



Contract: This document has been prepared in the framework of the EC Service Contract

MOVE/C2/SER/2022-55/SI2.888215 with National Technical University of Athens (NTUA), SWOV Institute for Road Safety Research and Kuratorium für

Verkehrssicherheit (KFV).

Version: February 2024

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refer to the document as follows:

European Commission (2024) Annual statistical report on road safety in the EU, 2024. European Road Safety Observatory. Brussels, European Commission,

Directorate General for Transport.

Sources: Information in this document is based largely on data in the CARE database

(Community database on Crashes on the Roads in Europe). Other data are taken

from Eurostat.

Date of extraction: 29 January 2024

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# **Contents**

1. Int	troduction	4
1.1	The CARE Database	4
1.2	Data preparation and EU Totals	5
2. Ov	verview	6
2.1	EU trends in crashes, injuries and fatalities	6
2.2	Trends in individual countries	7
3. Fa	talities: details	14
3.1	Fatalities by mode of transport	14
3.2	Fatalities by age group	23
3.3	Fatalities by mode of transport and age group	26
3.4	Fatalities by gender	31
3.5	Fatalities by road type	36
4. Cr	ash characteristics	43
4.1	Fatalities by time of crash	43
4.2	Fatalities by junction type	49
5. Lis	st of Figures	50
6. Lis	st of Tables	51
7. No	otes	53
7.1	Definitions	53
7.2	COVID-19 pandemic	54
7.3	More detailed data	54
7.4	Data source	54
7.5	Data cleaning	54
7.6	Small cells	55
7.7	Missing data	55

## 1. Introduction

In 2022, road crashes in the Member States of the European Union claimed about 20,634 lives and left more than 1.13 million people injured. This report presents a wide range of statistical tables containing road safety data from the CARE database for the 27 EU Member States and the four EFTA countries. Various countries have limited data and are therefore only included in a number of tables and figures. When they have been excluded, a note is added below the table or graphic.

The report is divided into four sections. Section 1 contains this introduction and some general notes. Section 2 presents the main road safety trends in the number of crashes leading to death or injury and the absolute and relative development of the number of road fatalities. In this section, changes in the number of seriously injured are also included but should be treated with caution as definitions vary significantly between countries. Furthermore, the data on serious injuries from the CARE database is solely data recorded by the police. Section 3 contains detailed data on fatalities by age groups, gender, and mode of transport where available. Section 4 provides an insight into conditions of fatal crashes like time pattern.

#### 1.1 The CARE Database

CARE is a community database on road crashes (commonly referred to as "crashes") resulting in death or injury (there are no statistics on damage-only crashes). The legal basis for CARE is the Council Decision on the creation of a community database on road crashes (93/704/EC, OJ No L329 of 30.12.1993, pp. 63-65). The Decision obliges Member States to provide annual data on road crashes but does not specify the content. The variables to be collected and disseminated were subsequently discussed and agreed upon by Member States and the Commission. In this regard, a CARE expert group composed of national representatives meets 1-2 times per year to discuss issues related to the database, the variables as well as the collection, processing, and dissemination of data. The major difference between CARE and most other existing international databases is the high level of disaggregation, i.e. CARE comprises detailed data on crashes, individuals and vehicles involved in the crash itself, as collected by the Member States. This structure allows for maximum flexibility and potential with regard to analysing the information contained in the system and opens up a whole set of new possibilities in the field of crash analysis. The main purpose is to provide evidence to identify and quantify road safety problems throughout the EU roads, evaluate the efficiency of road safety measures, determine the relevance of EU actions and facilitate the exchange of experience in this field. Member States officials have access to the disaggregated CARE data through a dedicated reporting tool.

National data sets are integrated into the CARE database using their original national structure and definitions, with confidential data blanked out. However,

transformation rules are implemented in the CARE database in order to increase data compatibility and thus enhance the functioning of the system.

### 1.2 Data preparation and EU Totals

The statistical tables and figures contained in this report provide an overview of road crash data for 2012 to 2022. In all tables and figures, the European Union refers to the present union of 27 countries.

Data in CARE/Cadas are not complete. Countries have their own registration systems that are not always compatible with the way data are recorded in the CARE/Cadas structure. Some countries have not provided data for certain years or are lagging behind. Reported data are sometimes incomplete, implying that some breakdowns of data are not possible or that certain categories are not visible in a breakdown.

Missing data are a problem for the calculation of EU totals. In cases where variables were never reported for a country, the EU total is calculated without that country. In some cases, data are missing for only one or a few years. In these cases, the data are imputed to estimate the contribution of the country to the EU total.

Imputation rules are as follows:

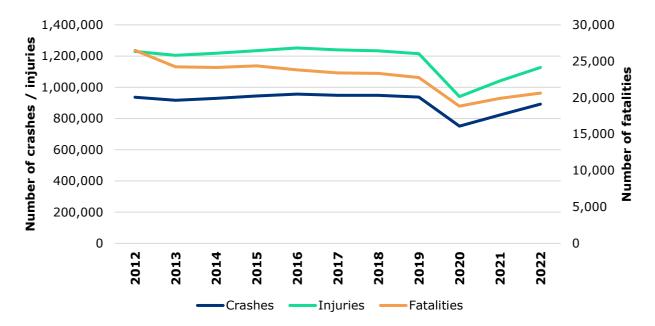
- in case of data missing between available data for other years: linear interpolation.
- in case of missing data in previous years of the time series: copy the value of the first available year in the time series.
- in case of missing data for the last year(s) in a time series: copy the values for the last available year. The EU totals were subsequently calculated using the imputed values.

Calculation of reliable percentages and comparison of countries require a minimum of 10 cases. Thus, countries with less than 10 observations are omitted from figures and analysis.

# 2. Overview

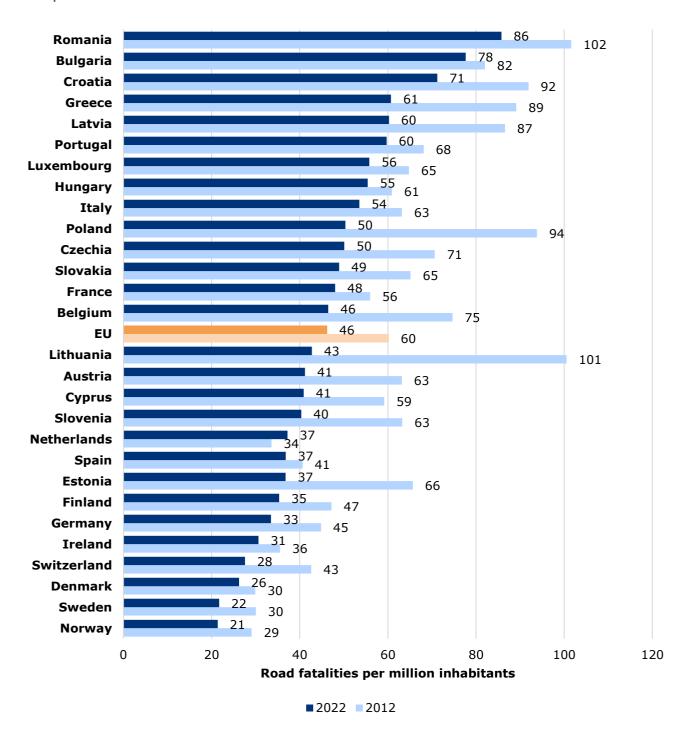
# 2.1 EU trends in crashes, injuries and fatalities

Figure 1. Number of road crashes, fatalities and injured people in the EU.



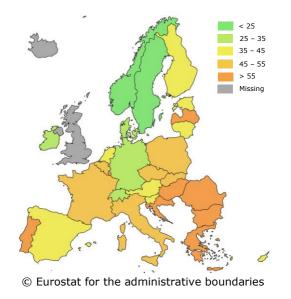
#### 2.2 Trends in individual countries

Figure 2. Number of fatalities per million inhabitants in the EU and EFTA, 2022 compared to 2012.



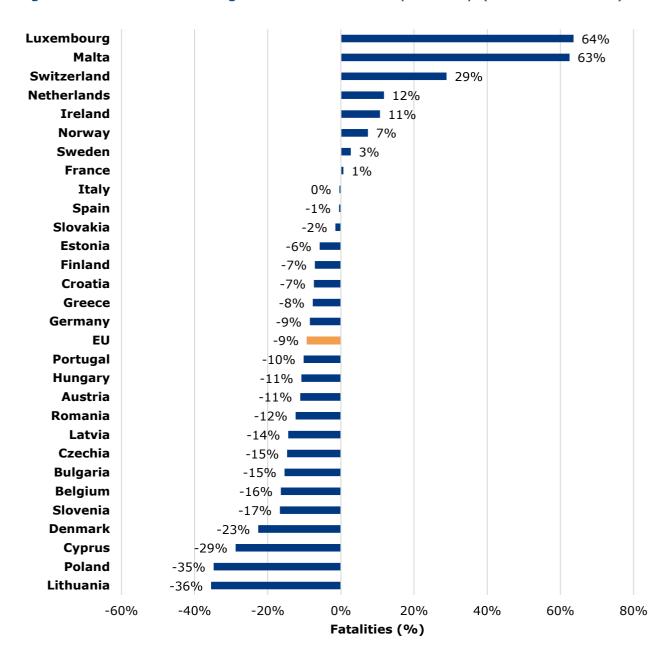
Countries with less than 10 fatalities are omitted: Liechtenstein, Malta and Iceland. For some countries with comparatively low numbers of fatalities, caution is required when interpreting the data due to considerable annual fluctuations.

Figure 3. Map of fatalities per million inhabitants in the EU and EFTA, 2022.



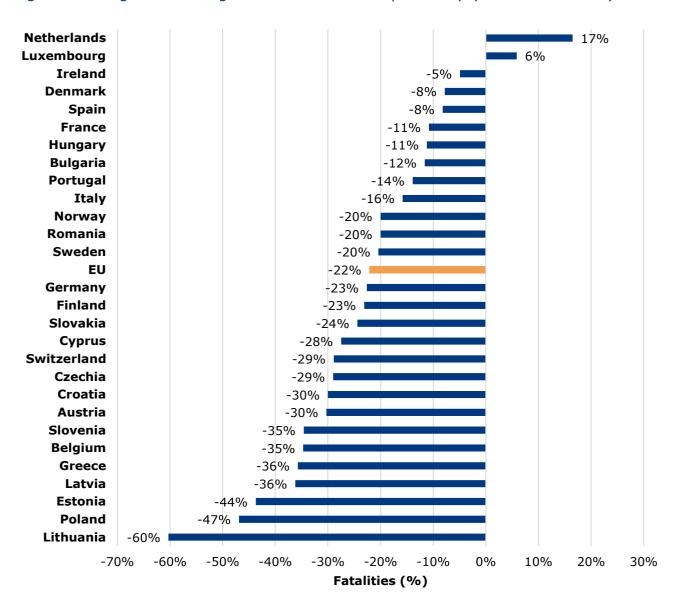
Countries with less than 10 fatalities are omitted: Liechtenstein, Malta and Iceland.

