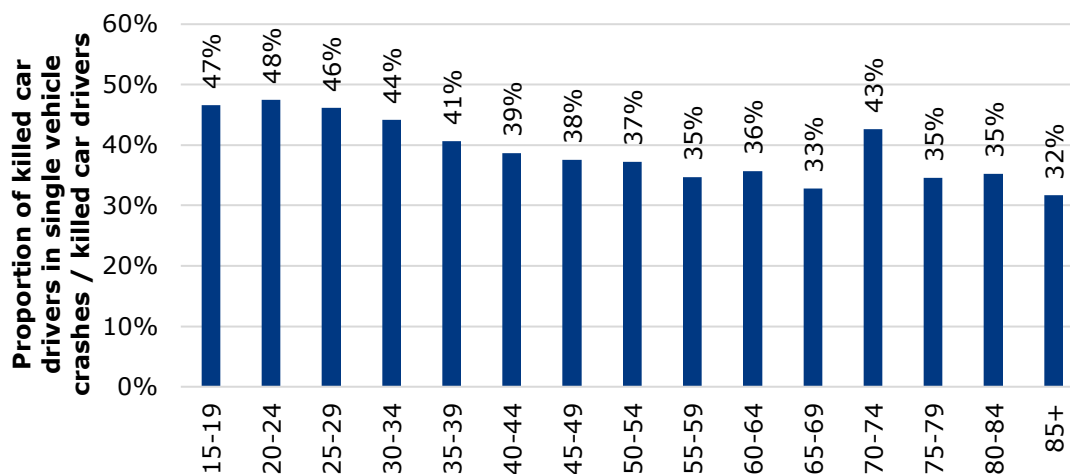
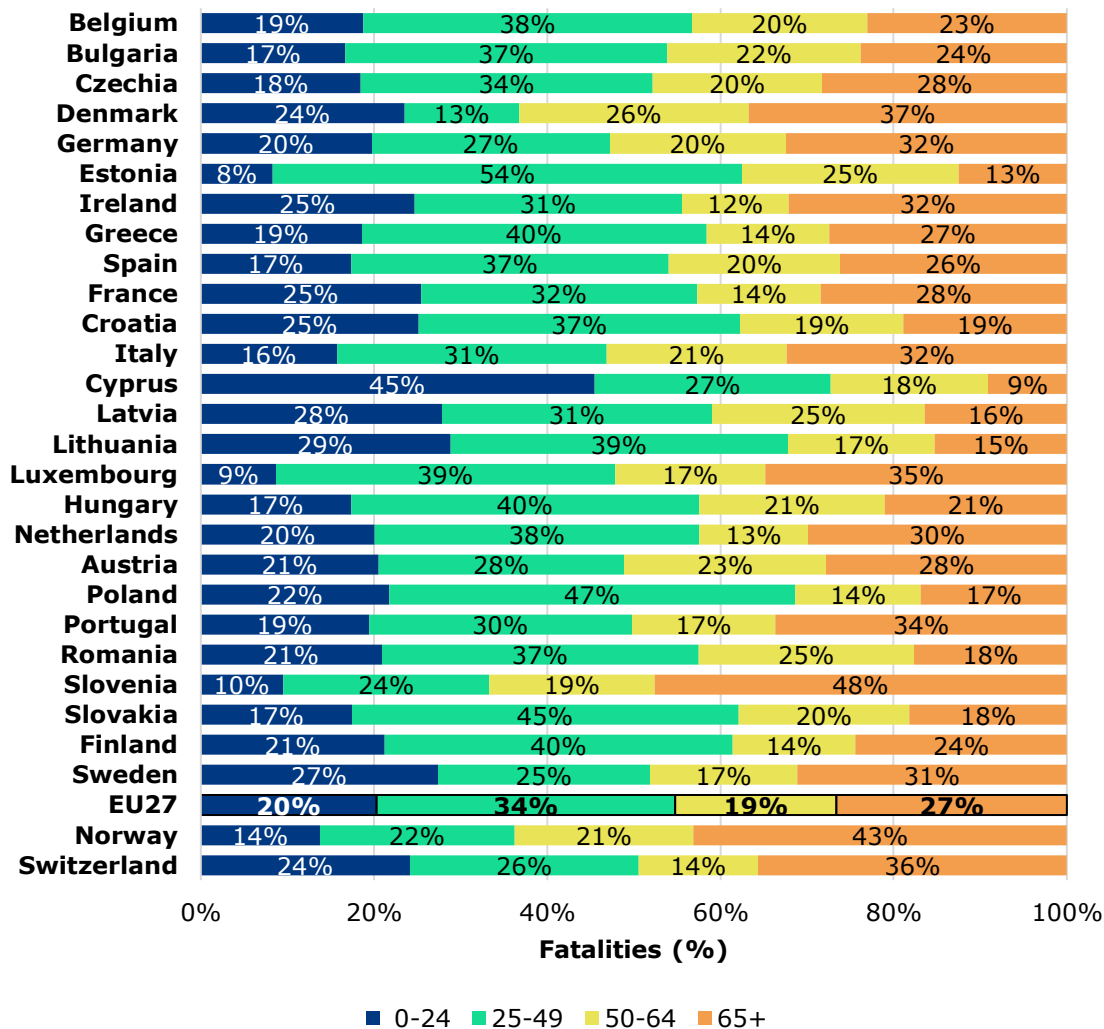


