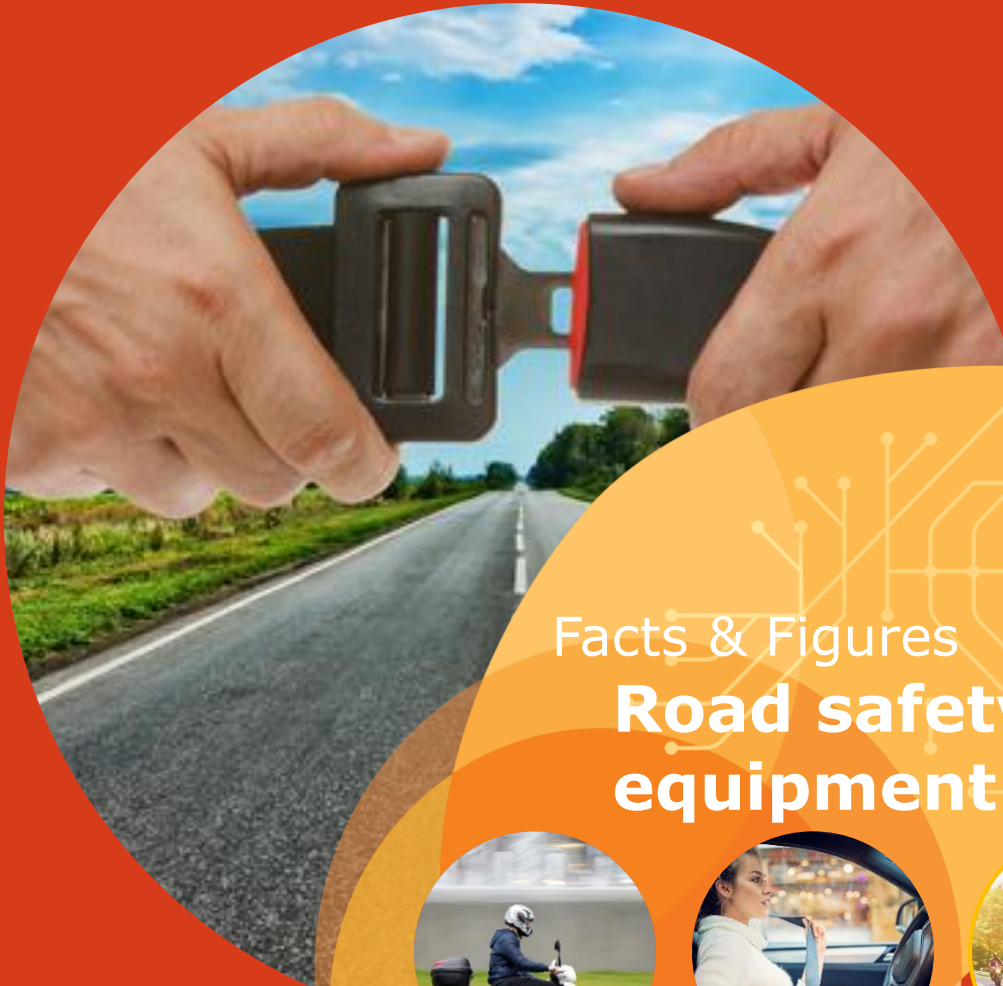




European
Commission



Facts & Figures
**Road safety protective
equipment**



This document is part of a series of 20 Facts and Figures reports. The purpose of these Facts and Figures reports is to provide recent statistics related to a specific road safety topic, for example a specific age group or transport mode. The most recent figures in this Facts and Figures report of 2024 refer to 2022. These reports can be found on the ERSO website (https://road-safety.transport.ec.europa.eu/statistics-and-analysis/data-and-analysis/facts-and-figures_en).

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1. Key facts

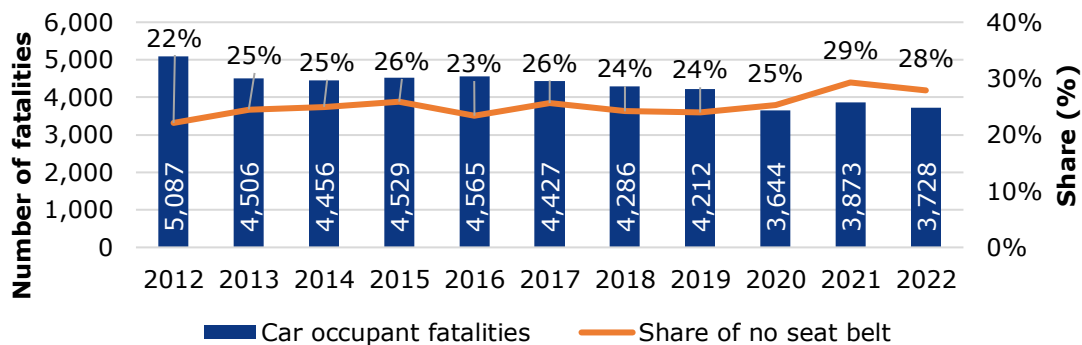
This report looks at the use of road safety protective equipment in EU and EFTA countries based on CARE data. It concerns the use of seat belts as well as motorcycle and moped helmets (powered two-wheelers). Child restraint systems are not covered in this report due to a lack of data but are covered in the thematic report on protective equipment. The information in this report is based on data for between 14 to 21 EU/EFTA countries. All observations reported were derived from the available data. The statistical significance of differences or relations between values has not been tested.

Use of protective equipment, 2022

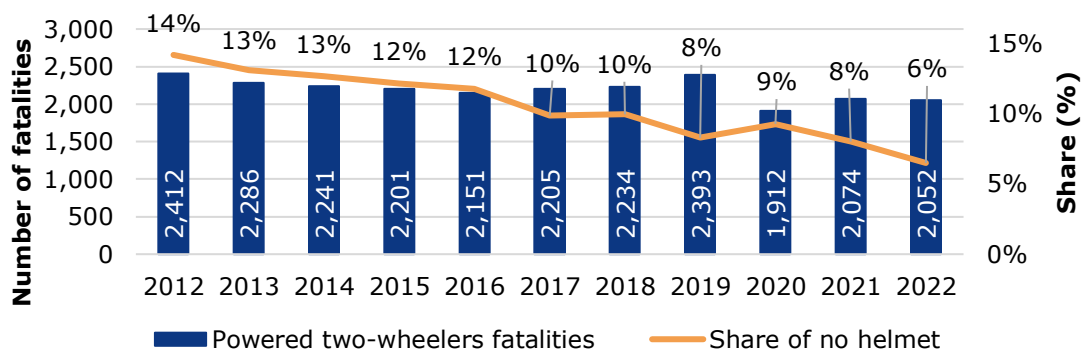


- 28% of all car occupants who died were not wearing a seat belt. In 2012 the share was 22% although the absolute number of fatalities without a seat belt has fallen.
- 7% of all powered two-wheelers who died were not wearing a helmet. In 2012 the share was 14%.

Trend in the number of car occupant fatalities



Trend in the number of powered two-wheelers fatalities



2. Summary

Seat belts are among the most effective passive measures to protect occupants of motorised vehicles from road injuries. They are designed to prevent or minimise injuries of occupants when a crash occurs. Reliable information about seat belt wearing by car occupant fatalities is available for 16 to 20 EU and EFTA countries. In these countries, in 2022, 28% of all car occupant fatalities were not wearing a seat belt.

Even though the use of seat belts on all seats in vehicles equipped with seat belts has been made obligatory in all EU countries by European legislation, available data (16 countries) show that many car occupant fatalities were not wearing a seat belt at the time of the crash:

- The share of car occupant fatalities without a seat belt varied between 16% and 64% in 2022
- Compared to 2019, the sharpest declines in the share of unrestrained car occupant fatalities were observed in Denmark (-52%), Bulgaria (-45%) and Slovenia (-40%), while the share of car occupant fatalities wearing to seat belt increased sharply in Poland (+53%).
- The share of unrestrained car occupant fatalities decreased on all road types between 2012 and 2022. The sharpest decline in car occupant fatalities was recorded on rural roads (-36%), followed by motorways (-26%) and urban roads (-21%).
- In 2022, 3 out of 4 unrestrained car occupant fatalities were men (77%).
- In 2022, 60% of unrestrained car occupant fatalities were aged between 25 and 64, followed by 11% of those under 25 and 19% of those over 65. While the share of unrestrained car occupant fatalities has fallen by 3 to 4 percentage points among 0 to 24 year olds and 25 to 64 year olds, the share among older citizens (65+ year olds) has increased by 7 percentage points.

An effective measure to protect riders of powered two-wheelers when a crash occurs is the helmet. In 2022, 6% of powered two-wheelers fatalities were not wearing a helmet at the time of the crash (based on information of 14 EU and EFTA countries) in spite of legislation requiring them to do so.

Powered two-wheelers fatalities in 2022 also differed in other respects:

- 80% of killed powered two-wheelers in 2022 were wearing a helmet on urban roads, compared to 94% on rural roads and 97% on motorways.
- 66% of powered two-wheelers fatalities wearing no helmet were between 25 and 64 years old.