Figure 4. Short-term change in road fatalities by country (2022 over 2019).



Countries with less than 10 fatalities are omitted: Liechtenstein and Iceland. For some countries with comparatively low numbers of fatalities, caution is required when interpreting the data due to considerable annual fluctuations.

Figure 5. Long-term change in road fatalities by country (2022 over 2012).



Countries with less than 10 fatalities are omitted: Liechtenstein, Malta and Iceland. For some countries with comparatively low numbers of fatalities, caution is required when interpreting the data due to considerable annual fluctuations.

Table 1. Annual number of fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	827	604	646	499	516	540	-35%	-16%
Bulgaria	601	610	628	463	561	531	-12%	-15%
Czechia	742	656	618	518	532	527	-29%	-15%
Denmark	167	171	199	163	130	154	-8%	-23%
Germany	3,600	3,275	3,046	2,719	2,562	2,788	-23%	-9%
Estonia	87	67	52	59	55	49	-44%	-6%
Ireland	163	135	140	146	137	155	-5%	11%
Greece	988	700	688	584	624	635	-36%	-8%
Spain	1,902	1,806	1,755	1,370	1,533	1,746	-8%	-1%
France	3,653	3,246	3,237	2,538	2,931	3,260	-11%	1%
Croatia	393	317	297	237	292	275	-30%	-7%
Italy	3,753	3,334	3,173	2,395	2,875	3,159	-16%	0%
Cyprus	51	49	52	48	45	37	-28%	-29%
Latvia	177	148	132	139	147	113	-36%	-14%
Lithuania	302	173	186	175	148	120	-60%	-36%
Luxembourg	34	36	22	26	24	36	6%	64%
Hungary	605	633	602	460	544	537	-11%	-11%
Malta	9	18	16	12	9	26	-	63%
Netherlands	562	598	586	515	509	655	17%	12%
Austria	531	409	416	344	362	370	-30%	-11%
Poland	3,571	2,862	2,909	2,491	2,245	1,896	-47%	-35%
Portugal	718	700	688	536	561	618	-14%	-10%
Romania	2,042	1,867	1,864	1,644	1,779	1,633	-20%	-12%
Slovenia	130	91	102	80	114	85	-35%	-17%
Slovakia	352	260	270	247	247	266	-24%	-2%
Finland	255	239	211	223	225	196	-23%	-7%
Sweden	285	324	221	204	210	227	-20%	3%
EU	26,500	23,328	22,756	18,835	19,917	20,634	-22%	-9%
Iceland	9	18	6	8	9	9	-	-
Liechtenstein	1	0	0	1	0	2	-	-
Norway	145	108	108	93	80	116	-20%	7%
Switzerland	339	233	187	227	200	241	-29%	29%

<sup>\*</sup>LT = Long term change of last available year over 2012. \*ST = Short term change of last available year over 2019.

Table 2. Annual number of crashes by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	44,259	38 455	37,699	30,232	34,640	37,643	-15%	0%
Bulgaria	6,716	6,684	6,730	5,710	6,080	6,605	-2%	-2%
Czechia	20,503	21,890	20,806	18,419	18,156	19,733	-4%	-5%
Denmark	3,124	2,964	2,808	2,527	2,402	2,563	-18%	-9%
Germany	299,637	308,721	300,143	264,499	258,987	289,672	-3%	-4%
Estonia	1,383	1,474	1,413	1,409	1,538	1,671	21%	18%
Ireland	5,610	6,057	6,227	-	-	-	-	-
Greece	12,398	10,737	10,712	9,083	10,454	-	-16%	-2%
Spain	83,115	102,299	104,080	72,959	89,862	97,916	18%	-6%
France	60,437	55,762	56,006	45,117	53,521	52,371	-13%	-7%
Croatia	11,774	10,450	9,694	7,709	9,146	10,005	-15%	3%
Italy	188,228	172,553	172,183	118,298	151,875	165,889	-12%	-4%
Cyprus	919	499	490	341	326	372	-60%	-24%
Latvia	3,358	3,975	3,729	3,403	-	-	-	-
Lithuania	3,392	2,925	3,189	2,826	2,808	2,878	-15%	-10%
Luxembourg	1,019	947	987	771	916	1,094	7%	11%
Hungary	15,174	16,951	16,627	13,778	14,233	14,748	-3%	-11%
Malta	1,270	1,346	1,342	1,004	1,275	-	0%	-5%
Netherlands	4,966	19,270	19,046	17,043	18,449	22,885	361%	20%
Austria	40,831	36,846	35,736	30,670	32,774	34,869	-15%	-2%
Poland	37,046	31,674	30,288	23,540	22,816	21,322	-42%	-30%
Portugal	29,867	35,816	37,251	27,725	30,691	34,276	15%	-8%
Romania	26,928	30,202	31,146	22,806	26,805	28,010	4%	-10%
Slovenia	6,857	6,013	6,023	4,776	5,326	5,983	-13%	-1%
Slovakia	5,370	5,335	5,105	4,302	4,287	4,481	-17%	-12%
Finland	5,725	4,312	4,002	3,608	3,243	-	-43%	-19%
Sweden	16,636	14,233	13,684	12,243	-	-	-	
EU	936,542	948,390	937,146	751,025	822,483	891,831	-5%	-5%
Iceland	742	868	770	727	873	904	22%	17%
Liechtenstein	405	478	509	90	61	96	-76%	-81%
Norway	6,153	3,895	3,580	3,502	3,620	3,464	-44%	-3%
Switzerland	18,148	18,033	17,761	16,897	17,436	18,396	1%	4%

Limited data available for Ireland, Latvia and Sweden.

<sup>\*</sup>LT = Long term change of last available year over 2012. \*ST = Short term change of last available year over 2019.

Table 3. Annual number of seriously injured by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	4,736	3,636	3,600	2,968	3,098	3,400	-28%	-6%
Bulgaria	2,204	1,983	1,937	1,556	1,458	1,766	-20%	-9%
Czechia	2,934	2,395	2,061	1,760	1,580	1,681	-43%	-18%
Denmark	1,809	1,436	1,277	1,203	1,163	1,227	-32%	-4%
Germany	66,279	67,967	65,244	58,005	55,137	57,727	-13%	-12%
Estonia	-	-	-	-	-	-	-	-
Ireland	474	1,359	1,506	-	-	-	-	-
Greece	1,399	727	652	518	610	-	-56%	-6%
Spain	10,445	8,935	8,613	6,681	7,784	8,502	-19%	-1%
France	-	-	-	-	-	-	-	-
Croatia	3,051	2,731	2,488	2,295	2,610	2,910	-5%	17%
Italy	-	-	-	-	-	-	-	-
Cyprus	551	348	340	211	252	253	-54%	-26%
Latvia	493	542	461	490	-	-	-	-
Lithuania	-	165	308	376	392	476	-	55%
Luxembourg	339	273	248	217	267	267	-21%	8%
Hungary	4,921	5,559	5,485	4,655	4,595	5,041	2%	-8%
Malta	299	317	305	242	339	-	13%	11%
Netherlands	2,330	13,470	12,425	10,222	7,424	8,420	261%	-32%
Austria	8,017	7,631	7,384	6,650	6,945	7,258	-10%	-2%
Poland	12,049	10,941	10,633	8,805	8,276	7,541	-37%	-29%
Portugal	1,941	2,195	2,383	1,877	2,161	2,302	19%	-3%
Romania	8,860	8,144	8,125	5,491	3,796	3,690	-58%	-55%
Slovenia	848	821	814	678	784	862	2%	6%
Slovakia	1,122	1,247	1,030	894	854	866	-23%	-16%
Finland	-	485	390	408	368	-	-	-6%
Sweden	2,976	2,195	1,951	1,646	-	-	-	
Iceland	136	183	182	149	199	195	43%	7%
Liechtenstein	-	-	-	-	-	-	-	-
Norway	699	602	565	627	569	578	-17%	2%
Switzerland	4,202	3,873	3,639	3,793	3,933	4,002	-5%	10%

<sup>\*</sup>LT = Long term change of last available year over 2012.

No data available for Estonia, France, Italy and Liechtenstein. Limited data available for Ireland, Latvia, Lithuania, Finland and Sweden and no data available for Liechtenstein.

Definitions and registration differ significantly between countries. Trends within a country are usually meaningful unless registration changed during the reporting time (e.g. the Netherlands). EU totals were omitted due to missing data for several Member Countries. Moreover, the data are only police-reported data.

<sup>\*</sup>ST = Short term change of last available year over 2019.

# 3. Fatalities: details

# 3.1 Fatalities by mode of transport

Figure 6. Fatalities by mode of transport, EU 2022.

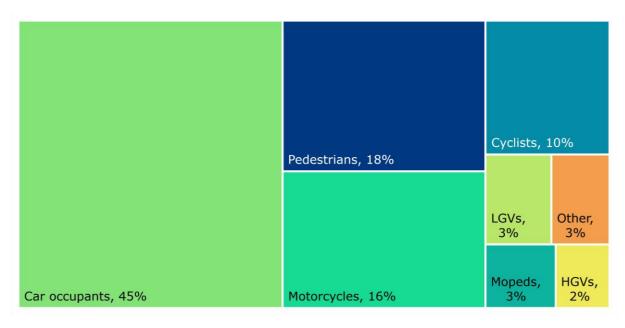
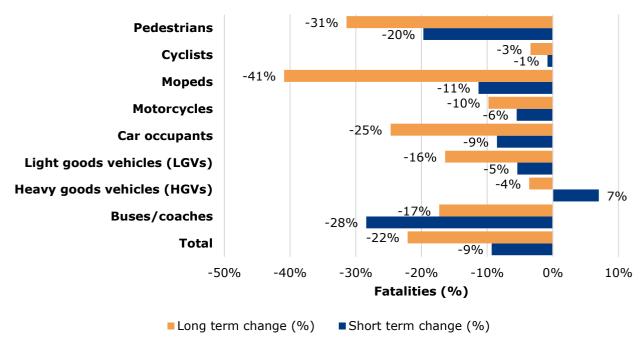


Figure 7. Short- and long-term change in road fatalities by mode of transport, EU.



Long term change: 2022 over 2012; Short term change: 2022 over 2019.

