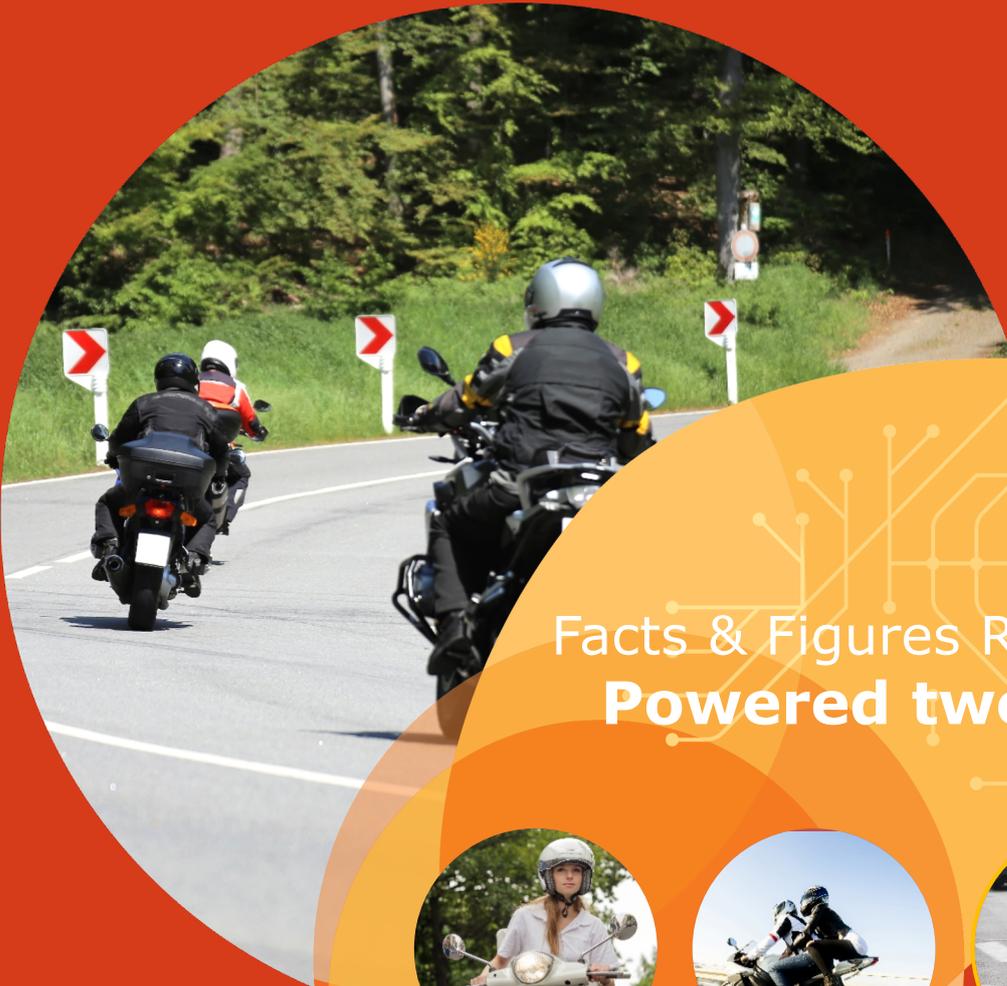




European  
Commission



Facts & Figures Report  
**Powered two wheelers**



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](https://road-safety.transport.ec.europa.eu/statistics-and-analysis/data-and-analysis/facts-and-figures_en)).

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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: May 2024

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# 1. Key facts

This Facts and Figures report looks at motorcycle and moped riders' fatalities on EU roads. All observations reported were derived from the available data. The statistical significance of differences or relations between values has not been tested.

## Motorcycle & moped rider fatalities in the EU27, 2022

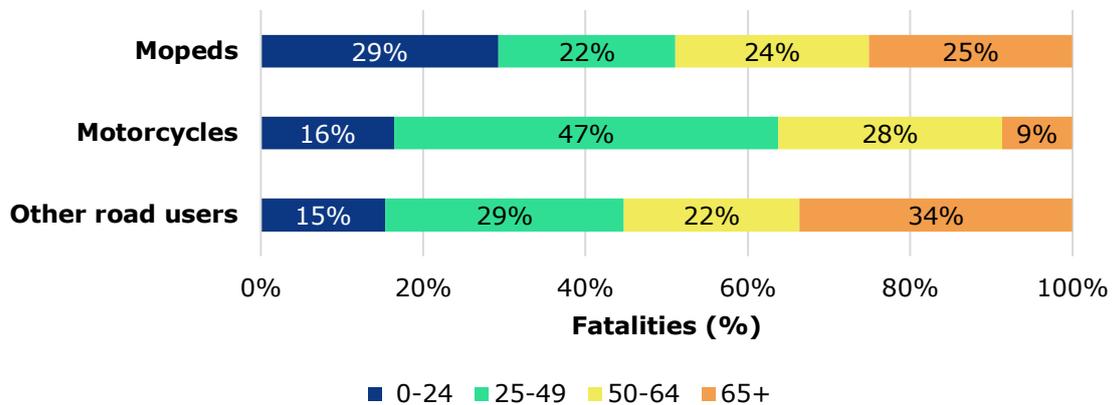


- 3,338 fatalities
- 16% of all road fatalities
- -11% decrease since 2012

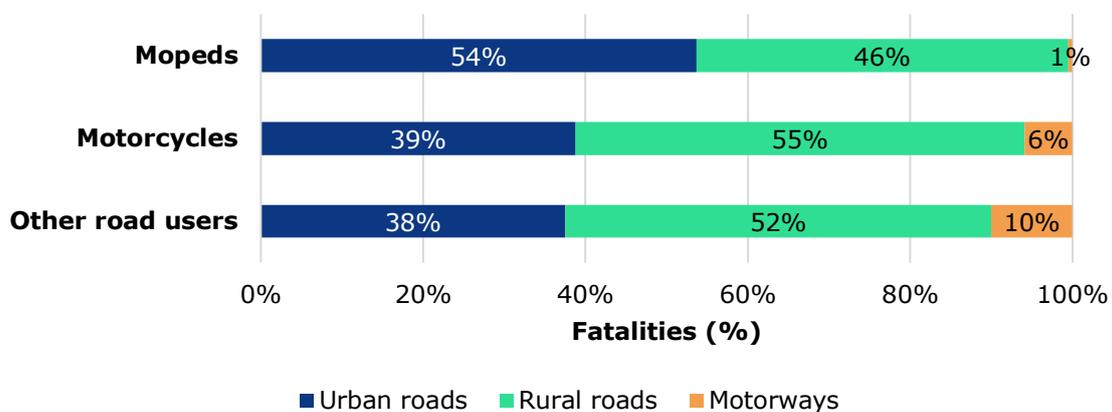


- 546 fatalities
- 3% of all road fatalities
- -41% decrease since 2012

### Age



### Road type



## 2. Summary

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Together with pedestrians and cyclists, motorcyclists and moped riders form part of the group of “vulnerable road users”. **Motorcyclists and moped riders share similarities but also many differences**, such as cylinder capacity, mass, and speed of their vehicles, the road user’s clothing requirements, the age of the users, and especially the type of use (utilitarian/leisure). Because of these differences, it is important to analyse these two transport modes separately, as has been done in this report.

Although the number of motorcyclist and moped fatalities in **France and Germany** has decreased more than the EU average over the past decade, these two countries still had the **highest number of fatalities in 2022**, together with Italy. However, the moped mortality rate (i.e. the number of deaths per million inhabitants) was above EU average especially in Portugal, The Netherlands, Croatia, Greece and France whereas the rate of motorcycle rider fatalities per million inhabitants was highest in southern EU countries of Greece, Portugal and Italy. The popularity of these transport modes in the mentioned countries needs to be taken into account when interpreting mortality levels.

**Respectively, 3% and 16% of all road fatalities in the EU in 2022 were moped riders and motorcyclists.** Taken together therefore, almost one in five road fatalities were powered two wheeler riders (“PTW riders”). The share of motorcyclists in the total number of fatalities has decreased over the past decade, while the share of moped riders has decreased to an even larger extent. Across all transport modes, moped crashes have seen the greatest decrease in fatalities, with a 41% reduction since 2012.

**On average, in 2022, 91% of all moped and 94% of all motorcycle fatalities in the EU27 were male, compared to 73% for all other modes of transport.** 49% of moped riders and 75% of motorcyclists were between 25 and 64 years old. **The share of older age groups (50-64 and 65+ year olds) in fatal crashes has increased in both modes of transport**, whereas the share of riders between 25 and 49 years has decreased. It should be noted that **the age distribution in moped fatalities varies greatly between Member States.** This is not the case for **motorcyclists, as riders aged from 25-49 years account for most fatal crashes in all EU27 Member States.**

In fatal moped and motorcycle crashes, often no other road user was involved as **29% and 37% of moped riders and motorcyclists respectively died in a single vehicle crash** (i.e. a crash with no crash opponent).

**In the EU, in 2022, more than half of moped fatalities (54%) occurred in crashes on urban roads**, while the same percentage of **fatal motorcyclist crashes occurred on rural roads (54%)**. In 2022, **29% of moped rider fatalities and 25% of motorcyclist fatalities occurred at junctions**.

The analysis of **fatal PTW crashes concerning weather, surface and lighting conditions** showed that **in about 9 out of 10 crashes, conditions were dry and clear**. **62% of all fatal moped crashes and 73% of all motorcycle fatalities occurred in daylight conditions**.

**Moped fatalities** are quite similarly **distributed over the course of a week** as fatalities of other road users. Fatal motorcycle crashes are more frequent during the daytime on weekends compared to fatal crashes involving mopeds or other road users.

## 3. Main trends

### 3.1 Absolute number of powered two wheeler rider fatalities

**Table 1** Moped rider 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	17	14	19	20	16	24	18	19	13	16	17	0%	-11%
Bulgaria	4	6	8	11	8	11	7	2	5	4	-	-	-
Czechia	7	6	8	6	1	2	5	2	4	4	3	-	-
Denmark	14	11	13	19	8	9	10	13	8	5	9	-36%	-31%
Germany	93	73	87	62	68	59	78	63	53	56	57	-39%	-10%
Estonia	1	-	-	-	3	1	-	1	-	-	3	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-
Greece	35	25	20	32	25	32	27	19	24	21	21	-40%	11%
Spain	67	56	54	56	54	49	62	49	32	38	36	-46%	-27%
France	179	159	165	155	121	117	133	134	100	96	124	-31%	-8%
Croatia	16	14	11	14	10	8	4	9	5	6	8	-50%	
Italy	127	125	112	105	116	92	108	88	59	67	70	-45%	-21%
Cyprus	3	-	4	2	2	2	2	-	-	2	1	-	-
Latvia	3	3	6	6	6	6	4	1	2	-	-	-	-
Lithuania	-	4	1	3	-	4	1	-	1	1	1	-	-
Luxembourg	-	-	-	-	-	-	-	1	-	-	-	-	-
Hungary	25	24	17	27	16	17	13	10	16	12	12	-52%	
Malta	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	40	41	32	35	34	36	31	35	26	38	39	-3%	11%
Austria	19	15	16	8	8	14	8	10	4	13	8	-58%	-
Poland	82	62	71	65	77	55	76	87	71	54	53	-35%	-39%
Portugal	57	51	43	42	44	43	42	36	26	29	35	-39%	-3%
Romania	99	39	30	34	33	17	18	18	21	24	24	-76%	33%
Slovenia	3	4	2	1	3	4	2	3	6	6	3	-	-
Slovakia	-	-	-	-	8	2	3	2	10	8	8	-	-
Finland	7	5	3	2	5	5	3	3	2	4	1	-	-
Sweden	8	3	8	5	8	1	7	6	4	3	11	-	-
EU	918	748	738	718	674	610	662	611	492	509	546	-41%	-11%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-	-
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	4	3	2	1	1	1	2	-	1	1	-	-	-
Switzerland	3	8	1	3	6	2	5	5	6	3	6	-	-

