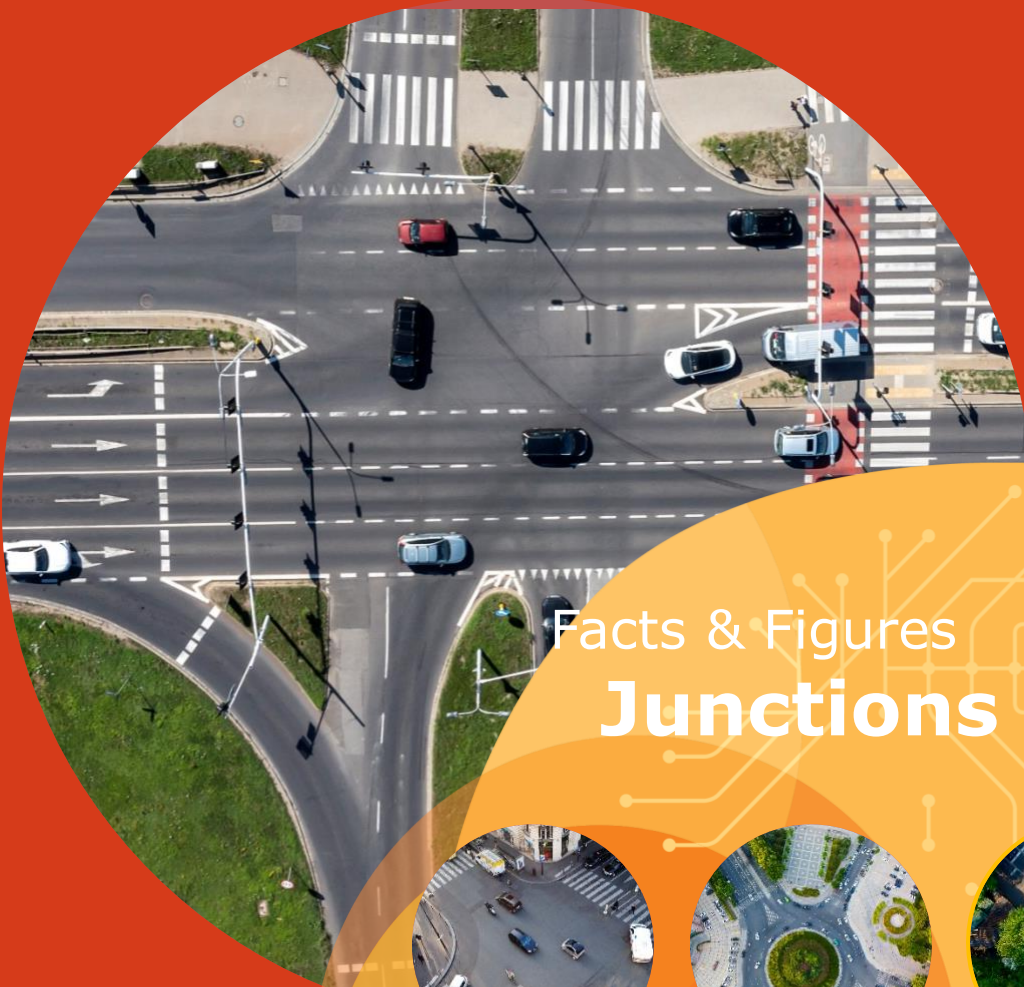




European
Commission



Facts & Figures Junctions



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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Authors:	Maria Fleischer, Marlene Mellauner, Martin Donabauer, Aggelos Soteropoulos (KFV)
Internal Review:	Frits Bijleveld (SWOV)
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1. Key facts

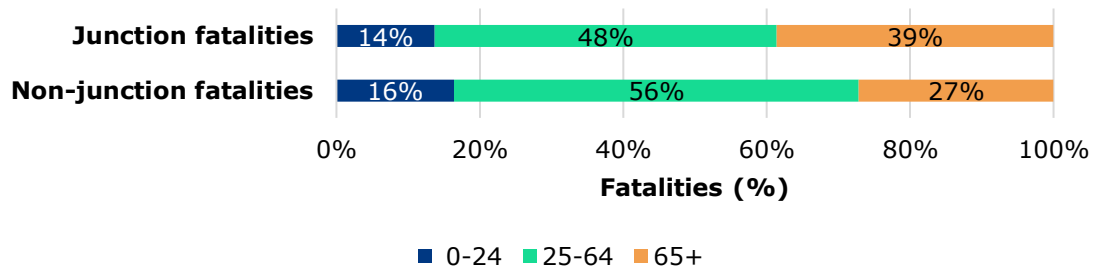
This Facts and Figures report looks at road fatalities at junctions. A junction is a location where two or more roads meet and traffic can change between different routes, directions, or sometimes modes of travel. All observations reported were derived from the available data. The statistical significance of differences or relations between values has not been tested.

Junction fatalities in the EU27, 2022

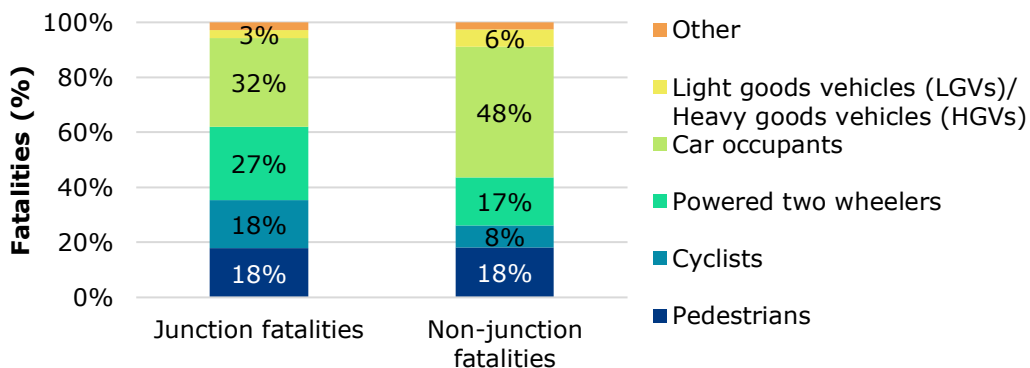


- 3,727 fatalities
- 18% of all road fatalities
- slightly lower decrease (21%) since 2012 versus decrease (22%) non-junction fatalities

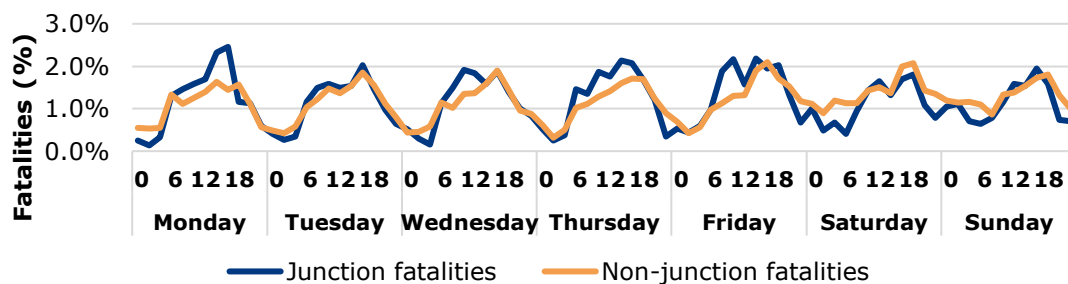
Age



Transport modes



Day of the week and hour



2. Summary

In 2022, 18% of all road fatalities in the EU27 occurred at junctions. In the last decade between 2012 and 2022, the number of fatalities at junctions decreased by 21% compared to a 22% decrease of non-junction fatalities. **Since 2019 road fatalities at junctions in the EU decreased by 10%.**

Road fatalities at junctions also differed in other respects when compared to non-junction fatalities:

- The proportion of 25-64 old fatalities at junctions is lower (48% of all fatalities) compared to non-junction fatalities (56%). **The proportion of 65+ year old fatalities at junctions is remarkably higher (39%) compared to non-junction fatalities (27%).**
- **Vulnerable road users** (pedestrians, cyclists, mopeds, motorcycles) make up **more than half of all fatalities at junctions (63%)**, while this share is only 43% for all non-junction fatalities.
- **57% of junction fatalities in the EU27 occur on urban roads**, which is considerably higher compared to non-junction fatalities on urban roads (34%).
- The **share of fatalities at junctions is proportionally higher during the day of the working week** especially on Mondays.
- The proportion of fatalities at junctions **during dry surface conditions is slightly higher (85%)** than the proportion of fatalities for non-junction fatalities during dry surface conditions (79%).

In 2022, the highest mortality rates (number of fatalities per million inhabitants) at junctions were observed in Latvia (21.0), Cyprus (18.8), Bulgaria (14.2) and the Netherlands (14.1). Norway (2.4), Switzerland (3.0), Slovakia (3.5) and Slovenia (3.8) were the countries with the lowest mortality rate. **The mortality rate at junctions tends to be generally higher in eastern EU countries.** It is important to also look at the proportion of fatalities at junctions within the total number of road fatalities of a country: **this proportion is highest in Northern and Central Europe**, with the exception of Cyprus with the highest proportion (46%).