- While the share of powered two-wheelers fatalities wearing no helmet among 0 to 24 year olds has dropped by 5 percentage points since 2012, the share of powered two-wheelers fatalities wearing no helmet has risen by 1 percentage point among senior citizens (65+ year olds) and by 4 percentage point among 25 to 64 year olds.

3. Seat belts

3.1 Absolute numbers of road fatalities

Table 1. Absolute number of car occupant fatalities by seat belt use per country in the EU and EFTA (2012-2022). Source: CARE

Country	Protective equipment	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bulgaria	Seat belt	144	146	156	178	183	116	106	108	79	108	87
	No seat belt	191	220	222	218	269	71	51	55	29	33	30
	Unknown/Not applicable	-	-	1	-	4	182	184	185	152	166	206
Czechia	Seat belt	243	200	238	265	265	201	246	245	196	169	197
	No seat belt	125	108	109	100	63	78	87	84	73	75	81
Denmark	Seat belt	56	38	54	39	49	60	42	54	56	39	47
	No seat belt	17	26	16	30	20	30	16	27	22	11	13
	Unknown/Not applicable	8	15	19	5	27	9	7	6	2	4	8
Estonia	Seat belt	26	21	23	21	19	16	12	11	4	10	14
	No seat belt	16	16	10	13	13	11	9	7	3	12	9
	Unknown/Not applicable	-	4	-	1	1	-	-	2	-	-	1
Ireland	Seat belt	28	35	52	43	53	46	29	50	42	42	42
	No seat belt	17	15	30	28	29	19	23	23	16	16	16
	Unknown/Not applicable	45	57	21	18	24	13	7	8	11	11	11
Greece	Seat belt	75	87	76	85	78	54	47	53	45	50	58
	No seat belt	141	145	115	126	163	126	134	81	87	87	106
	Unknown/Not applicable	167	115	98	103	99	105	86	68	73	89	97
Spain	Seat belt	585	515	515	487	515	525	510	437	359	403	458
	No seat belt	212	152	168	152	170	211	166	142	140	156	158
	Unknown/Not applicable	74	49	38	54	69	63	56	62	45	52	65
France	Seat belt	1,326	1,135	1,167	1,257	1,268	1,115	1,145	1,088	825	986	1,052
	No seat belt	354	291	306	325	309	305	179	0	0	0	0
	Unknown/Not applicable	42	43	45	46	42	44	54	64	44	45	45
Croatia	Seat belt	72	97	59	50	51	72	64	43	34	43	44
	No seat belt	66	63	51	65	51	66	56	70	61	67	77
	Unknown/Not applicable	48	35	31	49	46	49	34	28	31	19	22
Cyprus	Seat belt	5	8	6	10	4	6	3	9	8	6	2
	No seat belt	13	8	6	13	5	7	10	4	10	11	7
	Unknown/Not applicable	-	-	3	1	1	1	2	1	-	3	2
Lithuania	Seat belt	52	52	52	52	52	52	52	52	52	53	52
	No seat belt	41	41	43	44	5	12	27	26	26	23	22
	Unknown/Not applicable	-	-	1	4	71	36	-	-	-	1	-
Luxembourg	Seat belt	10	18	15	10	13	9	12	11	3	9	15
	No seat belt	10	9	6	3	5	2	6	3	2	3	5
	Unknown/Not applicable	2	3	3	3	1	2	1	2	4	3	3
Hungary	Seat belt	149	146	152	178	162	163	179	154	125	139	148
	No seat belt	103	108	103	124	106	113	111	119	93	126	125
	Unknown/Not applicable	1	-	1	2	1	1	1	-	1	2	-
Austria	Seat belt	183	125	126	159	133	117	134	143	106	111	121
	No seat belt	84	68	65	81	58	65	45	56	40	48	58
	Unknown/Not applicable	15	1	-	1	-	-	2	1	-	2	1
Poland	Seat belt	1,615	1,354	1,256	1,240	1,297	1,194	1,189	1,231	1,043	908	757
	No seat belt	-	94	90	92	120	101	102	102	119	186	156

Country	Protective equipment	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Portugal	Seat belt	147	122	133	139	127	142	152	132	122	123	118
	No seat belt	36	39	26	23	29	19	22	34	30	31	33
	Unknown/Not applicable	72	53	64	52	69	43	64	69	46	49	60
Romania	Seat belt	462	412	389	417	436	455	406	389	354	445	412
	No seat belt	335	309	334	370	349	357	331	293	263	354	286
	Unknown/Not applicable	1	-	1	-	-	-	-	-	-	1	-
Slovenia	Seat belt	31	16	28	21	28	17	22	18	20	18	15
	No seat belt	18	-	9	16	15	10	9	10	8	13	6
	Unknown/Not applicable	4	24	4	1	2	3	1	-	1	1	-
Slovakia	Seat belt	69	69	69	69	69	68	68	63	73	68	85
	No seat belt	49	49	49	49	49	70	45	56	50	52	38
	Unknown/Not applicable	9	9	9	9	9	18	7	5	5	9	9
Iceland	Seat belt	2	5	3	5	8	3	5	1	3	2	1
	No seat belt	1	-	-	1	2	-	-	-	-	-	-
	Unknown/Not applicable	3	6	-	6	3	6	7	2	2	2	2
Norway	Seat belt	36	52	39	29	29	29	30	36	13	14	21
	No seat belt	14	20	14	17	11	6	13	10	12	7	10
	Unknown/Not applicable	23	33	19	21	27	22	18	15	16	19	27
Switzerland	Seat belt	55	41	48	40	43	48	47	38	41	44	54
	No seat belt	49	62	49	35	32	30	27	23	26	18	25
	Unknown/Not applicable	-	-	-	-	-	-	5	4	4	3	8

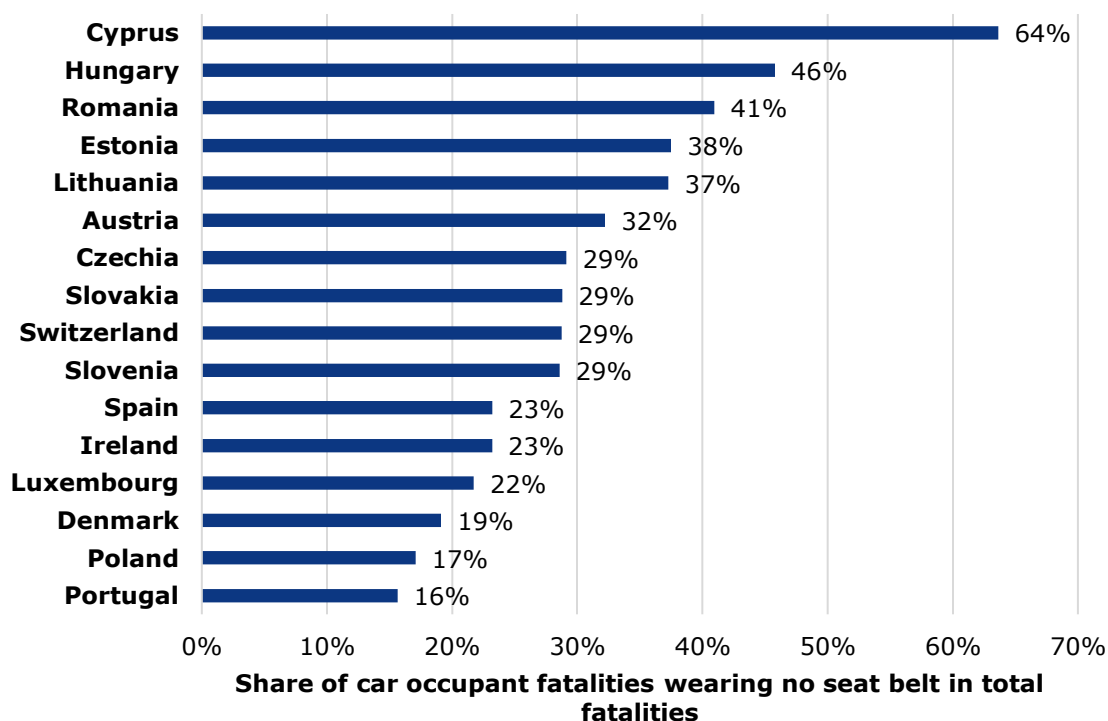
Notes:

- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the table because there is no data on seat belt usage.
- Spain is included in the figure even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Spain is less than 10 %.
- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- For Lithuania the missing value for 2012 was imputed with the earliest known value (2013) in the series.
- For Slovakia the missing value for 2012 was imputed with the earliest known value (2016) in the series.