Figure 11. Proportion of killed car drivers in single car crashes in the total number of car drivers killed, by 5-year age categories, in the EU27 (2022). Source: CARE



The age distribution in car occupant fatalities varies between EU Member States. **In most of the countries the age group 25 to 49 years old is predominant.** In Estonia, the share is about half of all car occupant fatalities. In some countries, the age category 65 plus has the highest share in all car occupant fatalities, such as in Denmark, Slovenia, Norway, Sweden, Portugal and Switzerland.

Figure 12. Distribution of car occupant fatalities by age groups in the EU27 and EFTA countries (2022). Source: CARE



Notes:

- Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.

- For Ireland, Greece Latvia, Finland and Sweden the missing value for 2022 was imputed with the last known value in the series.

4.3 Transport modes involved

The Figure below shows the distribution of fatalities by the modes of transport. **Car occupants make up for a large share of fatalities in crashes involving cars (62% in 2022). Vulnerable Road Users (Pedestrians, cyclists, mopeds and motorcyclists) make up for another 35%.** This distribution is different among crashes involving LGVs: only 31% of fatalities are occupants of the light goods vehicles. In crashes involving HGVs, 14% of fatalities are occupants of this type of vehicle.

Figure 13. Distribution of fatalities by transport mode in crashes involving cars, light goods vehicles and heavy goods vehicles in the EU27 (2022). Source: CARE