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

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

**Table 2** Motorcycle rider fatalities per country in the EU27 and EFTA (2012-2022). Source: CARE

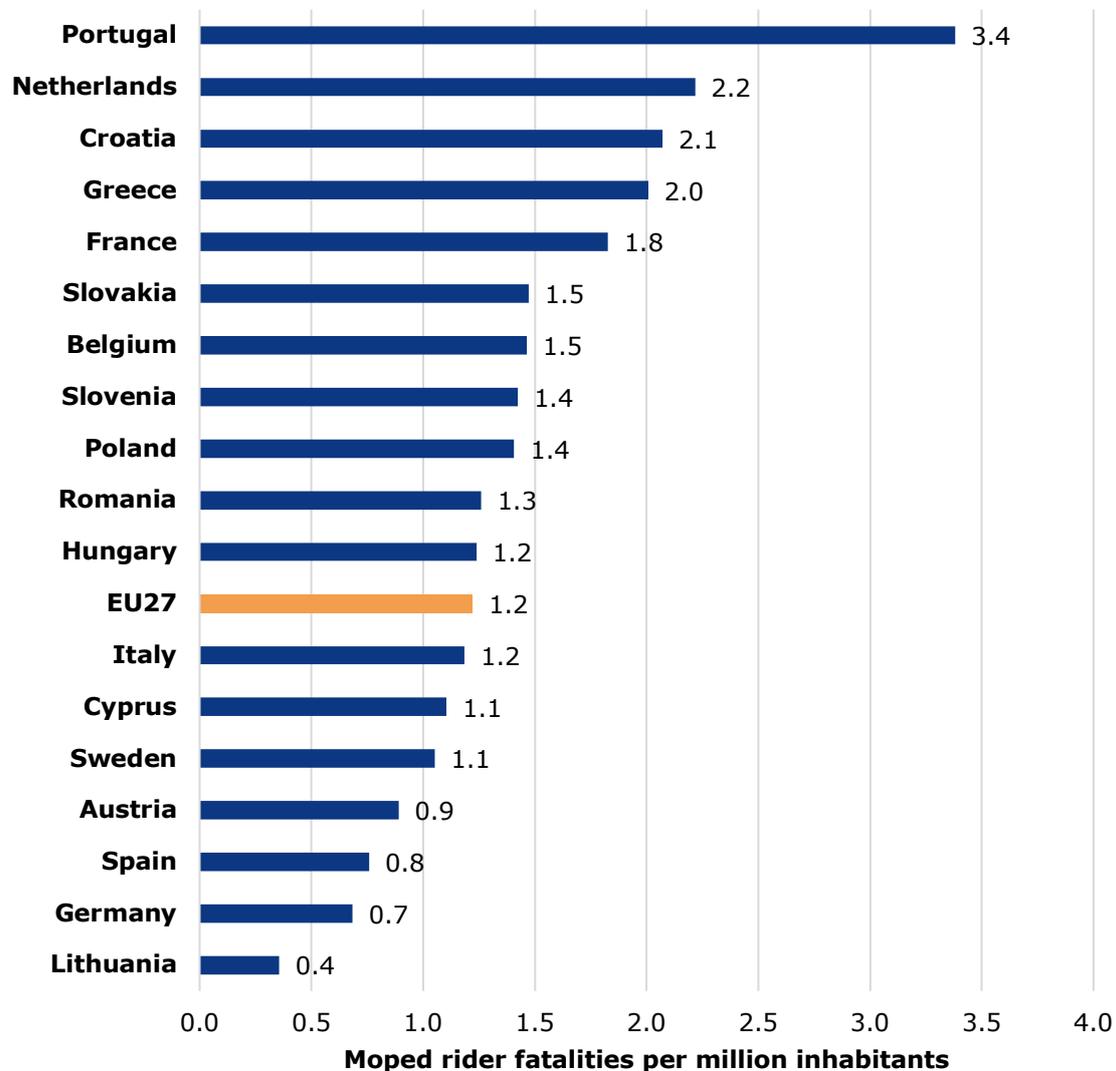
Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	LT*	ST*
Belgium	99	106	85	105	79	77	87	84	78	62	66	-33%	-21%
Bulgaria	48	49	47	50	-	2	4	5	32	45	39	-19%	-
Czechia	86	66	88	91	62	69	94	84	58	85	71	-17%	-16%
Denmark	10	15	18	19	26	11	21	27	11	12	16	-	-41%
Germany	586	568	587	639	536	583	619	542	499	473	492	-16%	-9%
Estonia	-	-	-	-	1	-	6	3	3	3	2	-	-
Ireland	19	26	24	22	22	19	15	16	15	-	-	-	-
Greece	282	271	278	237	240	216	190	228	188	214	190	-33%	-17%
Spain	304	302	287	329	343	359	359	417	313	357	401	32%	-4%
France	692	658	625	614	613	669	627	615	479	572	594	-14%	-3%
Croatia	62	49	44	58	38	42	55	46	44	58	48	-23%	4%
Italy	847	728	704	773	657	735	687	698	586	695	781	-8%	12%
Cyprus	11	15	9	13	10	14	14	16	14	12	9	-18%	-44%
Latvia	7	10	10	7	12	1	3	1	6	-	-	-	-
Lithuania	-	15	13	13	10	10	13	19	17	10	13	-	-32%
Luxembourg	5	8	8	6	3	7	9	3	7	3	8	-	-
Hungary	39	58	58	50	48	43	49	64	42	55	45	15%	-30%
Malta	-	-	-	2	9	2	8	4	10	2	-	-	-
Netherlands	53	29	51	43	44	53	42	45	44	53	44	-17%	-2%
Austria	68	87	76	83	85	83	102	79	74	75	55	-19%	-30%
Poland	261	253	237	208	244	231	238	295	244	215	158	-40%	-46%
Portugal	104	78	91	73	59	106	112	127	116	113	140	35%	10%
Romania	62	52	45	55	46	52	55	51	64	62	61	-2%	20%
Slovenia	18	17	15	25	22	25	16	20	16	27	12	-33%	-40%
Slovakia	-	-	-	-	-	-	-	21	23	23	19	-	-10%
Finland	21	24	17	20	17	13	24	25	20	28	21	0%	-16%
Sweden	31	40	31	44	36	39	47	29	28	27	30	-3%	3%
EU	3,732	3,526	3,450	3,579	3,262	3,461	3,496	3,564	3,031	3,302	3,338	-11%	-6%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-	-
Liechtenstein	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	17	21	20	20	22	20	14	16	18	15	21	24%	31%
Switzerland	74	55	53	66	43	51	42	30	52	47	46	-38%	53%

\*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 powered two wheeler rider fatalities per million inhabitants

Figure 1 shows the rate of moped rider fatalities per million inhabitants in EU and EFTA countries as well as the EU average for 2022. **Portugal, The Netherlands, Croatia and Greece have the highest rate of moped rider deaths**, while **Germany and Lithuania record the lowest rate**.

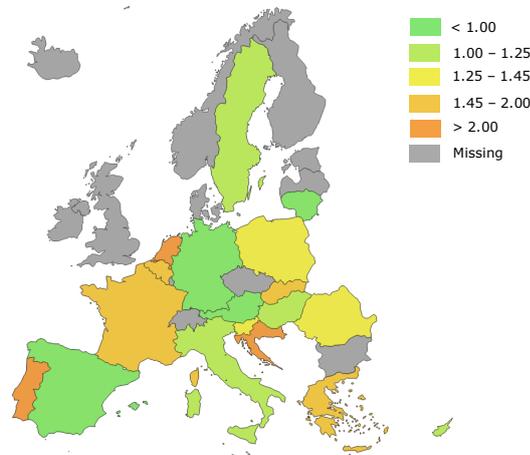
**Figure 1.** Moped rider fatalities per million inhabitants per country in the EU27 (2022). Source: CARE, EUROSTAT



Notes:

- Bulgaria, Czechia, Denmark, Estonia, Cyprus, Lithuania, Luxembourg, Finland, Iceland, Switzerland and Norway are not included in the figure because there are less than 10 fatalities in the year 2022.
- Ireland, Latvia and Malta are not included in the figure because there are less than 10 fatalities in the last available year before 2022.

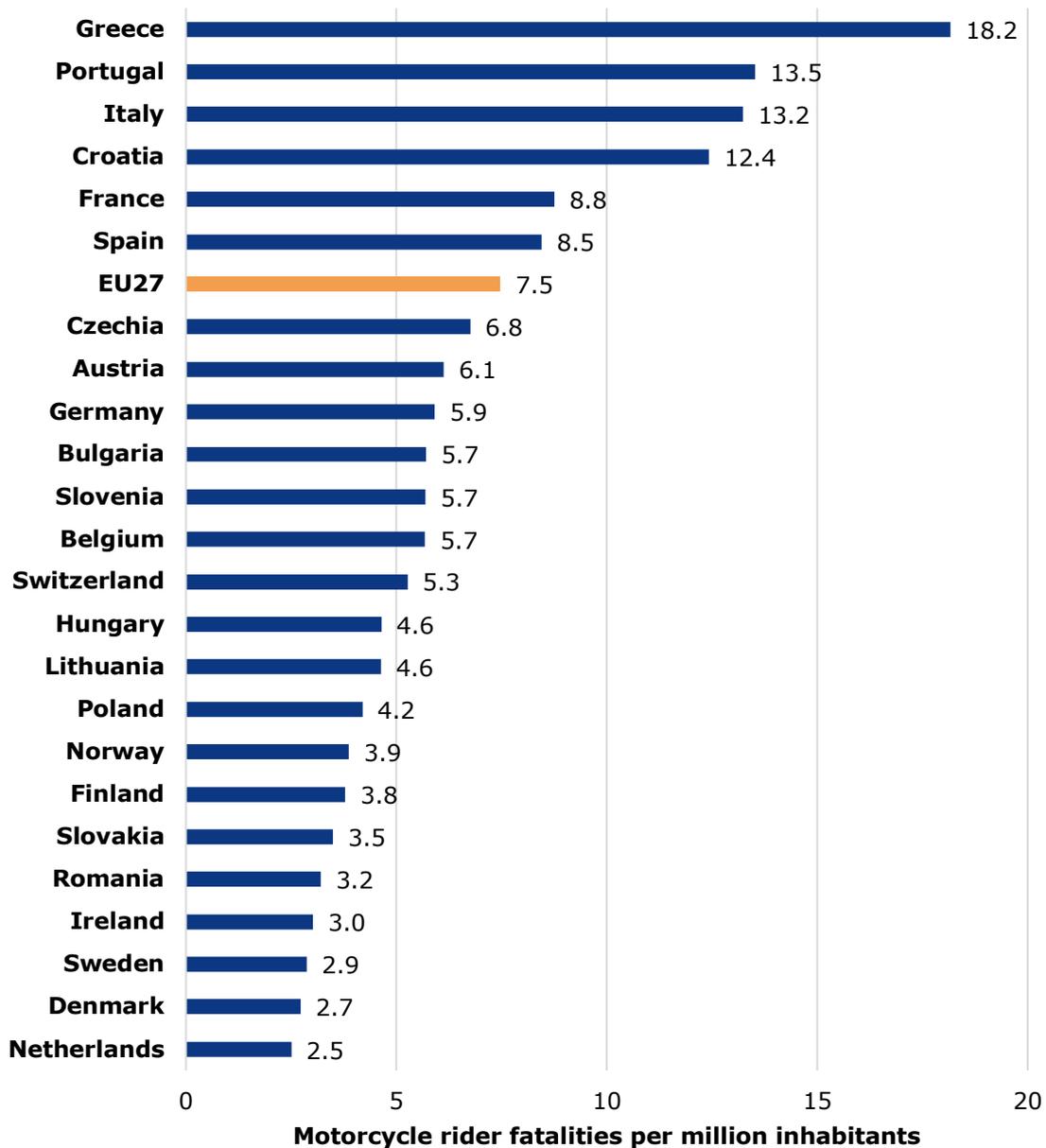
The geographical representation of moped fatality rates is shown in the map below.



© Eurostat for the administrative boundaries

Figure 2 shows the rate of motorcycle rider fatalities per million inhabitants in EU and EFTA countries as well as the EU average for 2022. **Greece, Portugal and Italy record the highest rate of motorcycle rider deaths**, whereas more northern countries of **Sweden, Denmark and The Netherlands have the lowest rate.**

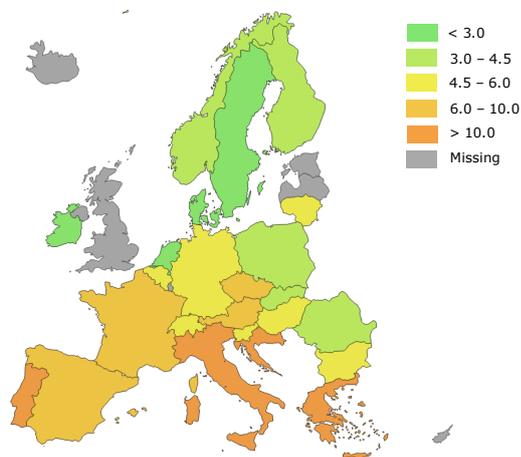
**Figure 2.** Motorcycle rider fatalities per million inhabitants per country in the EU27 and EFTA (2022). Source: CARE, EUROSTAT



Notes:

- Estonia, Cyprus, Iceland and Luxembourg are not included in the figure because there are less than 10 fatalities in the year 2022.
- Malta and Latvia are not included in the figure because there are less than 10 fatalities in the last available year before 2022.
- For Ireland, the missing value for 2022 was imputed with the last known value in the series (2020).