3.2 Seat belt wearing rates of fatalities

The figure below shows the share of car occupant fatalities wearing no seat belt in the total number of car occupant fatalities. Broadly comparable data is available for 16 countries. Of these countries, **Cyprus, Hungary and Romania have the highest share of car occupant fatalities with no seat belt, while Portugal, Poland and Denmark have the lowest share of car occupant fatalities with no seat belt.**

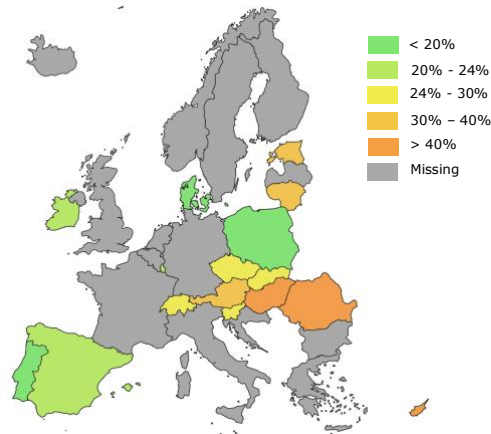
Figure 1. Share of car occupant fatalities wearing no seat belt in the total number of fatalities, for 16 EU and EFTA countries (2022). Source: CARE



Notes:

- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the figure because there is no data on seat belt usage.
- Bulgaria, Greece, France, Croatia and Norway are not included in the figures because there are large "unknown" and "not applicable" numbers on seat belt usage.
- Iceland is not included in the figure because there are less than 10 fatalities.
- Spain is included in the figure even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Spain is less than 10 %.
- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- There is no EU total due to high numbers of "unknown" and "not applicable" car occupant fatalities in most countries.

The geographical representation of the share of car occupant fatalities wearing no seat belt in the map below illustrates the great number of countries that did not provide any data on this. Of these countries with reliable data Portugal, Poland and Denmark have the lowest share of car occupant fatalities with no seat belt.



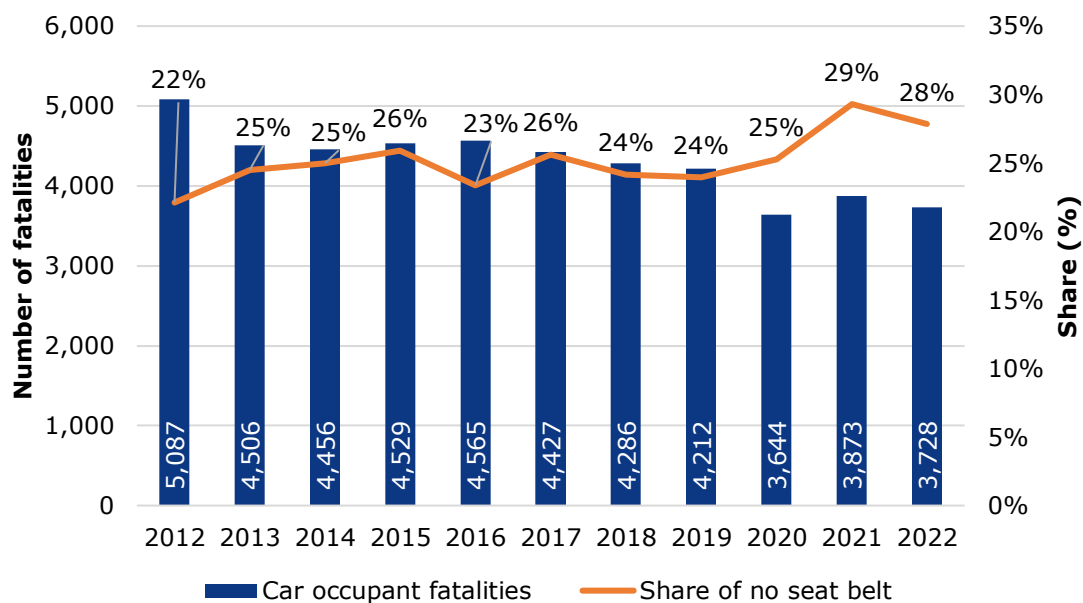
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3.3 Trend in the share of non-seatbelt wearing fatalities

The absolute number of car occupant fatalities without a seat belt fell by 8% over the period 2012-2022 but at a significantly slower rate than the total number of car occupant fatalities which decreased by 27% over the same time period.

The figure below shows the trend in the share of car occupant fatalities wearing no seat belt in the total number of car occupant fatalities between 2012 and 2022. Reliable information is available for 16 EU and EFTA countries. **In these countries, in 2022, an average of 28% of all car occupant fatalities were not wearing a seat belt.** This share increased by about 6 percentage points in the last decade (22% in 2012 in 2022).

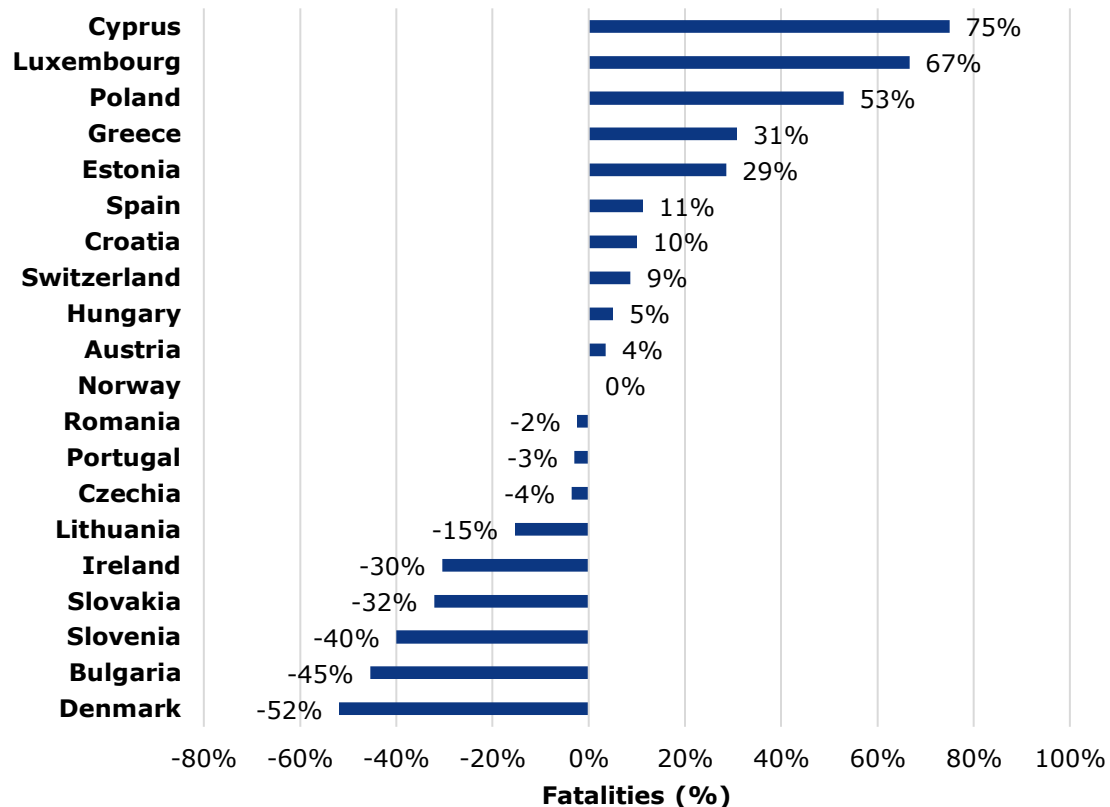
Figure 2. Number, and the share of car occupant fatalities wearing no seat belt in 16 EU and EFTA countries (2012-2022). Source: CARE



The EU/EFTA countries with the highest absolute number of car occupant fatalities wearing no seat belt in 2022 are Romania, Spain and Poland with more than 150 fatalities. Looking at the short-term changes (2019 compared to 2022, information available for 20 countries), the sharpest decline in the share of car occupant fatalities wearing no seat belt can be observed in Denmark (-52%), Bulgaria (-45%) and Slovenia (-40%), while the share of car occupant fatalities wearing to seat belt increased sharply in Poland (+53%). Even though Luxembourg and Cyprus show a high short term percentage changes for car occupant fatalities wearing no seat belt, the absolute numbers of these countries are very low (in Luxembourg the increase is from 3

to 5 unrestrained fatalities and in Cyprus the increase is from 4 to 7 unrestrained fatalities).

Figure 3. Percentage short term change in the number of fatalities wearing no seat belt among car occupants per country in 20 EU and EFTA countries (2019-2022).



Notes:

- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the figure because there is no data on seat belt usage.
- Bulgaria, Greece, France, Croatia and Norway are not included in the figures because there are large "unknown" and "not applicable" numbers on seat belt usage.
- Iceland is not included in the figure because there are less than 10 fatalities.
- Spain is included in the figure even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Spain is less than 10 %.
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- For Lithuania the missing value for 2012 was imputed with the earliest known value (2013) in the series.
- For Slovakia the missing value for 2012 was imputed with the earliest known value (2016) in the series.
- There is no EU total due to high numbers of "unknown" and "not applicable" car occupant fatalities in most countries.