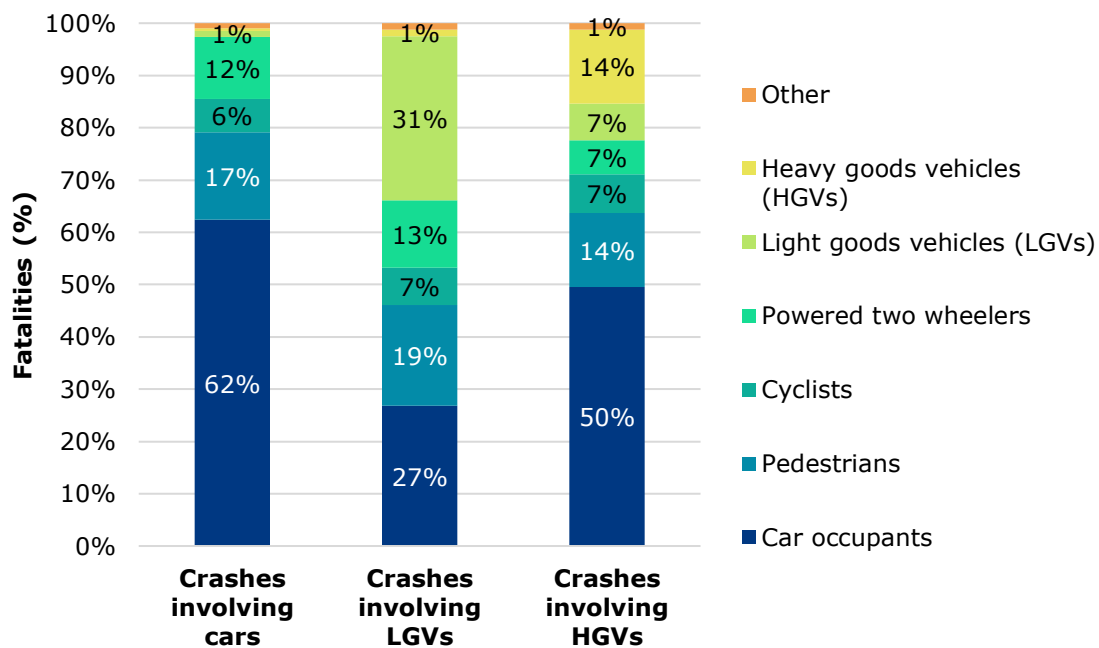
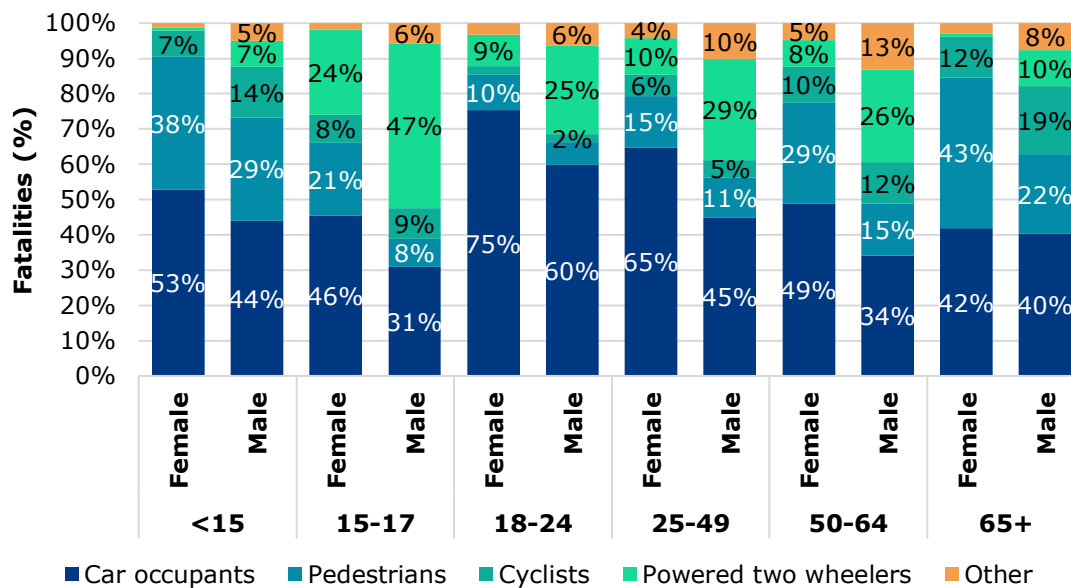


Figure 14 compares the distribution of fatalities by transport mode in six age groups and by gender. The **share of car occupant fatalities is highest for females (75%) and males (60%) between 18 and 24** and lowest for males aged 15-17 years (31%) and females aged 65 or older (40%).

Figure 14. Distribution of fatalities by age, gender and transport mode in the EU27 and EFTA (2022). Source: CARE



4.4 Single vehicle crashes

Car occupant fatalities result more often from single vehicle crashes (no crash opponent) than fatalities of all other road users. **In 2022, 37% of the fatally injured car occupants were involved in single vehicle crashes.** This is a continuous trend for car occupants while the share of fatal single vehicle crashes is on the rise for other road user groups.

Figure 15. Distribution of car occupant fatalities and other road user fatalities by type of collision in the EU27 (2022). Source: CARE