The geographical representation of motorcycle mortality rates in the map below shows a **tendency of mortality rates to be lower in the north, and east and higher in the EU Member States in the west and south.**



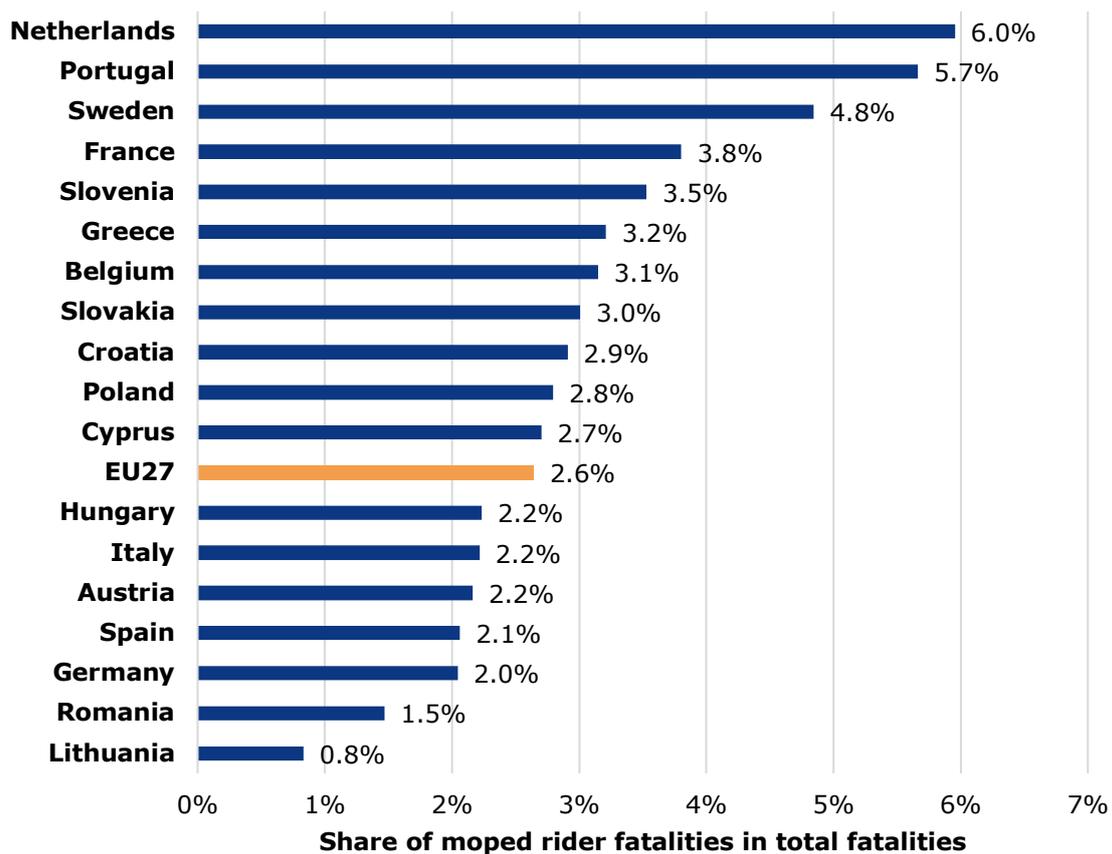
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### 3.3 Number of fatalities among powered two wheeler riders as a share of total fatalities

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

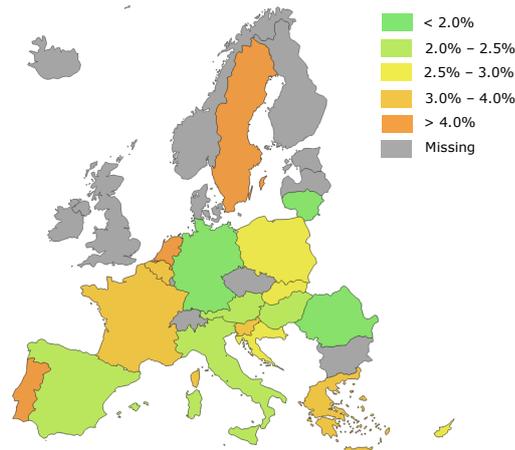
The Netherlands (6.0%) and Portugal (5.7%) have the highest share of moped rider fatalities. It is the lowest in Lithuania with 0.8% of the total number of fatalities. The distribution of fatalities by transport mode largely depends on the country's modal split, which should be considered when interpreting these numbers.

**Figure 3.** Share of moped rider fatalities in the total number of fatalities, per country in the EU27 (2022). Source: CARE



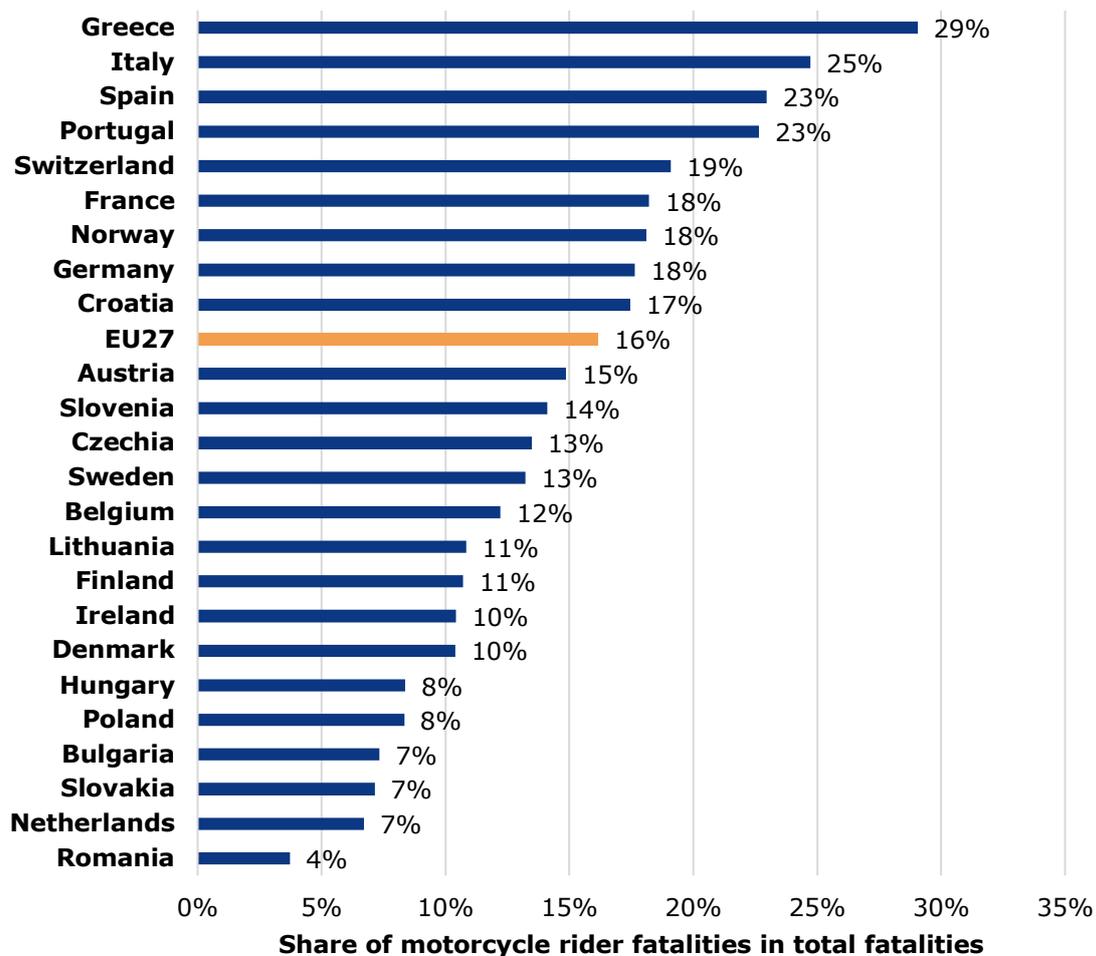
Notes:

- Bulgaria, Czechia, Denmark, Estonia, Cyprus, Lithuania, Luxembourg, Finland, Iceland, Switzerland and Norway are not included in the figure because there are less than 10 fatalities in the year 2022.
- Ireland, Latvia and Malta are not included in the figure because there are less than 10 fatalities in the last available year before 2022.



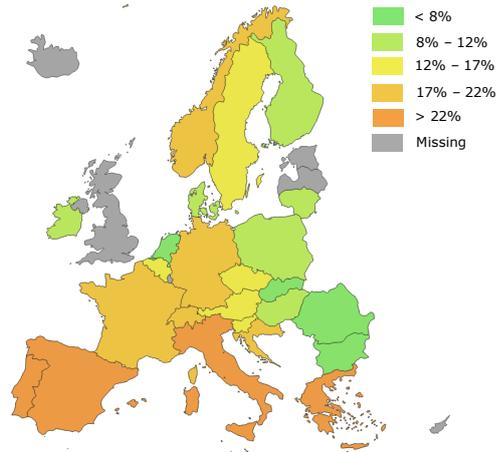
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**Figure 4.** Share of motorcycle rider fatalities in the total number of fatalities, per country in the EU27 and EFTA (2022). Source: CARE



Notes:

- Estonia, Cyprus, Iceland and Luxembourg are not included in the figure because there are less than 10 fatalities in the year 2022.
- Malta and Latvia are not included in the figure because there are less than 10 fatalities in the last available year before 2022.
- For Ireland, the missing value for 2022 was imputed with the last known value in the series (2020).

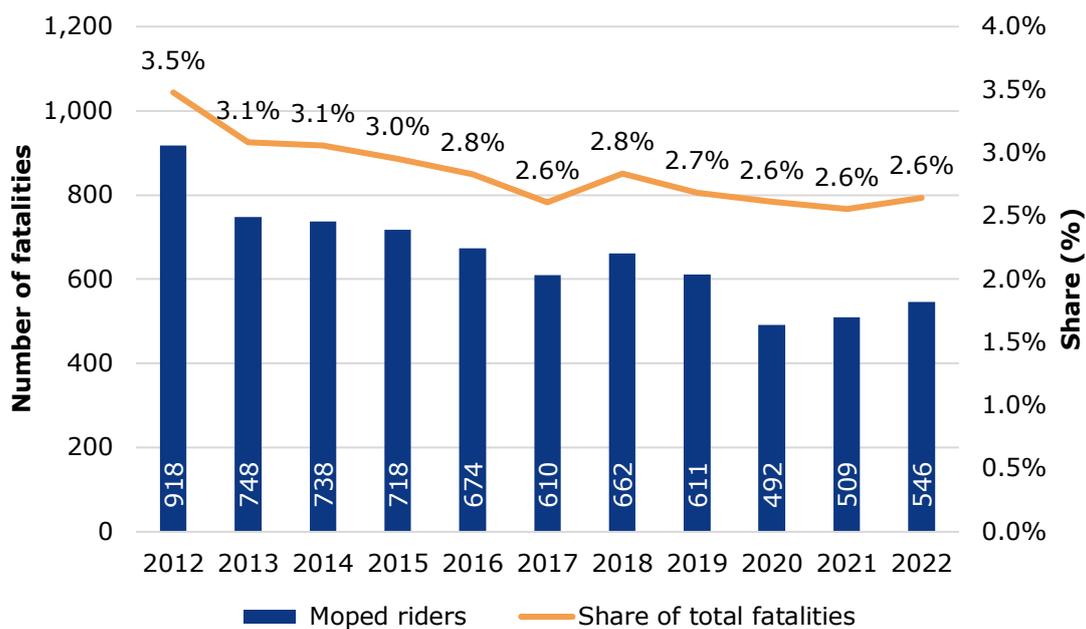


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### 3.4 Trend in the number of powered two wheeler rider fatalities

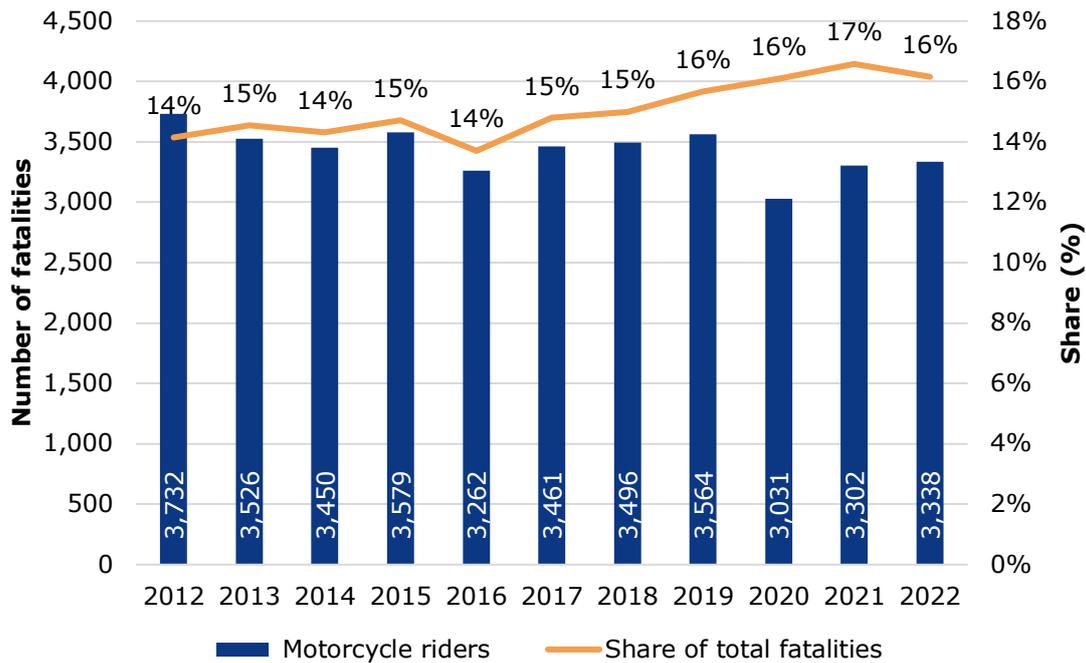
In 2022, in the EU27 2.6% of all road deaths were moped riders. This share has decreased in the past decade. In 2012, the share of moped rider fatalities was 3.5%. **The absolute number of moped rider fatalities decreased by 41% in the last decade (see Table 1).**

**Figure 5.** Annual number of moped rider fatalities, and their share in the total number of fatalities in the EU27 (2012-2022). Source: CARE