Table 1. Number of and trend in car occupant fatalities wearing no seat belt per country in 20 EU and EFTA countries (2012-2022). Source: CARE

	2012	2019	2020	2021	2022	ST*	Miniplot: trend since 2012
Bulgaria	191	55	29	33	30	-45%	
Czechia	125	84	73	75	81	-4%	
Denmark	17	27	22	11	13	-52%	
Estonia	16	7	3	12	9	29%	
Ireland	17	23	16	16	16	-30%	
Greece	141	81	87	87	106	31%	
Spain	212	142	140	156	158	11%	
Croatia	66	70	61	67	77	10%	
Cyprus	13	4	10	11	7	75%	
Lithuania	41	26	26	23	22	-15%	
Luxembourg	10	3	2	3	5	67%	
Hungary	103	119	93	126	125	5%	
Austria	84	56	40	48	58	4%	
Poland	-	102	119	186	156	53%	
Portugal	36	34	30	31	33	-3%	
Romania	335	293	263	354	286	-2%	
Slovenia	18	10	8	13	6	-40%	
Slovakia	49	56	50	52	38	-32%	
Norway	14	10	12	7	10	0%	
Switzerland	49	23	26	18	25	9%	

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

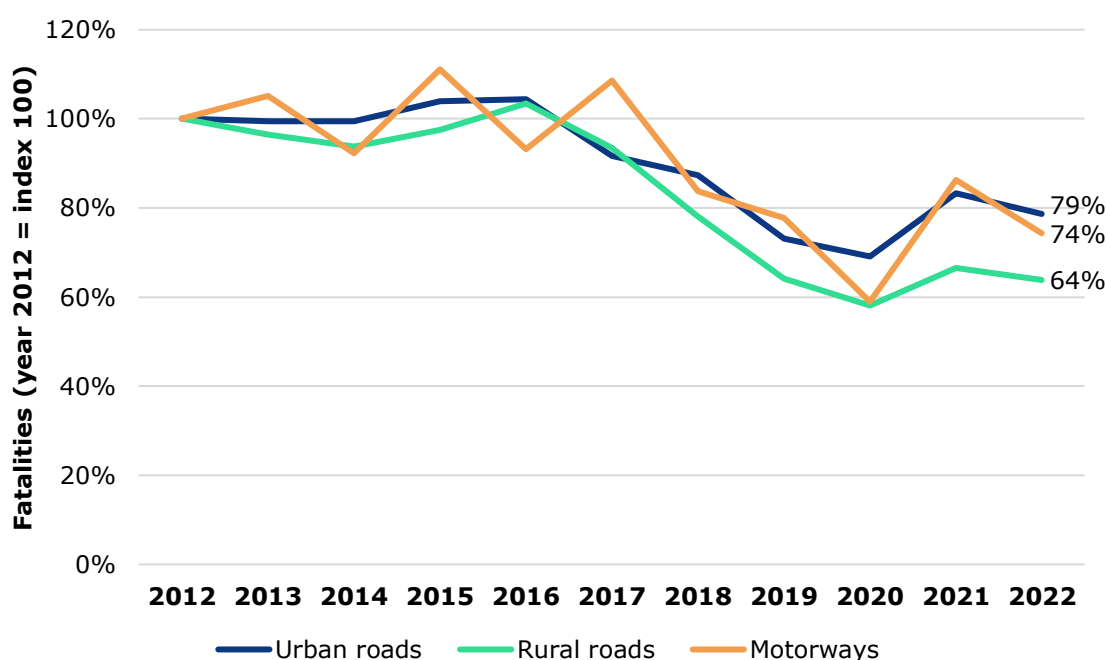
Notes:

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- Bulgaria, Greece, France, Croatia and Norway are not included in the figures because there are large "unknown" and "not applicable" numbers on seat belt usage.
- Iceland is not included in the figure because there are less than 10 fatalities.
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- For Lithuania the missing value for 2012 was imputed with the earliest known value (2013) in the series.
- For Slovakia the missing value for 2012 was imputed with the earliest known value (2016) in the series.
- There is no EU total due to high numbers of "unknown" and "not applicable" car occupant fatalities in most countries.

3.4 Comparisons by road type

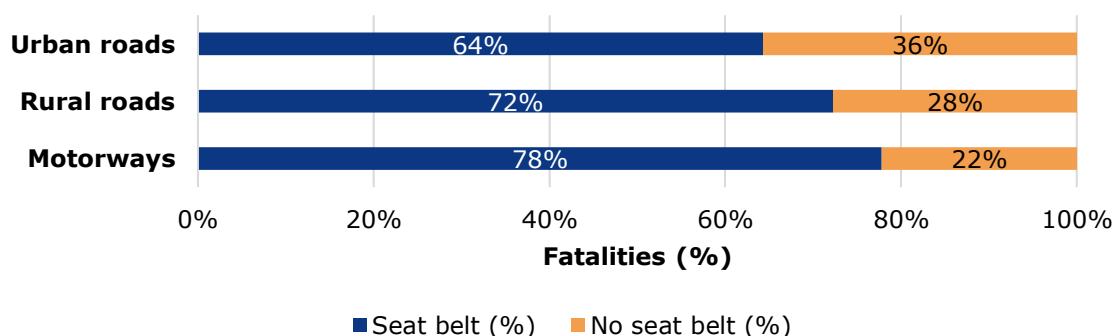
The figure below shows the share of car occupant fatalities wearing no seat belt by type of road over the time period 2012-2022 (16 countries). The number of car occupant fatalities wearing no seat belt on rural roads decreased the most (-36%) out of all road types. Sharp changes and fluctuations can be observed on motorways between 2012 and 2022.

Figure 4. Trend of car occupant fatalities wearing no seat belt by road type in 16 EU and EFTA countries (2012-2022). Source: CARE



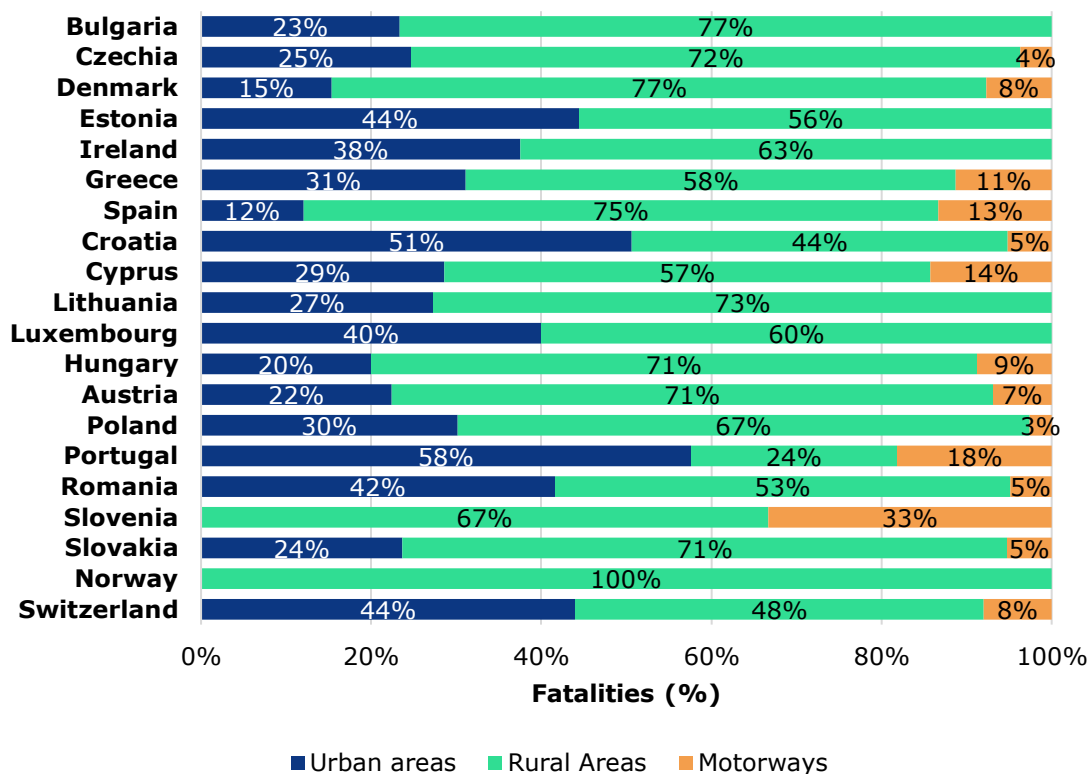
22% of those killed on the motorways were not wearing a seat belt. This share is somewhat higher on rural and urban roads (28% and 38%).

Figure 5. Share of car occupant fatalities by road type in 16 EU and EFTA countries (2022). Source: CARE



Looking at the share of unrestrained car occupant fatalities per road type, there are large differences between EU/EFTA countries.

Figure 6. Share of car occupant fatalities wearing no seat belt by road type per country in 20 EU and EFTA countries (2022). Source: CARE



Notes:

- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the figure because there is no data on seat belt usage.
- Bulgaria, Greece, France, Croatia and Norway are not included in the figures because there are large "unknown" and "not applicable" numbers on seat belt usage.
- Iceland is not included in the figure because there are less than 10 fatalities.
- Spain is included in the figure even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Spain is less than 10 %.
- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- There is no EU total due to high numbers of "unknown" and "not applicable" car occupant fatalities in most countries.