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 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.

3. Main trends

3.1 Absolute number of road fatalities

Table 1. Junction fatalities per country in the EU27 and EFTA (2012-2022). Source: CARE

Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	LT*	ST*
Belgium	157	155	145	154	132	139	142	115	89	120	97	-38%	-16%
Bulgaria	73	73	89	69	82	101	87	110	75	78	97	33%	-12%
Czechia	143	140	146	131	125	129	131	130	97	119	93	-35%	-29%
Denmark	48	53	47	55	58	52	56	48	44	35	37	-23%	-23%
Germany	782	695	772	798	715	702	715	671	600	549	564	-28%	-16%
Estonia	9	-	13	-	9	11	8	9	14	6	6	-	-
Ireland	23	40	35	27	32	34	25	21	-	-	-	-	-
Greece	107	78	56	64	45	26	23	49	41	53	-	-51%	8%
Spain	377	315	353	357	389	375	355	362	285	312	362	-4%	0%
France	466	445	481	494	486	636	662	629	489	615	617	32%	-2%
Croatia	61	61	54	44	46	59	43	34	40	40	38	-38%	12%
Italy	929	760	834	763	760	798	679	581	452	527	575	-38%	-1%
Cyprus	11	12	15	28	10	19	14	13	16	16	17	55%	31%
Latvia	18	15	23	23	7	16	14	12	40	-	-	-	-
Lithuania	-	36	45	28	33	50	38	47	42	36	12	-	-75%
Luxembourg	6	7	5	1	4	1	2	1	5	2	1	-	-
Hungary	87	100	105	136	115	104	101	108	73	80	99	14%	-8%
Malta	-	-	-	6	5	6	4	2	1	1	-	-	-
Netherlands	190	183	163	149	142	160	182	168	149	165	248	31%	48%
Austria	102	101	80	83	85	73	96	85	70	84	99	-3%	17%
Poland	598	550	522	477	513	442	479	520	458	347	260	-57%	-50%
Portugal	120	93	111	106	88	105	104	70	72	51	76	-37%	9%
Romania	227	213	175	202	207	210	193	211	211	196	196	-14%	-7%
Slovenia	7	15	11	7	10	11	7	9	8	7	8	-	-
Slovakia	-	-	-	-	36	33	23	32	35	24	19	-	-41%
Finland	48	44	34	49	42	52	41	35	49	46	-	-4%	31%
Sweden	-	-	-	63	66	69	84	52	45	-	-	-	-
EU	4,730	4,300	4,419	4,361	4,242	4,413	4,308	4,124	3,521	3,615	3,727	-21%	-10%
Iceland	-	3	-	1	3	2	3	-	1	2	2	-	-
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	13	7	13	-	-
Switzerland	42	39	38	41	33	32	37	24	39	24	26	-38%	8%

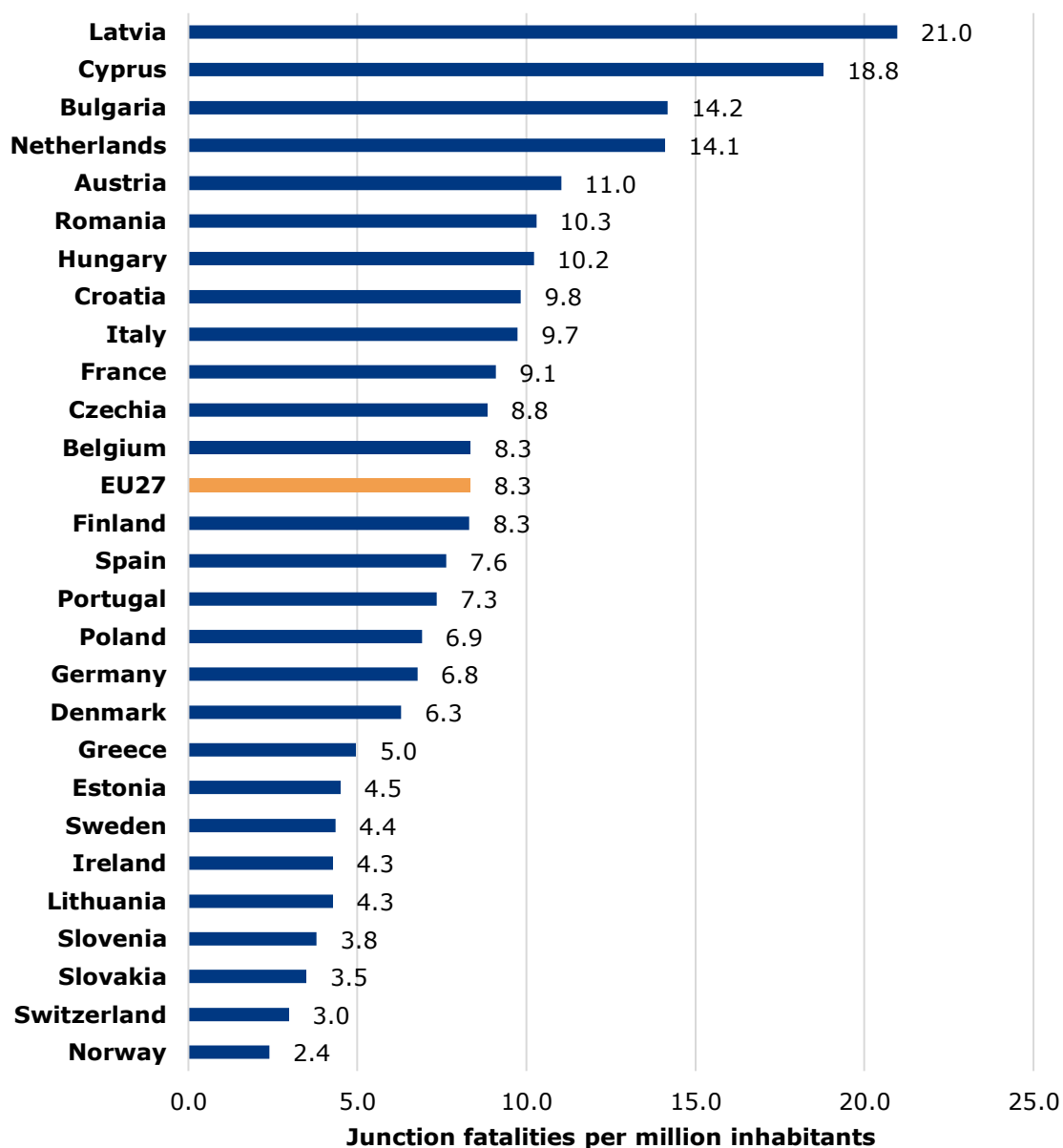
*LT = Long term change of last available year over 2012.

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

3.2 Mortality rate: number of road fatalities per million inhabitants

The mortality rate at junctions is relatively highest in Latvia (21.0), Cyprus (18.8), Bulgaria (14.2) and the Netherlands (14.1). The mortality rate is lowest in Norway (2.4) and Switzerland (3.0).

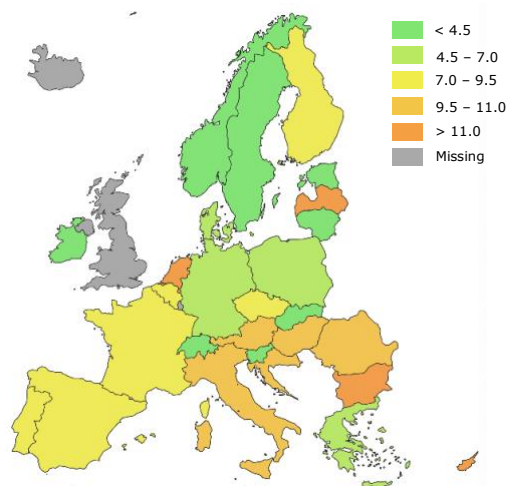
Figure 1. Junction fatalities per million inhabitants per country in the EU27 and EFTA (2022). Source: CARE, EUROSTAT



Notes:

