



# European Road Safety Observatory

Facts and Figures - Cyclists - 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 “Cyclists” is also addressed in the “Road Safety Thematic Report Cyclists”, presenting an overview of the most important research questions and results on this topic.

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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: 27 <sup>th</sup> December, 2020

### Disclaimer

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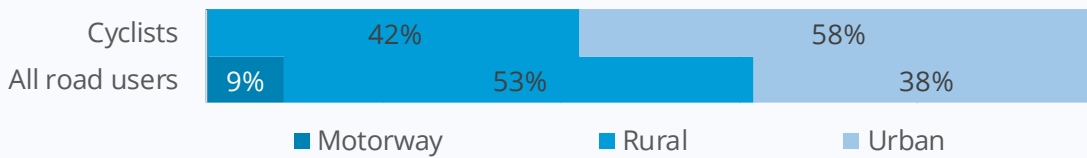
# 1 Key Facts

## Cyclist Fatalities 2018

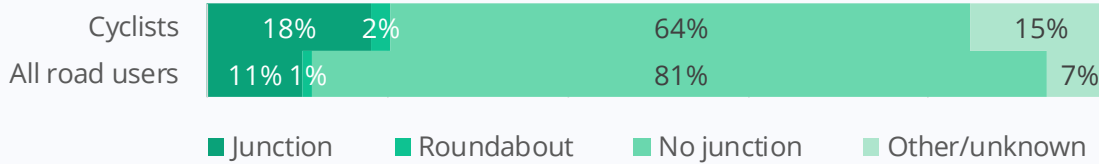


- 2,006 fatalities
- 8.6% of all road fatalities
- No decrease since 2010

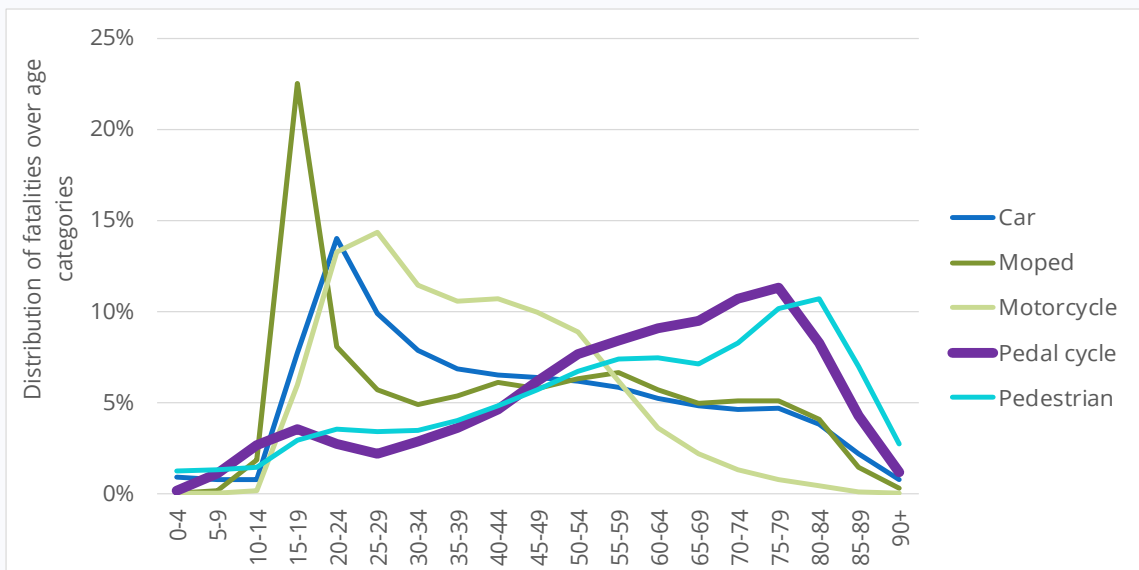
### Road type



### Junction type



### Age



**Of all the types of road user, cyclists are the only type where there has been no decline in fatalities since 2010.** The number of cyclist fatalities has fluctuated between 1,900 and 2,100 since 2010. Although there are no data available at EU level on the trend in cycling kilometres travelled, it is widely recognized that cycling has increased in popularity over the past decade. This may partly explain the stagnation in levels of cyclist fatalities together with other factors such as insufficient investment in safe cycling infrastructure.

Because the total number of road fatalities has decreased in the past decade (by -21% since 2010), the **proportion of cyclists** within the total number of road fatalities has grown from 6.7% in 2010 to **8.6% in 2018**.

Of all EU Member States, Germany has the highest number of cyclist fatalities (445 in 2018). The **highest proportion rate** (i.e. number of cyclist fatalities within the total number of road fatalities) is observed in the **Netherlands, Denmark, Belgium and Germany** (ranked from high to less high). Typically, people cycle a lot in these four neighbouring countries. Also the cyclist mortality rate (i.e. the number of deaths per million inhabitants) is above EU average in these countries. Other countries that score lower than average on both mortality rate and proportion rate are Lithuania, Poland, Hungary and Romania.

**Almost half (47%) of cyclist fatalities in 2018 were seniors aged 65 or older**, a proportion that is similar to the share of seniors in pedestrian fatalities (50%). Four out of five cyclist fatalities are **men**.

**Cyclists are most often involved in crashes with cars, other cyclists and pedestrians.** It is generally known that cyclists are also often injured in unilateral injury crashes (i.e. a crash in which only one vehicle, for example a bicycle, and no pedestrians are involved), but due to the under-reporting of this type of crash, no complete statistics on this crash type can be provided through the CARE database.

Regarding the time of fatal cyclist crashes, two-thirds (67%) of all cyclist fatalities occur in the **daytime during the working week** (compared with 58% of all road fatalities). There is a clear seasonal effect: we observe twice as many cyclist fatalities in the **summer months** than in the winter months.

As to the location of fatal cyclist crashes, **a majority of cyclist fatalities occur on urban roads** (53% for cyclists compared with 38% for all road fatalities). Compared with total road fatalities, the proportion of cyclist fatalities is lower on road stretches (64% versus 81%), and considerably higher at intersections (18% versus 11%).

### Basic definition

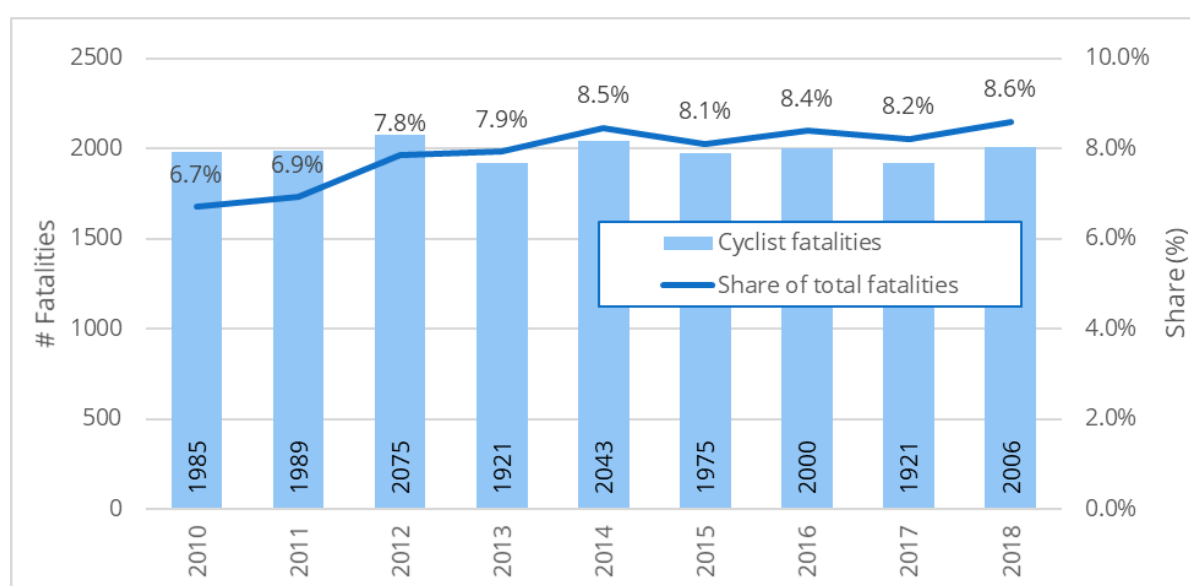
A road vehicle which has two or more wheels and generally propelled by the muscular energy of the persons on that vehicle, in particular by means of a pedal system, lever or handle (e.g. bicycles, tricycles, quadricycles and invalid carriages). Included are cycles with supportive power unit (e.g. e-bikes, pedelecs). (Source: UNECE/ITF/Eurostat Glossary)