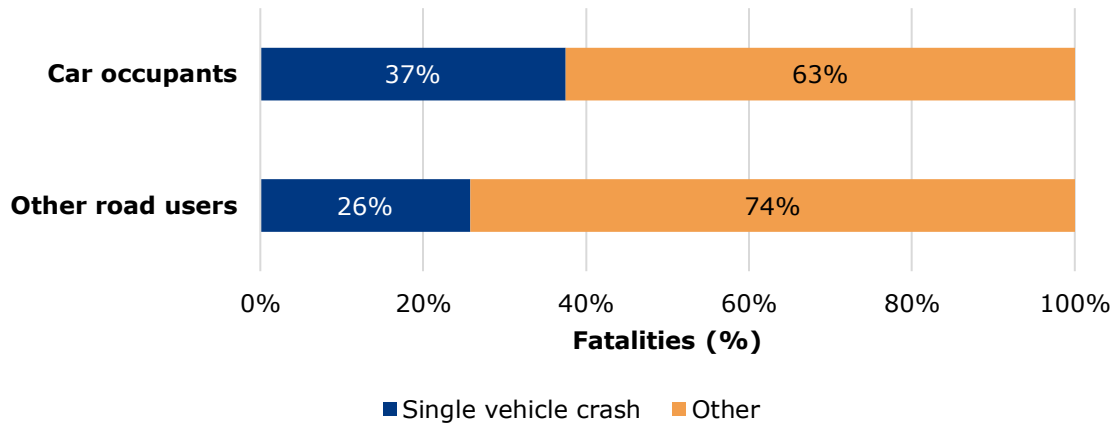
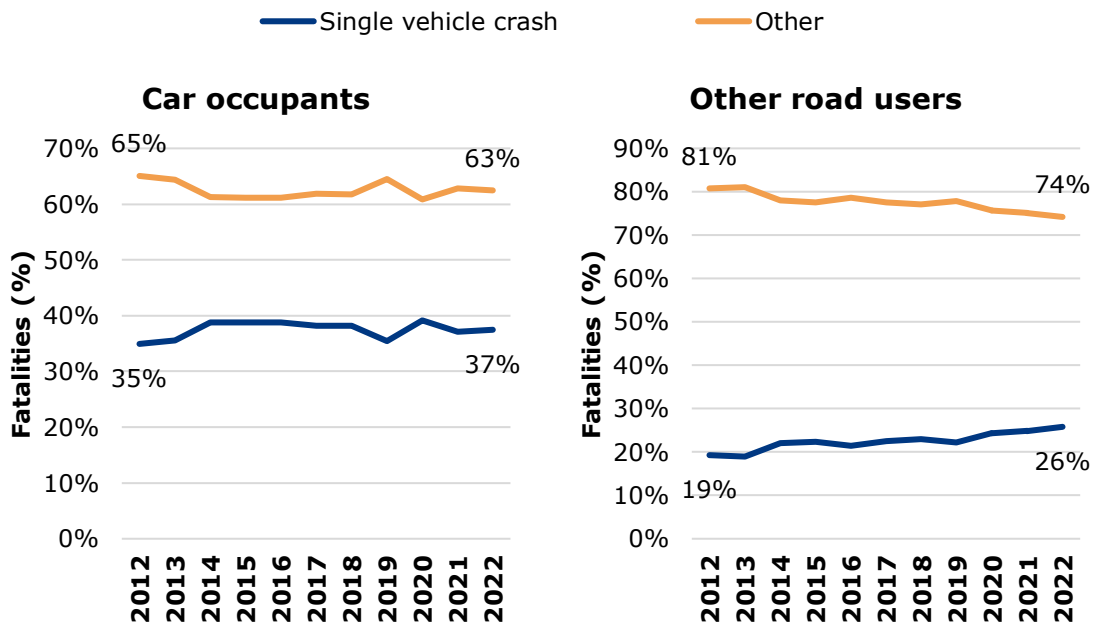


Figure 16. Trend of distribution of car occupant fatalities and other road user fatalities by type of collision in the EU27 (2012-2022). Source: CARE