Table 4. Annual number of pedestrian fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	117	74	92	65	75	83	-29%	-10%
Bulgaria	135	123	154	94	94	94	-30%	-39%
Czechia	163	142	111	95	104	86	-47%	-23%
Denmark	31	30	30	23	19	28	-10%	-7%
Germany	527	464	421	379	344	375	-29%	-11%
Estonia	29	12	11	14	13	11	-62%	0%
Ireland	29	40	27	-	-	-	-	-
Greece	170	146	145	76	95	-	-44%	-35%
Spain	370	386	381	260	301	348	-6%	-9%
France	489	468	476	388	401	482	-1%	1%
Croatia	72	65	61	38	37	43	-40%	-30%
Italy	576	612	534	409	471	485	-16%	-9%
Cyprus	10	8	13	13	6	6	-	-54%
Latvia	62	50	40	43	-	-	-	-
Lithuania	-	71	59	52	28	31	-	-48%
Luxembourg	6	3	2	4	5	3	-	-
Hungary	156	165	144	109	97	126	-19%	-13%
Malta	-	2	5	1	4	-	-	-
Netherlands	64	50	49	35	43	62	-3%	27%
Austria	81	47	69	51	37	49	-40%	-29%
Poland	1,157	803	793	631	527	460	-60%	-42%
Portugal	159	163	140	101	100	107	-33%	-24%
Romania	728	690	729	587	583	530	-27%	-27%
Slovenia	19	13	15	7	15	15	-21%	0%
Slovakia	-	72	80	49	60	70	-	-13%
Finland	29	25	15	22	24	-	-17%	60%
Sweden	50	34	27	25	-	-		
EU	5,410	4,758	4,623	3,598	3,578	3,712	-31%	-20%
Iceland	2	0	1	0	2	4	-	-
Norway	22	13	13	15	7	12	-46%	-8%
Switzerland	75	43	37	36	37	36	-52%	-3%

<sup>\*</sup>LT = Long term change of last available year over 2012.

Limited data available for Ireland, Latvia, Lithuania, Malta, Slovakia and Sweden. Liechtenstein omitted because of extremely low number of total fatalities.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 5. Annual number of cyclist fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	84	89	95	87	87	102	21%	7%
Bulgaria	32	21	27	19	17	25	-22%	-7%
Czechia	78	56	53	51	64	54	-31%	2%
Denmark	22	28	31	27	25	23	5%	-26%
Germany	406	445	445	426	372	474	17%	7%
Estonia	0	3	2	1	7	3	-	-
Ireland	8	9	8	-	-	-	-	-
Greece	21	12	22	12	14	-	-33%	-36%
Spain	74	58	80	71	63	81	10%	1%
France	164	175	187	178	227	245	49%	31%
Croatia	21	22	16	9	28	9	-57%	-44%
Italy	292	219	253	175	220	205	-30%	-19%
Cyprus	1	1	1	1	1	4	-	-
Latvia	18	9	9	17	-	-	-	-
Lithuania	-	8	10	12	11	5	-	-
Luxembourg	0	3	0	3	0	1	-	-
Hungary	84	68	63	40	53	42	-50%	-33%
Malta	-	1	0	0	0	-	-	-
Netherlands	145	160	148	158	145	220	52%	49%
Austria	52	41	33	40	50	44	-15%	33%
Poland	300	285	258	249	185	170	-43%	-34%
Portugal	32	26	27	19	34	31	-3%	15%
Romania	154	181	198	191	149	160	4%	-19%
Slovenia	12	8	9	8	10	12	0%	
Slovakia	-	19	17	24	17	26	-	53%
Finland	19	21	23	31	24	-	26%	4%
Sweden	28	23	17	16	-	-	-	
EU	2,086	1,991	2,032	1,873	1,844	2,015	-3%	-1%
Iceland	0	0	0	0	1	0	-	-
Norway	12	7	6	3	4	6	-50%	-
Switzerland	36	39	27	44	39	42	17%	56%

<sup>\*</sup>LT = Long term change of last available year over 2012.

Limited data available for Ireland, Latvia, Malta, Slovakia and Sweden. Liechtenstein omitted because of extremely low number of total fatalities.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 6. Annual number of moped fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	17	18	19	13	16	17	0%	-11%
Bulgaria	4	7	2	5	4	0	-	-
Czechia	7	5	2	4	4	3	-	-
Denmark	14	10	13	8	5	9	-36%	-31%
Germany	93	78	63	53	56	57	-39%	-10%
Estonia	1	0	1	0	0	3	-	-
Ireland	0	0	0	-	-	-	-	-
Greece	35	27	19	24	21	-	-40%	11%
Spain	67	62	49	32	38	36	-46%	-27%
France	179	133	134	100	96	124	-31%	-8%
Croatia	16	4	9	5	6	8	-50%	-
Italy	127	108	88	59	67	70	-45%	-21%
Cyprus	3	2	0	0	2	1	-	-
Latvia	3	4	1	2	-	-	-	-
Lithuania	-	1	0	1	1	1	-	-
Luxembourg	0	0	1	0	0	0	-	-
Hungary	25	13	10	16	12	12	-52%	-
Malta	-	0	0	0	0	-	-	-
Netherlands	40	31	35	26	38	39	-3%	11%
Austria	19	8	10	4	13	8	-58%	-
Poland	82	76	87	71	54	53	-35%	-39%
Portugal	57	42	36	26	29	35	-39%	-3%
Romania	99	18	18	21	24	24	-76%	33%
Slovenia	3	2	3	6	6	3	-	-
Slovakia	-	3	2	10	8	8	-	-
Finland	7	3	3	2	4	-	-	-
Sweden	8	7	6	4	-	-	_	
EU	918	662	611	492	510	542	-41%	-11%
Iceland	0	0	0	0	0	0	-	-
Norway	4	2	0	1	1	0	-	-
Switzerland	3	5	5	6	3	6	-	-

<sup>\*</sup>LT = Long term change of last available year over 2012.

Limited data available for Latvia, Malta and Sweden and no data available for Ireland. Liechtenstein omitted because of extremely low number of total fatalities.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 7. Annual number of motorcycle fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	99	87	84	78	62	66	-33%	-21%
Bulgaria	48	4	5	32	45	39	-19%	-
Czechia	86	94	84	58	85	71	-17%	-16%
Denmark	10	21	27	11	12	16	-	-41%
Germany	586	619	542	499	473	492	-16%	-9%
Estonia	0	6	3	3	3	2	-	-
Ireland	19	15	16	-	-	-	-	-
Greece	282	190	228	188	214	-	-24%	-6%
Spain	304	359	417	313	357	401	32%	-4%
France	692	627	615	479	572	594	-14%	-3%
Croatia	62	55	46	44	58	48	-23%	4%
Italy	847	687	698	586	695	781	-8%	12%
Cyprus	11	14	16	14	12	9	-18%	-44%
Latvia	7	3	1	6	-	-	-	-
Lithuania	-	13	19	17	10	13	-	-32%
Luxembourg	5	9	3	7	3	8	-	-
Hungary	39	49	64	42	55	45	15%	-30%
Malta	-	8	4	10	2	-	-	-
Netherlands	53	42	45	44	53	44	-17%	-2%
Austria	68	102	79	74	75	55	-19%	-30%
Poland	261	238	295	244	215	158	-40%	-46%
Portugal	104	112	127	116	113	140	35%	10%
Romania	62	55	51	64	62	61	-2%	20%
Slovenia	18	16	20	16	27	12	-33%	-40%
Slovakia	-	0	21	23	23	19	-	-10%
Finland	21	24	25	20	28	-	33%	12%
Sweden	31	47	29	28	-	-	-	
EU	3,732	3,496	3,564	3,032	3,304	3,368	-10%	-6%
Iceland	0	0	1	3	0	0	-	-
Norway	17	14	16	18	15	21	24%	31%
Switzerland	74	42	30	52	47	46	-38%	53%

<sup>\*</sup>LT = Long term change of last available year over 2012.

Inconsistent time series in Bulgaria between 2016 and 2019. Limited data available for Ireland, Latvia, Malta and Sweden.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 8. Annual number of car occupant fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	402	275	306	221	213	215	-47%	-30%
Bulgaria	335	341	348	260	307	323	-4%	-7%
Czechia	368	333	329	269	244	278	-25%	-16%
Denmark	81	65	87	80	54	68	-16%	-22%
Germany	1,791	1,424	1,364	1,170	1,118	1,192	-33%	-13%
Estonia	42	21	20	7	22	24	-43%	20%
Ireland	90	59	81	-	-	-	-	-
Greece	383	267	202	205	226	-	-41%	12%
Spain	871	732	641	544	611	681	-22%	6%
France	1,881	1,637	1,622	1,243	1,414	1,565	-17%	-4%
Croatia	186	154	141	126	129	143	-23%	1%
Italy	1,695	1,423	1,411	1,018	1,192	1,375	-19%	-3%
Cyprus	18	15	14	18	20	11	-39%	-21%
Latvia	72	70	62	64	-	-	-	-
Lithuania	-	73	84	78	87	59	-	-30%
Luxembourg	22	19	16	9	15	23	5%	44%
Hungary	253	291	273	219	267	273	8%	0%
Malta	-	5	7	1	3	-	-	-
Netherlands	218	245	240	198	180	225	3%	-6%
Austria	282	181	200	146	161	180	-36%	-10%
Poland	1,615	1,291	1,333	1,162	1,094	913	-44%	-32%
Portugal	255	238	235	198	203	211	-17%	-10%
Romania	798	737	682	617	800	698	-13%	2%
Slovenia	53	32	28	29	32	21	-60%	-25%
Slovakia	-	120	124	128	129	132	-	7%
Finland	147	146	123	127	127	-	-14%	3%
Sweden	142	181	103	106	-	-	-	_
EU	12,239	10,375	10,076	8,324	8,899	9,217	-25%	-9%
Iceland	6	12	3	5	4	3	-	-
Norway	73	61	61	41	40	58	-21%	-5%
Switzerland	104	79	65	71	65	87	-16%	34%

<sup>\*</sup>LT = Long term change of last available year over 2012.

Limited data available for Ireland, Latvia, Lithuania, Malta, Slovakia and Sweden. Liechtenstein omitted because of extremely low number of total fatalities.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 9. Annual number of LGV occupant fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	31	30	17	11	28	27	-13%	59%
Bulgaria	0	0	0	0	0	0	-	-
Czechia	7	2	13	0	12	0	-	-100%
Denmark	6	13	9	8	10	6	-	-
Germany	-	79	72	63	64	69	-	-4%
Estonia	0	0	0	0	0	0	-	-
Ireland	10	0	0	-	-	-	-	-
Greece	51	31	49	38	39	-	-24%	-20%
Spain	98	93	86	57	83	98	0%	14%
France	145	92	98	59	103	104	-28%	6%
Croatia	15	4	7	4	10	7	-53%	-
Italy	118	139	70	81	94	72	-39%	3%
Cyprus	4	7	6	0	1	2	-	-
Latvia	4	2	8	1	-	-	-	-
Lithuania	-	1	1	5	0	2	-	-
Luxembourg	1	1	0	2	1	1	-	-
Hungary	20	25	31	20	32	20	0%	-36%
Malta	-	0	0	0	0	-	-	-
Netherlands	16	21	22	21	11	25	56%	14%
Austria	15	11	10	15	15	18	20%	-
Poland	-	83	84	73	94	66	-	-21%
Portugal	48	61	55	41	41	61	27%	11%
Romania	72	73	74	69	69	69	-4%	-7%
Slovenia	5	0	2	1	4	3	-	-
Slovakia	-	19	11	9	4	6	-	-46%
Finland	11	6	10	10	9	-	-18%	-
Sweden	16	12	26	15	-	-	-	
EU	862	805	761	603	740	720	-16%	-5%
Iceland	1	4	0	0	0	0	-	-
Norway	9	6	5	5	1	4	-	-
Switzerland	6	2	8	3	2	3	-	-

<sup>\*</sup>LT = Long term change of last available year over 2012.