## 2 Main trends

### 2.1 Fatalities

Cyclists are the only mode of transport that has shown no decline in fatalities over the past decade. The number of cyclist fatalities over the past decade fluctuated between 1900 and 2100. Given that the number of cyclist fatalities has remained stable, while the total number of road fatalities in the same period decreased by 21%, the proportion of cyclist fatalities within the total number of fatalities has increased, from 6.7% in 2010 to 8.6% in 2018. Hence, **almost one in ten registered road fatalities in the EU are now cyclists.**

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

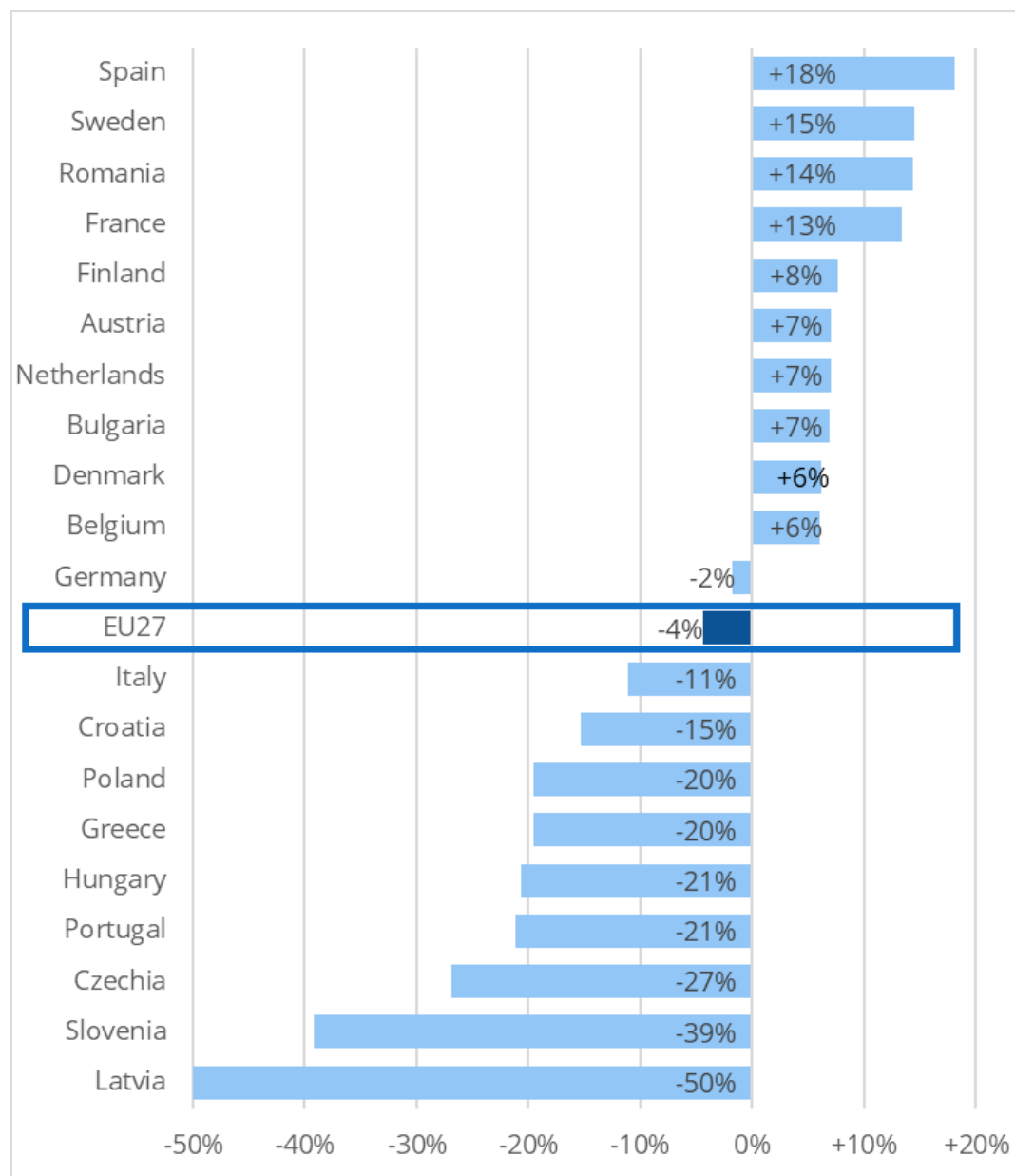


Note: imputation (explained in "Notes") was used for missing values for specific combinations of years and countries.

In about half of the EU Member States the number of cyclist fatalities has decreased, while in the other half the number has risen. The strongest increase is observed in Spain (18%). Cyclist fatalities are also on the rise in France (13%). In addition, there is also an increase in most northern Member States (Sweden, Estonia, Finland, Denmark).

**In absolute numbers, Germany has by far the highest number of cyclist fatalities (445 in 2018); this number has remained fairly constant in Germany over the past decade.**

Figure 2. Percentage change in the number of cyclist 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: countries with missing values or too many "0"-values, and countries with (extreme percentage changes due to) small absolute numbers.

Table 1. Number and trend of cyclist 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	32	48	32	41	+7%	
Belgium	73	81	76	89	+6%	
Bulgaria	27	35	22	21	+7%	
Croatia	28	27	23	22	-15%	
Cyprus	2	0	4	1	/	
Czechia	80	53	57	56	-27%	
Denmark	26	31	27	28	+6%	
Estonia	0	4	1	3	/	
Finland	26	26	23	21	+8%	
France	147	162	173	175	+13%	
Germany	381	393	382	445	-2%	
Greece	23	18	11	12	-20%	
Hungary	92	73	81	68	-21%	
Ireland	5	10	NA	NA	/	
Italy	265	275	254	219	-11%	
Latvia	13	7	11	9	-50%	
Lithuania	NA	NA	NA	NA	/	
Luxembourg	1	1	0	3	/	
Malta	0	1	0	1	/	
Netherlands	119	131	138	160	+7%	
Poland	280	271	220	285	-20%	
Portugal	33	33	25	26	-21%	
Romania	182	176	191	181	+14%	
Slovakia	27	21	23	19	/	
Slovenia	17	12	11	8	-39%	
Spain	67	67	78	58	+18%	
Sweden	21	22	26	23	+15%	
Total EU27	1985	2000	1921	2006	-4%	
Iceland	0	0	2	0	/	
Norway	5	12	9	NA	/	
Switzerland	34	33	37	39	-14%	
United Kingdom	111	105	103	100	-5%	

Notes:

- Imputation was used to compute the trend for EU27.
- For countries with small absolute numbers, missing values or many "0"-values for specific years since 2009, no or less information is included about trends.

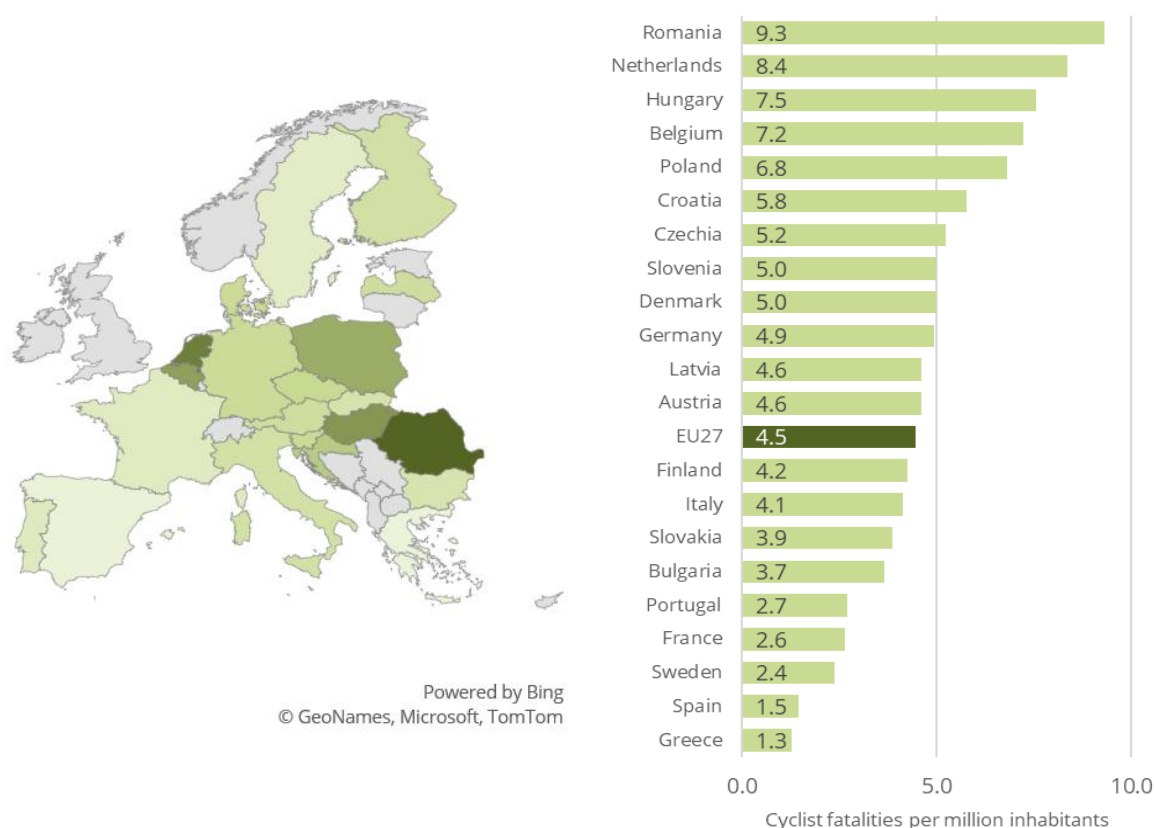


## 2.2 Mortality : number of cyclist fatalities per million inhabitants

In general, the number of cyclist fatalities per million inhabitants is lower in the south and the north (i.e. Sweden, Finland) of the EU, and higher in the EU Member States in-between. In the period 2016-2018, the mortality rate among cyclists was almost twice as high in the Netherlands and Romania than the EU average. In Greece and Spain, it was three times lower than the EU average.