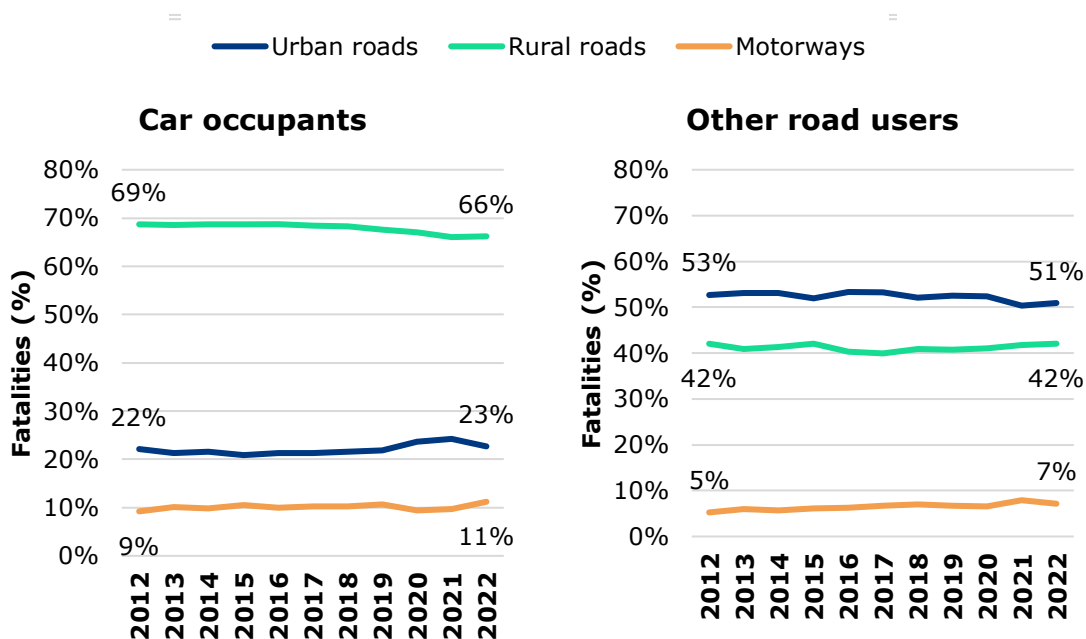


5. Location

5.1 Road type

Overall, car occupant fatalities occurred by far the most often on rural roads (66%), followed by urban roads (23%), and motorways (11%) in 2022. For road users other than car occupants, the distribution of fatalities according to road type differs from that pattern. **The proportion of car occupant fatalities is substantially higher on rural roads, slightly higher on motorways and much lower on urban roads than of other road users.**

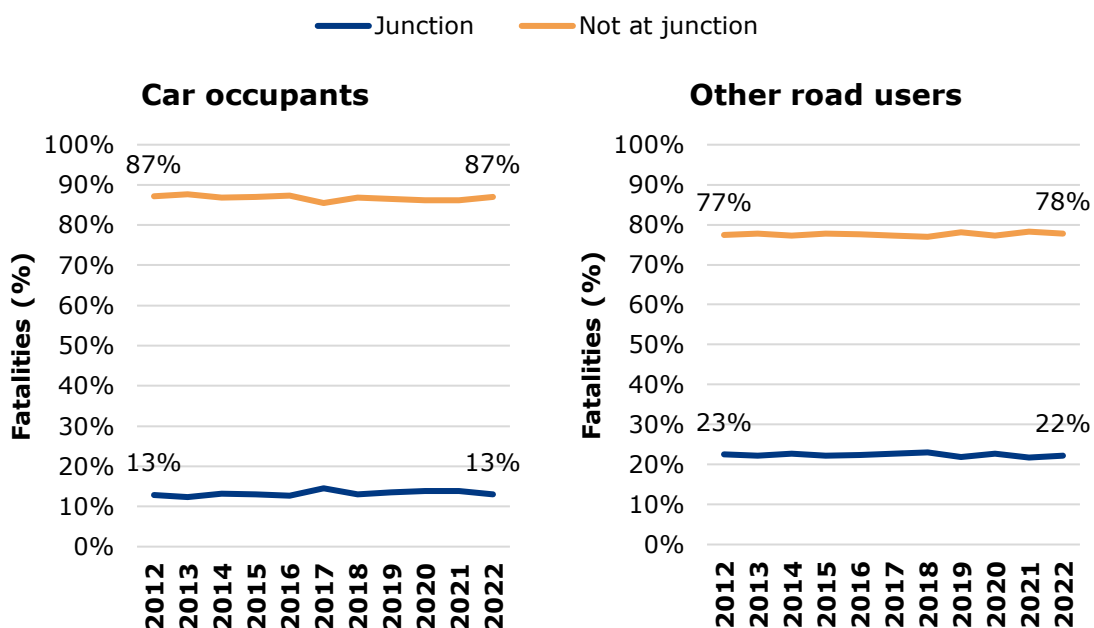
Figure 17: Trend of distribution of car occupant fatalities and other road user fatalities by road type in the EU27 (2012-2022). Source: CARE



5.2 Junction

In 2022, **the majority of road fatalities among car occupants occurred on road stretches (87%)**, which is a stable trend over time. There are far fewer fatalities at junctions (13%). The same pattern applies to fatalities of other road users, although the proportion is slightly lower on road stretches and slightly higher at junctions.