16% of all road deaths in the EU27 in 2022 were motorcyclists. Although the number of motorcycle fatalities generally decreased by 11% between 2012 and 2022, **the relative share of motorcycle fatalities within the total number of road fatalities increased slightly from 14% in 2012 to 16% in 2022 with a peak value of 17% in 2021.**

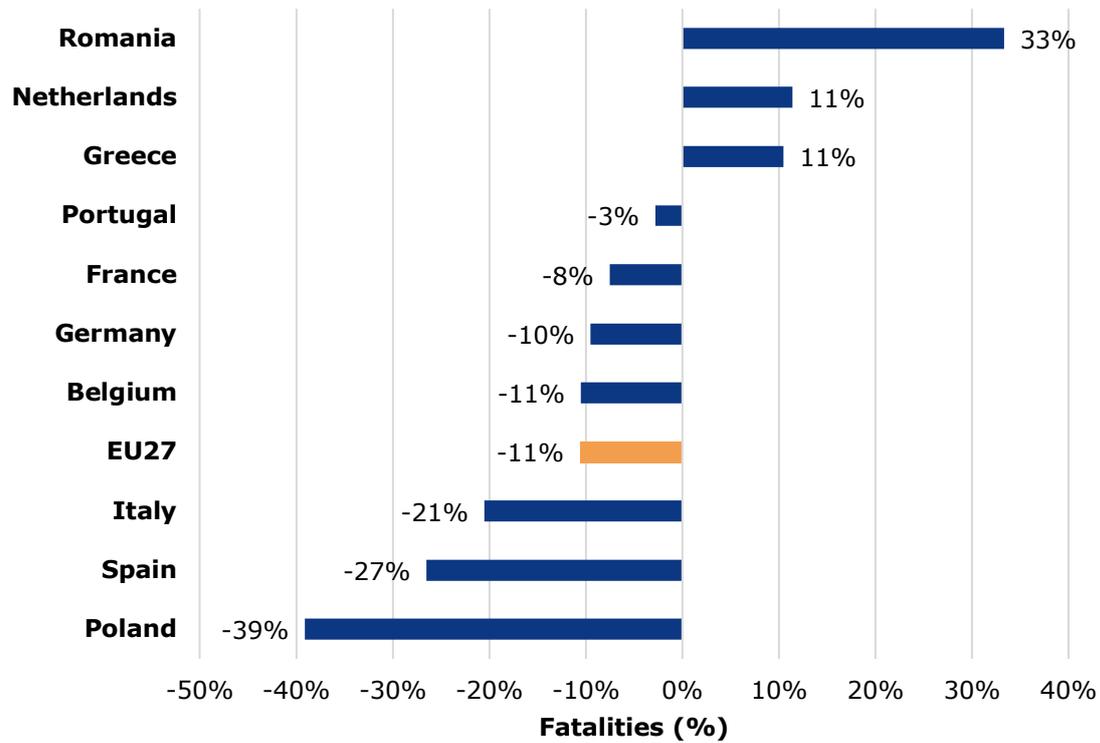
**Figure 6.** Annual number of motorcycle rider fatalities, and their share in the total number of fatalities in the EU27 (2012-2022). Source: CARE



When we look at the short-term trend in moped rider fatalities (2019-2022), we see an overall decrease of 11% in the EU Member States. However, in three EU Member States (Romania, The Netherlands and Greece) the number of moped rider fatalities has increased.

The Figure below shows that in Poland, Spain and Italy have seen a more pronounced decline than the EU average over the recent years as regards moped fatalities, with a remarkable decrease in Poland (-39%).

**Figure 7.** Percentage short-term change in the number of moped rider fatalities per country in the EU27 (2022 over 2019). Source: CARE

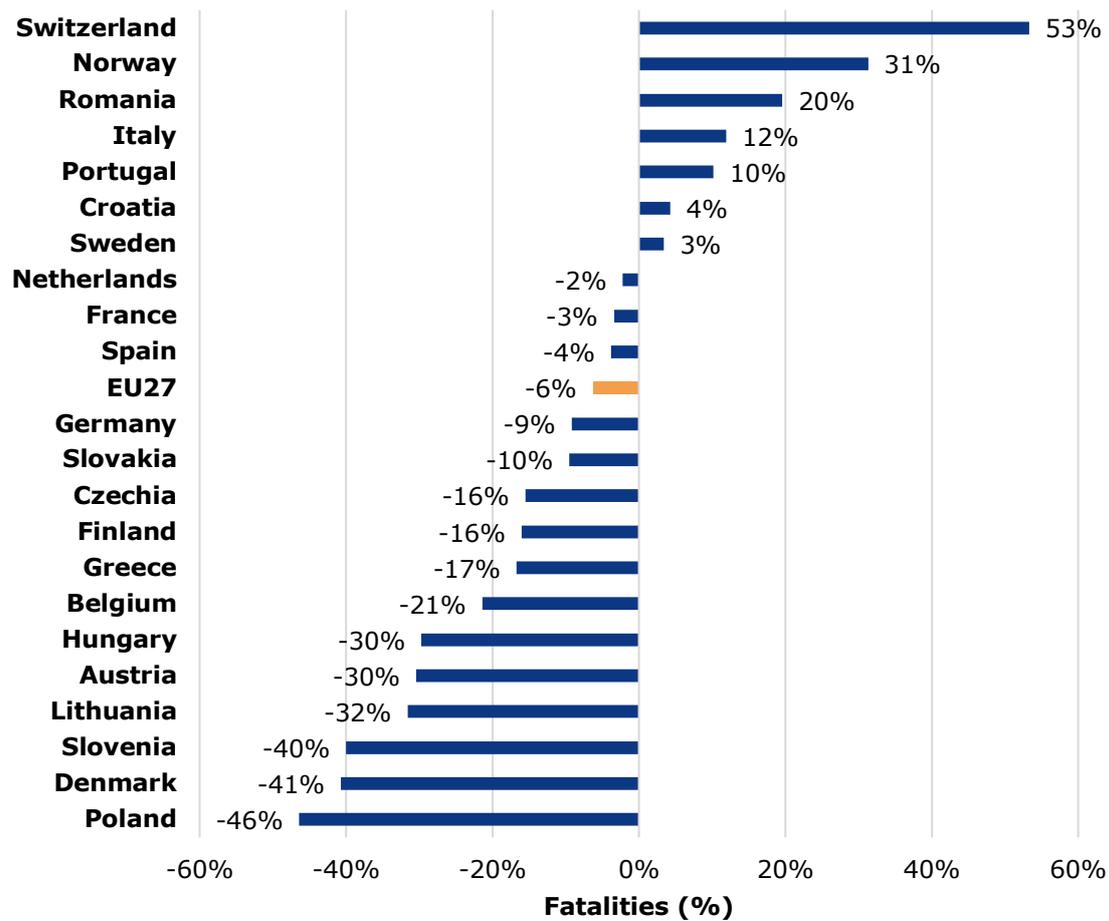


Notes:

- Bulgaria, Czechia, Denmark, Estonia, Cyprus, Lithuania, Luxembourg, Finland, Iceland, Switzerland and Norway are not included in the figure because there are less than 10 fatalities in the year 2022.
- Ireland, Latvia and Malta are not included in the figure because there are less than 10 fatalities in the last available year before 2022.

Looking at the short-term change (2022 over 2019), in Switzerland the number of motorcycle fatalities has increased by 53% and in Norway by 31%. **The highest short-term decrease of motorcycle fatalities can be observed in Poland (-46%), followed by Denmark (-41%) and Slovenia (-40%).**

**Figure 8.** Percentage short-term change in the number of motorcycle rider fatalities per country in the EU27 and EFTA (2022 over 2019). Source: CARE



Notes:  
 - Estonia, Cyprus, Iceland and Luxembourg are not included in the figure because there are less than 10 fatalities in the year 2022.  
 - Malta and Latvia are not included in the figure because there are less than 10 fatalities in the last available year before 2022.  
 - Ireland is not included in the figure because there is no data on fatalities in the years 2021 and 2022.

**Table 3.** Number and trend in moped rider fatalities per country in the EU27 (2012-2022). Source: CARE

	2012	2019	2020	2021	2022	ST*	Miniplot: trend since 2012
Belgium	17	19	13	16	17	-11%	
Germany	93	63	53	56	57	-10%	
Greece	35	19	24	21	21	11%	
Spain	67	49	32	38	36	-27%	
France	179	134	100	96	124	-8%	
Italy	127	88	59	67	70	-21%	
Hungary	25	10	16	12	12	20%	
Netherlands	40	35	26	38	39	11%	
Poland	82	87	71	54	53	-39%	
Portugal	57	36	26	29	35	-3%	
Romania	99	18	21	24	24	33%	
Sweden	8	6	4	3	11	-	
EU27	918	611	492	509	546	-11%	

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

Notes:

- Czechia, Denmark, Estonia, Croatia, Austria, Cyprus, Lithuania, Finland and Switzerland are not included in the table because there are less than 10 fatalities in the year 2022.

- Bulgaria, Ireland, Latvia, Luxembourg, Norway, Malta, Iceland and Norway are not included in the table because there are less than 10 fatalities or no values in the last available year before 2022.

**Table 4.** Number and trend in motorcycle rider fatalities per country in the EU27 and EFTA (2012-2022). Source: CARE

	2012	2019	2020	2021	2022	ST*	Miniplot: trend since 2012
Belgium	99	84	78	62	66	-21%	
Bulgaria	48	5	32	45	39	-	
Czechia	86	84	58	85	71	-15%	
Denmark	10	27	11	12	16	-41%	
Germany	586	542	499	473	492	-9%	
Ireland	19	16	15	15	15	-6%	
Greece	282	228	188	214	190	-17%	
Spain	304	417	313	357	401	-4%	
France	692	615	479	572	594	-3%	
Croatia	62	46	44	58	48	4%	
Italy	847	698	586	695	781	12%	
Lithuania	-	19	17	10	13	-32%	
Hungary	39	64	42	55	45	-30%	
Netherlands	53	45	44	53	44	-2%	
Austria	68	79	74	75	55	-30%	
Poland	261	295	244	215	158	-46%	
Portugal	104	127	116	113	140	10%	
Romania	62	51	64	62	61	20%	
Slovenia	18	20	16	27	12	-40%	
Slovakia	-	21	23	23	19	-10%	
Finland	21	25	20	28	21	-16%	
Sweden	31	29	28	27	30	3%	
EU27	3,732	3,564	3,031	3,302	3,338	-6%	
Norway	17	16	18	15	21	31%	
Switzerland	74	30	52	47	46	53%	

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

Notes:

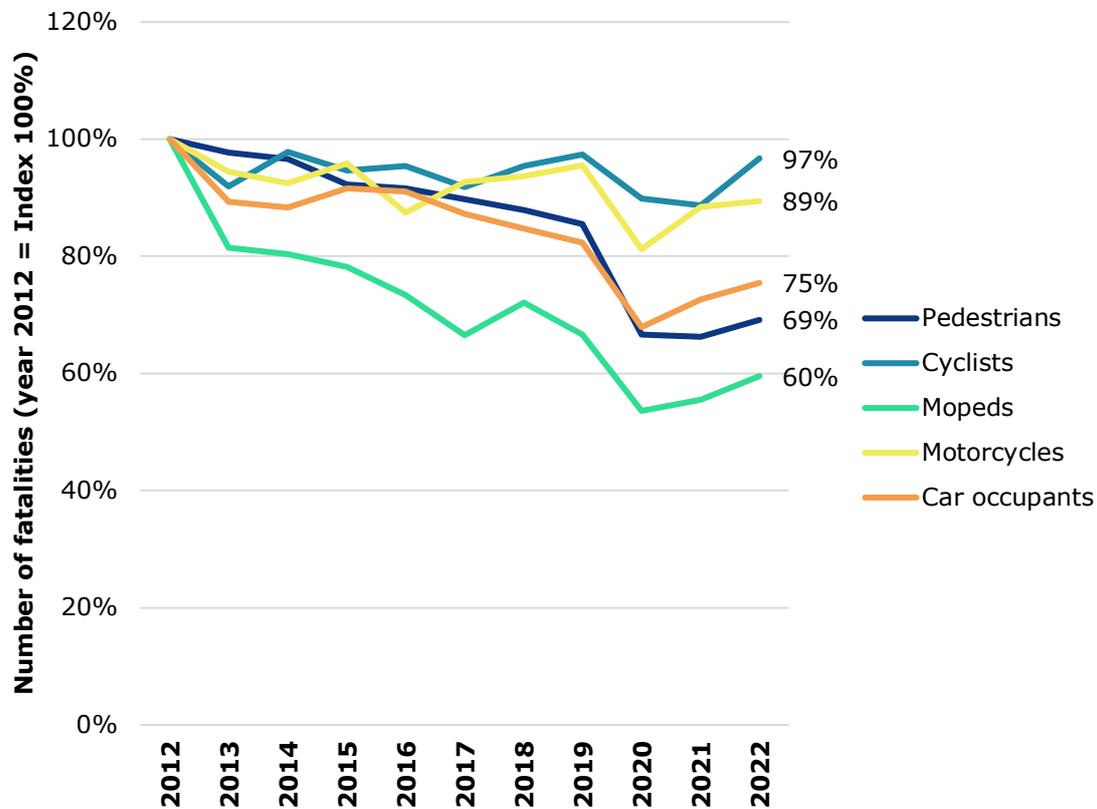
- Estonia, Cyprus and Luxembourg are not included in the table because there are less than 10 fatalities in the year 2022.
- Malta, Latvia and Iceland are not included in the table because there are less than 10 fatalities in the last available year before 2022.
- For Ireland, the missing value for 2022 was imputed with the last known value in the series.