These observations are at least partly related to the number of bicycle trips and bicycle kilometres travelled in the respective countries, though safe infrastructure also plays a key role as do other factors such as user behaviour (both cyclists and other road users) and lack of enforcement. The ESRA2 survey (Achermann, Berbatovci, & Buttler, 2020)<sup>1</sup> contains information by country on the frequency of non-electric cycling by adults. In this list, the Netherlands is at the top (almost half of Dutch people cycle at least once a week), followed by Hungary, Denmark, Poland, Finland and Germany. The proportion of adults cycling at least weekly is at least 28% in all these countries. In Spain and Greece, it is less than 19% while in Belgium it is about 21%.

Figure 3. Cyclist fatalities per million inhabitants per country in the EU27 (2016-2018). Sources: CARE & EUROSTAT



### Notes:

- Imputation was used to compute the overall mortality for EU27.
- Due to small numbers of fatalities, Cyprus, Estonia, Malta and Luxembourg are not included.
- Due to a high number of missing values, Ireland and Lithuania are not included.

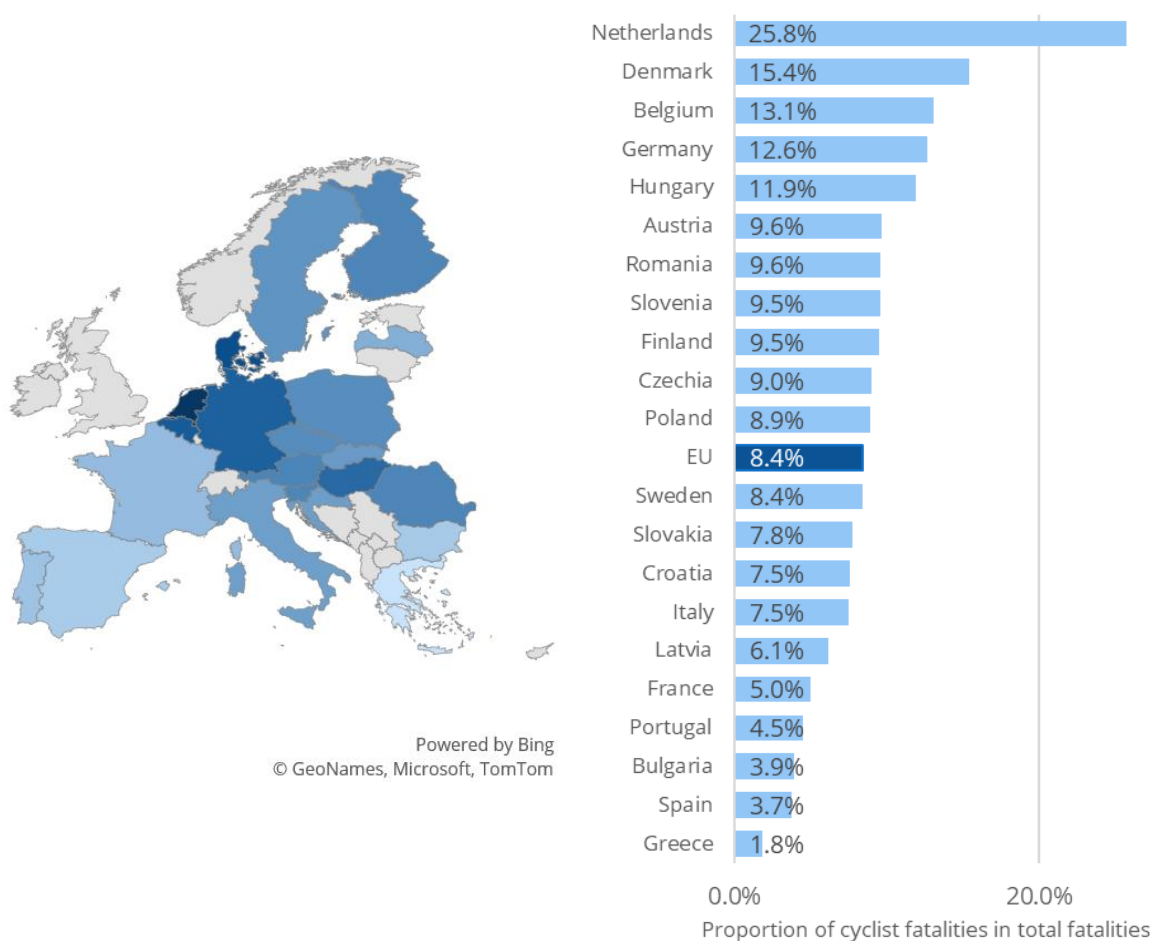
<sup>1</sup> Achermann Stürmer, Y., & Berbatovci, H., Buttler, I. (2020). Cyclists. ESRA2 Thematic report Nr. 11. ESRA project (E-Survey of Road users' Attitudes). Bern, Switzerland: Swiss Council for Accident Prevention.

## 2.3 Proportion of fatalities : number of cyclist 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 cyclists is high because the total mortality for all road users is high. Accordingly, it is important to also look at the proportion of cyclist fatalities within the total number of road fatalities. The proportion rate shows the relative incidence of cyclist fatalities for a specific country.

The Figure below on proportion rate gives partly the same picture as the earlier Figure on mortality. The **Netherlands and Belgium** are still in the "top 4". Romania has fallen in the ranking, showing that the high mortality for cyclists in Romania is in line with the overall high mortality in that country. In contrast to Romania, **Denmark** has risen in the ranking. **Germany** is the country with the fourth highest value on the proportion rate. It is no coincidence that cycling in these four neighbouring countries (the Netherlands, Belgium, Germany, Denmark) is known for its popularity (see above).

Figure 4. Number of cyclist fatalities in the total number of fatalities, per country in the EU27 (2016-2018).  
Source: CARE



Notes:

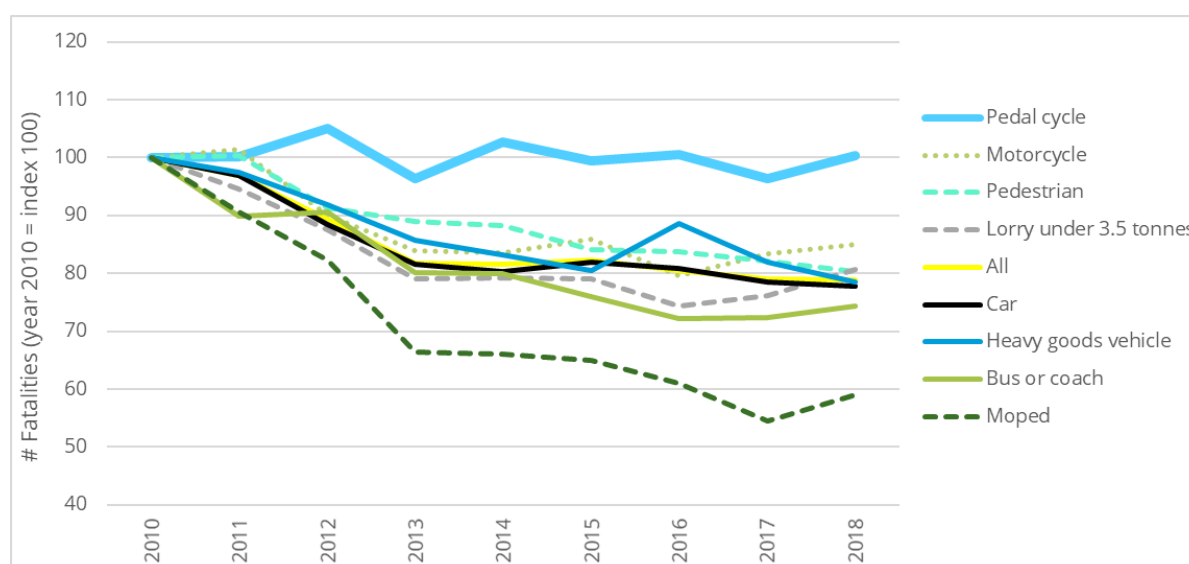
- Imputation was used to compute the overall proportion for EU27.
- Due to small numbers of fatalities, Cyprus, Estonia, Malta and Luxembourg are not included.
- Due to a high number of missing values, Ireland and Lithuania are not included.