Inconsistencies in the time series in Germany (2012-2013) and Poland (2012-2017): values omitted. EU totals have been calculated by imputation of the first available year with consistent values: 2014 for Germany and 2018 for Poland. Limited data available for Ireland, Latvia, Lithuania, Malta and Sweden. Liechtenstein omitted because of extremely low number of total fatalities.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 10. Annual number of HGV occupant fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	18	19	11	17	15	11	-39%	0%
Bulgaria	21	-	-	21	22	28	33%	-
Czechia	25	19	17	35	15	26	4%	53%
Denmark	0	3	2	2	2	3	-	-
Germany	-	95	80	61	76	58	-	-28%
Estonia	1	3	5	4	2	2	-	-
Ireland	2	7	6	-	-	-	-	-
Greece	11	10	4	10	6	-	-46%	-
Spain	50	58	55	45	33	51	1%	-7%
France	56	44	36	33	44	48	-14%	33%
Croatia	2	2	1	4	1	2	-	-
Italy	46	50	67	36	75	94	104%	40%
Cyprus	1	0	0	1	1	1	-	-
Latvia	4	3	3	3	-	-	-	-
Lithuania	-	2	3	2	7	2	-	-
Luxembourg	0	0	0	0	0	0	-	-
Hungary	15	14	12	9	10	12	-20%	0%
Malta	-	0	0	0	0	-	-	-
Netherlands	7	7	5	4	1	2	-	-
Austria	4	4	2	5	4	3	-	-
Poland	-	36	26	31	34	28	-	8%
Portugal	16	7	7	9	5	12	-25%	-
Romania	21	14	5	11	13	8	-62%	-
Slovenia	0	6	2	1	1	3	-	-
Slovakia	-	3	1	2	1	2	-	-
Finland	10	3	3	3	3	-	-	-
Sweden	2	4	3	1	-	-		
EU	430	445	388	356	381	415	-4%	7%
Iceland	0	0	0	0	1	1	-	-
Norway	2	3	4	5	7	1	-	-
Switzerland	1	2	2	2	2	4	-	-

<sup>\*</sup>LT = Long term change of last available year over 2012.

Liechtenstein omitted because of extremely low number of total fatalities. Inconsistencies in the time series (values omitted) in Germany (2012-2013), and Poland (2012-2017) and missing values for Bulgaria (2017-2019) and Slovakia (2012-2015). EU totals have been calculated by imputation of the 2014 value for Germany, 2018 for Poland, and 2016 for Bulgaria and Slovakia.

<sup>\*</sup>ST = Short term change of last available year over 2019.

Table 11. Annual number of bus and coach occupant fatalities by country (2012, 2018-2022).

Country	2012	2018	2019	2020	2021	2022	LT*	ST*
Belgium	4	2	1	1	3	3	-	-
Bulgaria	2	28	3	8	49	6	-	-
Czechia	2	3	3	3	1	2	-	-
Denmark	1	0	0	0	0	0	-	-
Germany	3	9	7	10	5	8	-	-
Estonia	2	1	2	0	0	0	-	-
Ireland	1	1	0	-	-	-	-	-
Greece	8	0	0	0	1	-	-	-
Spain	3	12	3	3	5	13	-	-
France	7	3	4	3	4	1	-	-
Croatia	8	0	0	0	10	12	-	-
Italy	7	5	5	1	2	7	-	-
Cyprus	0	0	0	0	0	0	-	-
Latvia	3	1	0	0	-	-	-	-
Lithuania	-	0	0	0	0	0	-	-
Luxembourg	0	0	0	0	0	0	-	-
Hungary	3	3	1	2	17	2	-	-
Malta	-	2	0	0	0	-	-	-
Netherlands	1	0	0	0	1	1	-	-
Austria	2	2	1	1	1	1	-	-
Poland	18	19	10	9	11	10	-44%	-
Portugal	2	1	29	1	0	4	-	-86%
Romania	10	11	27	4	8	7	-	-74%
Slovenia	0	0	1	0	0	0	-	-
Slovakia	-	2	12	1	0	0	-	-100%
Finland	1	5	0	0	0	-	-	-
Sweden	2	0	0	0	-	-	-	
EU	94	110	109	47	118	78	-17%	-28%
Iceland	0	1	0	0	0	0	-	-
Norway	2	0	1	1	1	1	-	-
Switzerland	32	3	1	1	0	0	-100%	-

<sup>\*</sup>LT = Long term change of last available year over 2012.

<sup>\*</sup>ST = Short term change of last available year over 2019.

# 3.2 Fatalities by age group

Figure 8. Fatalities by age group, EU 2022.

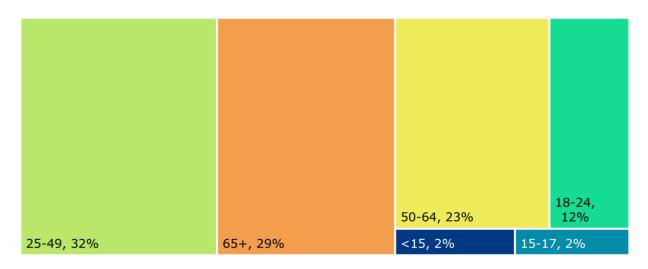


Figure 9. Short-term change of fatalities by age group, EU (2022 over 2019).

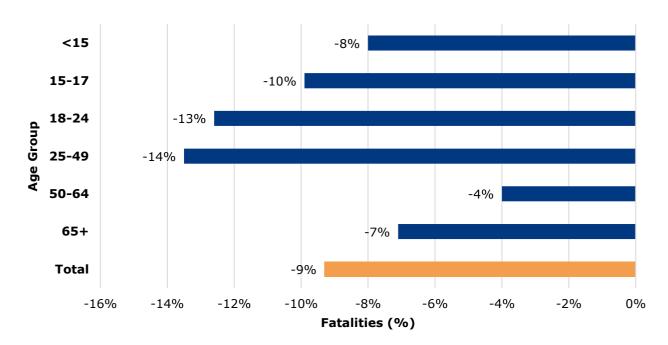


Figure 10. Long-term comparison of fatalities by age group, EU (2012 and 2022).

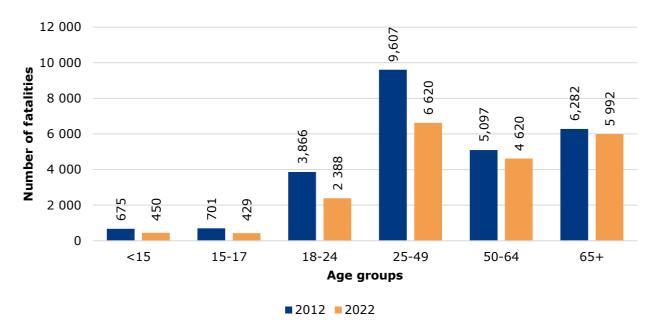


Table 12. Fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	2%	2%	12%	31%	27%	26%	526
Bulgaria	2022	2%	3%	9%	37%	23%	27%	529
Czechia	2022	3%	2%	9%	34%	22%	30%	524
Denmark	2022	4%	3%	11%	23%	24%	34%	154
Germany	2022	2%	2%	11%	24%	24%	37%	2,784
Estonia	2022	8%	4%	4%	41%	20%	22%	49
Ireland	2019	3%	1%	16%	38%	16%	25%	140
Greece	2021	1%	2%	14%	38%	20%	25%	609
Spain	2022	1%	2%	10%	37%	24%	27%	1,735
France	2022	2%	3%	17%	33%	19%	27%	3,260
Croatia	2022	3%	1%	14%	35%	23%	24%	275
Italy	2022	1%	2%	11%	32%	23%	31%	3,107
Cyprus	2022	3%	0%	27%	38%	14%	19%	37
Latvia	2020	5%	2%	12%	35%	24%	22%	131
Lithuania	2022	3%	1%	15%	40%	22%	19%	119
Luxembourg	2022	0%	3%	6%	42%	22%	28%	36
Hungary	2022	2%	1%	9%	35%	25%	28%	532
Malta	2021	-	-	-	-	-	-	9
Netherlands	2022	3%	3%	11%	22%	18%	43%	653
Austria	2022	4%	3%	11%	26%	25%	32%	370
Poland	2022	3%	2%	11%	41%	20%	24%	1,893
Portugal	2022	2%	1%	11%	35%	23%	27%	618
Romania	2022	4%	2%	9%	29%	29%	27%	1,630
Slovenia	2022	1%	1%	4%	32%	26%	37%	85
Slovakia	2022	2%	1%	11%	42%	24%	21%	265
Finland	2021	2%	5%	12%	32%	16%	32%	225
Sweden	2020	3%	4%	15%	26%	19%	33%	204
EU	2022	2%	2%	12%	32%	23%	29%	20,499
Iceland	2022	-	-	-	-	-	-	9
Norway	2022	2%	1%	14%	22%	28%	33%	116
Switzerland	2022	3%	2%	12%	26%	19%	38%	241

# 3.3 Fatalities by mode of transport and age group

Table 13. Pedestrian fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	6%	1%	10%	24%	27%	31%	78
Bulgaria	2022	3%	3%	5%	27%	16%	45%	92
Czechia	2022	4%	0%	2%	30%	23%	41%	86
Denmark	2022	11%	4%	0%	32%	21%	32%	28
Germany	2022	6%	2%	5%	16%	15%	56%	373
Estonia	2022	27%	9%	0%	18%	9%	36%	11
Ireland	2019	4%	4%	7%	30%	33%	22%	27
Greece	2021	4%	1%	0%	17%	31%	47%	90
Spain	2022	2%	1%	5%	22%	13%	57%	343
France	2022	4%	1%	8%	25%	18%	45%	482
Croatia	2022	7%	2%	2%	14%	21%	54%	43
Italy	2022	3%	1%	3%	16%	18%	59%	483
Cyprus	2022	-	-	-	-	-	-	6
Latvia	2020	8%	0%	3%	35%	20%	35%	40
Lithuania	2022	0%	0%	7%	30%	23%	40%	30
Luxembourg	2022	-	-	-	-	-	-	3
Hungary	2022	5%	0%	2%	22%	26%	45%	125
Malta	2021	-	-	-	-	-	-	4
Netherlands	2022	3%	0%	13%	16%	18%	50%	62
Austria	2022	8%	4%	4%	16%	14%	53%	49
Poland	2022	2%	2%	5%	25%	27%	39%	457
Portugal	2022	3%	2%	3%	19%	29%	45%	107
Romania	2022	5%	1%	3%	20%	31%	40%	527
Slovenia	2022	0%	0%	7%	13%	20%	60%	15
Slovakia	2022	1%	0%	11%	29%	29%	30%	70
Finland	2021	4%	4%	4%	17%	21%	50%	24
Sweden	2020	8%	0%	4%	12%	12%	64%	25
EU	2022	4%	1%	5%	21%	22%	47%	3,680
Iceland	2022	-	-	-	-	-	-	4
Norway	2022	17%	0%	8%	17%	17%	42%	12
Switzerland	2022	11%	3%	3%	22%	14%	47%	36

Shares (%) omitted for countries with less than 10 fatalities.