### 3.5 Comparison of powered two wheeler riders with other transport modes

Figure 9 shows the total number of fatalities in road crashes for different modes of transport over the period 2012-2022.

**No other mode of transport shows a greater reduction in fatalities than mopeds, while the reduction of fatalities in motorcycle crashes is moderate.**

**Figure 9.** Trend in the number of motorcycle and moped rider fatalities and fatalities of other transport modes in the EU27 (2012-2022).  
 Source: CARE

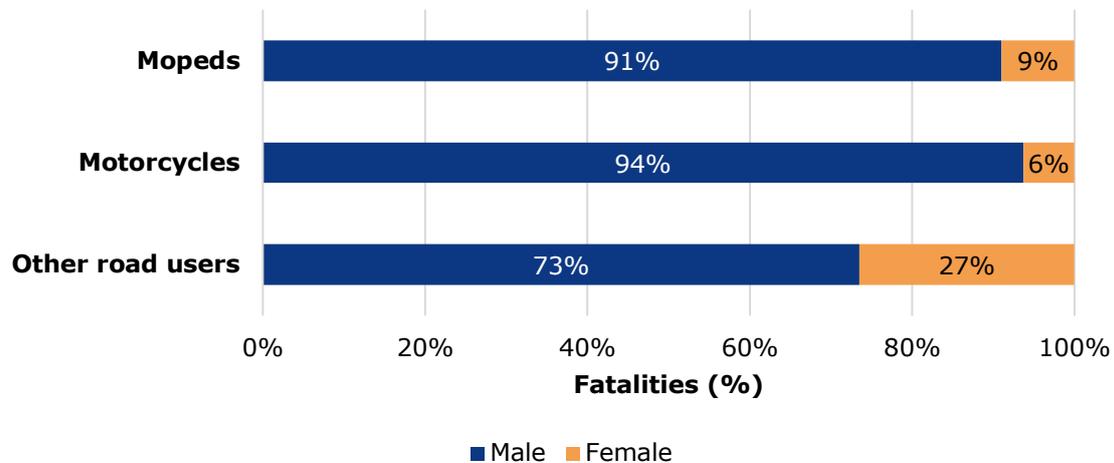


## 4. Road user

### 4.1 Gender

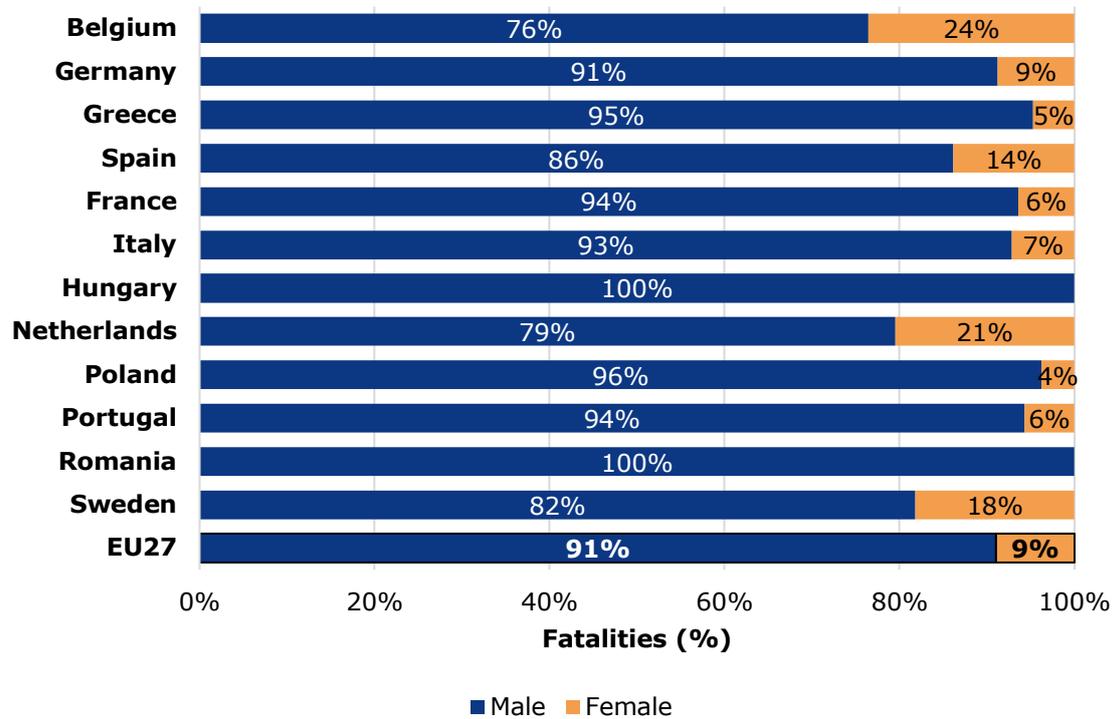
In 2022 **91% of all moped and 94% of all motorcycle fatalities were male on average in the EU27**. For all other modes of transport, this share is lower with 73% on average.

**Figure 10.** Distribution of motorcycle and moped rider and other road user fatalities by gender in the EU27 (2022). Source: CARE



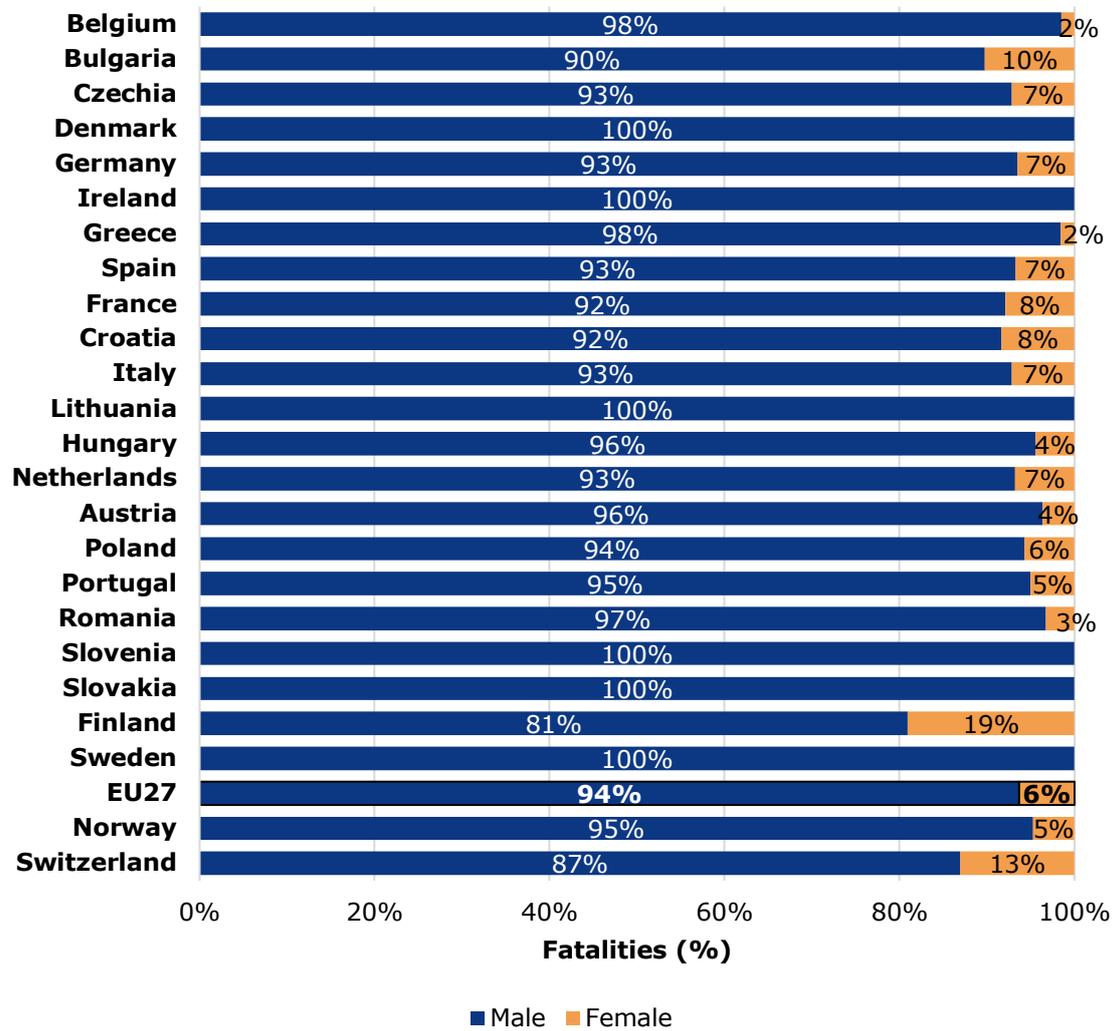
As far as the share of men in moped fatalities is concerned, few differences can be observed between EU Member States. In none of the EU Member States is the share below 76%. With regard to motorcycle fatalities also few differences can be observed between countries. In Finland, the share of men is - in relative terms - lowest at 81% in 2022.

**Figure 11.** Distribution of moped rider fatalities by gender per country in EU27 (2022). Source: CARE



Notes:  
 - Bulgaria, Czechia, Denmark, Estonia, Cyprus, Lithuania, Luxembourg, Finland, Iceland, Switzerland and Norway are not included in the figure because there are less than 10 fatalities in the year 2022.  
 - Ireland, Latvia and Malta are not included in the figure because there are less than 10 fatalities in the last available year before 2022.

**Figure 12.** Distribution of motorcycle rider fatalities by gender per country in EU27 and EFTA (2022). Source: CARE



Notes:

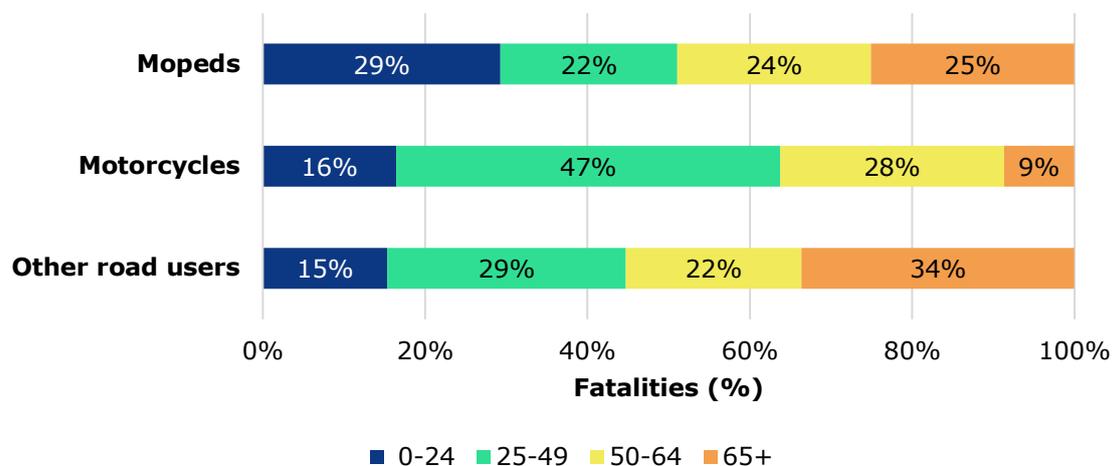
- Estonia, Cyprus, Iceland and Luxembourg are not included in the figure because there are less than 10 fatalities in the year 2022.
- Malta and Latvia are not included in the figure because there are less than 10 fatalities in the last available year before 2022.
- For Ireland, the missing value for 2022 was imputed with the last known value in the series (2020).

## 4.2 Age

In 2022, slightly more than a half of all moped rider fatalities (51%) were below 50 years old on average in the EU27, however the highest amount is found in the youngest age category. With regard to motorcyclists, the age group with the highest fatality percentage is the age group of 25-49 year old motorcyclists.