## 2.4 Comparison of cyclists with other transport modes

The Figure below shows the total number of fatalities in road crashes involving particular modes of transport over the period 2010-2018. Not only are fatalities by transport mode counted, but also the other party killed in the crash by respective mode of transport (e.g. in car crashes, both the car occupants and the other parties killed are counted).

The Figure below confirms earlier findings, namely that the **number of fatalities in cyclist crashes remains constant, in contrast to the number of fatalities in crashes with other modes of transport**. Over the same period, the number of fatalities in pedestrian crashes and motorcycle crashes decreased between 10% and 20% over the last decade, while the number of fatalities in moped crashes even decreased by around 40%.

Figure 5. Trend of fatalities in crashes involving cyclists and other transport modes in the EU27 (2010-2018).  
Source: CARE



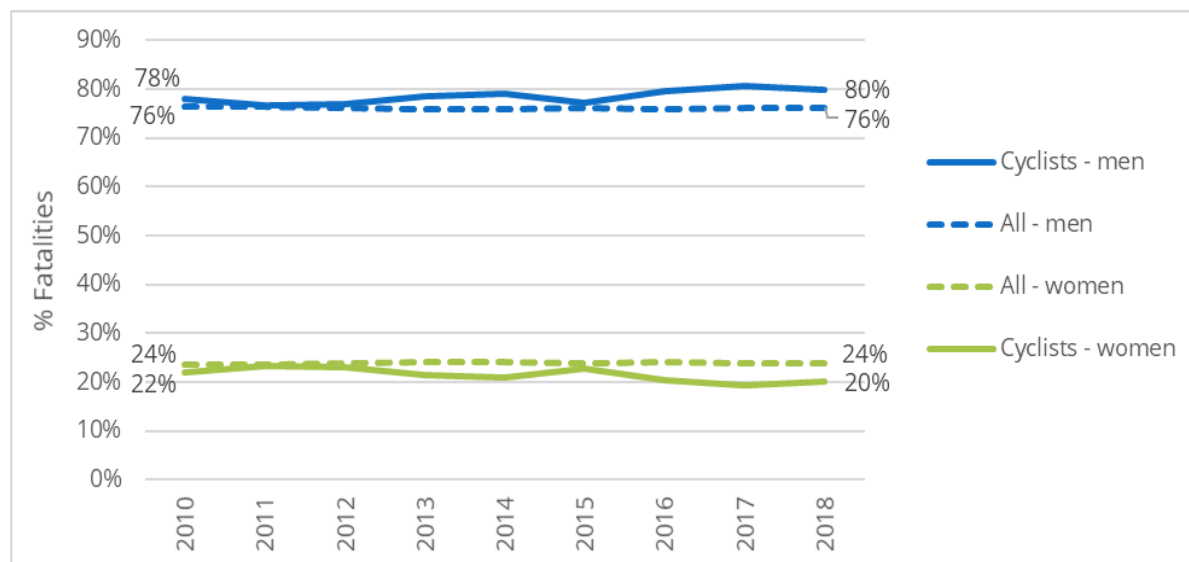
Note: imputation was used for missing values for specific combinations of years and countries. Countries that show an unreliable trend for a particular mode of transport are omitted for that mode of transport.

## 3 Road user

### 3.1 Gender

**76% of all road fatalities in the EU in 2018 are male. At 80%, the proportion of men among cyclist fatalities is slightly higher. Both shares have remained more or less stable since 2010.**

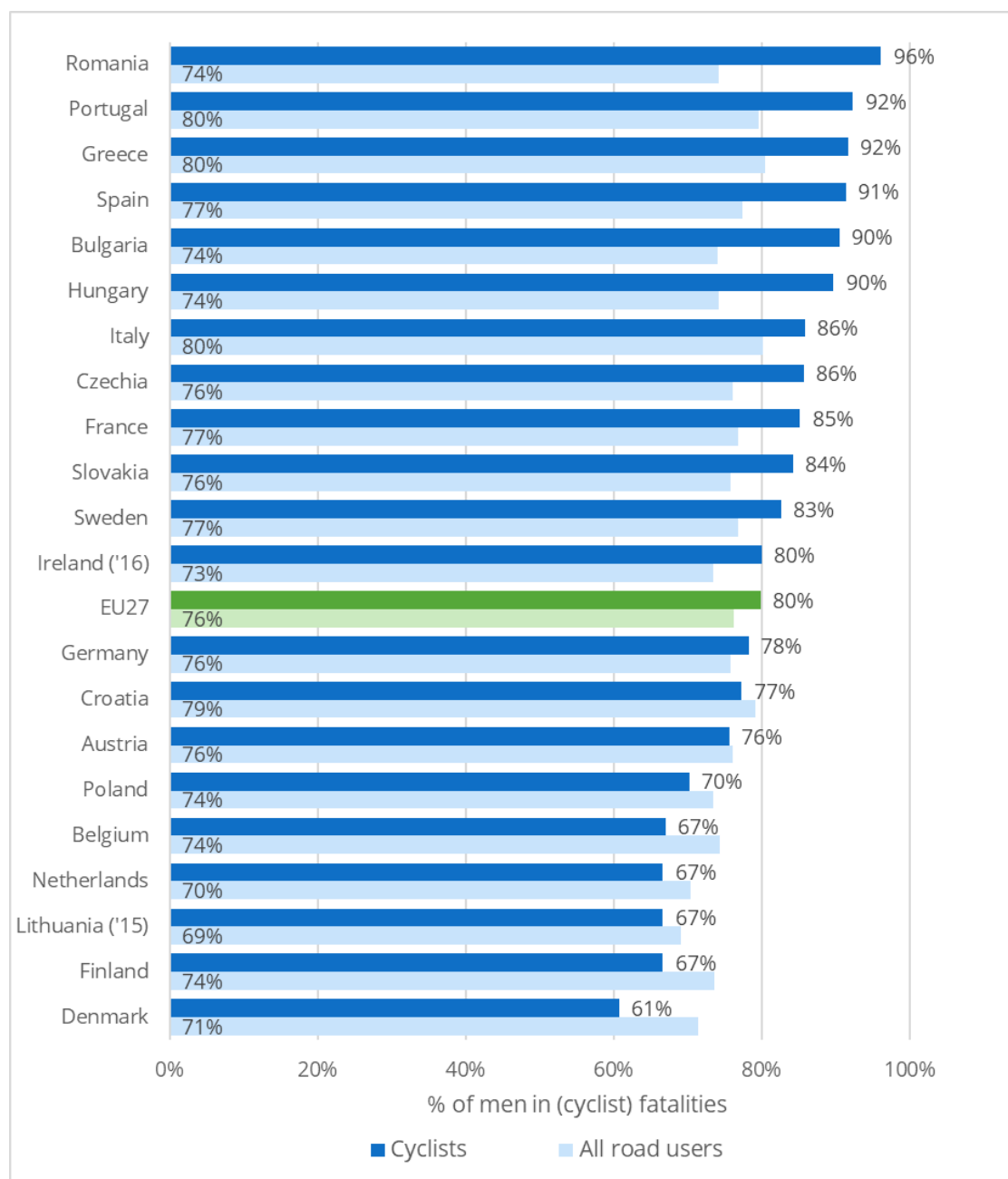
Figure 6. Distribution of cyclist fatalities and all fatalities by gender in the EU27 (2010-2018). Source: CARE



Note: the relative share of cyclist fatalities with gender "unknown" is 0.1% in 2018. Therefore, the category "unknown" is omitted from the Figure.

**In countries where people cycle a lot, such as the Netherlands, Germany, Denmark and Belgium, the proportion of men among cyclist fatalities is lower than the EU average. In the countries in the south of the EU, the share of men among cyclist fatalities is higher than the EU average: in Spain, Greece and Portugal, more than 9 out of 10 cyclist fatalities are men.**

Figure 7. Share of men among cyclist fatalities and among all fatalities per country in the EU27 (2018).  
Source: CARE



Notes:

- The relative share of cyclist fatalities with gender "unknown" is 0.1% in 2018. Therefore, the category "unknown" is omitted from the Figure.
- Due to small numbers of fatalities, Cyprus, Estonia, Latvia, Luxembourg, Malta and Slovenia are not included.