- Luxembourg, 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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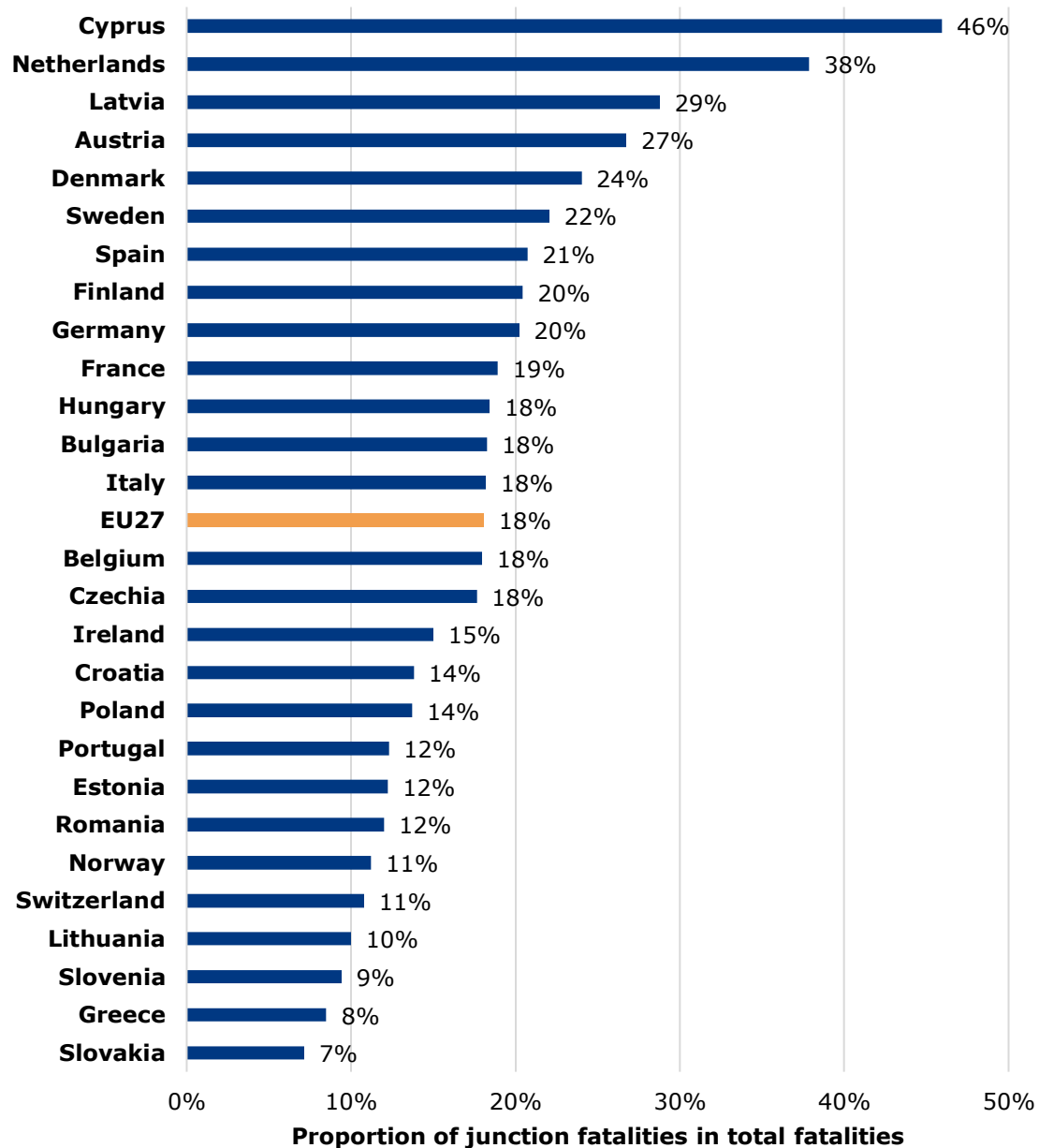
3.3 Share of junction fatalities in the total number of road fatalities

The mortality rate is an important indicator but does not consider differences in the general road safety performance across countries. In other words, the mortality rate at junctions in a specific country may be high because the total mortality rate for all road users in that country is also high. Therefore, it is important to also look at the proportion or share of fatalities at junctions in the total number of road fatalities of a country.

Slovakia (7%) and Greece (8%) have the lowest proportion of fatalities at junctions, while this proportion is **highest in Cyprus (46%) and the Netherlands (38%)**. Cyprus has a high mortality rate at junctions as well as a high proportion of junction fatalities within total number of fatalities.

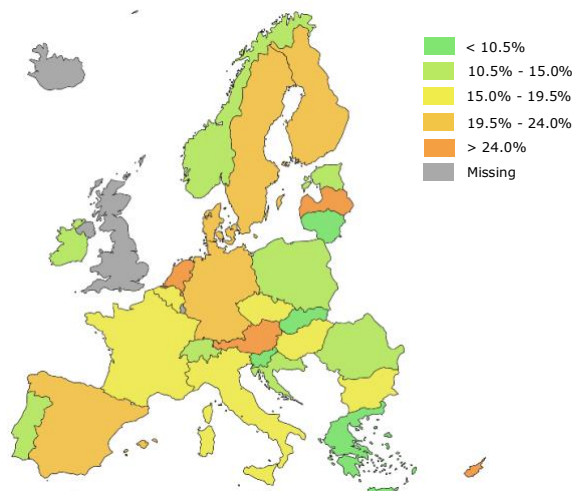
The differences between countries in the proportion of fatalities at junctions can also be partly explained by the degree of urbanisation, the characteristics of the road network and the relative traffic volumes in each country.

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



Notes:

- Luxembourg, 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.

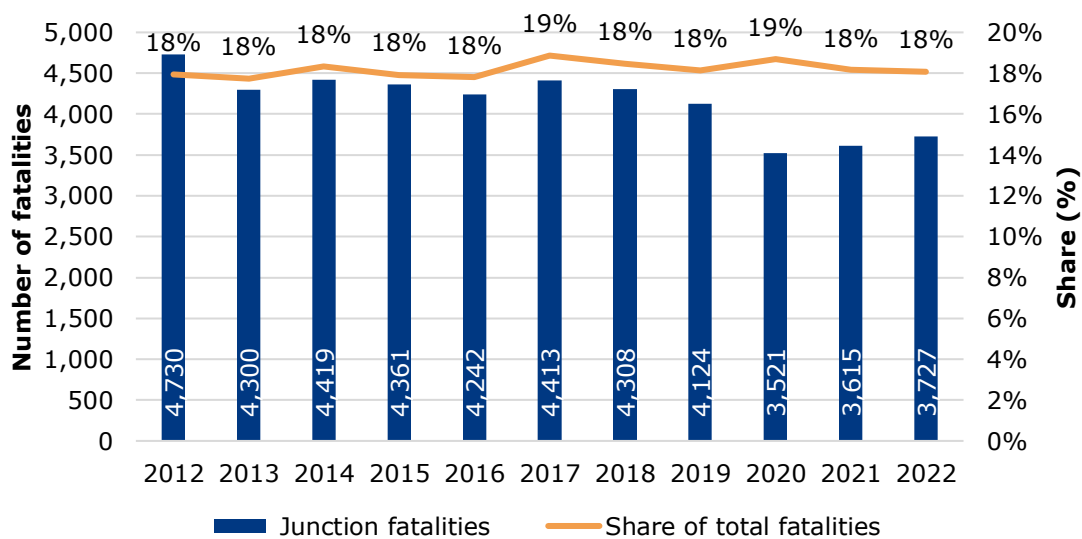


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3.4 Trend in the number of fatalities

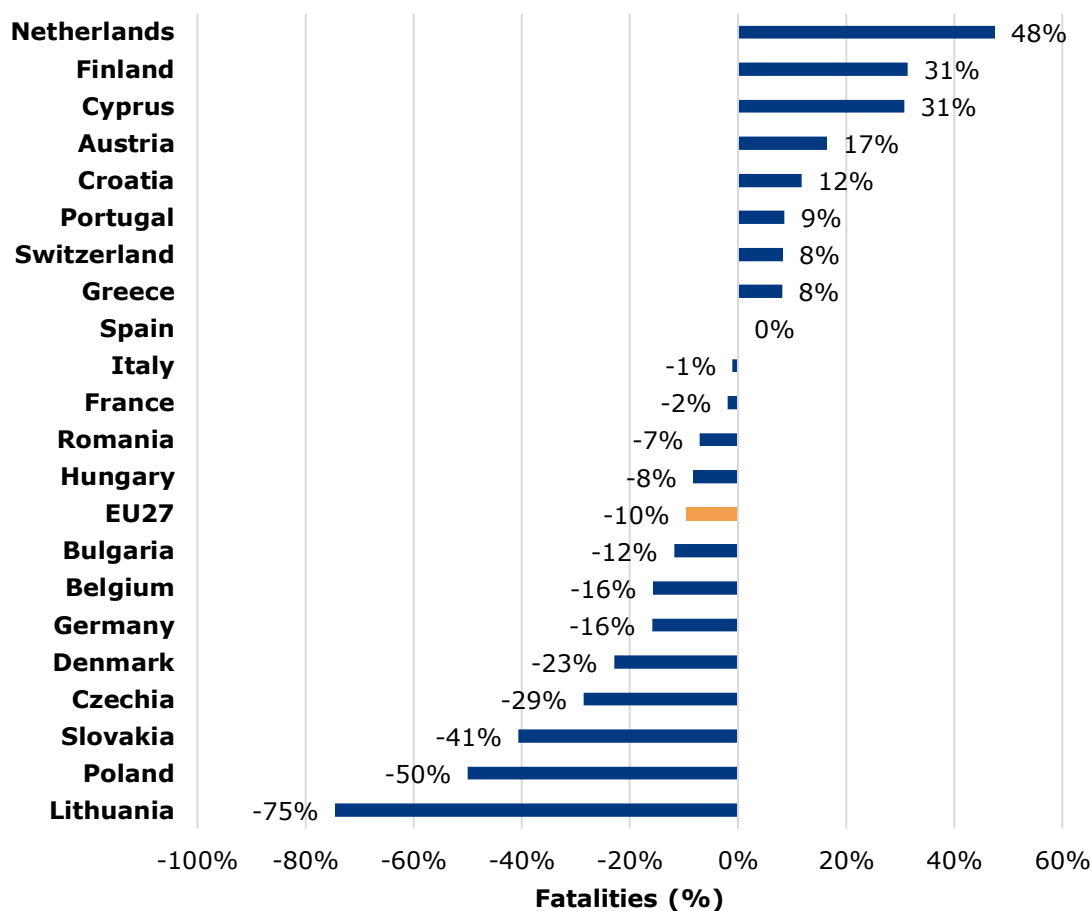
In 2022, 18% of all road fatalities in the EU27 occurred at junctions. The relative proportion of fatalities at junctions has remained somewhat the same in the time period 2012-2022. The number of fatalities at junctions decreased by 21% between 2012 and 2022, while the total number of non-junction fatalities, decreased by 22% over the same period of time.