Figure 18. Trend of distribution of car occupant fatalities and other road user fatalities at junction and not at junction in the EU27 (2012-2022). Source: CARE

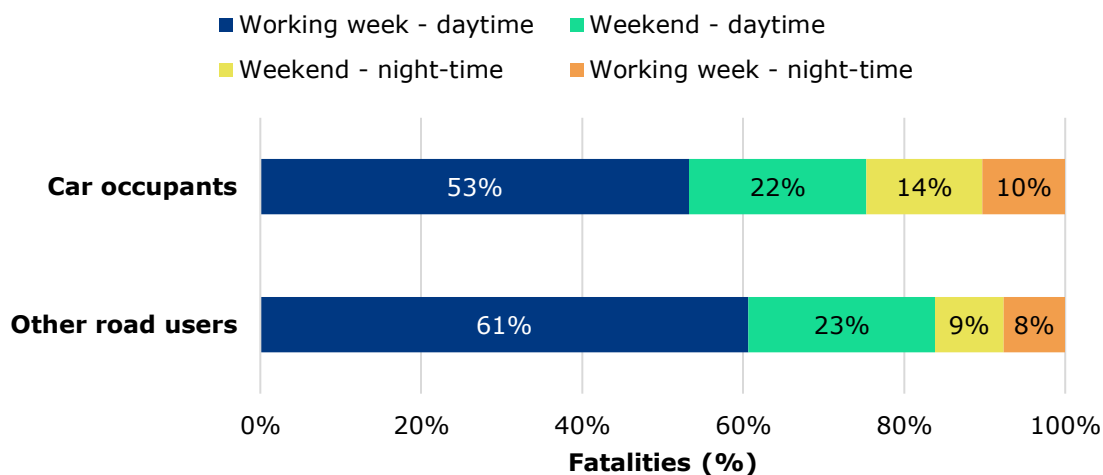


6. Time

6.1 Period of the week

Car occupant fatalities are differently distributed over the course of a week in comparison to fatalities of other road users. **The share of car occupant fatalities is proportionally lower in the daytime during the working week and higher at night-time during the weekend.**

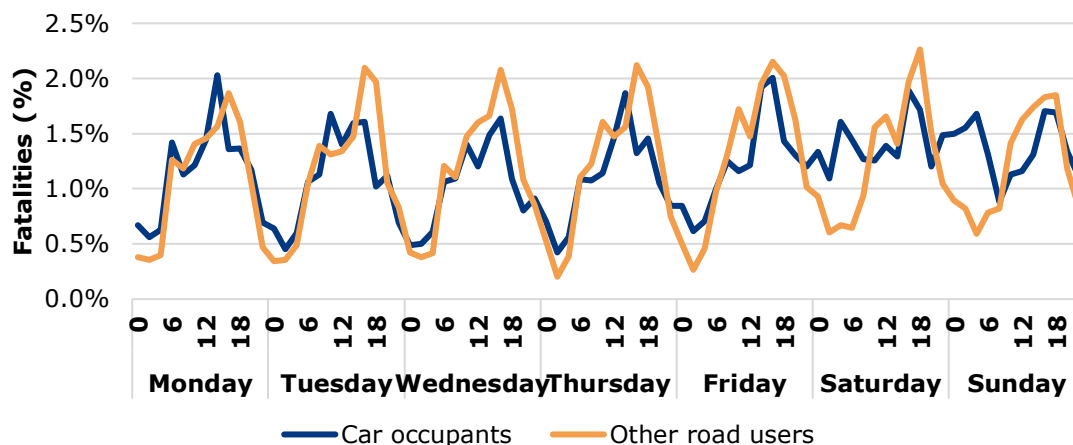
Figure 19. Distribution of fatalities among car occupants and other road users according to period of the week in the EU27 (2022). Source: CARE



6.2 Day of the week, time of the day and hour

Proportionately more cars are involved in a fatal crash at night-time during the weekend. During the working week, the distribution of car occupant fatalities is very similar to the distribution of all road user fatalities. During the day proportionately more fatal car crashes occur in the afternoon, especially between Monday and Friday.