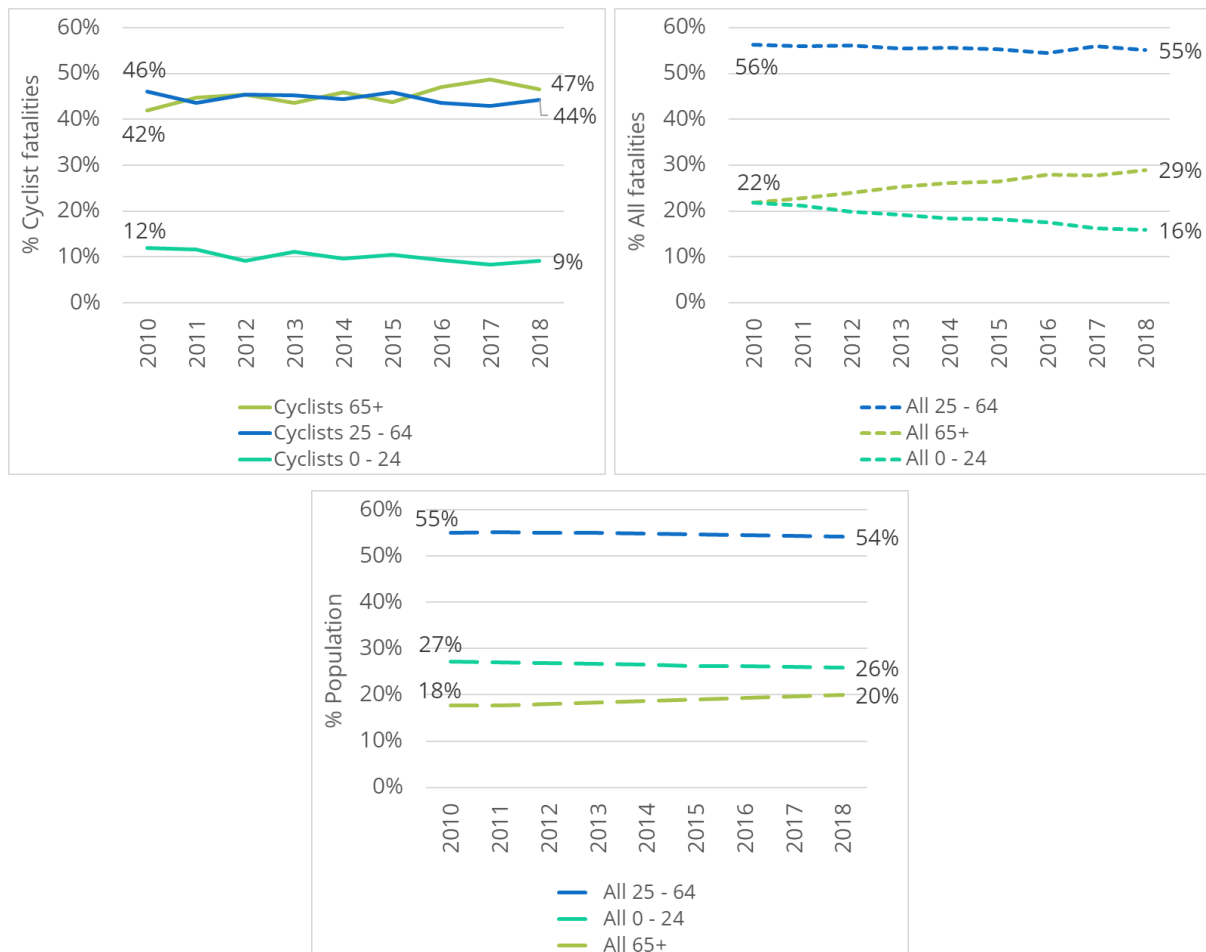
### 3.2 Age

The Figure below shows an increase in the number of over-65s in the group of cyclists killed in the past decade. **In 2018, 47% of cyclist fatalities were persons aged 65 years or older.** This is similar to the proportion of seniors in the group of pedestrian fatalities, which is 50%.

The proportion of seniors in the total of road fatalities also increased, but at 29% in 2018 it is not yet as high as the proportion of over-65s among cyclists and pedestrians. Young people under 25 years have a lower share in the number of cyclist fatalities (9% in 2018) than in the total number of road fatalities (16% in 2018).

Taking into account their share of the population, seniors are considerably over-represented in cyclist fatalities while 0-24 year olds are strongly under-represented.

Figure 8. Distribution of cyclist fatalities and all fatalities by age group in the EU27 (2010-2018). Source: CARE & Eurostat

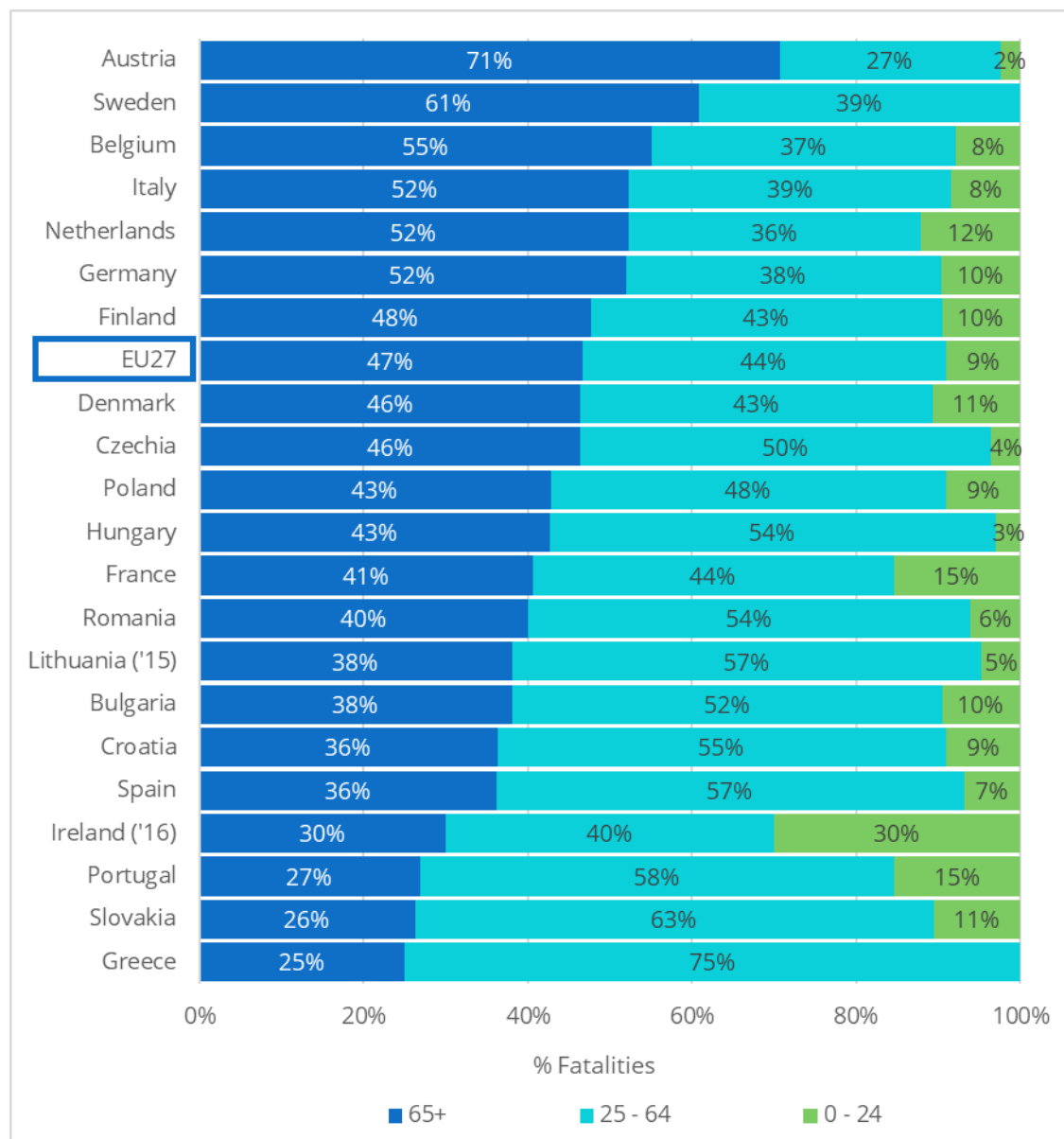


Note: the relative share of cyclist fatalities with age "unknown" is 0.6% in 2018. Therefore, the category "unknown" is omitted from the Figure.

If we relate the number of cyclist fatalities per age group to the number of inhabitants per age group (i.e. mortality rate), the situation for seniors is even more pronounced. The mortality rate for senior cyclists is 3 times higher than for 25-64 year olds and up to 6 times higher than for the under-25 year olds. **In countries where people cycle a lot (see Chapter 2.2) the share of seniors among cyclist fatalities is generally higher than**

**the EU average.** In Austria, Germany, the Netherlands and Belgium this proportion was higher than 50% in 2018. The excel file "F&F Cyclists" contains more information and figures on this.