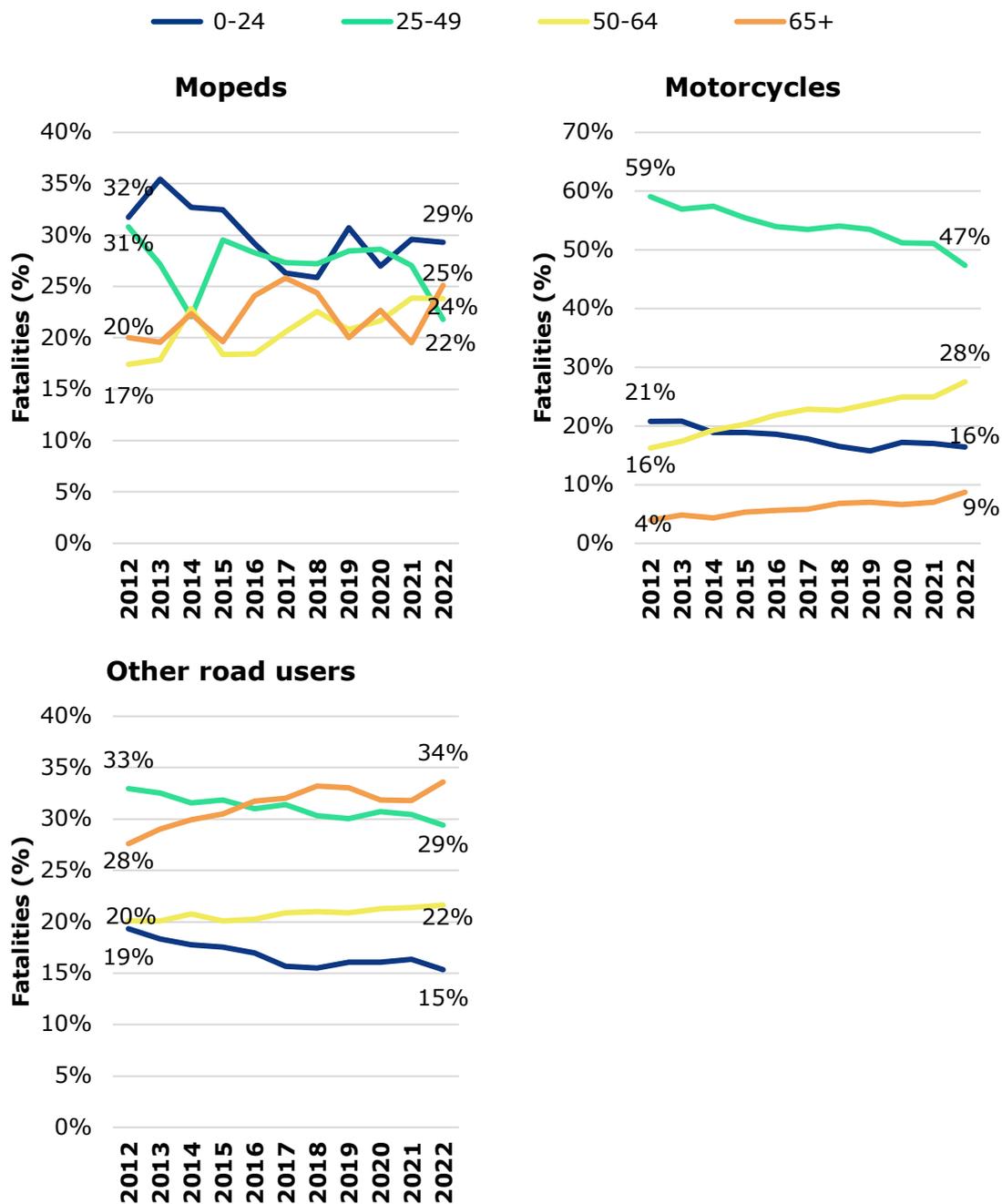
It is important to note that the age groups illustrated in the following analysis cover different age ranges. The age group 25-49 encompasses a significantly larger range (25 years) compared to the other categories. This discrepancy may affect direct comparisons between these groups. However, despite this limitation, these comparisons remain valuable, as they reflect different life stages and population segments, providing insights into the various patterns of powered two-wheeler use in different life stages and demographic groups.

**Figure 13.** Moped rider, motorcycle rider and other road user fatalities by age group in the EU27 (2022). Source: CARE



**The share of both older age groups (50-64 and 65+ year olds) among moped fatalities has increased** from 17% in 2012 (50-64 year olds) to 24% in 2022 and from 20% (65+ year olds) to 25% in the same period, **whereas the share of riders between 25 and 49 years has decreased** from 31% to 22%. A reduction of 3% occurred within the youngest age group comparing 2012 and 2022.

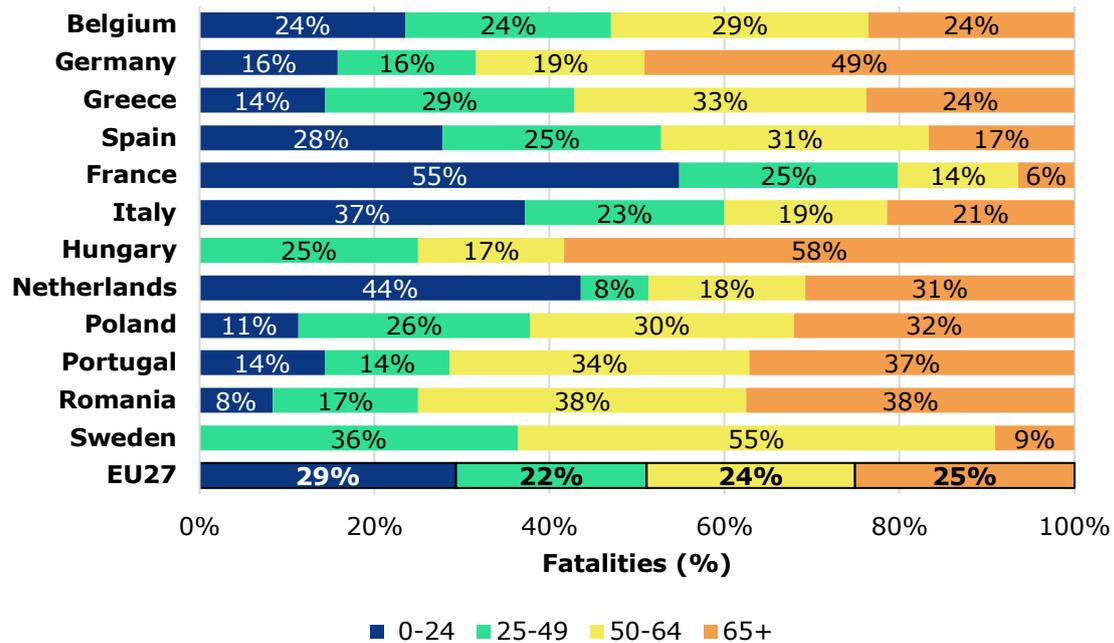
**Figure 14** Trend of moped rider, motorcycle rider and other road user fatalities by age group in the EU27 (2012-2022). Source: CARE



**The age distribution in moped fatalities varies greatly between Member States.** In France, Italy and the Netherlands, the share of the youngest age group (up to 24 years) is above the average of the EU27 members. In Hungary and Germany, the share of the age category 65 plus is about or over 50% or of all moped fatalities respectively. Sweden has the largest share of 50–64-year-olds in the moped rider fatality category. In addition, in Sweden and Hungary, no moped

fatalities in the youngest age group were recorded in 2022. The total number of moped fatalities was low, with only 11 and 12 fatalities, respectively – all older than 24 years.

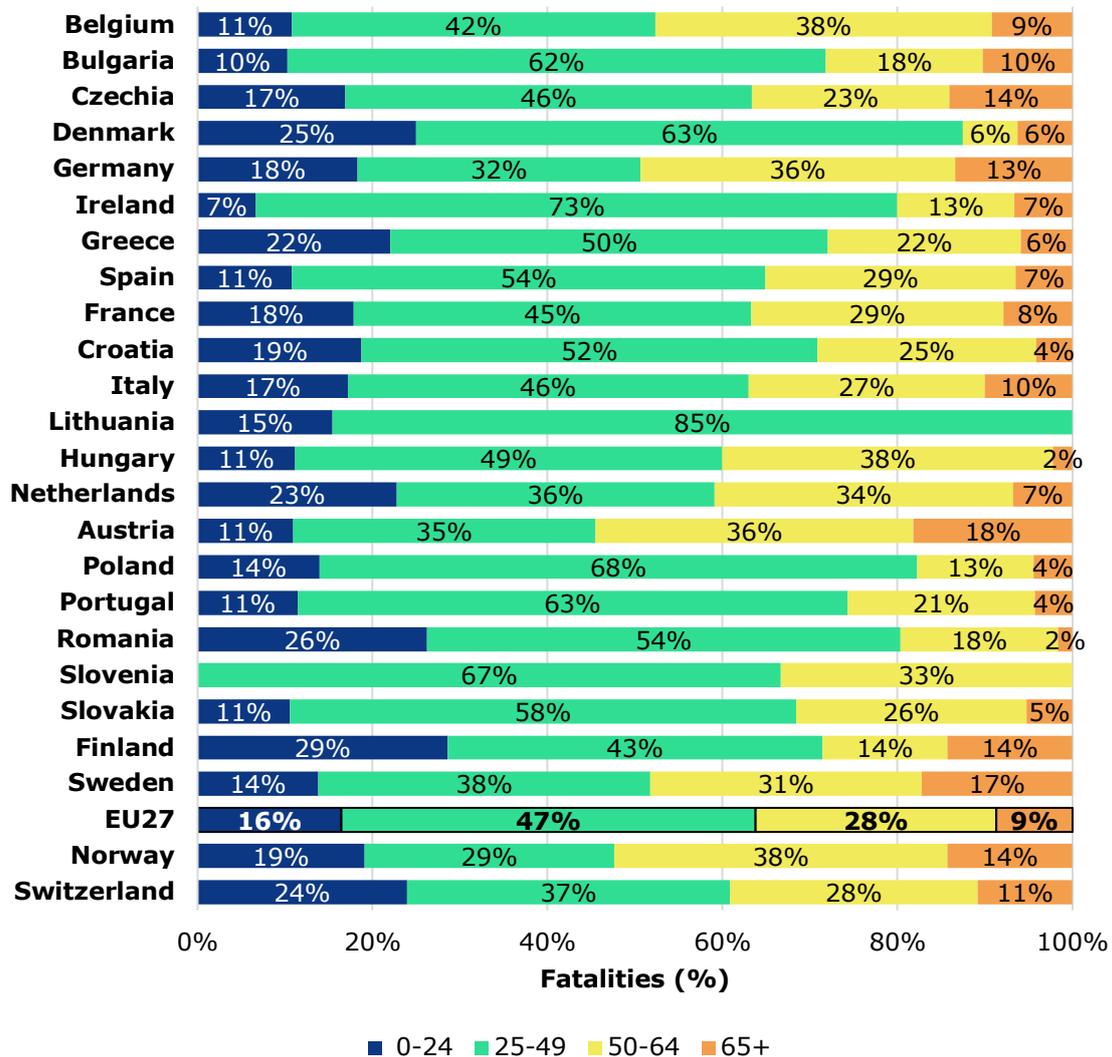
**Figure 15.** Distribution of moped rider fatalities by age groups per country in the EU27 (2022). Source: CARE



Notes:  
 - Bulgaria, Czechia, Denmark, Estonia, Cyprus, Lithuania, Luxembourg, Finland, Iceland, Switzerland and Norway are not included in the figure because there are less than 10 fatalities in the year 2022.  
 - Ireland, Latvia and Malta are not included in the figure because there are less than 10 fatalities in the last available year before 2022.

**Motorcyclists aged from 25-49 account for most fatal crashes in almost all EU27 Member States.** Figure 16 depicts that more than two thirds of motorcycle fatalities are stemming from this age group in Lithuania, Ireland and Poland, more than 60% of fatal crashes in this age bracket are registered in Slovenia, Denmark, Portugal and Bulgaria. Fatal crashes of 25-49 year old motorcyclists in northern countries such Norway, Sweden and Finland are found below the average of the EU27 members as well as Belgium, Germany, Austria, The Netherlands and Switzerland. In Slovenia, no fatal motorcycle crashes were recorded in the youngest age group in 2022. The total number of fatal motorcycle crashes was low, with only 12 cases, all involving riders older than 24 years.

**Figure 16.** Distribution of motorcycle rider fatalities by age groups per country in the EU27 and EFTA (2022). Source: CARE



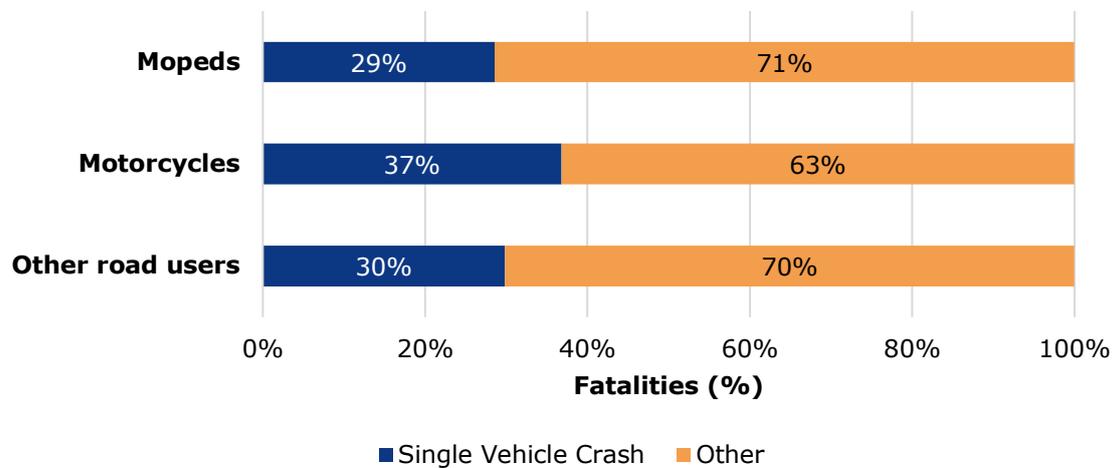
Notes:

- Estonia, Cyprus and Iceland are not included in the figure because there are less than 10 fatalities in the year 2022.
- Malta is not included in the figure because there are less than 10 fatalities in the last available year before 2022.
- For Ireland and Latvia, the missing value for 2022 was imputed with the last known value in the series.