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



The **number of fatalities at junctions decreased in many EU Member States since 2019**, except for the Netherlands, Finland, Cyprus, Austria, Croatia, Portugal and Greece. There was a notable decrease in the number of fatalities at junctions between 2019 and 2022 in Lithuania (-75%) as well as Poland (-50%) and Slovakia (-41%).

Figure 4. Percentage short term change in the number of junction fatalities per country in the EU27 and EFTA (2019-2022). Source: CARE



Notes:

- Luxembourg, Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.
- Estonia, Ireland, Latvia, Slovenia, Sweden and Norway are not included in the figure because there are missing values in time series 2019-2022.
- 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 junction fatalities per country in the EU27 and EFTA (2012-2022). Source: CARE

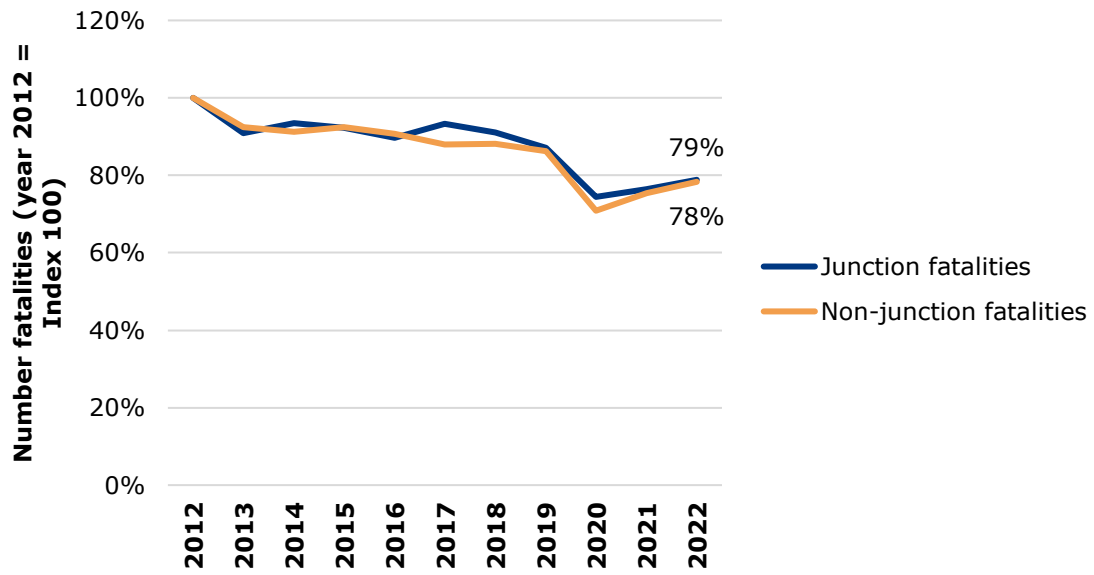
	2012	2019	2020	2021	2022	ST*	Miniplot: trend since 2012
Belgium	157	115	89	120	97	-16%	
Bulgaria	73	110	75	78	97	-12%	
Czechia	143	130	97	119	93	-29%	
Denmark	48	48	44	35	37	-23%	
Germany	782	671	600	549	564	-16%	
Estonia	9	9	14	6	6	-	
Ireland	23	21	-	-	-	-	
Greece	107	49	41	53	-	8%	
Spain	377	362	285	312	362	0%	
France	466	629	489	615	617	-2%	
Croatia	61	34	40	40	38	12%	
Italy	929	581	452	527	575	-1%	
Cyprus	11	13	16	16	17	31%	
Latvia	18	12	40	-	-	-	
Lithuania	-	47	42	36	12	-75%	
Hungary	87	108	73	80	99	-8%	
Netherlands	190	168	149	165	248	48%	
Austria	102	85	70	84	99	17%	
Poland	598	520	458	347	260	-50%	
Portugal	120	70	72	51	76	9%	
Romania	227	211	211	196	196	-7%	
Slovenia	7	9	8	7	8	-	
Slovakia	-	32	35	24	19	-41%	
Finland	48	35	49	46	-	31%	
Sweden	-	52	45	-	-	-	
EU27	4,730	4,124	3,521	3,615	3,727	-10%	
Norway	-	-	13	7	13	-	
Switzerland	42	24	39	24	26	8%	

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

Notes:

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

Figure 5. Trend in the number of junction fatalities and non-junction fatalities in the EU27 (2012-2022). Source: CARE



4. Road user

4.1 Gender

75% of fatalities at junctions in 2022 were men, compared to 78% of non-junction fatalities. These proportions have remained somewhat the same in the time period 2012-2022. A more detailed look at the data reveals differences between the EU Member States and the EFTA countries. **The proportion of female fatalities in crashes at junctions lies between 12% (Cyprus) and 50% (Slovenia).**

Figure 6. Distribution of junction fatalities and non-junction fatalities by gender in the EU27 (2022). Source: CARE

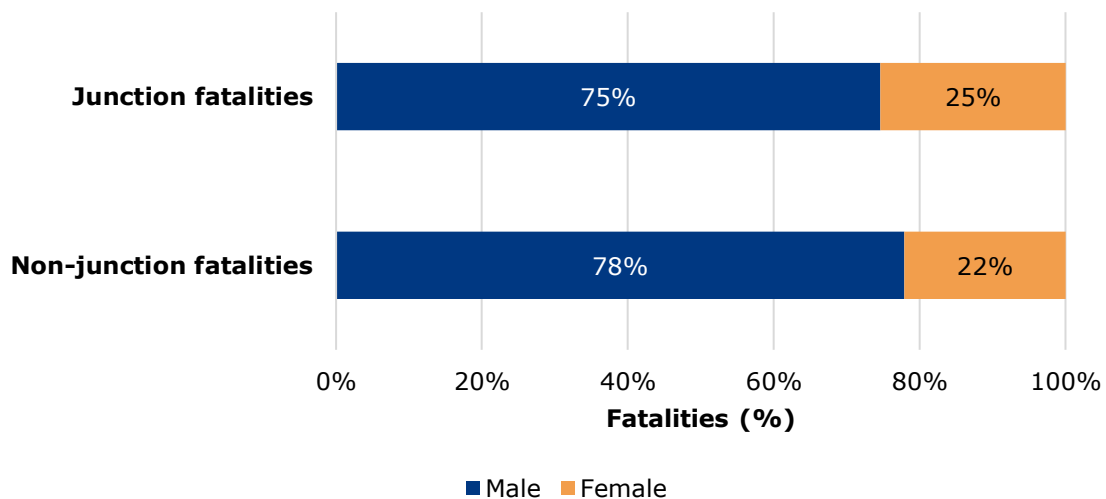


Figure 7. Trend in junction fatalities and non-junction fatalities by gender in the EU27 (2012-2022). Source: CARE