3.5 Gender and Age

In 2022, 3 out of 4 car occupant fatalities were male. On motorways, 65% of car occupant fatalities not wearing a seat belt were male, compared to 79% and 78% on rural and urban roads.

The share of female car occupant fatalities wearing no seat belt ranges between 0% in Slovenia and 44% in Ireland.

Figure 7. Share of car occupant fatalities wearing no seat belt by road type and by gender in 16 EU and EFTA countries (2022). Source: CARE

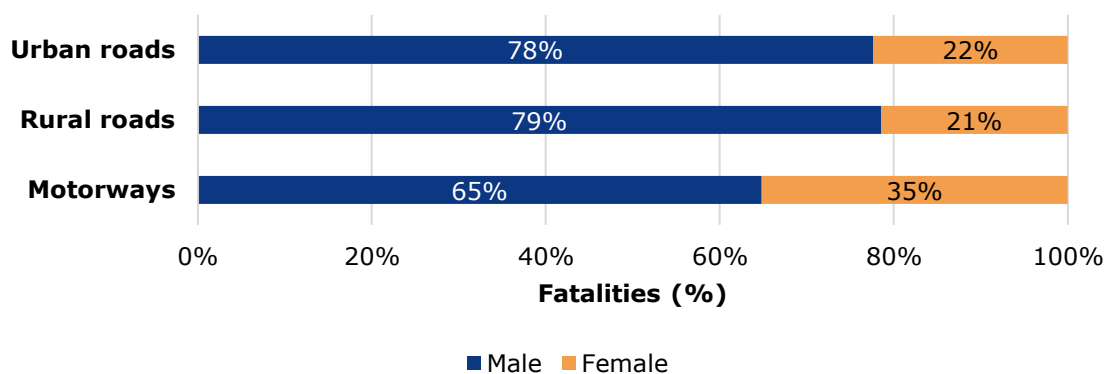
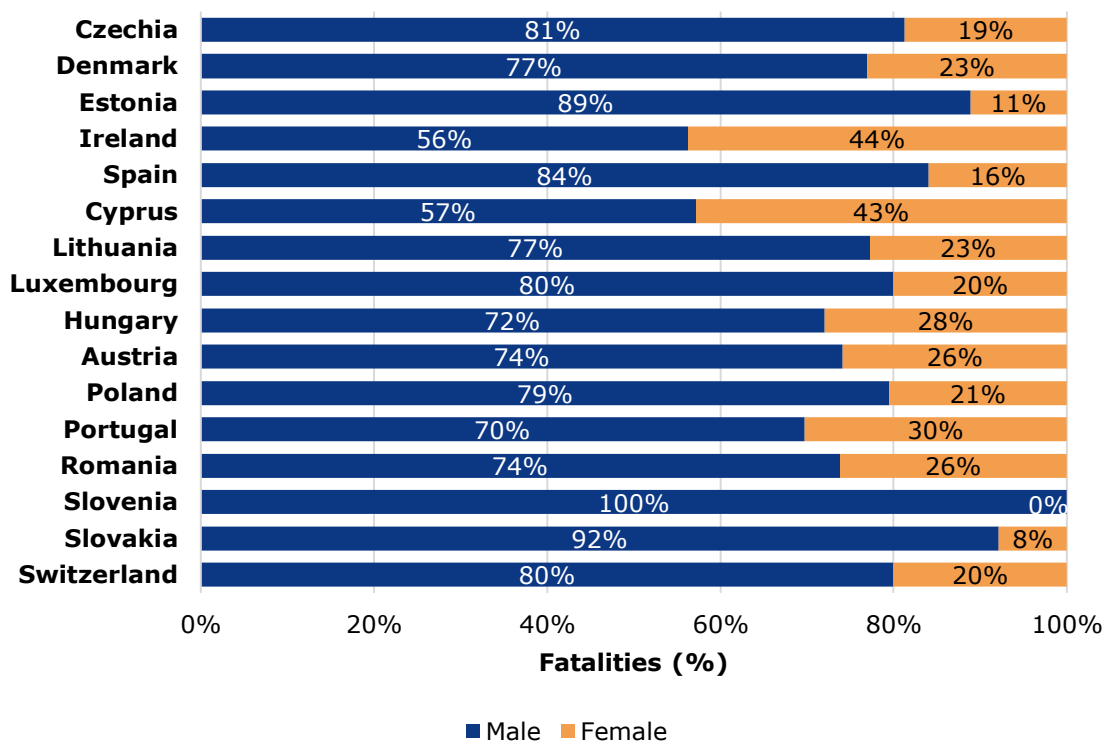


Figure 8. Share of car occupant fatalities wearing no seat belt by gender per country in 16 EU and EFTA countries (2022). Source: CARE



Notes:

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- Bulgaria, Greece, France, Croatia and Norway are not included in the figures because there are large "unknown" and "not applicable" numbers on seat belt usage.
- Iceland is not included in the figure because there are less than 10 fatalities.
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- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- There is no EU total due to high numbers of "unknown" and "not applicable" car occupant fatalities in most countries.

The share of 25 to 64 year old car occupant fatalities not wearing a seatbelt who are males is slightly higher compared to other age groups. In 2022, 80% of male car occupant fatalities not wearing a seatbelt were between 25 and 64 years old, compared to 72% male car occupant fatalities younger than 25 years old. While the share of car occupant fatalities wearing no seat belt among 0 to 24 year olds and 25 to 64 year olds has dropped by 3 to 4 percentage points since 2012, the share of car occupant fatalities wearing no seat belt among senior citizens (65+ year olds) has risen by 7 percentage point.

Figure 9. Share of car occupant fatalities wearing no seat belt by age and gender in 16 EU and EFTA countries (2022). Source: CARE

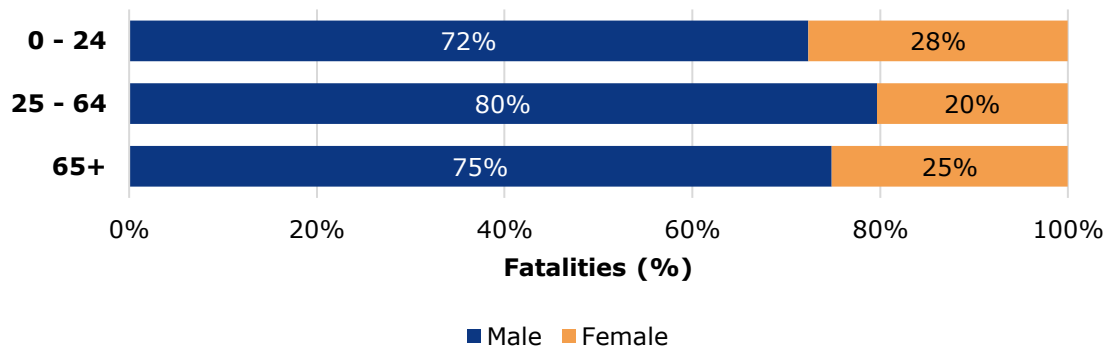


Figure 10. Trend in the share of car occupant fatalities not wearing a seat belt by age group in 16 EU and EFTA countries (2012-2022). Source: CARE