Figure 9. Distribution of cyclist fatalities by age group per country in the EU27 (2018). Source: CARE

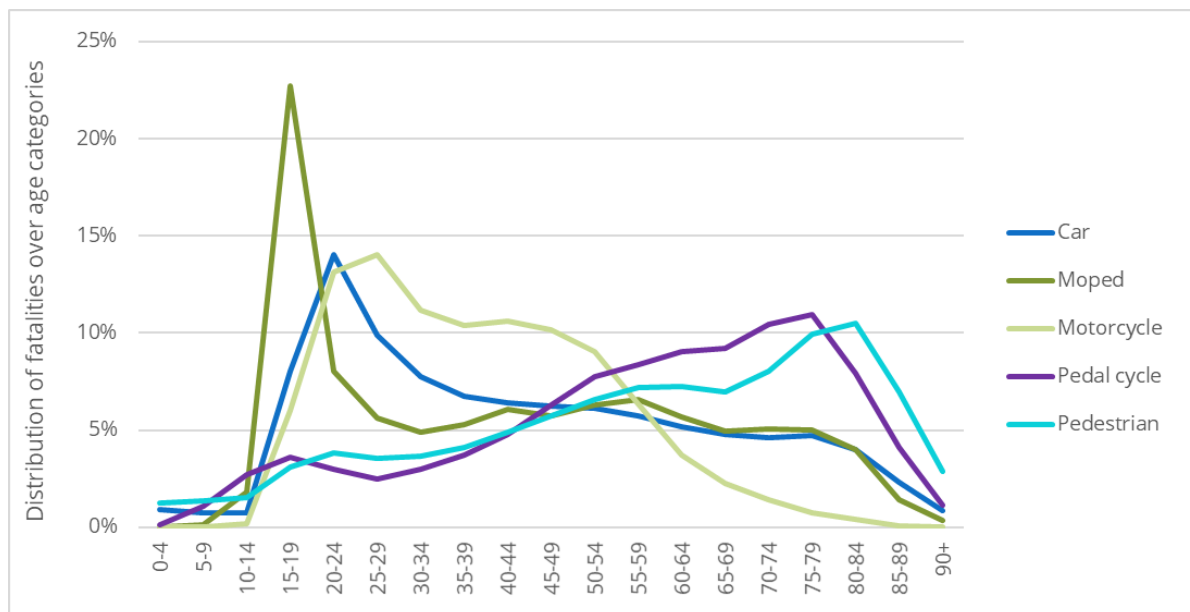


Notes:

- The relative share of cyclist fatalities with age "unknown" is 0.6% in 2018. Therefore, the category "unknown" is omitted from the Figure.
- Due to small numbers of fatalities, Cyprus, Estonia, Latvia, Luxembourg, Malta and Slovenia are not included.

The Figure below provides a more detailed picture of the distribution of cyclist fatalities by age. The number of cyclist fatalities rises between the age categories of 0-4 year olds and 15-19 year olds, then decreases somewhat in people in their twenties, and **then rises again continuously between about the age categories 30-34 year olds and 75-79 year olds**. We see a very similar distribution for pedestrians, although pedestrians do not show a pronounced dip in the curve for people in their twenties. For motorized vehicles we see a very different spread with generally a peak at the youngest age category at which the vehicle concerned can be used.

Figure 10. Distribution of fatalities over 5-year age categories, by transport mode, in the EU27 (2010-2018).  
Source: CARE

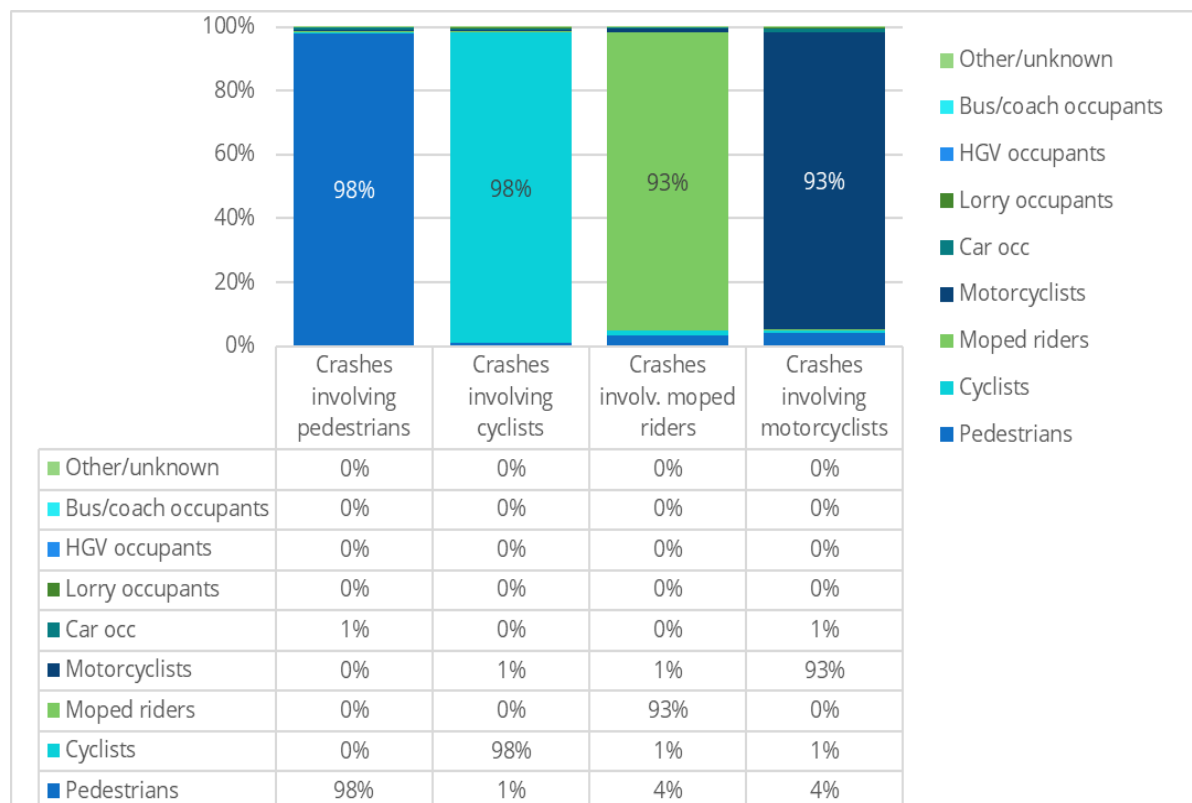




### 3.3 Other transport modes involved

The fatalities in crashes involving cyclists are virtually always the pedestrians themselves (98%). Also in crashes involving other vulnerable road users than cyclists, 9 out of 10 fatalities are the vulnerable road users themselves.

Figure 11. Distribution of fatalities by transport mode in crashes involving pedestrians, cyclists, moped riders and motorcyclists in the EU27 (2018). Source: CARE

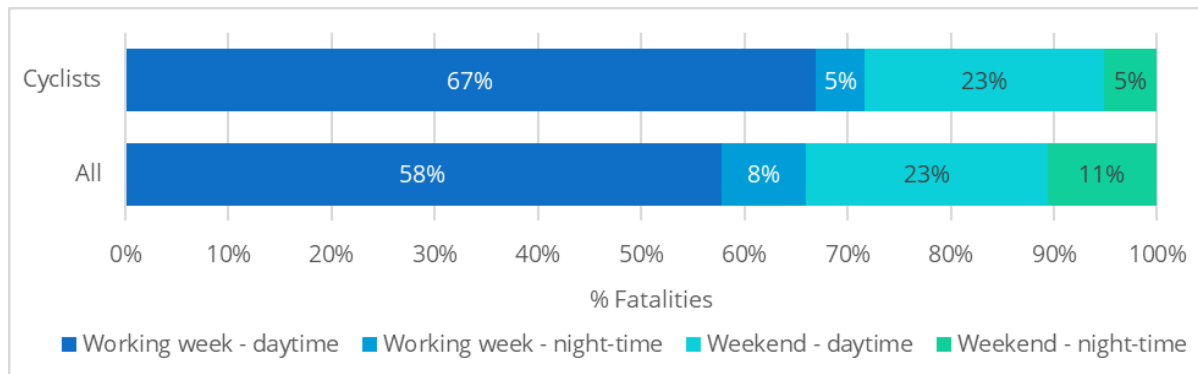


## 4 Time

### 4.1 Period of the week

Compared with all road fatalities combined, cyclist fatalities occur more often in day-time during the working week, equally often in daytime during weekends, but less often at night, during the working week, and at the weekend.