Table 14. Cyclist fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	0%	4%	4%	19%	29%	44%	102
Bulgaria	2022	12%	0%	0%	32%	20%	36%	25
Czechia	2022	2%	0%	0%	22%	28%	48%	54
Denmark	2022	0%	4%	4%	17%	22%	52%	23
Germany	2022	1%	1%	2%	12%	26%	59%	474
Estonia	2022	-	-	-	-	-	-	3
Ireland	2019	-	-	-	-	-	-	8
Greece	2021	0%	8%	8%	23%	31%	31%	13
Spain	2022	0%	1%	1%	35%	32%	31%	81
France	2022	3%	2%	5%	16%	27%	48%	245
Croatia	2022	-	-	-	-	-	-	9
Italy	2022	3%	2%	3%	19%	25%	48%	203
Cyprus	2022	-	-	-	-	-	-	4
Latvia	2020	0%	6%	6%	38%	25%	25%	16
Lithuania	2022	-	-	-	-	-	-	5
Luxembourg	2022	-	-	-	-	-	-	1
Hungary	2022	2%	2%	2%	21%	29%	43%	42
Malta	2021	-	-	-	-	-	-	0
Netherlands	2022	5%	4%	3%	6%	19%	64%	220
Austria	2022	5%	2%	2%	7%	30%	55%	44
Poland	2022	5%	1%	2%	23%	27%	44%	170
Portugal	2022	0%	3%	7%	36%	23%	32%	31
Romania	2022	2%	2%	2%	14%	39%	42%	160
Slovenia	2022	8%	0%	0%	17%	25%	50%	12
Slovakia	2022	0%	0%	4%	42%	27%	27%	26
Finland	2021	4%	0%	4%	4%	13%	75%	24
Sweden	2020	6%	0%	0%	6%	25%	63%	16
EU	2022	3%	2%	3%	17%	26%	50%	2,011
Iceland	2022	-	-	-	-	-	-	0
Norway	2022	-	-	-	-	-	-	6
Switzerland	2022	2%	0%	2%	17%	21%	57%	42

Table 15. Moped fatalities (%) by age group and by country for the last recorded year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	0%	6%	18%	24%	29%	24%	17
Bulgaria	2022	-	-	-	-	-	-	0
Czechia	2022	-	-	-	-	-	-	3
Denmark	2022	-	-	-	-	-	-	9
Germany	2022	0%	11%	5%	16%	19%	49%	57
Estonia	2022	-	-	-	-	-	-	3
Ireland	2019	-	-	-	-	-	-	0
Greece	2021	0%	5%	14%	14%	24%	43%	21
Spain	2022	0%	17%	11%	25%	31%	17%	36
France	2022	4%	27%	23%	25%	14%	7%	124
Croatia	2022	-	-	-	-	-	-	8
Italy	2022	3%	23%	11%	23%	19%	21%	70
Cyprus	2022	-	-	-	-	-	-	1
Latvia	2020	-	-	-	-	-	-	2
Lithuania	2022	-	-	-	-	-	-	1
Luxembourg	2022	-	-	-	-	-	-	0
Hungary	2022	0%	0%	0%	25%	17%	58%	12
Malta	2021	-	-	-	-	-	-	0
Netherlands	2022	0%	21%	23%	8%	18%	31%	39
Austria	2022	-	-	-	-	-	-	8
Poland	2022	2%	4%	6%	26%	30%	32%	53
Portugal	2022	0%	6%	9%	14%	34%	37%	35
Romania	2022	4%	0%	4%	17%	38%	38%	24
Slovenia	2022	-	-	-	-	-	-	3
Slovakia	2022	-	-	-	-	-	-	8
Finland	2021	-	-	-	-	-	-	4
Sweden	2020	-	-	-	-	-	-	4
EU	2022	2%	16%	12%	21%	23%	26%	542
Iceland	2022	-	-	-	-	-	-	0
Norway	2022	-	-	-	-	-	-	0
Switzerland	2022	-	-	-	-	-	-	6

Table 16. Motorcycle fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	0%	0%	11%	42%	39%	9%	65
Bulgaria	2022	0%	0%	10%	62%	18%	10%	39
Czechia	2022	1%	6%	10%	47%	23%	14%	71
Denmark	2022	0%	0%	25%	63%	6%	6%	16
Germany	2022	0%	5%	13%	32%	36%	13%	492
Estonia	2022	-	-	-	-	-	-	2
Ireland	2019	0%	0%	25%	56%	13%	6%	16
Greece	2021	1%	4%	20%	51%	17%	7%	208
Spain	2022	0%	1%	9%	54%	29%	7%	399
France	2022	1%	2%	16%	46%	29%	8%	594
Croatia	2022	0%	2%	17%	52%	25%	4%	48
Italy	2022	1%	3%	14%	46%	27%	10%	780
Cyprus	2022	-	-	-	-	-	-	9
Latvia	2020	-	-	-	-	-	-	6
Lithuania	2022	0%	0%	15%	85%	0%	0%	13
Luxembourg	2022	-	-	-	-	-	-	8
Hungary	2022	0%	2%	9%	49%	38%	2%	45
Malta	2021	-	-	-	-	-	-	2
Netherlands	2022	0%	0%	23%	36%	34%	7%	44
Austria	2022	0%	2%	9%	35%	36%	18%	55
Poland	2022	0%	2%	12%	68%	13%	4%	158
Portugal	2022	0%	0%	11%	63%	21%	4%	140
Romania	2022	0%	5%	21%	54%	18%	2%	61
Slovenia	2022	0%	0%	0%	67%	33%	0%	12
Slovakia	2022	0%	0%	11%	58%	26%	5%	19
Finland	2021	4%	11%	14%	32%	25%	14%	28
Sweden	2020	0%	0%	18%	50%	25%	7%	28
EU	2022	0%	3%	14%	47%	27%	9%	3,358
Iceland	2022	-	-	-	-	-	-	0
Norway	2022	0%	5%	14%	29%	38%	14%	21
Switzerland	2022	0%	7%	17%	37%	28%	11%	46

Table 17. Car occupant fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	1%	0%	17%	38%	20%	23%	208
Bulgaria	2022	2%	4%	11%	37%	22%	24%	323
Czechia	2022	4%	1%	14%	34%	20%	28%	276
Denmark	2022	4%	3%	16%	13%	27%	37%	68
Germany	2022	2%	2%	16%	28%	20%	32%	1,190
Estonia	2022	0%	0%	8%	54%	25%	13%	24
Ireland	2019	3%	1%	21%	31%	12%	32%	81
Greece	2021	0%	1%	17%	40%	14%	27%	226
Spain	2022	1%	2%	15%	37%	20%	26%	679
France	2022	2%	2%	22%	32%	14%	28%	1,565
Croatia	2022	4%	1%	21%	37%	19%	19%	143
Italy	2022	1%	1%	14%	31%	21%	32%	1,358
Cyprus	2022	0%	0%	46%	27%	18%	9%	11
Latvia	2020	5%	2%	21%	31%	25%	16%	61
Lithuania	2022	3%	2%	24%	39%	17%	15%	59
Luxembourg	2022	0%	0%	9%	39%	17%	35%	23
Hungary	2022	2%	2%	14%	40%	21%	21%	271
Malta	2021	-	-	-	-	-	-	3
Netherlands	2022	4%	1%	15%	38%	13%	30%	224
Austria	2022	3%	3%	14%	28%	23%	28%	180
Poland	2022	3%	2%	17%	47%	15%	17%	913
Portugal	2022	4%	1%	15%	30%	17%	34%	211
Romania	2022	4%	2%	15%	37%	25%	18%	698
Slovenia	2022	0%	0%	10%	24%	19%	48%	21
Slovakia	2022	3%	1%	14%	45%	20%	18%	132
Finland	2021	2%	5%	15%	40%	14%	24%	127
Sweden	2020	4%	5%	19%	25%	17%	31%	106
EU	2022	2%	2%	16%	35%	19%	27%	9,181
Iceland	2022	-	-	-	-	-	-	3
Norway	2022	0%	0%	14%	22%	21%	43%	58
Switzerland	2022	2%	0%	22%	26%	14%	36%	87

# 3.4 Fatalities by gender

Figure 11. Fatalities by gender, EU 2022.



Figure 12. Fatalities by gender and transport mode, EU 2022.

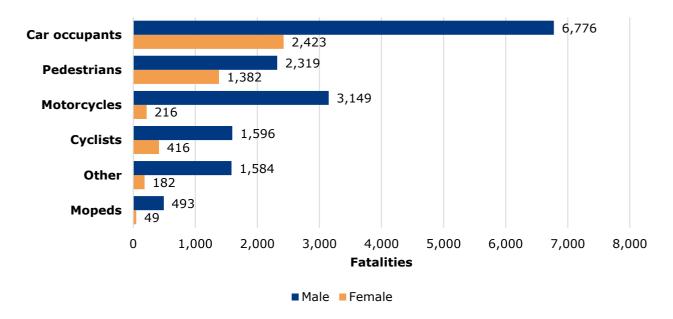


Figure 13. Fatalities by gender and age group, EU 2022.