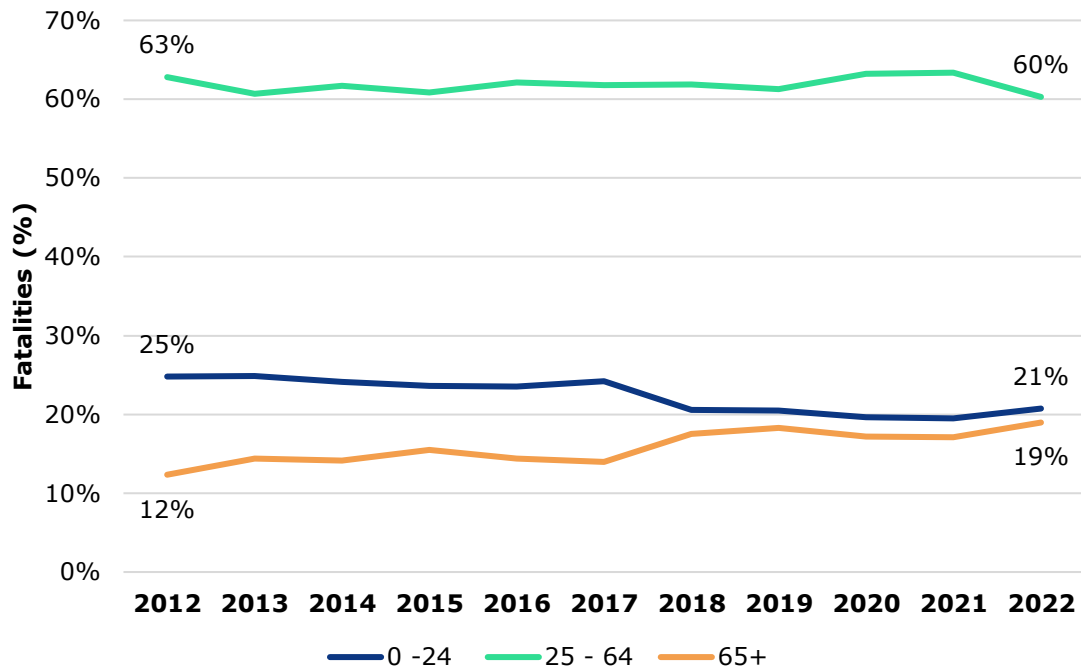
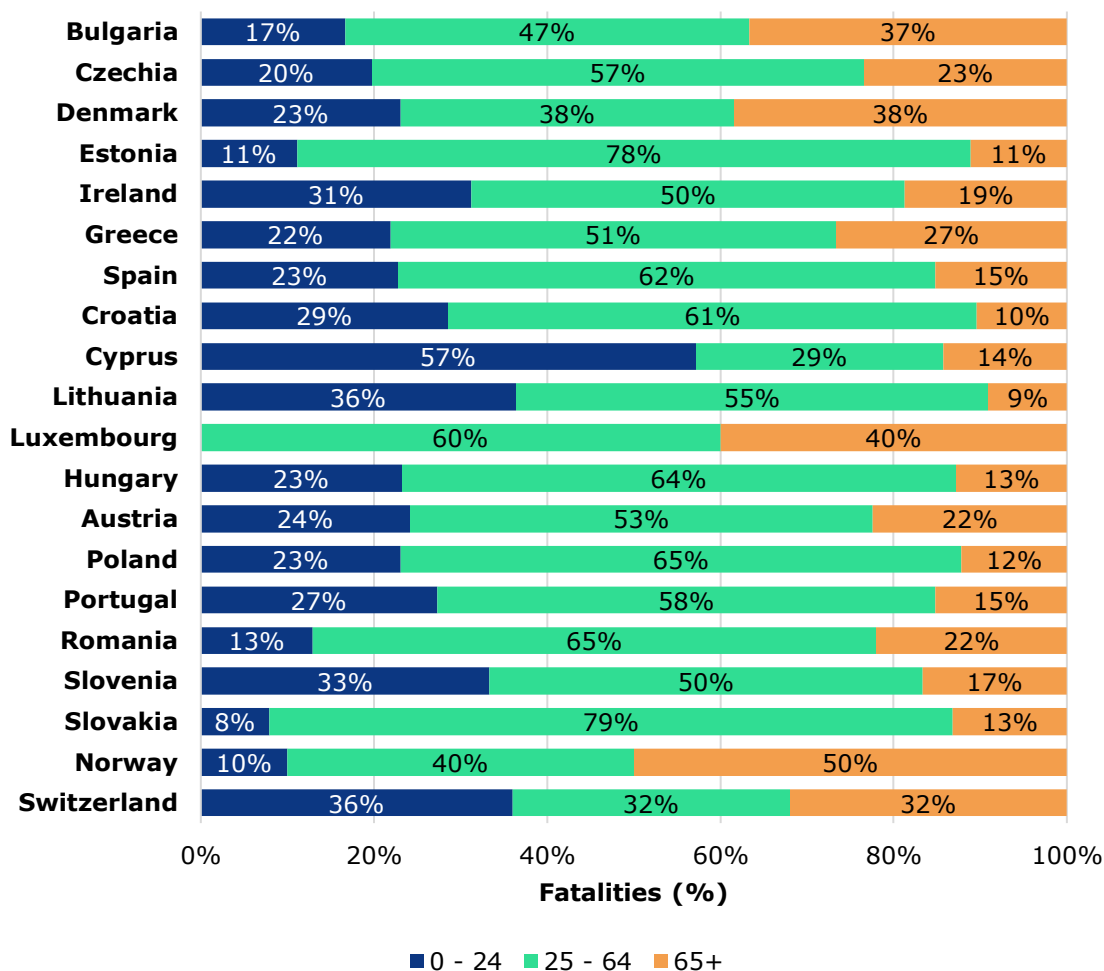


Figure 11. Share of car occupant fatalities wearing no seat belt by age groups per country in 20 EU and EFTA countries (2022). Source: CARE



Notes:

- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the figure because there is no data on seat belt usage.
- Bulgaria, Greece, France, Croatia and Norway are not included in the figures because there are large "unknown" and "not applicable" numbers on seat belt usage.
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- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- There is no EU total due to high numbers of "unknown" and "not applicable" car occupant fatalities in most countries.

4. Helmets

4.1 Absolute numbers of road fatalities

Table 4. Absolute numbers of powered two-wheelers fatalities by helmet usage per country in the EU and EFTA (2012-2022). Source: CARE

Country	Protective equipment	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bulgaria	No Helmet	28	21	22	31	7	3	4	2	2	7	3
	Unknown/Not applicable	24	34	33	30	1	10	7	5	35	42	36
Czechia	Helmet	80	62	88	91	60	67	92	78	59	83	70
	No Helmet	13	10	8	6	3	4	7	8	3	6	4
Denmark	Helmet	19	23	23	24	27	17	23	30	14	12	18
	No Helmet	5	3	6	10	5	3	8	9	5	4	6
Estonia	Unknown/Not applicable	-	-	2	4	2	-	-	1	-	1	1
	No Helmet	1	-	-	-	1	-	-	1	-	-	1
Ireland	Unknown/Not applicable	-	-	-	-	3	1	6	3	3	3	4
	Helmet	1	3	22	19	20	17	12	16	15	15	15
Greece	No Helmet	12	14	1	3	2	2	3	-	-	-	-
	Unknown/Not applicable	6	9	1	-	-	-	-	-	-	-	-
Spain	Helmet	76	85	73	77	74	67	62	84	74	78	80
	No Helmet	187	148	170	147	142	125	110	114	96	108	79
France	Unknown/Not applicable	54	63	55	45	49	56	45	49	42	49	52
	Helmet	304	296	289	319	329	358	339	382	285	284	367
Croatia	No Helmet	42	31	15	27	21	13	36	31	25	13	18
	Unknown/Not applicable	25	30	36	39	47	37	46	53	35	98	52
Cyprus	Helmet	755	709	713	703	678	713	716	697	546	641	676
	No Helmet	49	47	36	38	32	31	22	-	-	-	-
Lithuania	Unknown/Not applicable	67	61	41	28	24	42	22	52	33	27	42
	Helmet	51	43	45	62	38	42	52	49	41	49	38
Luxembourg	No Helmet	27	20	10	10	10	8	7	4	5	8	12
	Unknown/Not applicable	-	-	-	-	-	-	-	2	3	7	6
Hungary	Helmet	9	6	4	4	6	9	7	9	8	7	5
	No Helmet	5	9	7	9	6	6	9	6	6	6	5
The Netherlands	Unknown/Not applicable	-	-	2	2	-	1	-	1	-	1	-
	Helmet	7	7	2	3	-	3	10	8	9	6	7
Austria	No Helmet	1	1	1	2	-	1	-	1	1	1	-
	Unknown/Not applicable	11	11	11	11	10	10	4	10	8	4	7
Poland	Helmet	5	8	8	6	3	7	9	4	6	3	8
	No Helmet	-	-	-	-	-	-	-	-	1	-	-
Austria	Helmet	54	70	66	66	54	55	53	69	49	61	51
	No Helmet	10	12	9	8	10	5	9	5	8	6	6
The Netherlands	Unknown/Not applicable	-	-	-	-	-	-	-	-	1	-	-
	Helmet	64	46	-	-	-	-	-	-	-	-	-
Poland	No Helmet	23	22	-	-	-	-	-	-	-	-	-
	Unknown/Not applicable	6	2	83	78	78	89	73	80	70	91	83
Austria	Helmet	80	96	76	85	84	89	108	87	77	87	58
	No Helmet	4	2	4	2	4	4	2	2	1	1	5
Poland	Unknown/Not applicable	3	4	12	4	5	4	-	-	-	-	-
	Helmet	343	305	293	261	84	274	73	84	65	53	205
Poland	No Helmet	-	10	15	12	14	12	9	10	16	10	6
	Unknown/Not applicable	-	-	-	-	223	-	232	288	234	206	-