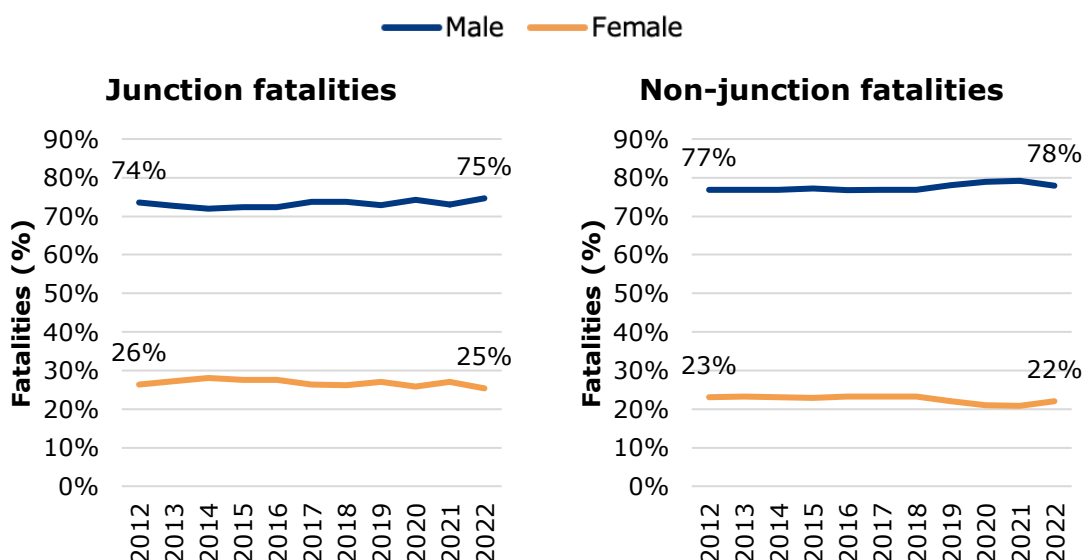
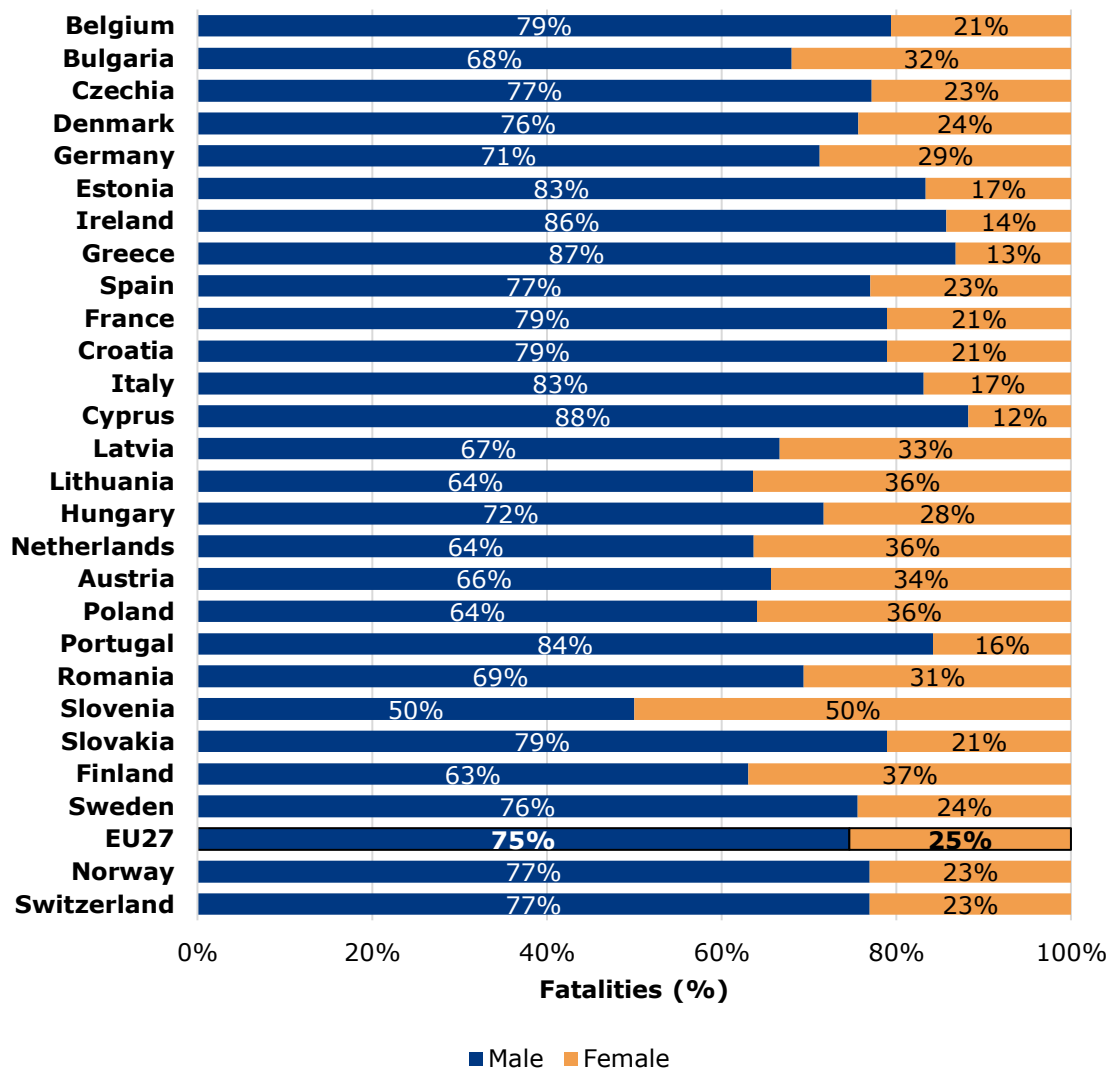


Figure 8. Distribution of junction fatalities by gender per country in the EU27 and EFTA (2022). Source: CARE



Notes:

- Luxembourg, 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 age distribution of fatalities at junctions differs partly from the age distribution of non-junction fatalities. **The proportion of 65+ year old fatalities is higher at junctions compared to non-junction fatalities.** In 2022, 39% of fatalities at junctions were 65 years or older, compared to 27% of fatalities on non-junction fatalities. **The proportion of fatalities aged 25-64 years in 2022 was 48% at junctions,** compared to 56% of fatalities on non-junction fatalities.

Figure 9. Distribution of junction fatalities and non-junction fatalities by age group in the EU27 (2022). Source: CARE

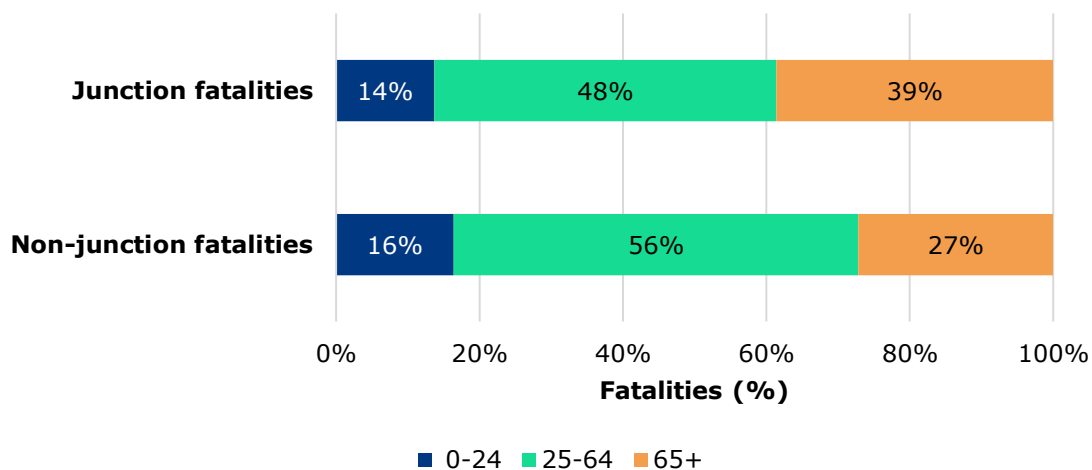
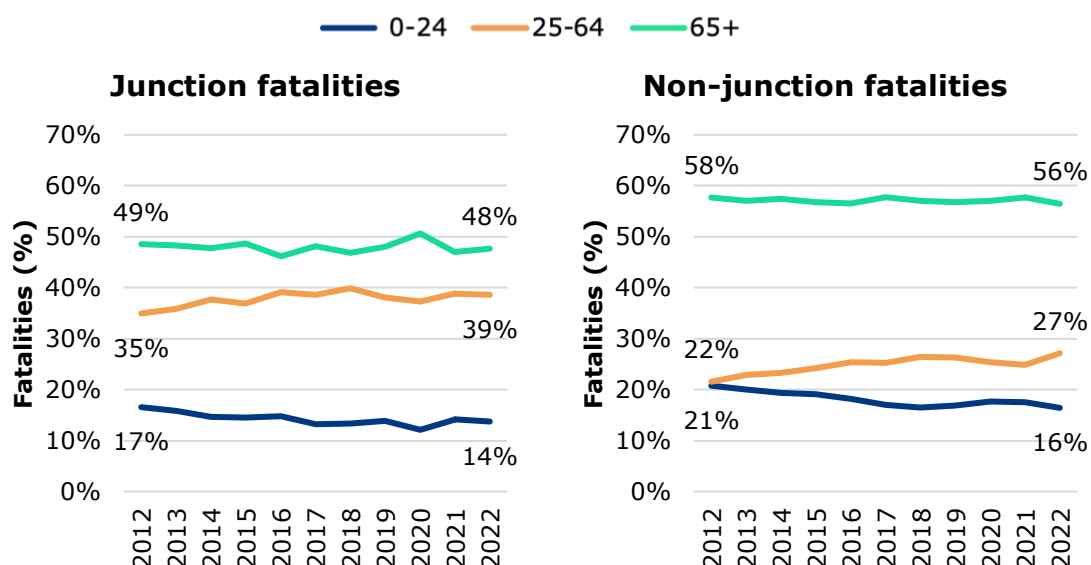