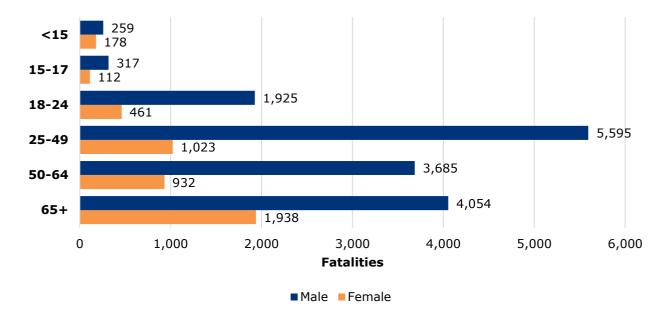


Table 18. Male fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	1%	1%	13%	32%	27%	25%	415
Bulgaria	2022	1%	2%	9%	40%	24%	24%	391
Czechia	2022	1%	2%	8%	39%	24%	27%	394
Denmark	2022	3%	3%	14%	25%	22%	33%	118
Germany	2022	1%	2%	11%	26%	26%	33%	2,101
Estonia	2022	9%	0%	3%	47%	19%	22%	32
Ireland	2019	3%	2%	20%	42%	14%	19%	105
Greece	2021	1%	2%	15%	40%	21%	22%	511
Spain	2022	1%	2%	10%	41%	25%	23%	1,344
France	2022	2%	3%	18%	35%	19%	23%	2,541
Croatia	2022	4%	1%	16%	38%	23%	19%	211
Italy	2022	1%	2%	11%	34%	24%	28%	2,540
Cyprus	2022	3%	0%	26%	39%	13%	19%	31
Latvia	2020	3%	1%	14%	40%	25%	17%	89
Lithuania	2022	2%	1%	15%	52%	17%	13%	87
Luxembourg	2022	0%	5%	5%	50%	23%	18%	22
Hungary	2022	2%	1%	11%	37%	25%	24%	387
Malta	2021	-	-	-	-	-	-	6
Netherlands	2022	3%	3%	12%	26%	18%	38%	457
Austria	2022	3%	3%	11%	29%	26%	29%	267
Poland	2022	2%	1%	12%	47%	20%	18%	1,435
Portugal	2022	1%	1%	11%	37%	24%	25%	500
Romania	2022	3%	2%	9%	32%	29%	25%	1,242
Slovenia	2022	0%	2%	5%	39%	24%	30%	66
Slovakia	2022	1%	1%	11%	44%	25%	18%	216
Finland	2021	2%	6%	12%	35%	17%	27%	169
Sweden	2020	2%	5%	15%	27%	22%	30%	158
EU	2022	2%	2%	12%	35%	23%	26%	15,835
Iceland	2022	-	-	-	-	-	-	8
Norway	2022	1%	1%	13%	22%	31%	31%	86
Switzerland	2022	3%	2%	14%	26%	18%	37%	181

Table 19. Female fatalities (%) by age group and by country for the last available year.

Country	Year	<15	15-17	18-24	25-49	50-64	65+	Total
Belgium	2022	2%	3%	10%	27%	27%	32%	108
Bulgaria	2022	5%	7%	8%	28%	17%	36%	138
Czechia	2022	0%	1%	16%	20%	21%	43%	117
Denmark	2022	8%	3%	3%	17%	31%	39%	36
Germany	2022	3%	3%	10%	17%	19%	48%	683
Estonia	2022	6%	13%	6%	31%	19%	25%	16
Ireland	2019	3%	0%	6%	26%	23%	43%	35
Greece	2021	3%	2%	12%	26%	14%	43%	98
Spain	2022	2%	1%	9%	27%	19%	42%	390
France	2022	4%	2%	14%	23%	17%	42%	719
Croatia	2022	2%	3%	9%	22%	23%	41%	64
Italy	2022	2%	2%	10%	23%	21%	42%	567
Cyprus	2022	-	-	-	-	-	-	6
Latvia	2020	7%	2%	10%	24%	24%	33%	42
Lithuania	2022	3%	0%	16%	10%	32%	39%	31
Luxembourg	2022	0%	0%	7%	29%	21%	43%	14
Hungary	2022	4%	2%	3%	30%	23%	37%	145
Malta	2021	-	-	-	-	-	-	3
Netherlands	2022	5%	2%	8%	15%	16%	54%	196
Austria	2022	5%	5%	11%	19%	20%	40%	103
Poland	2022	5%	4%	9%	23%	18%	40%	457
Portugal	2022	6%	2%	9%	27%	21%	35%	118
Romania	2022	8%	2%	8%	20%	29%	35%	388
Slovenia	2022	5%	0%	0%	5%	32%	58%	19
Slovakia	2022	4%	0%	10%	31%	22%	33%	49
Finland	2021	2%	4%	11%	23%	13%	48%	56
Sweden	2020	9%	0%	15%	20%	11%	46%	46
EU	2022	4%	2%	10%	22%	20%	42%	4,644
Iceland	2022	-	-	-	-	-	-	1
Norway	2022	3%	0%	17%	23%	20%	37%	30
Switzerland	2022	5%	0%	7%	27%	20%	42%	60

Table 20. Female share (%) of fatalities by mode of transport and by country for the last available year.

Country	Year	Pedestrians	Cyclists	Mopeds	Motorcycles	Car occupants
Belgium	2022	39%	% 25°	<b>6</b> 24%	2%	20%
Bulgaria	2022	42%	6 12°	<b>/</b> o	10%	27%
Czechia	2022	36%	% <b>1</b> 59	<b>/</b> o	7%	26%
Denmark	2022	43%	% 26°	<b>/</b> o	0%	25%
Germany	2022	47%	6 24°	<b>/</b> 9%	7%	28%
Estonia	2022	45%	6			29%
Ireland	2019	26%	6		0%	32%
Greece	2021	36%	<b>6</b>	<b>6</b> 10%	5%	20%
Spain	2022	38%	6 4º	<b>/</b> 6 14%	7%	29%
France	2022	38%	6 13°	6%	8%	27%
Croatia	2022	40%	6		8%	20%
Italy	2022	33%	6 16°	<b>6</b> 7%	7%	22%
Cyprus	2022					36%
Latvia	2020	51%	% 31°	<b>%</b>		25%
Lithuania	2022	479	6		0%	25%
Luxembourg	2022			_		43%
Hungary	2022	37%		_		31%
Netherlands	2022	48%	% 33°	% <b>21</b> %	7%	34%
Austria	2022	45%	6 18°	<b>%</b>	4%	36%
Poland	2022	36%	% 32°	6 4%	6%	24%
Portugal	2022	30%				31%
Romania	2022	33%	% <b>■</b> 89	% 0%	3%	27%
Slovenia	2022	47%			0%	
Slovakia	2022	23%	% 15°	<b>/</b> o	0%	22%
Finland	2021	46%	% 42°	<b>/</b> o	4%	26%
Sweden	2020	44%			4%	25%
EU	2022	37%		<b>6</b> 9%	6%	26%
Norway	2022	42%	% <u> </u>		5%	36%
Switzerland	2022	36%	% 26°	<b>/</b> o	13%	28%

# 3.5 Fatalities by road type

Figure 14. Fatalities by road type, EU 2022.



Figure 15. Fatalities by road type and transport mode, EU 2022.

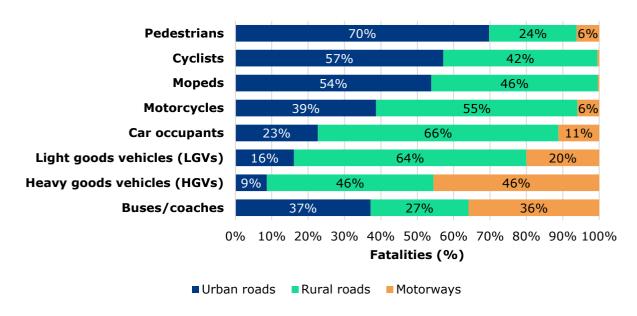


Figure 16. Fatalities by road type and country, last available year.

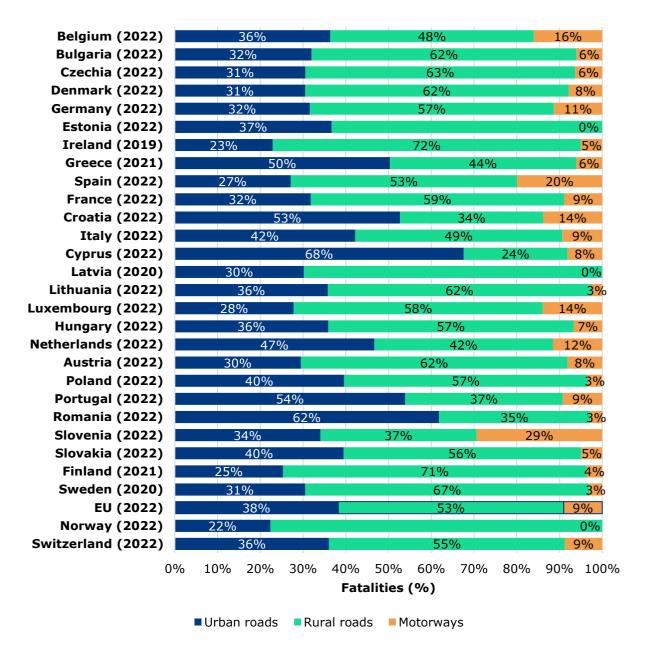


Table 21. Pedestrian fatalities (%) by road type and by country for the last available year.

Country	Year	<b>Urban roads</b>	Rural roads	Motorways	Total
Belgium	2022	65%	24%	11%	83
Bulgaria	2022	67%	29%	4%	94
Czechia	2022	69%	26%	6%	86
Denmark	2022	50%	39%	11%	28
Germany	2022	74%	20%	6%	375
Estonia	2022	55%	46%	0%	11
Ireland	2019	41%	56%	4%	27
Greece	2021	77%	18%	5%	95
Spain	2022	61%	22%	17%	348
France	2022	62%	26%	12%	482
Croatia	2022	91%	9%	0%	43
Italy	2022	77%	21%	3%	485
Cyprus	2022	-	-	-	6
Latvia	2020	47%	54%	0%	43
Lithuania	2022	55%	42%	3%	31
Luxembourg	2022	-	-	-	3
Hungary	2022	73%	22%	5%	126
Malta	2021	-	-	-	4
Netherlands	2022	79%	15%	7%	62
Austria	2022	69%	22%	8%	49
Poland	2022	67%	32%	2%	460
Portugal	2022	70%	27%	3%	107
Romania	2022	79%	19%	3%	530
Slovenia	2022	67%	13%	20%	15
Slovakia	2022	71%	26%	3%	70
Finland	2021	50%	38%	13%	24
Sweden	2020	71%	17%	13%	24
EU	2022	70%	24%	6%	3,711
Iceland	2022	-	-	-	4
Norway	2022	42%	58%	0%	12
Switzerland	2022	75%	19%	6%	36

Liechtenstein omitted because of extremely low number of total fatalities.

The share of pedestrians that die on motorways include vehicle occupants who have left their vehicles on the motorway.

Table 22. Cyclist fatalities (%) by road type and by country for the last available year.