Country	Protective equipment	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Portugal	Helmet	148	112	122	111	93	145	146	153	131	137	173
	No Helmet	13	9	9	3	9	4	5	8	8	5	1
	Unknown/Not applicable	0	8	3	1	1	-	3	2	3	-	1
Romania	No Helmet	89	61	48	49	43	47	56	44	58	62	58
	Unknown/Not applicable	72	30	27	40	36	22	17	25	27	24	27
Slovenia	Helmet	19	18	15	26	20	24	16	20	15	29	15
	No Helmet	1	3	2	-	5	5	2	3	7	4	-
	Unknown/Not applicable	1	-	-	-	-	-	-	-	-	-	-
Slovakia	Helmet	7	7	7	7	7	-	3	21	31	28	21
	No Helmet	0	0	0	0	0	2	-	1	1	2	3
	Unknown/Not applicable	1	1	1	1	1	-	-	1	1	1	3
Iceland	Helmet	-	1	-	1	2	2	-	1	3	-	-
Norway	Helmet	19	24	20	19	20	20	12	16	16	12	18
	No Helmet	-	-	-	-	1	-	1	-	-	-	1
	Unknown/Not applicable	2	-	2	2	2	1	3	-	3	4	2
Switzerland	Helmet	74	57	51	64	42	50	44	33	50	46	45
	No Helmet	3	6	3	5	7	3	-	-	-	-	-
	Unknown/Not applicable	-	-	-	-	-	-	3	2	8	4	7

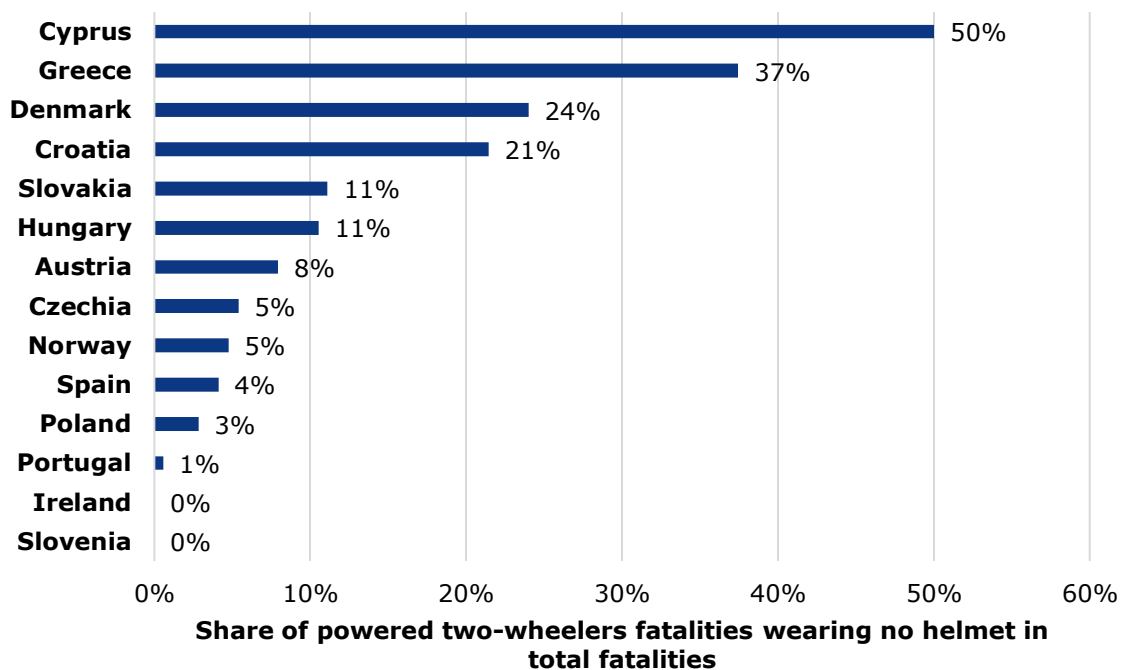
Notes:

- Belgium, Germany, Italy, Latvia, Malta, Finland and Sweden are not included in the table because there is no data on helmet usage.
- Greece is included in the figure even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Greece is about 33%.
- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- For Lithuania the missing value for 2012 was imputed with the earliest known value (2013) in the series.
- For Slovakia the missing value for 2012 was imputed with the earliest known value (2016) in the series.

4.2 Helmet wearing rates of fatalities

The figure below shows the share of powered two-wheelers fatalities wearing no helmet in the total number of powered two-wheelers fatalities. Information is available from 14 countries. Of these countries, **Cyprus and Greece have the highest share of powered two-wheelers fatalities with no helmet, while Ireland and Slovenia have the lowest share.**

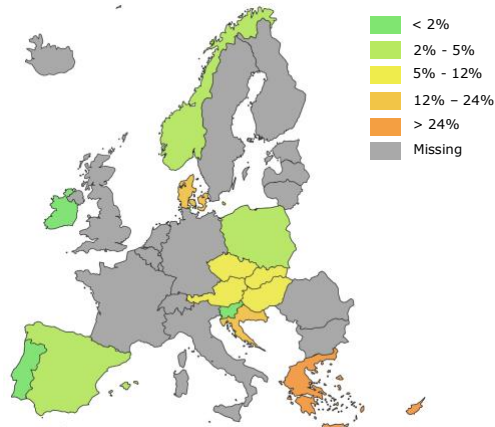
Figure 12. Share of powered two-wheelers fatalities wearing no helmet in the total number of fatalities, per country in 14 EU and EFTA countries (2022). Source: CARE



Notes:

- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the figure because there is no data on helmet usage.
- Romania is not included in the figure because there are only "no helmet" and "not applicable" fatalities.
- Switzerland and France are not included in the figure because there only "helmet" and "not applicable" fatalities.
- Bulgaria is not included in the figure because there large "unknown" and "not applicable" numbers on seat belt usage.
- Estonia, Luxembourg and Iceland are not included in the figure because there are less than 10 fatalities in 2022.
- Greece is included in the figure even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Greece is about 33%.
- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.

The geographical representation of the share of powered two-wheelers fatalities wearing no helmet in the total number of fatalities in the map below shows 14 EU and EFTA countries with reliable information. While Cyprus and Greece have the highest share of powered two-wheelers fatalities wearing no helmet, Slovenia and Ireland have the lowest shares.



© Eurostat for the administrative boundaries

4.3 Trend in the share of non-helmet fatalities

In 2022, 2,052 riders of powered two-wheelers died in the EU and EFTA (14 countries) without wearing a helmet. This accounts for 6% of all powered two-wheelers fatalities. The share of powered two-wheelers fatalities wearing no helmet decreased about 8 percentage points in the last decade (from 14% in 2012 to 6% in 2022). **The absolute number of powered two-wheelers fatalities decreased by 15% over the same time period.**

Figure 13. Number, and the share of powered two-wheelers fatalities wearing no helmet in 14 EU and EFTA countries (2012-2022). Source: CARE

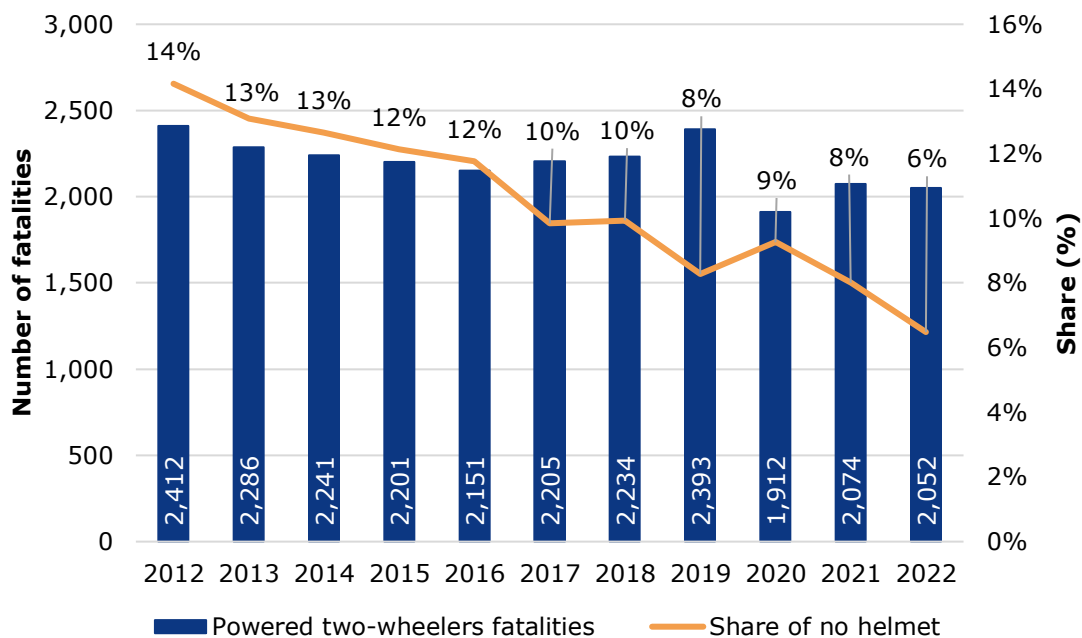


Table 5. Number and trend in powered two-wheelers fatalities wearing no helmet per country in 21 EU and EFTA countries (2012-2022). Source: CARE