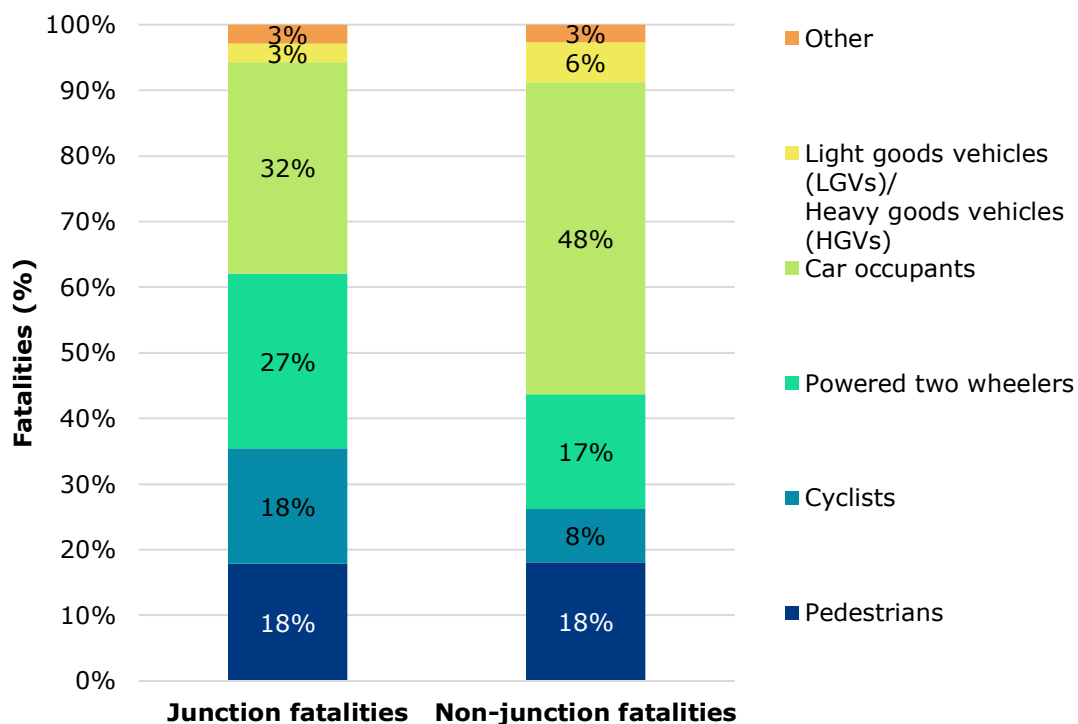
Figure 10. Trend in junction fatalities and non-junction fatalities by age group in the EU27 (2012-2022). Source: CARE



4.3 Transport modes

Vulnerable road users (pedestrians, cyclists and powered two wheelers) make up more than half of all fatalities (63%) at junctions. The proportion of fatalities among car occupants at junctions is lower (32%) compared to non-junction fatalities (48%).

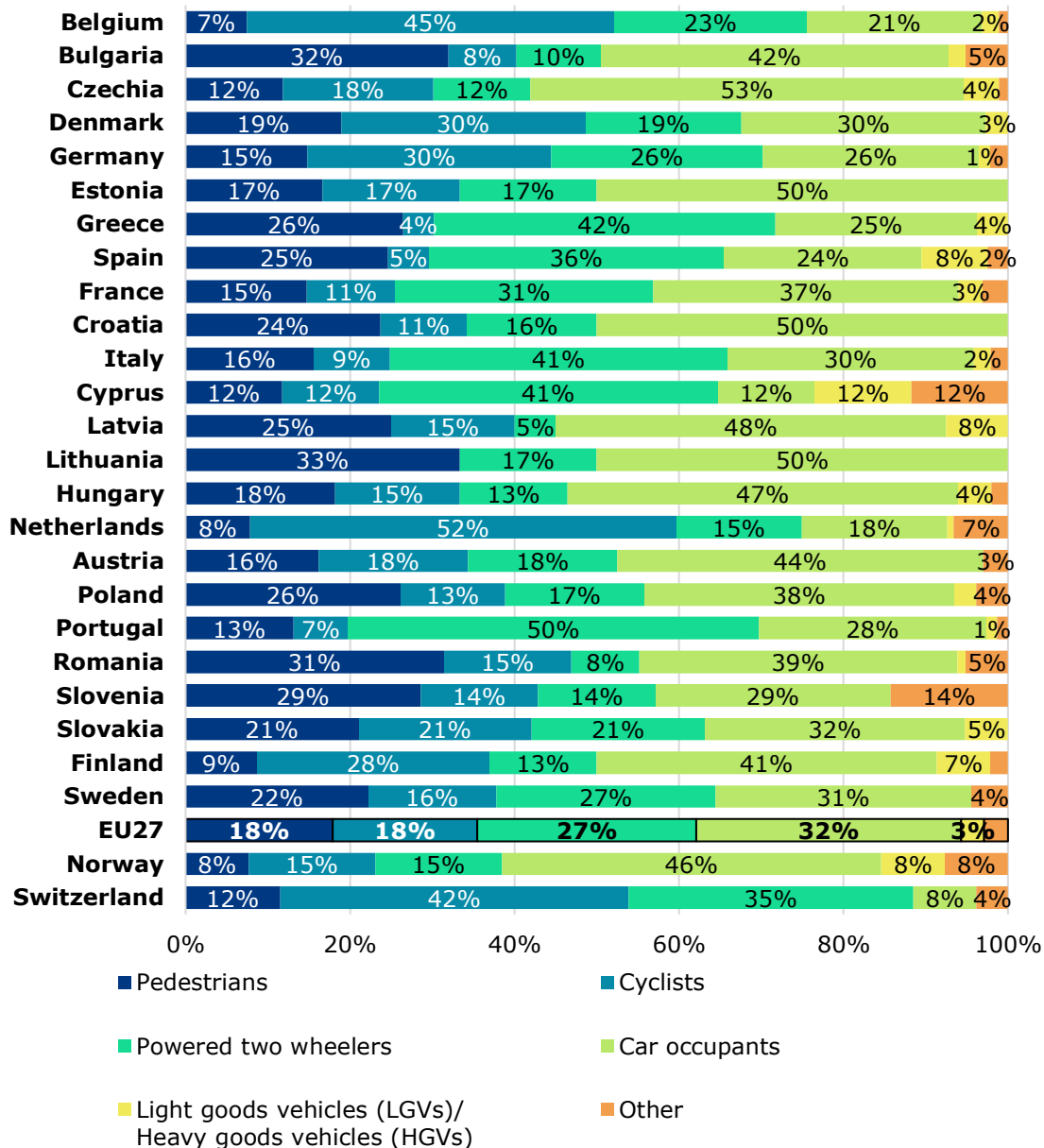
Figure 11. Distribution of junction fatalities and non-junction fatalities by transport mode in the EU27 (2022). Source: CARE



The proportion of vulnerable road users (VRUs) among road fatalities at junctions ranges from 38% to 88%. The **highest proportion** is found in **Switzerland, the Netherlands and Belgium**. Countries with the **lowest proportion** of VRUs among junction fatalities are **Norway and Czechia**.

Looking at VRUs in more detail, the **highest proportion of pedestrians** among junction fatalities is found in **Lithuania (33%)**, the **highest proportion of cyclists** among junction fatalities is observable in the **Netherlands (52%)**, Belgium (45%) and Switzerland (42%). **Portugal (50%)**, Greece (42%), Italy (41%) and Cyprus (41%) have the **highest proportion of moped riders/motorcyclists (powered two wheelers)** among junction fatalities.

Figure 12. Distribution of junction fatalities by transport mode per country in the EU27 and EFTA (2022). Source: CARE



Notes:

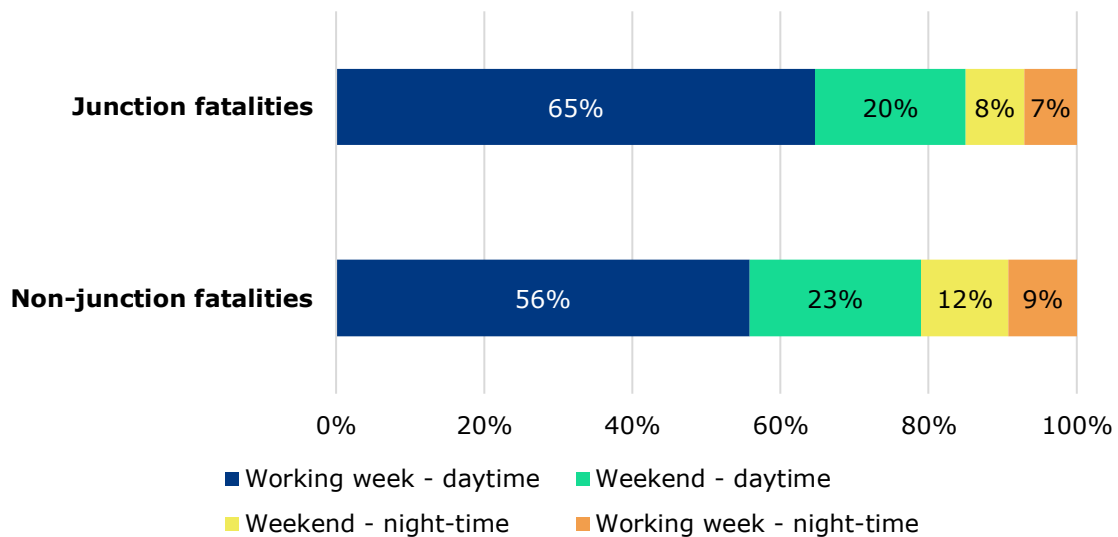
- Luxembourg, Malta, Iceland and Liechtenstein are not included in the figure because there are fewer than 10 fatalities in the year 2022.
- For Ireland, Greece, Latvia, Finland and Sweden the missing value for 2022 was imputed with the last known value in the series.