Country	Year	Urban roads	Rural roads	Motorways	Total
Belgium	2022	49%	49%	2%	102
Bulgaria	2022	64%	36%	0%	25
Czechia	2022	44%	56%	0%	54
Denmark	2022	65%	35%	0%	23
Germany	2022	58%	42%	0%	474
Estonia	2022	-	-	-	3
Ireland	2019	-	-	-	8
Greece	2021	71%	29%	0%	14
Spain	2022	26%	67%	7%	81
France	2022	45%	55%	0%	245
Croatia	2022	-	-	-	9
Italy	2022	60%	40%	0%	205
Cyprus	2022	-	-	-	4
Latvia	2020	24%	77%	0%	17
Lithuania	2022	-	-	-	5
Luxembourg	2022	-	-	-	1
Hungary	2022	67%	33%	0%	42
Malta	2021	-	-	-	0
Netherlands	2022	62%	38%	0%	220
Austria	2022	59%	41%	0%	44
Poland	2022	52%	48%	0%	170
Portugal	2022	65%	36%	0%	31
Romania	2022	85%	15%	0%	160
Slovenia	2022	58%	42%	0%	12
Slovakia	2022	62%	39%	0%	26
Finland	2021	71%	29%	0%	24
Sweden	2020	67%	33%	0%	15
EU	2022	57%	42%	0%	2,014
Iceland	2022	-	-	-	0
Norway	2022	-	-	-	6
Switzerland	2022	48%	52%	0%	42

Table 23. Moped fatalities (%) by road type and by country for the last available year.

Country	Year	Urban roads	Rural roads	Motorways	Total
Belgium	2022	53%	47%	0%	17
Bulgaria	2022	-	-	-	0
Czechia	2022	-	-	-	3
Denmark	2022	-	-	-	9
Germany	2022	49%	51%	0%	57
Estonia	2022	-	-	-	3
Ireland	2019	-	-	-	0
Greece	2021	48%	52%	0%	21
Spain	2022	44%	53%	3%	36
France	2022	45%	54%	1%	124
Croatia	2022	-	-	-	8
Italy	2022	59%	41%	0%	70
Cyprus	2022	-	-	-	1
Latvia	2020	-	-	-	2
Lithuania	2022	-	-	-	1
Luxembourg	2022	-	-	-	0
Hungary	2022	83%	17%	0%	12
Malta	2021	-	-	-	0
Netherlands	2022	77%	23%	0%	39
Austria	2022	-	-	-	8
Poland	2022	49%	51%	0%	53
Portugal	2022	71%	29%	0%	35
Romania	2022	75%	25%	0%	24
Slovenia	2022	-	-	-	3
Slovakia	2022	-	-	-	8
Finland	2021	-	-	-	4
Sweden	2020	-	-	-	4
EU	2022	54%	46%	0%	542
Iceland	2022	-	-	_	0
Norway	2022	-	-	-	0
Switzerland	2022	-	-	-	6

Table 24. Motorcycle fatalities (%) by road type and by country for the last available year.

Country	Year	Urban roads	Rural roads	Motorways	Total
Belgium	2022	30%	55%	15%	66
Bulgaria	2022	41%	59%	0%	39
Czechia	2022	23%	73%	4%	71
Denmark	2022	56%	44%	0%	16
Germany	2022	18%	75%	7%	492
Estonia	2022	-	-	-	2
Ireland	2019	25%	63%	13%	16
Greece	2021	61%	34%	5%	214
Spain	2022	31%	52%	17%	401
France	2022	33%	63%	5%	594
Croatia	2022	52%	48%	0%	48
Italy	2022	49%	48%	3%	781
Cyprus	2022	-	-	-	9
Latvia	2020	-	-	-	6
Lithuania	2022	39%	54%	8%	13
Luxembourg	2022	-	-	-	8
Hungary	2022	27%	69%	4%	45
Malta	2021	-	-	-	2
Netherlands	2022	39%	52%	9%	44
Austria	2022	18%	80%	2%	55
Poland	2022	48%	51%	1%	158
Portugal	2022	63%	34%	4%	140
Romania	2022	72%	28%	0%	61
Slovenia	2022	17%	67%	17%	12
Slovakia	2022	21%	74%	5%	19
Finland	2021	36%	61%	4%	28
Sweden	2020	26%	74%	0%	27
EU	2022	39%	55%	6%	3,367
Iceland	2022	-	-	-	0
Norway	2022	14%	86%	0%	21
Switzerland	2022	24%	63%	13%	46

Table 25. Car occupant fatalities (%) by road type and by country for the last available year.

Country	Year	Urban roads	Rural roads	Motorways	Total
Belgium	2022	23%	56%	21%	215
Bulgaria	2022	19%	74%	7%	323
Czechia	2022	19%	75%	6%	278
Denmark	2022	10%	81%	9%	68
Germany	2022	14%	71%	15%	1,192
Estonia	2022	17%	83%	0%	24
Ireland	2019	20%	77%	4%	81
Greece	2021	35%	58%	7%	226
Spain	2022	10%	68%	23%	681
France	2022	21%	69%	11%	1,565
Croatia	2022	48%	39%	14%	143
Italy	2022	26%	61%	13%	1,375
Cyprus	2022	36%	55%	9%	11
Latvia	2020	23%	77%	0%	64
Lithuania	2022	29%	70%	2%	59
Luxembourg	2022	26%	61%	13%	23
Hungary	2022	15%	77%	8%	273
Malta	2021	-	-	-	3
Netherlands	2022	21%	53%	25%	225
Austria	2022	16%	73%	11%	180
Poland	2022	23%	74%	3%	913
Portugal	2022	43%	39%	19%	211
Romania	2022	44%	53%	3%	698
Slovenia	2022	14%	38%	48%	21
Slovakia	2022	19%	75%	6%	132
Finland	2021	11%	86%	3%	127
Sweden	2020	21%	77%	3%	102
EU	2022	23%	66%	11%	9,213
Iceland	2022	-	-	-	3
Norway	2022	14%	86%	0%	58
Switzerland	2022	23%	63%	14%	87

# 4. Crash characteristics

## 4.1 Fatalities by time of crash

Figure 17. Fatalities by month and selected transport modes, EU 2022.

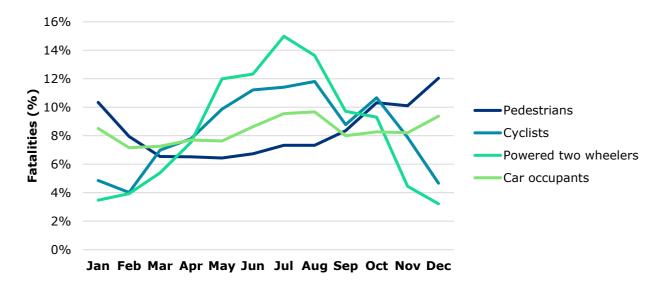


Table 26. Fatalities (%) by month and by country for the last available year

Part 1: January - June.

Country	Year	Jan	Feb	Mar	Apr	May	Jun	Total
Belgium	2022	7%	9%	9%	9%	8%	11%	540
Bulgaria	2022	6%	5%	6%	9%	7%	8%	531
Czechia	2022	7%	5%	8%	8%	9%	11%	527
Denmark	2022	5%	8%	5%	8%	7%	8%	154
Germany	2022	5%	6%	7%	8%	10%	10%	2,788
Estonia	2022	10%	12%	4%	10%	4%	12%	49
Ireland	2019	10%	10%	8%	6%	8%	8%	140
Greece	2021	6%	5%	6%	6%	10%	8%	624
Spain	2022	8%	7%	6%	8%	8%	8%	1,746
France	2022	8%	7%	7%	8%	9%	9%	3,260
Croatia	2022	7%	8%	4%	5%	6%	10%	275
Italy	2022	7%	6%	6%	8%	8%	10%	3,159
Cyprus	2022	8%	8%	8%	5%	8%	30%	37
Latvia	2020	12%	5%	6%	4%	4%	9%	139
Lithuania	2022	6%	8%	3%	12%	3%	8%	120
Luxembourg	2022	6%	6%	6%	0%	11%	8%	36
Hungary	2022	7%	6%	6%	6%	12%	7%	537
Malta	2021	-	-	-	-	-	-	9
Netherlands	2022	6%	6%	7%	7%	10%	10%	655
Austria	2022	5%	7%	8%	9%	11%	11%	370
Poland	2022	8%	7%	8%	7%	8%	10%	1,896
Portugal	2022	8%	6%	7%	6%	11%	8%	618
Romania	2022	10%	7%	6%	8%	7%	7%	1,633
Slovenia	2022	5%	5%	7%	11%	12%	21%	85
Slovakia	2022	11%	7%	8%	7%	6%	12%	266
Finland	2021	6%	4%	4%	8%	9%	8%	225
Sweden	2020	10%	7%	4%	8%	9%	8%	204
EU	2022	7%	6%	7%	8%	9%	9%	20,623
Iceland	2022	-	-	-	-	-	-	9
Norway	2022	2%	2%	5%	6%	16%	16%	116
Switzerland	2022	3%	6%	6%	8%	10%	16%	241

Table 26. Fatalities (%) by month and by country for the last available year

Part 2: July - December.

Country	Year	Jul	Aug	Sep	Oct	Nov	Dec	Total
Belgium	2022	9%	9%	7%	8%	6%	8%	540
Bulgaria	2022	11%	10%	7%	9%	12%	9%	531
Czechia	2022	8%	9%	9%	11%	8%	7%	527
Denmark	2022	10%	14%	11%	7%	11%	6%	154
Germany	2022	12%	11%	9%	9%	7%	7%	2,788
Estonia	2022	4%	8%	8%	6%	6%	14%	49
Ireland	2019	6%	6%	13%	7%	8%	11%	140
Greece	2021	12%	11%	12%	8%	10%	8%	624
Spain	2022	11%	9%	8%	8%	8%	9%	1,746
France	2022	10%	9%	8%	9%	7%	9%	3,260
Croatia	2022	10%	17%	10%	11%	6%	8%	275
Italy	2022	12%	10%	9%	9%	7%	8%	3,159
Cyprus	2022	5%	3%	8%	5%	8%	3%	37
Latvia	2020	4%	12%	13%	8%	12%	10%	139
Lithuania	2022	8%	10%	10%	16%	10%	5%	120
Luxembourg	2022	22%	8%	6%	6%	11%	11%	36
Hungary	2022	11%	11%	9%	8%	8%	10%	537
Malta	2021	-	-	-	-	-	-	9
Netherlands	2022	10%	11%	9%	10%	8%	8%	655
Austria	2022	11%	13%	7%	8%	5%	5%	370
Poland	2022	9%	11%	8%	10%	8%	7%	1,896
Portugal	2022	9%	12%	9%	8%	7%	9%	618
Romania	2022	9%	11%	9%	10%	8%	10%	1,633
Slovenia	2022	9%	6%	7%	8%	5%	5%	85
Slovakia	2022	10%	9%	6%	8%	9%	9%	266
Finland	2021	12%	12%	9%	11%	11%	5%	225
Sweden	2020	9%	9%	10%	6%	11%	8%	204
EU	2022	10%	10%	9%	9%	8%	8%	20,623
Iceland	2022	-	-	-	-	-	-	9
Norway	2022	10%	16%	5%	5%	11%	7%	116
Switzerland	2022	10%	11%	5%	8%	8%	9%	241

Table 27. Fatalities (%) by day of week and by country for the last available year.