### 4.3 Single vehicle crashes

**The share of moped rider fatalities resulting from a single vehicle crash (29%) is comparable to other road user fatalities (30%) whereas in comparison this crash type occurs more often with motorcycle riders, i.e. 37%.**

**Figure 17.** Distribution of motorcycle rider, moped rider and other road user fatalities by type of collision in the EU27 (2022). Source: CARE

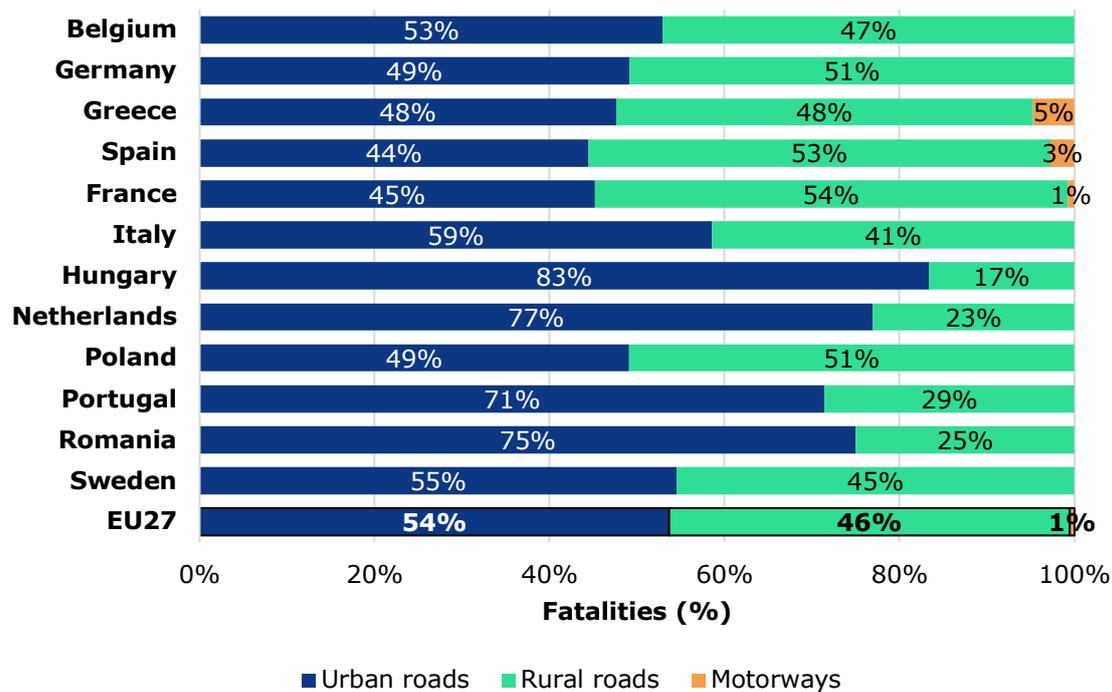


## 5. Location

### 5.1 Road type

Figure 18 shows the distribution of moped fatalities by road type and country. **More than half of moped fatalities in the EU in 2022 occurred in crashes on urban roads (54%), 46% of moped fatalities took place on rural roads and only 1% on motorways.** Moped fatalities on motorways only occur in Greece (5%), Spain (3%) and France (1%). In some countries, the share of fatalities occurring on rural roads exceeds the one on urban roads. This can be observed in France (54%), Spain (53%), Germany and Poland (51% respectively).

**Figure 18.** Distribution of moped rider fatalities by road type per country in the EU27 (2022). Source: CARE



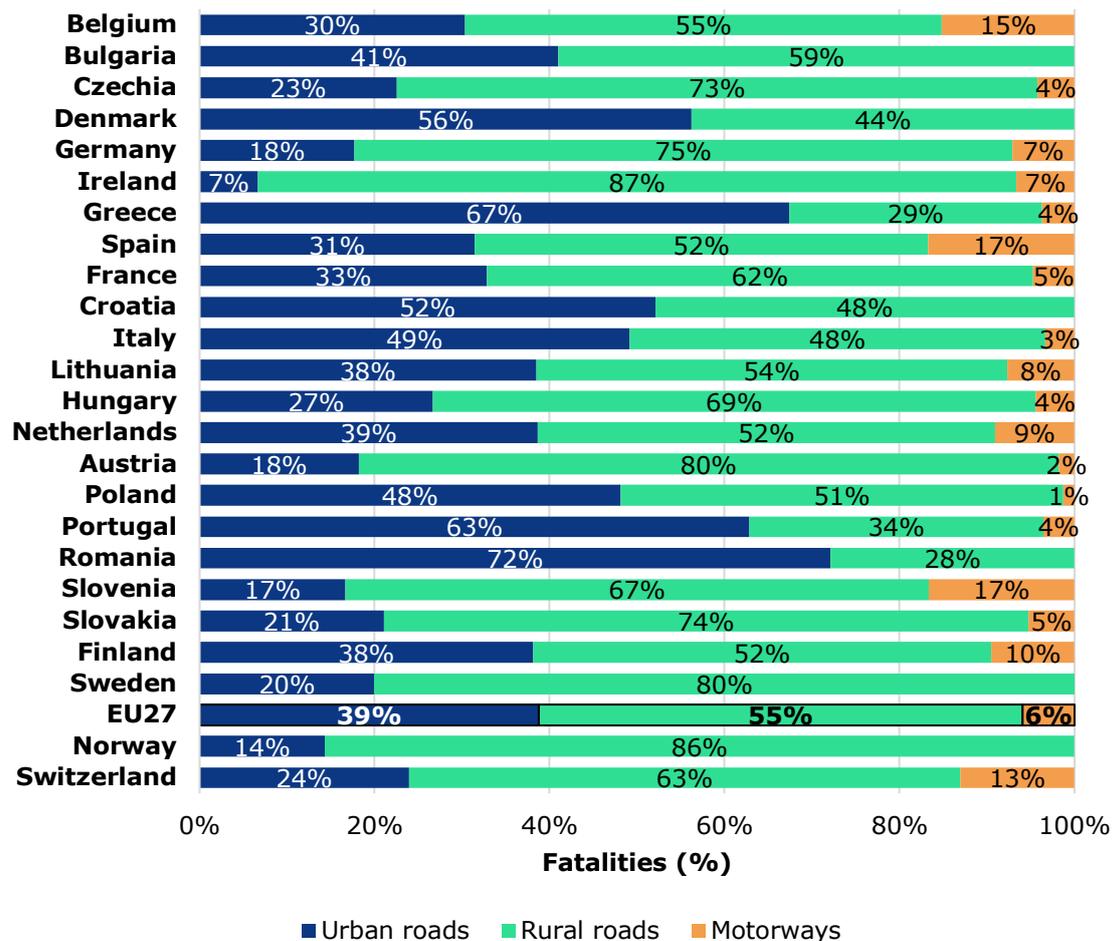
Notes:

- Bulgaria, Czechia, Denmark, Estonia, Cyprus, Lithuania, Luxembourg, Finland, Iceland, Switzerland and Norway are not included in the figure because there are less than 10 fatalities in the year 2022.
- Ireland, Latvia and Malta are not included in the figure because there are less than 10 fatalities in the last available year before 2022.

In contrast to moped fatality characteristics, **55% of motorcyclist fatalities in the EU in 2022 occurred on rural roads, 39% on urban roads and 6% on motorways.**

At least 8 out of 10 of motorcycle fatalities on rural roads are recorded in Ireland (87%), Norway (86%) Sweden (80%) and Austria (80%). In some countries, the share of fatalities occurring on urban roads exceeds the one on rural roads. This is the case in Romania (72%), Greece (67%), Portugal (63%), Denmark (56%), Belgium (53%), Croatia (52%) and Italy (49%).

**Figure 19.** Distribution of motorcycle rider fatalities by road type per country in the EU27 and EFTA (2022). Source: CARE

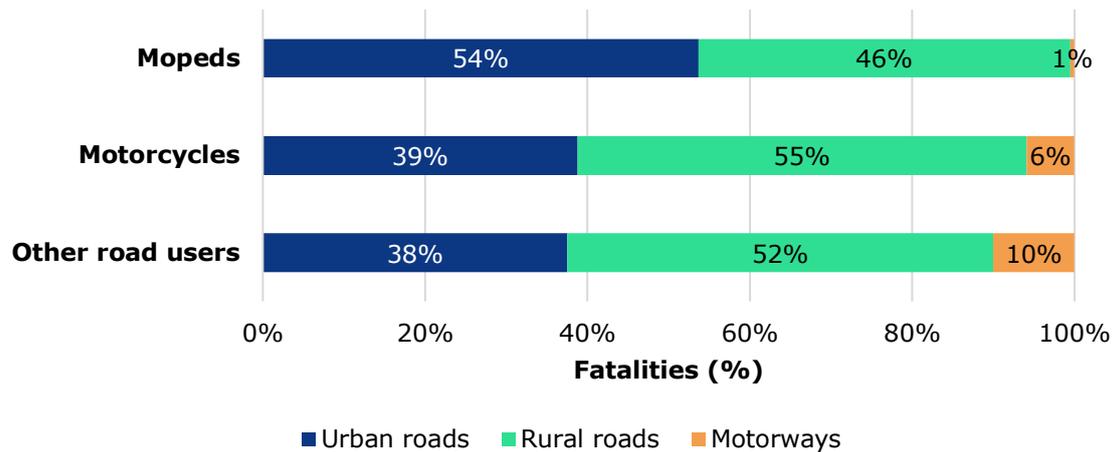


Notes:

- Estonia, Cyprus, Iceland and Luxembourg are not included in the figure because there are less than 10 fatalities in the year 2022.
- Malta and Latvia are not included in the figure because there are less than 10 fatalities in the last available year before 2022.
- For Ireland, the missing value for 2022 was imputed with the last known value in the series (2020).

**Moped rider fatalities happen most often (54%) on urban roads. Motorcycle rider fatalities happen most often (55%) on rural roads. On motorways 1% of all fatalities were moped riders and 6% motorcyclists.**

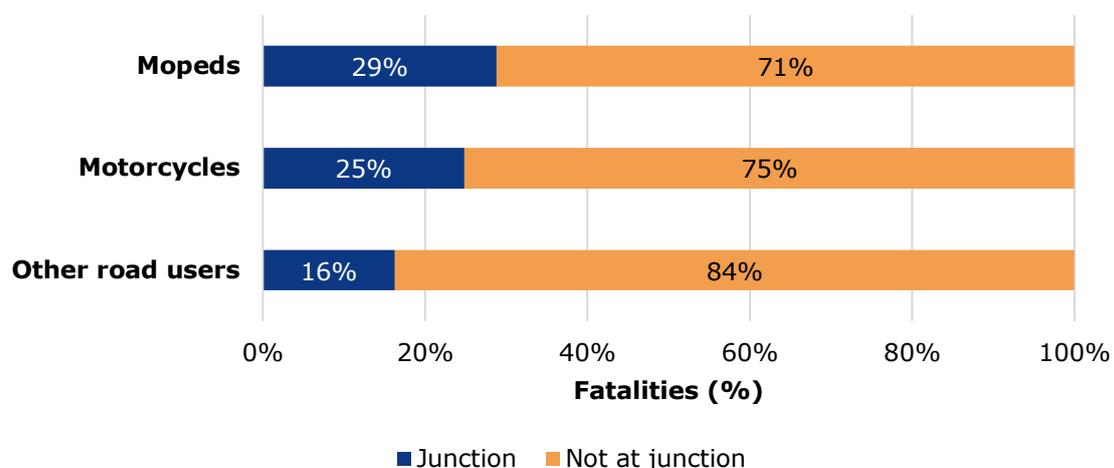
**Figure 20.** Distribution of motorcycle rider, moped rider and other road user fatalities by road type in the EU27 (2022). Source: CARE



## 5.2 Junction

In 2022, 29% of moped rider fatalities and 25% of motorcyclist fatalities occurred on junctions. Compared with other road users, the share of fatalities on junctions is 1.8 times higher for moped riders and 1.5 times higher for motorcyclists.

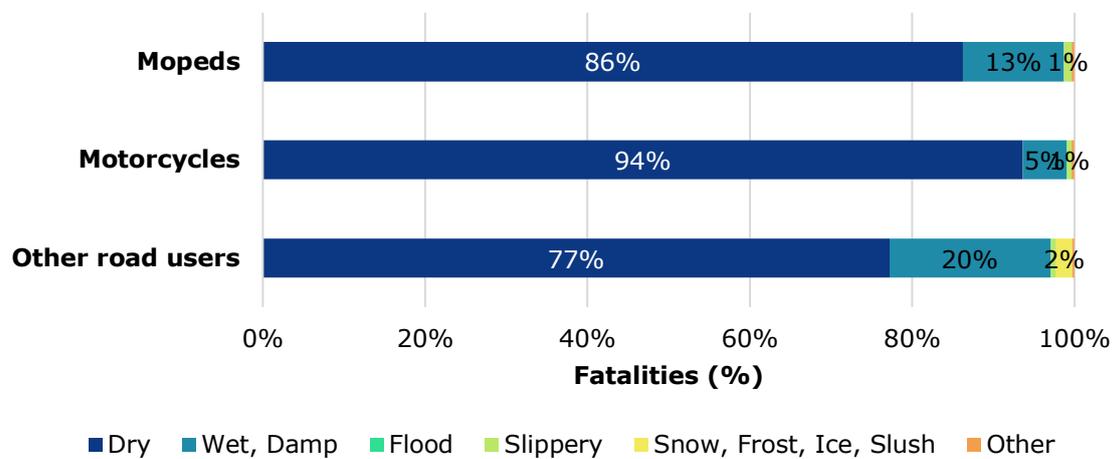
**Figure 21.** Distribution of motorcycle rider, moped rider and other road user fatalities by junction in the EU27 (2022). Source: CARE



### 5.3 Road surface

For other road users, surface conditions were dry in the case of 77% of road fatalities and wet for 20%. In **fatal crashes involving moped and motorcycle riders, the surface conditions are more often dry (respectively 86% and 94%)** as Figure 22 shows. This may be due to travel behaviour with these types of vehicles, where less frequent trips are made when surface conditions are less favourable, especially during wintertime.