5. Time

5.1 Period of the week

The distribution of fatalities at junctions according to period of the week differs partly from the same distribution for non-junction fatalities. The **share of fatalities at junctions is proportionally higher during the working week** and proportionally slightly lower at the weekend.

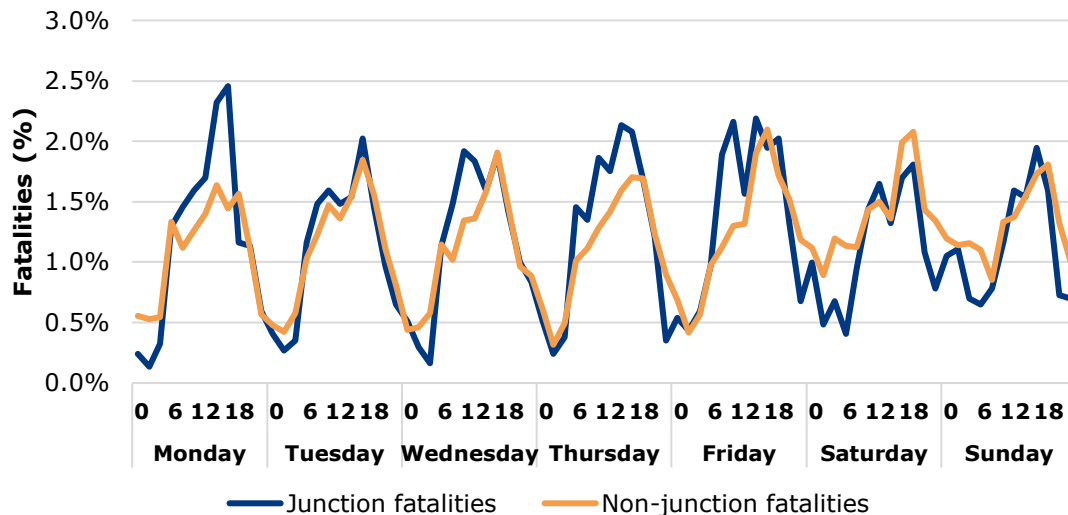
Figure 13. Distribution of junction fatalities and non-junction fatalities according to period of the week in the EU27 (2022). Source: CARE



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

The Figure below on fatalities at junctions displays that there are **proportionally more fatalities at junctions during daytime and the working week**, especially on Mondays.

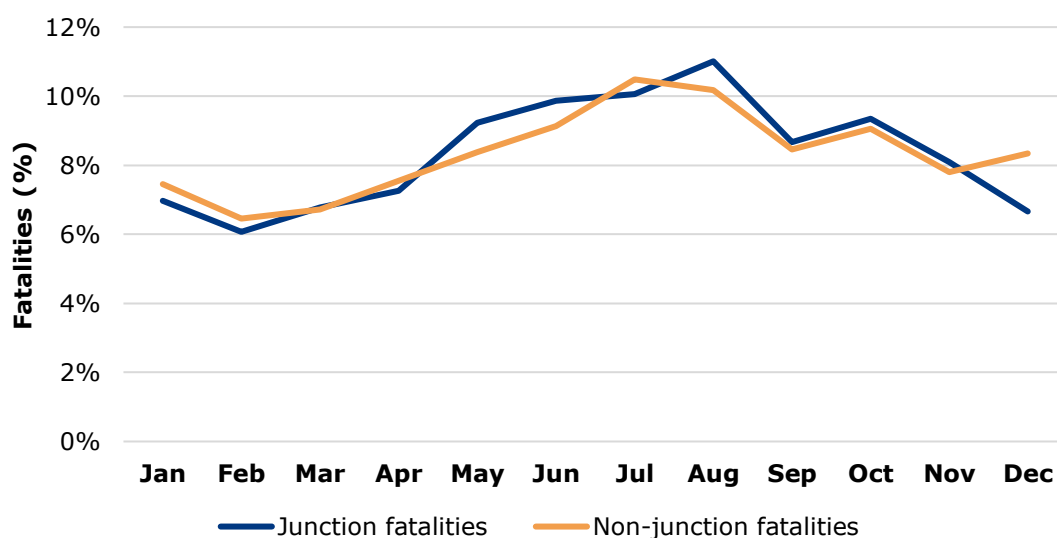
Figure 14. Distribution of junction fatalities and non-junction fatalities by day of the week and hour in the EU27 (2022). Source: CARE



5.3 Month

The **peak period for fatalities at junctions is from June until August**, with highest numbers in August. The peak period for non-junction fatalities is from May until August.

Figure 15. Monthly distribution of junction fatalities and non-junction fatalities in the EU27 (2022). Source: CARE



6. Location

6.1 Road type

57% of junction fatalities in the EU27 occur on urban roads, which is considerably higher compared to non-junction fatalities on urban roads (34%). The proportion of **fatalities at junctions on rural roads (41%)** is noticeably lower than the proportion of non-junction fatalities on rural roads (55%). A more detailed look at the data reveals differences between the EU Member States and the EFTA countries.

Figure 16. Distribution of junction fatalities and non-junction fatalities by road type in the EU27 (2022). Source: CARE

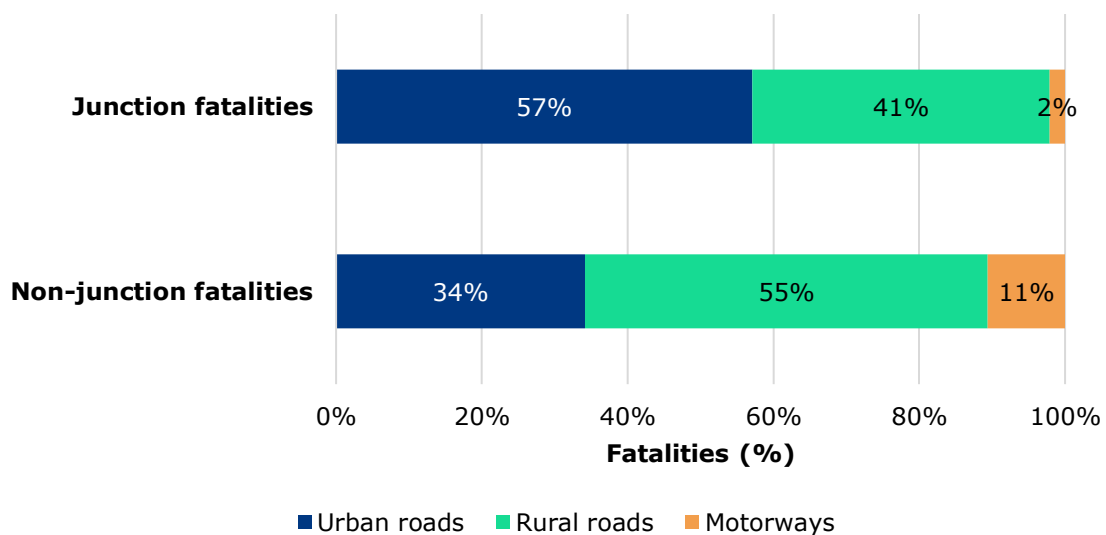
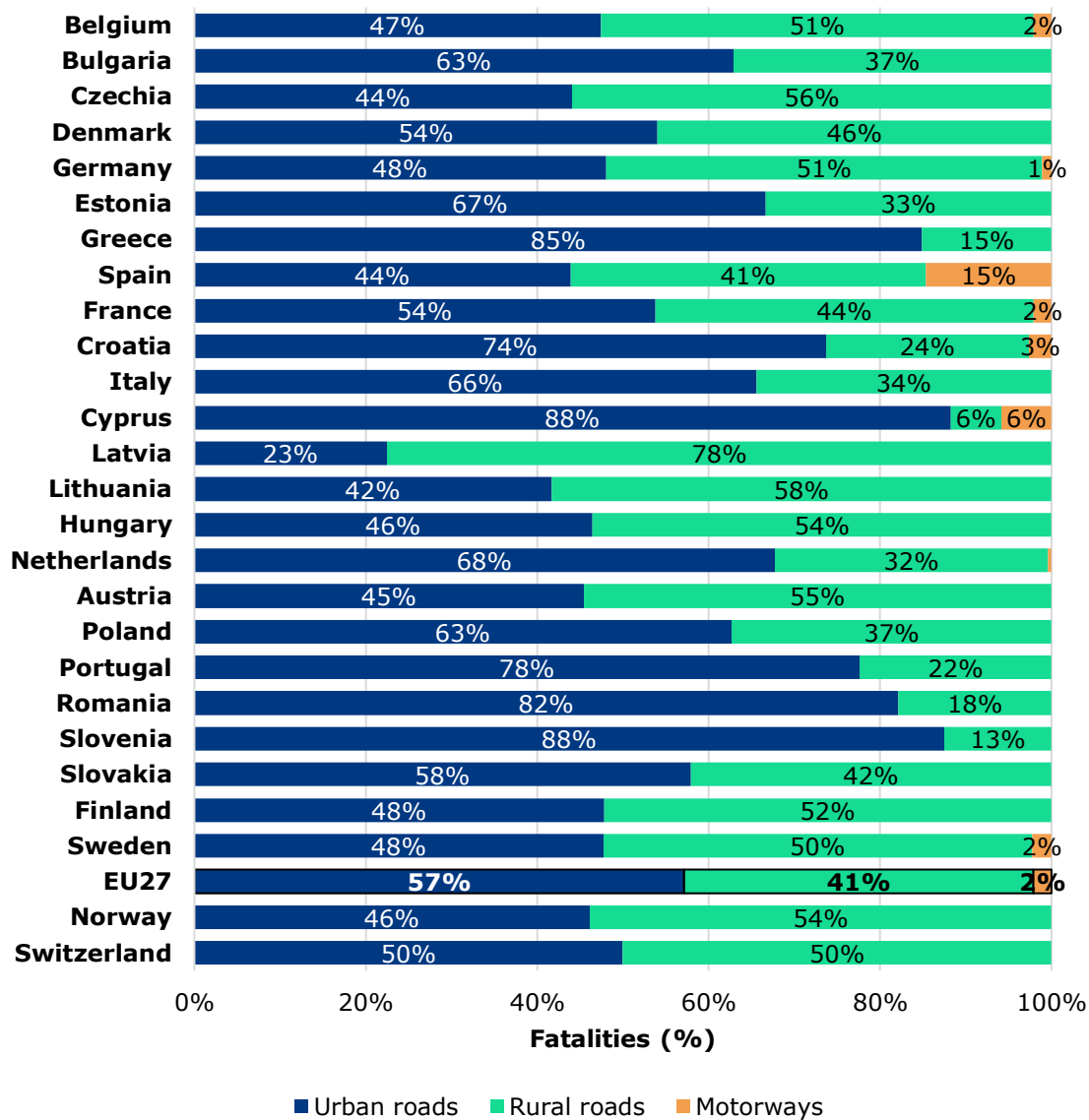