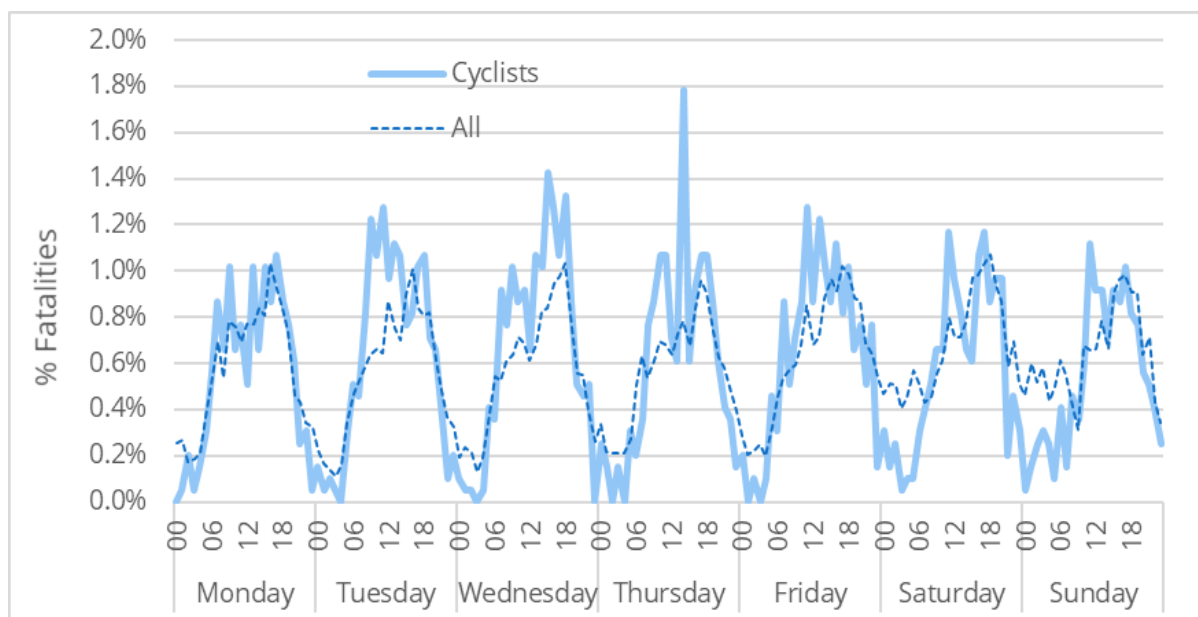
Figure 12. Distribution of cyclist fatalities and all fatalities according to period of the week in the EU27 (2018). Source: CARE



### 4.2 Day of the week and hour

The Figure below also shows that, compared with all road fatalities, fatal cycle crashes happen less frequently at night-time. In addition, the Figure also reveals a generally higher morning peak of cyclist fatalities during the working week, and a peak around noon during the weekend. The peak on Thursday at noon is an accidental outlier.

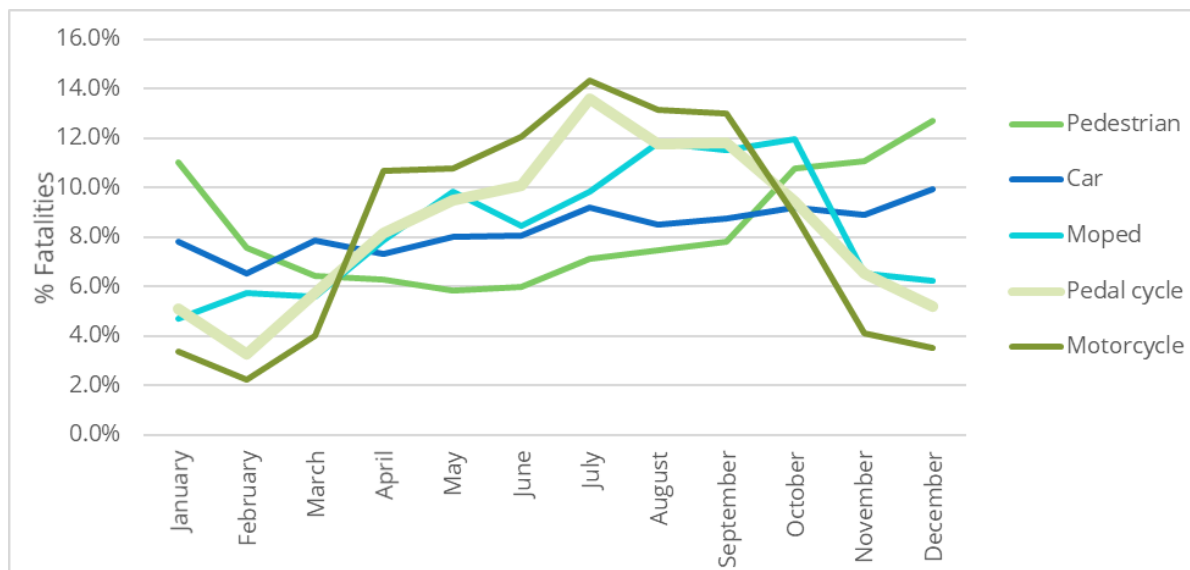
Figure 13. Distribution of cyclist fatalities and all fatalities by day of the week and hour in the EU27 (2018). Source: CARE



### 4.3 Month

The Figure below shows the distribution of fatalities by mode of transport over the months of the year. The line for cyclists follows a similar pattern as for motorcycle and moped fatalities, with low numbers of fatalities during the winter months and high numbers during the summer months. **The number of cyclist fatalities in the summer months of June to September is twice as high as in the winter months of December to February.** This can probably be explained by a lower number of cycling trips in the winter than the summer, but no specific information on this at EU level is available.

Figure 14. Monthly distribution of fatalities by transport mode, in the EU27 (2018). Source: CARE



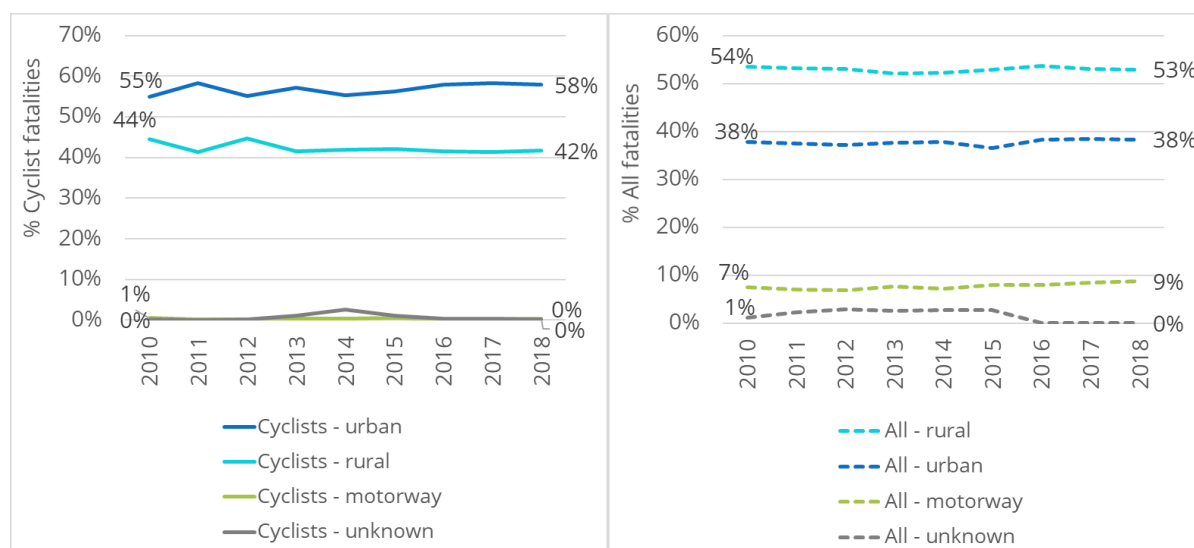
# 5 Location

## 5.1 Road type

Compared with all road fatalities combined, far more cyclist fatalities occur on urban roads (38% for all road fatalities as against 58% for cyclists). By the same token, the proportion of cyclist fatalities on rural roads is lower (42%) compared to the proportion of all fatalities on rural roads (53%).

No geographical region in the EU really stands out in terms of the distribution of cyclist fatalities by road type (see excel file "F&F Cyclists").