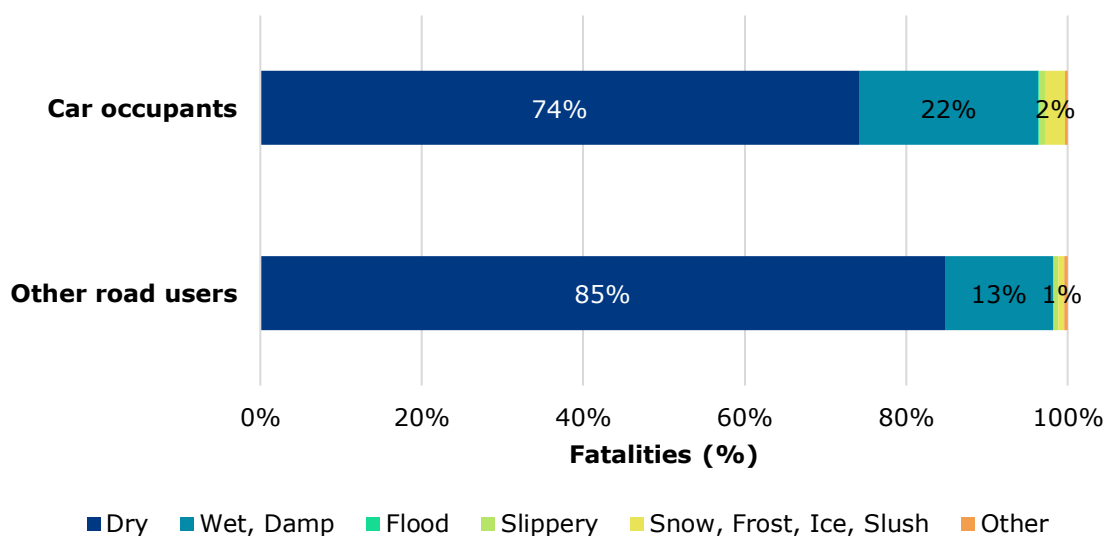
Figure 20. Distribution of car occupant fatalities and other road user fatalities by day of the week and hour in the EU27 (2022). Source: CARE



6.3 Road surface

In 2022, Surface conditions were dry in 74% of all car occupant fatalities and wet or damp for 22%. Only in 2% of fatalities were the surface conditions snowy, frosty, or icy. In fatal crashes involving other road users, the surface conditions were more often dry (85%) and less often wet (13%) compared to the car occupant fatalities.

Figure 21. Distribution of car occupant fatalities and other road user fatalities by surface conditions in the EU27 (2022). Source: CARE



7. Notes

7.1 Definitions

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

CADAS Glossary: https://road-safety.transport.ec.europa.eu/system/files/2023-09/CADaS%20Glossary_v%203_8_1.pdf

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

Accident / crash

An 'injury' road crash 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 and is open to interpretation by the police thus affecting the reliability of cross-country comparisons.

Car / passenger car

Motor vehicle with 3 or 4 wheels, mainly used to transport people, seating for no more than 8 occupants. Motor vehicles with these characteristics used as taxis as well as motor caravans are also included.

Car passenger:

Person on or in a passenger car, who is not the driver. Includes front and rear seat passengers. Includes the act of boarding or alighting from a vehicle.

Car occupant:

A car driver or car passenger

Driver:

Person driving a passenger car. Seating position in vehicle prior to the crash.

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.

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.

Rural roads (roads outside urban areas)

Public roads outside urban boundary signs, excluding motorways.

Urban roads (roads inside urban areas)

Public roads inside urban boundary signs.

Victims

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

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.

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.

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 the four EFTA countries Switzerland, Norway, Iceland, and Liechtenstein. The data in the report were extracted in August 2023.

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.

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

7.5 Data cleaning

Area / Road type

- Malta 2020 area: 'rural' recoded to 'unknown'

Transport mode: HGVs

- Poland < 2018 and Germany < 2014: HGV recoded to artificial code 'Lorries + HGVs' because obviously not separated in the data.

Junctions

- Several data issues due to different coding, inconsistent use of categories and different breaks in time series
- General grouping:
 - 'not at junction'
 - 'unknown'
 - all other codes combined to 'junction'
- Data cleaning and recoding was done in the following countries: Bulgaria, Estonia, Finland, Germany, Greece, Ireland, Lithuania, Malta, Slovenia, Switzerland