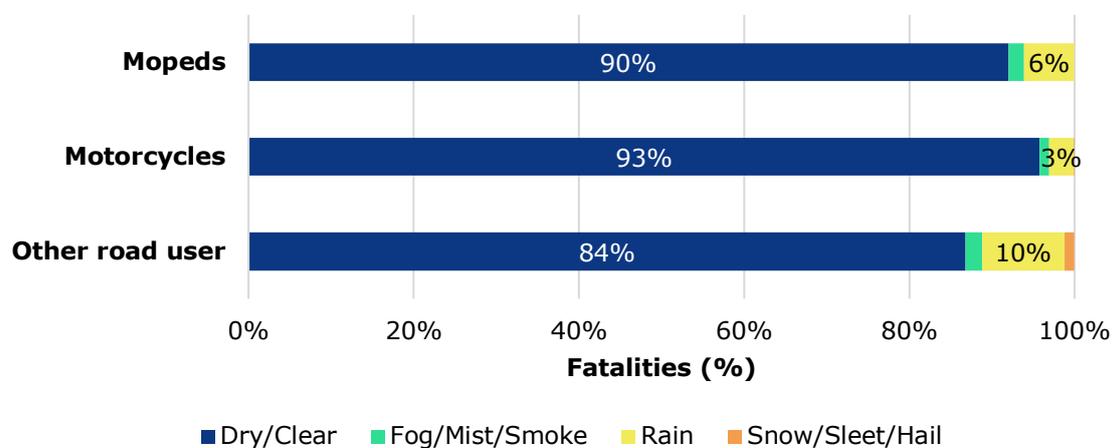
**Figure 22.** Distribution of motorcycle rider, moped rider and other road user fatalities by surface conditions in the EU27 (2022). Source: CARE



## 5.4 Weather conditions

In 9 out of 10 fatalities of both moped and motorcycle riders, weather conditions were dry and clear, and for other road users, this was the case in around 8 out of 10 fatalities. **Fatalities in rainy weather conditions occur in 3% for motorcyclists, 6% for moped riders and 10% for other road users.**

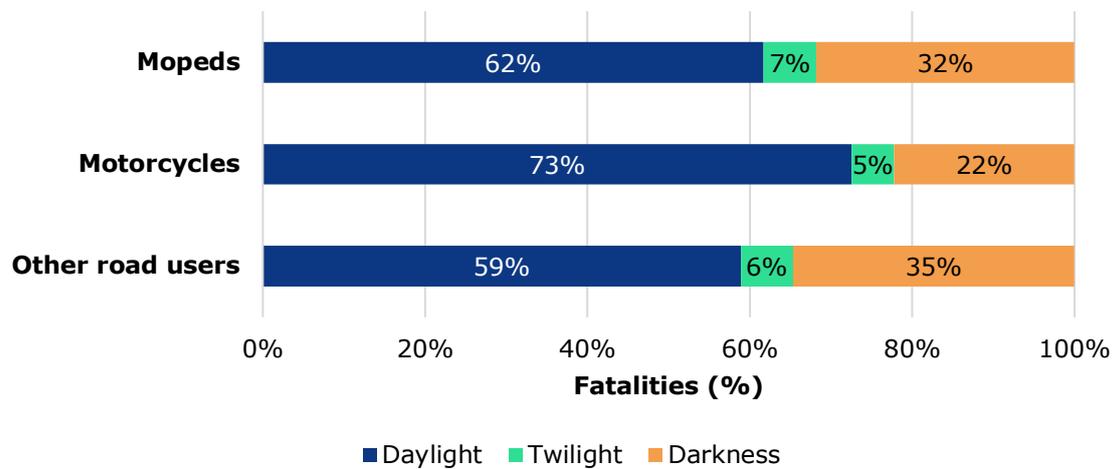
**Figure 23.** Distribution of motorcycle rider, moped rider and other road user fatalities by different weather conditions in the EU27 (2022). Source: CARE



## 5.5 Light conditions

**Around 60% of the fatalities of other road users occur during daylight. For both moped and motorcycle riders, this is somewhat higher: 62% and 73% respectively.**

**Figure 24.** Distribution of motorcycle rider, moped rider and other road user fatalities by different light conditions in the EU27 (2022). Source: CARE

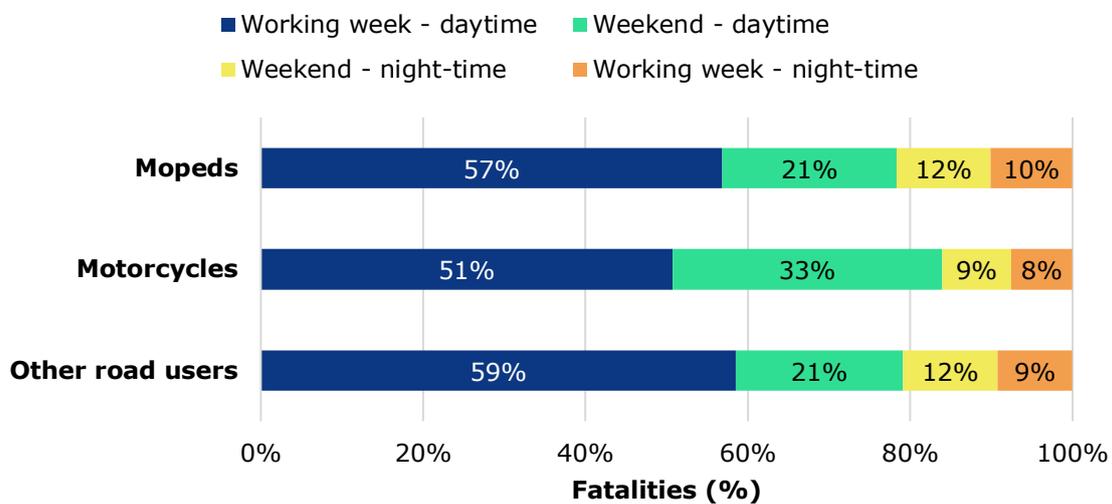


## 6. Time

### 6.1 Period of the week

**Moped fatalities are quite similar distributed over the course of a week in comparison to fatalities of other road users. Fatal motorcycle crashes occur more often during daytime on the weekend compared to moped or other road user fatal crashes.**

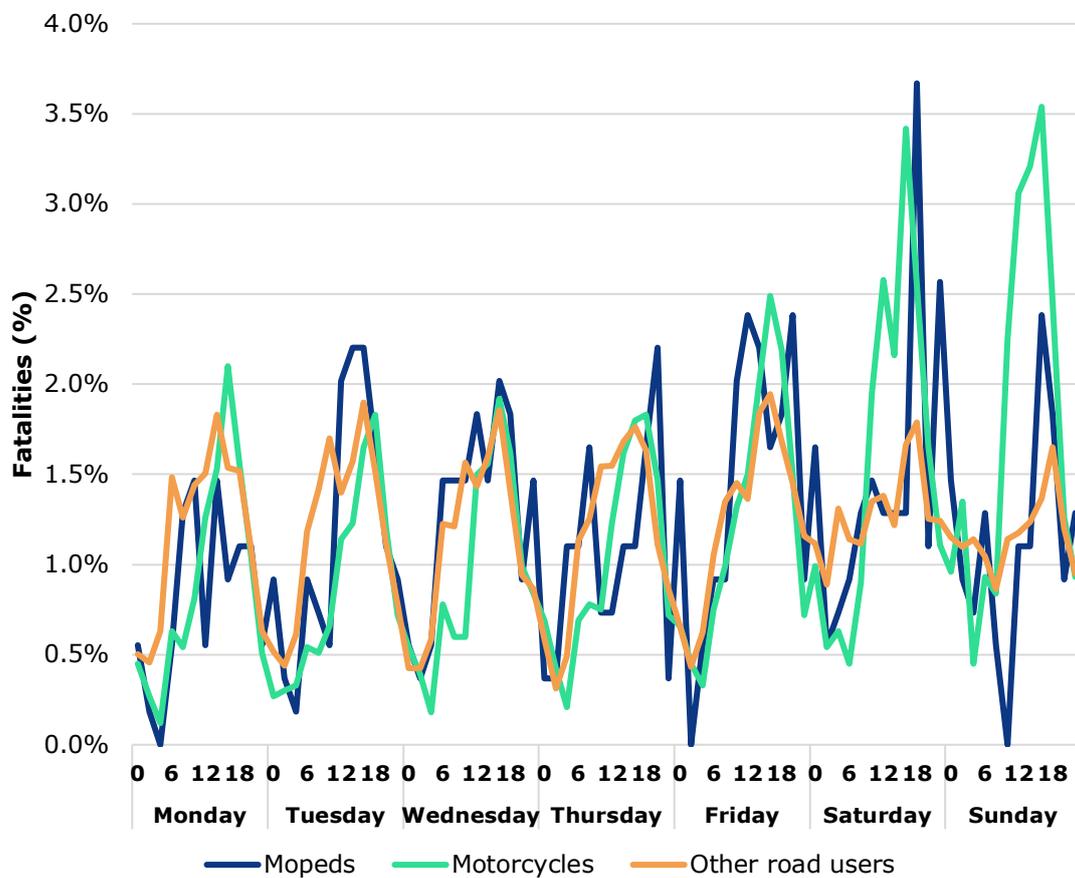
**Figure 25.** Distribution of motorcycle rider, moped rider and other road user fatalities according to period of the week in the EU27 (2022). Source: CARE



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

The Figure below provides more details regarding the occurrence of PTW fatalities' distribution over the single days of the week and the time of the day. **Moped and especially motorcycle riders are relatively often killed in traffic during the weekend, moped rider fatalities peak on Saturday evening,** whereas **fatal motorcycle crashes occur predominantly on both days of the weekend in the afternoon.**

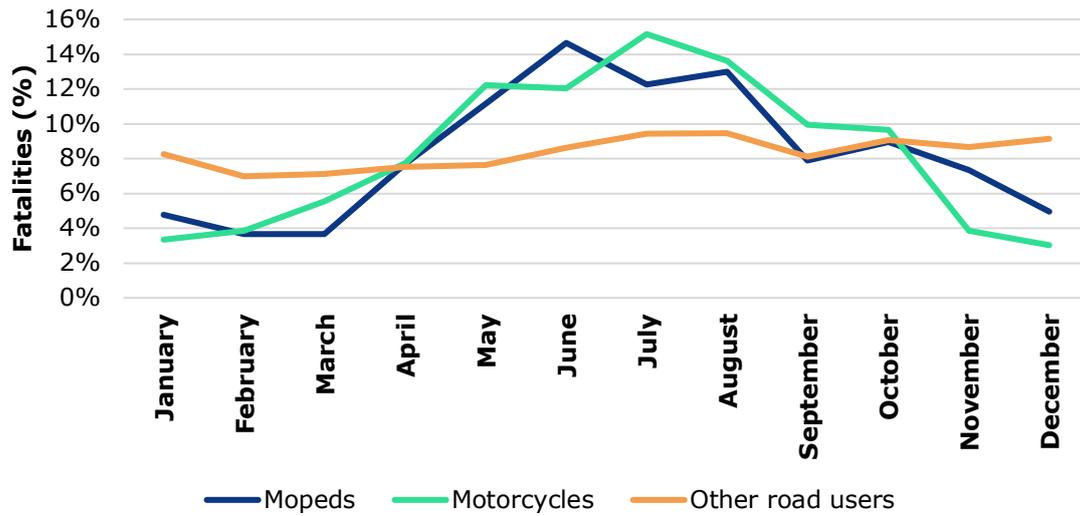
**Figure 26.** Distribution of motorcycle rider, moped rider and other road user fatalities by day of the week and hour in the EU27 (2022). Source: CARE



## 6.3 Month

**Moped and motorcycle fatalities peak from May/June to August, therefore indicating higher occurrences during summer months.**

**Figure 27.** Monthly distribution of motorcycle rider, moped rider and other road user fatalities in the EU27 (2022). Source: CARE



## 7. Notes

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### 7.1 Definitions

The definitions below are taken from the CADAS Glossary as well as the UNECE Glossary.

CADAS Glossary:

[https://road-safety.transport.ec.europa.eu/system/files/2023-09/CADaS%20Glossary\\_v%203\\_8\\_1.pdf](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.

#### **Moped**

Two or three wheeled motor vehicle equipped with engine size of maximum 50cc and maximum speed that does not exceed 45 km/h. A moped can also have an electric motor. Speed pedelecs, electric powered bicycles that offer pedal assistance till 45 km/h, also belong to this category of vehicles.

#### **Motorcycle**

Two or three wheeled motor vehicle, with engine size up to 125 cc, or maximum speed exceeding 45km/h. A motorcycle can also have an electric motor.

#### **Powered two wheelers ("PTW")**

Sum of mopeds and motorcycles.

**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, 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 May 2024.

## 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

## 7.6 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.

## 7.7 More detailed 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.