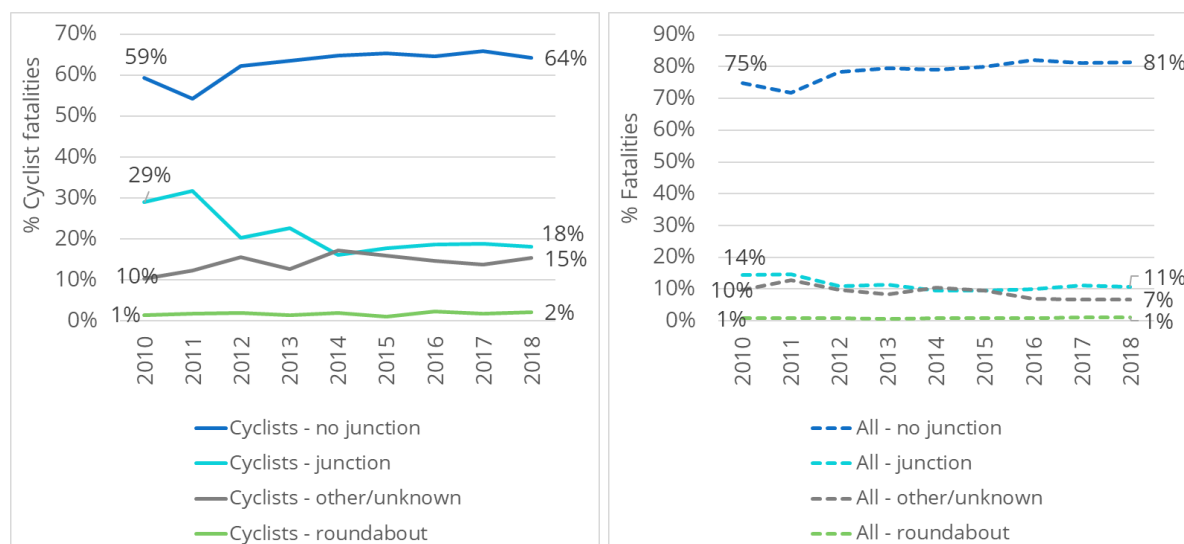
Figure 15. Distribution of cyclist fatalities and all fatalities by road type in the EU27 (2010-2018). Source: CARE



## 5.2 Junction type

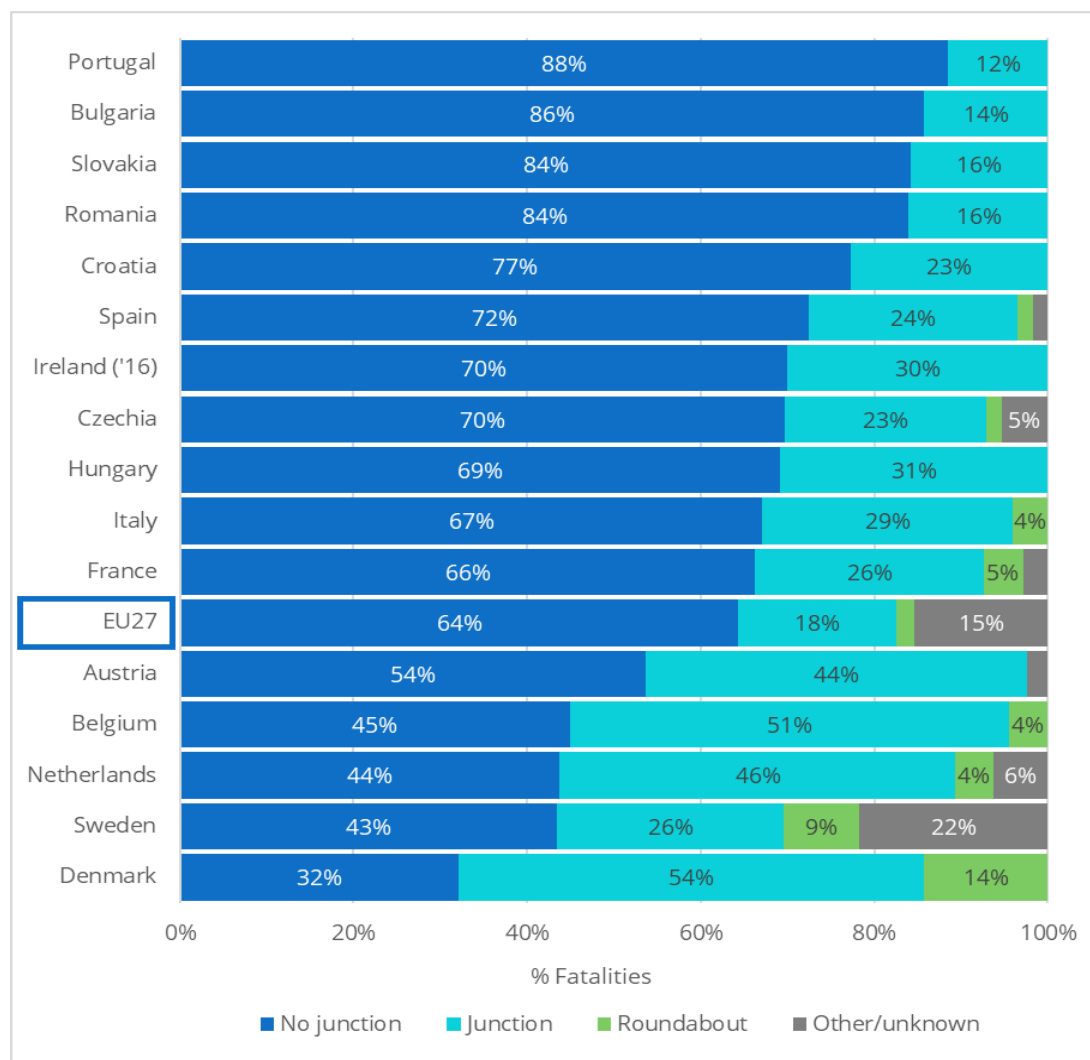
In 2018, 64% of cyclist fatalities occurred on road stretches, 18% at an intersection, and 2% at a roundabout. Compared with all road fatalities, the proportion of cyclist fatalities is lower on road stretches, considerably higher at intersections. For 15% of cyclist fatalities, the type of “junction” is unknown.

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



The three EU Member States with the highest score on the proportion rate (i.e. number of cyclist fatalities within total numbers of road fatalities) - **the Netherlands, Denmark, Belgium** - are three countries with a high proportion of cyclist fatalities at intersections. It is possible that in these countries, where cycling is a popular mode of transport, many measures have already been taken to improve cycling safety on road stretches, but that in these countries it is more difficult to take similarly effective safety measures at intersections.

Figure 17. Distribution of cyclist fatalities by junction type per country in the EU27 (2018). Source: CARE



Notes:

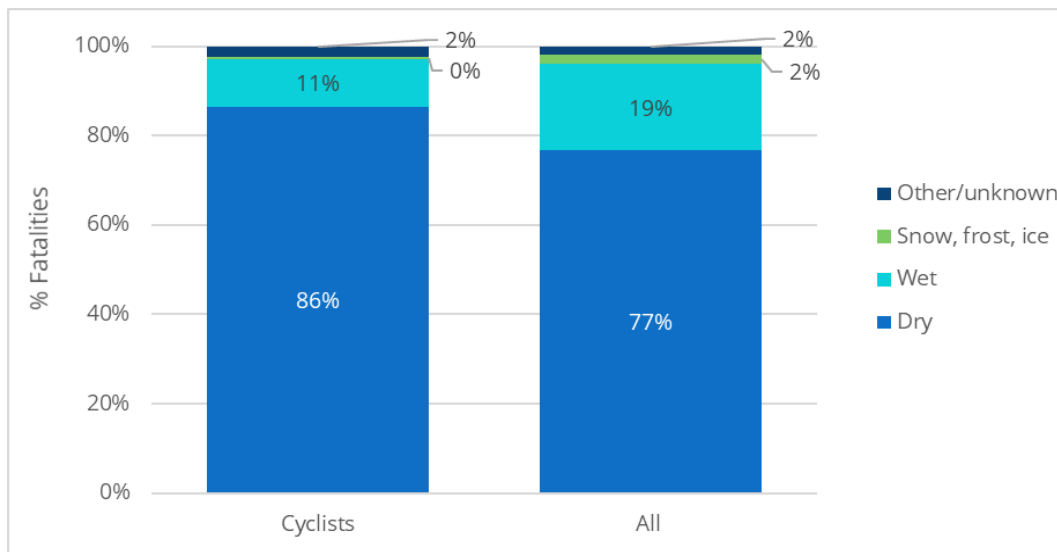
- Due to small numbers of fatalities, Cyprus, Estonia, Latvia, Luxembourg, Malta and Slovenia are not included.
- Due to incomplete information about junction type the following countries are not included: Germany, Finland, Greece, Lithuania, and Poland.

### 5.3 Surface

**Surface conditions were dry in the case of 86% of cyclist fatalities.** For 11% of fatalities the surface was wet or damp; and for only 1% of fatalities was snow, frost, and ice reported. Cyclist fatalities may be occurring more often on dry road surfaces since cyclists can choose alternative modes of transport when the weather is bad.

Given great differences in climate, it is not surprising that in EU countries in the south a dry surface is more frequently reported (see excel file "F&F Cyclists").

Figure 18. Distribution of cyclist fatalities and all fatalities by surface condition in the EU27 (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](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 27 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 1.

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.