Country	Year	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total
Belgium	2022	12%	12%	12%	14%	12%	16%	21%	540
Bulgaria	2022	15%	13%	11%	13%	14%	18%	15%	531
Czechia	2022	17%	15%	13%	13%	16%	13%	13%	527
Denmark	2022	9%	20%	13%	18%	14%	13%	14%	154
Germany	2022	14%	14%	14%	15%	16%	14%	14%	2,788
Estonia	2022	10%	18%	14%	14%	20%	12%	10%	49
Ireland	2019	13%	9%	6%	17%	19%	11%	24%	140
Greece	2021	15%	12%	13%	14%	15%	15%	16%	624
Spain	2022	13%	13%	13%	12%	15%	19%	16%	1,746
France	2022	12%	12%	14%	13%	15%	17%	17%	3,260
Croatia	2022	12%	10%	11%	14%	16%	21%	17%	275
Italy	2022	13%	13%	12%	14%	14%	17%	17%	3,159
Cyprus	2022	14%	0%	24%	3%	14%	30%	16%	37
Latvia	2020	14%	14%	12%	14%	17%	18%	12%	139
Lithuania	2022	18%	18%	9%	8%	12%	17%	19%	120
Luxembourg	2022	17%	8%	14%	19%	11%	11%	19%	36
Hungary	2022	12%	14%	13%	16%	18%	15%	13%	537
Malta	2021	-	-	-	-	-	-	-	9
Netherlands	2022	13%	13%	15%	13%	15%	17%	13%	655
Austria	2022	13%	14%	15%	15%	14%	17%	13%	370
Poland	2022	14%	15%	14%	13%	16%	16%	13%	1,896
Portugal	2022	14%	11%	11%	11%	17%	17%	19%	618
Romania	2022	14%	16%	13%	16%	16%	12%	13%	1,633
Slovenia	2022	4%	25%	15%	19%	13%	12%	13%	85
Slovakia	2022	15%	16%	11%	12%	17%	15%	14%	266
Finland	2021	13%	11%	15%	14%	17%	18%	12%	225
Sweden	2020	14%	13%	17%	14%	13%	15%	14%	204
EU	2022	13%	13%	13%	14%	15%	16%	15%	20,623
Iceland	2022	-	-	-	-	-	-	-	9
Norway	2022	13%	13%	19%	12%	13%	13%	17%	116
Switzerland	2022	12%	14%	16%	15%	15%	14%	15%	241

Figure 18. Fatalities by day of week and selected transport modes, EU 2022.

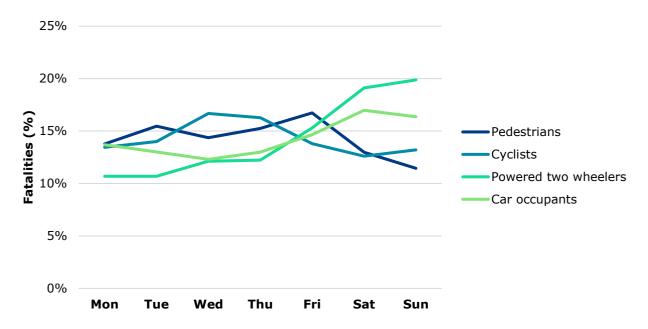


Figure 19. Fatalities by diurnal pattern and selected transport modes, EU 2022.

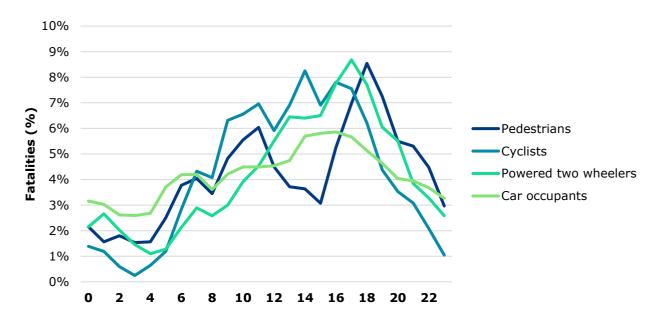


Table 28. Fatalities (%) by diurnal pattern and by country for the last available year.

Country	Year	0-2	3-5	6-8	9-11	12-14	15-17	18-20	21-23	Total
Belgium	2022	8%	10%	9%	16%	16%	19%	15%	7%	540
Bulgaria	2022	5%	5%	11%	14%	16%	19%	16%	13%	531
Czechia	2022	5%	7%	15%	14%	21%	17%	14%	8%	518
Denmark	2022	11%	5%	10%	18%	16%	22%	8%	11%	154
Germany	2022	6%	6%	11%	16%	19%	22%	13%	8%	2,788
Estonia	2022	12%	6%	6%	18%	16%	8%	22%	10%	49
Ireland	2019	16%	3%	13%	9%	16%	15%	21%	8%	140
Greece	2021	9%	8%	11%	13%	15%	16%	16%	13%	624
Spain	2022	6%	6%	13%	15%	15%	16%	17%	13%	1,746
France	2022	9%	8%	11%	14%	14%	19%	15%	10%	3,260
Croatia	2022	9%	12%	9%	9%	14%	14%	22%	11%	275
Italy	2022	10%	6%	10%	15%	14%	17%	18%	11%	3,159
Cyprus	2022	16%	5%	8%	11%	3%	22%	22%	14%	37
Latvia	2020	7%	3%	10%	15%	13%	17%	23%	12%	138
Lithuania	2022	6%	6%	11%	10%	20%	14%	20%	13%	120
Luxembourg	2022	11%	3%	3%	11%	17%	22%	19%	14%	36
Hungary	2022	5%	6%	13%	19%	16%	19%	14%	8%	537
Malta	2021	-	-	-	-	-	-	-	-	9
Netherlands	2022	6%	5%	8%	15%	19%	23%	15%	9%	655
Austria	2022	5%	7%	13%	17%	18%	20%	14%	8%	370
Poland	2022	5%	7%	12%	12%	17%	20%	16%	11%	1,896
Portugal	2022	7%	6%	14%	13%	14%	18%	19%	9%	618
Romania	2022	5%	7%	12%	12%	15%	17%	20%	12%	1,633
Slovenia	2022	5%	0%	11%	26%	15%	17%	19%	8%	85
Slovakia	2022	6%	6%	14%	9%	17%	19%	15%	14%	266
Finland	2021	6%	3%	9%	16%	20%	17%	17%	12%	225
Sweden	2020	10%	7%	9%	11%	20%	19%	11%	12%	201
EU	2022	7%	7%	11%	14%	16%	19%	16%	10%	20,610
Iceland	2022	-	-	-	-	-	-	-	-	9
Norway	2022	10%	7%	9%	12%	14%	24%	15%	10%	116
Switzerland	2022	8%	5%	11%	12%	20%	26%	12%	7%	241

Category example: 3-5 = time (hours:minutes) between 03:00 and 05:59. Shares (%) omitted for countries with less than 10 fatalities.

## 4.2 Fatalities by junction type

Table 29. Fatalities (%) by junction and by country for the last available year.

Country	Year	Junction	Not at junction	Total
Belgium	2022	18%	82%	539
Bulgaria	2022	18%	82%	531
Czechia	2022	18%	82%	527
Denmark	2022	24%	76%	154
Germany	2022	20%	80%	2,788
Estonia	2022	13%	88%	48
Ireland	2019	15%	85%	140
Greece	2021	9%	92%	624
Spain	2022	21%	79%	1,746
France	2022	19%	81%	3,260
Croatia	2022	14%	86%	275
Italy	2022	18%	82%	3,159
Cyprus	2022	46%	54%	37
Latvia	2020	29%	71%	139
Lithuania	2022	10%	90%	120
Luxembourg	2022	3%	97%	36
Hungary	2022	18%	82%	537
Malta	2021	-	-	8
Netherlands	2022	39%	62%	644
Austria	2022	27%	73%	370
Poland	2022	14%	86%	1,896
Portugal	2022	12%	88%	611
Romania	2022	12%	88%	1,633
Slovenia	2022	9%	91%	85
Slovakia	2022	7%	93%	266
Finland	2021	20%	80%	225
Sweden	2020	23%	77%	195
EU	2022	18%	82%	20,593
Iceland	2022	-	-	9
Norway	2022	11%	89%	116
Switzerland	2022	11%	89%	241

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: Germany, Greece, Lithuania, and Switzerland.

Shares (%) omitted for countries with less than 10 fatalities.

# **5.** List of Figures

# **6. List of Tables**

available year42
Table 26. Fatalities (%) by month and by country for the last available year .44
Table 27. Fatalities (%) by day of week and by country for the last available
year46
Table 28. Fatalities (%) by diurnal pattern and by country for the last available
year48
Table 29. Fatalities (%) by junction and by country for the last available year
40

### 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/2021-07/cadas glossary v 3 8.pdf

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

#### **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.

#### **Seriously injured:**

Total number of seriously injured persons corrected by correction factors when needed. Injured (although not killed) in the road crash and, in principle, hospitalised for at least 24 hours within 30 days from the crash.

#### Crash / crash

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 thus affecting the reliability of cross-country comparisons.

#### **Urban roads** (roads inside urban areas):

Public roads inside urban boundary signs.

#### **Rural roads** (roads outside urban areas):

Public roads outside urban boundary signs, excluding motorways.

#### **Motorways:**

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.

### 7.2 COVID-19 pandemic

The impact of the global COVID-19 pandemic on the CARE data for 2020 and 2021 is clear. 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, with for example the number of fatalities increasing 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.

#### 7.3 More detailed data

This 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 figures/tables in the report.

#### 7.4 Data source

The main data source for this report is CARE (Community database on Crashes 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 November 2023.

### 7.5 Data cleaning

Road type: Malta 2020 'rural' coded to 'unknown'.

**Transport mode:** Heavy goods vehicles in Poland before 2018 and in Germany before 2014 include lorries. Thus, these data items have been recoded to 'LGVs + HGVs' and the separated categories have been set to missing. In EU totals imputed values have been used instead.

**Serious injuries:** Data from France (2012-2022) and the Netherlands (<2015) omitted due to problems in the time series.

**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 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. Calculation of reliable percentages requires a minimum of 10 cases.

## 7.7 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 EU 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.