Figure 17. Distribution of junction fatalities by road type per country in the EU27 and EFTA (2022). Source: CARE



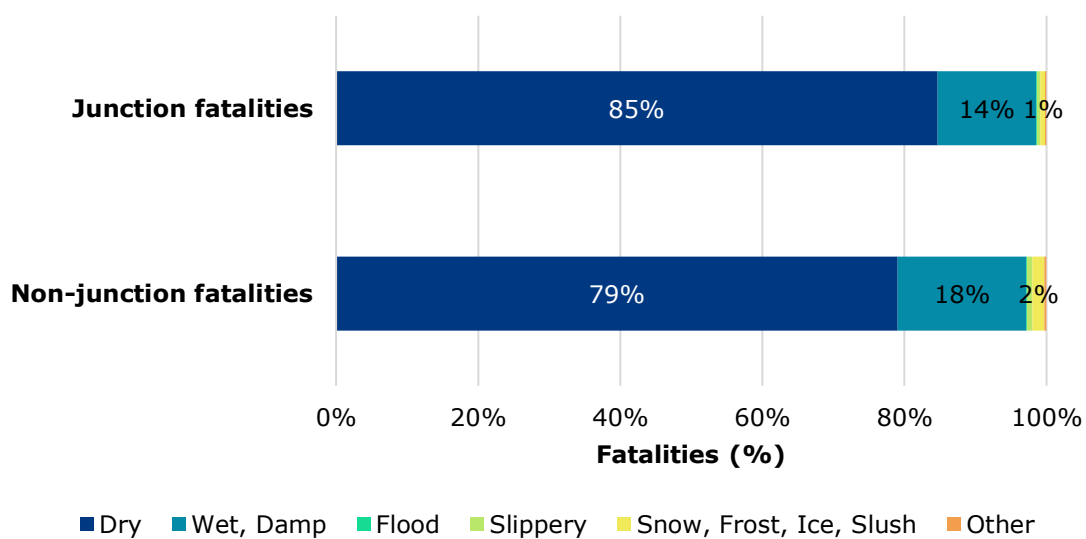
Notes:

- Luxembourg, 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.

6.2 Road surface

In 2022, surface conditions were dry in the case of **85% of fatalities at junctions** and **wet for 14%**. The proportion of fatalities at junctions during dry surface conditions was slightly higher than the proportion of fatalities for non-junction fatalities during dry surface conditions (79%).

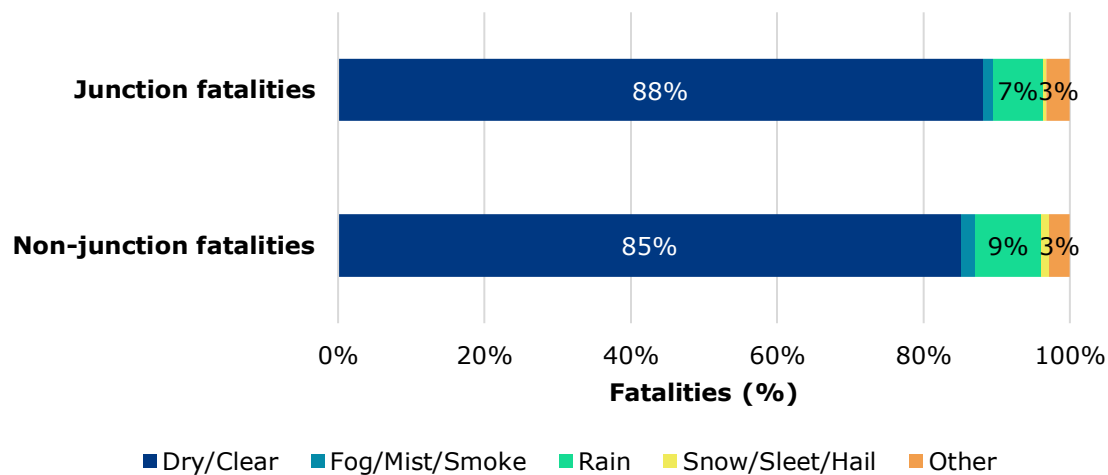
Figure 18. Distribution of junction fatalities and non-junction fatalities by surface conditions in the EU27 (2022). Source: CARE



6.3 Weather conditions

Weather conditions were dry/clear in the case of **88%** of fatalities at junctions in 2022 and rainy for 7%. The proportion of fatalities at junctions during dry weather conditions was only slightly higher than the proportion of fatalities for non-junction fatalities during dry weather conditions (**85%**).

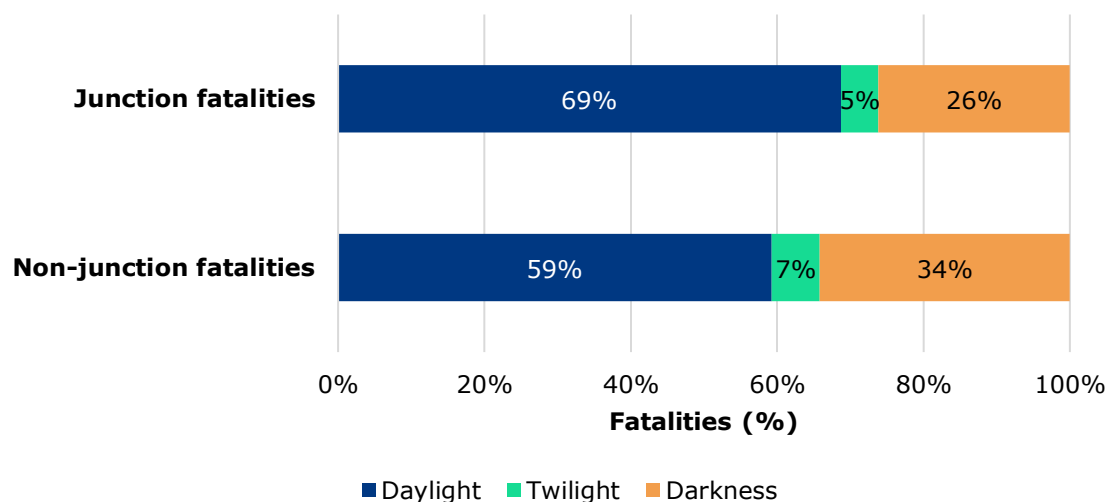
Figure 19. Distribution of junction fatalities and non-junction fatalities by weather conditions in the EU27 (2022). Source: CARE



6.4 Light conditions

69% of fatalities at junctions occur during daylight, which is noticeably higher compared to non-junction fatalities (59%). The proportion of **fatalities at junctions during darkness (26%)** is lower than the proportion of non-junction fatalities during darkness (34%).

Figure 20. Distribution of junction fatalities and non-junction fatalities by light 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.

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.

Junction:

Location where two or more roads meet and traffic can change between different routes, directions, or sometimes modes of travel.

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