	2012	2019	2020	2021	2022	ST*	Miniplot: trend since 2012
Czechia	13	8	3	6	4	-50%	
Denmark	5	9	5	4	6	-33%	
Ireland	12	0	0	0	0	-	
Greece	187	114	96	108	79	-31%	
Spain	42	31	25	13	18	-42%	
Croatia	27	4	5	8	12	200%	
Cyprus	5	6	6	6	5	-17%	
Hungary	10	5	8	6	6	20%	
Austria	4	2	1	1	5	150%	
Poland	0	10	16	10	6	-40%	
Portugal	13	8	8	5	1	-88%	
Slovenia	1	3	7	4	0	-100%	
Slovakia	0	1	1	2	3	200%	
Norway	0	0	0	0	1	-	

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

Notes:

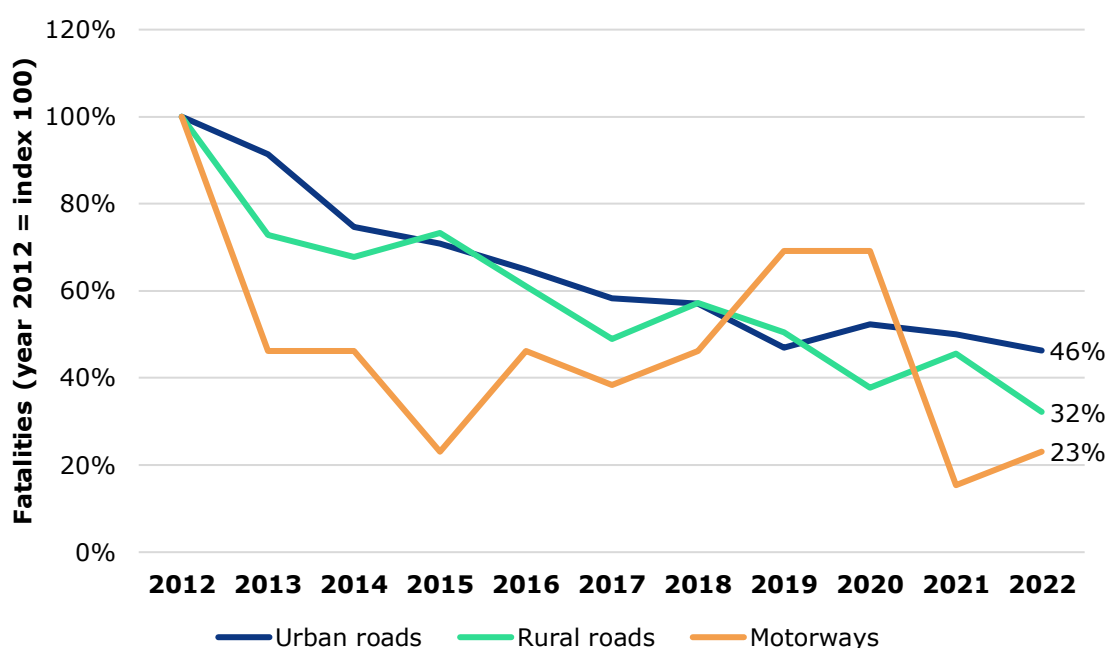
- Belgium, Germany, Italy, Latvia, Malta, the Netherlands, Finland and Sweden are not included in the table because there is no data on helmet usage.
- Romania is not included in the table because there are only "no helmet" and "not applicable" fatalities.
- Switzerland and France are not included in the table because there only "helmet" and "not applicable" fatalities.
- Bulgaria and Croatia are not included in the table because there large "unknown" and "not applicable" numbers on seat belt usage.
- Estonia, Luxembourg and Iceland are not included in the table because there are less than 10 fatalities in 2022.
- Greece is included in the table even though it has a small share of "unknown" fatalities. The number of "unknown" fatalities in Greece is about 33%.
- For Ireland the missing value for 2022 was imputed with the last known value (2020) in the series.
- For Lithuania the missing value for 2012 was imputed with the earliest known value (2013) in the series.
- For Slovakia the missing value for 2012 was imputed with the earliest known value (2016) in the series.
-

4.4 Comparisons by road type

The figure below shows the share of powered two-wheelers fatalities wearing no helmet by type of road between 2012 and 2022. The number of powered two-wheelers fatalities wearing no helmet on motorways decreased the most (-77%) out of all road types. However, there have been sharp changes and fluctuations in this period. The share of powered two-wheelers fatalities wearing no helmet also decreased on urban and rural roads (54% and 68%).

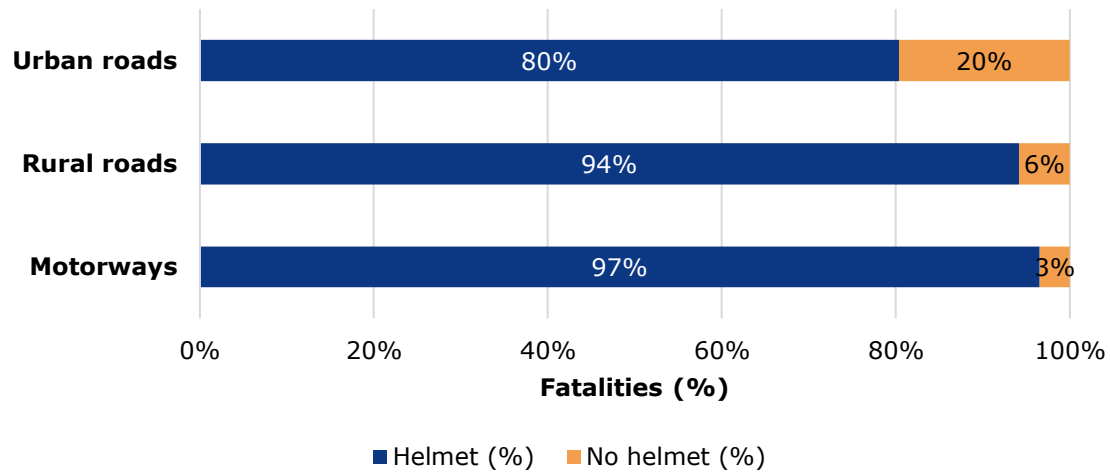
Figure 14. Trend of powered two-wheelers fatalities wearing no helmet by road type in 14 EU and EFTA countries (2012-2022).

Source: CARE



97% of killed powered two-wheelers in 2022 were wearing a helmet on motorways, compared to 94% on rural roads and 80% on urban roads.

Figure 15. Share of powered two-wheelers fatalities by road type in 14 EU and EFTA countries (2022). Source: CARE

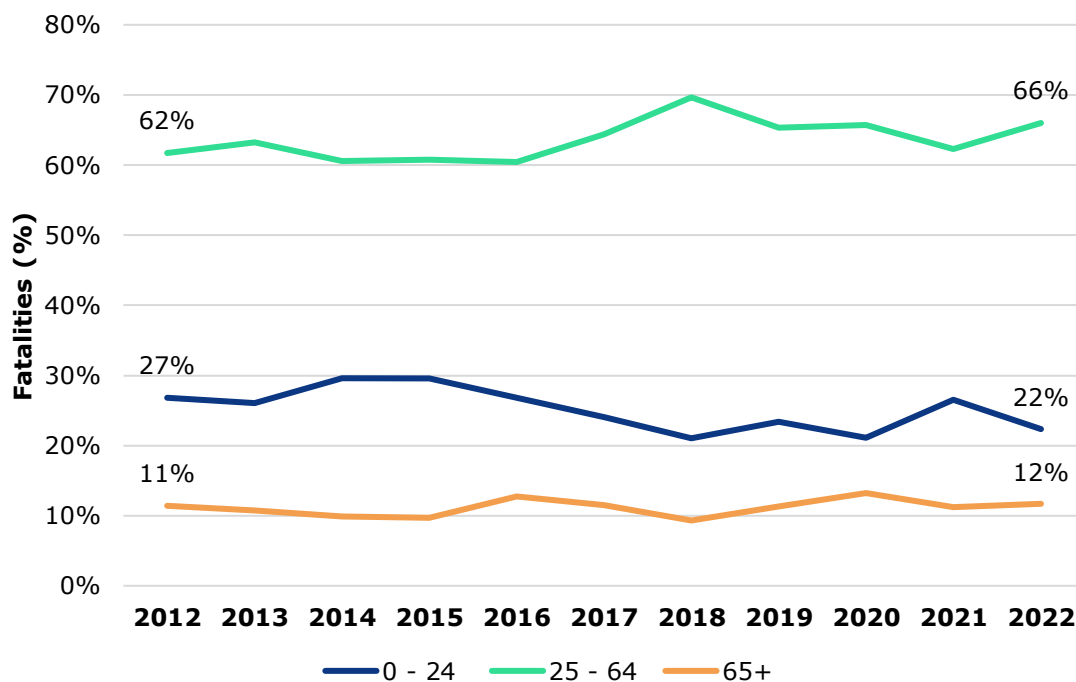


4.5 Gender and Age

Since there is limited data on the use of helmets in general, no reliable observations could be derived from the available data to report on the differences or relations concerning the powered two-wheelers fatalities and gender.

Information on the usage of use is available for 14 EU and EFTA countries. In these countries, in 2022, 66% of powered two-wheelers fatalities wearing no helmet were between 25 and 64 years old, compared to 12% of 65+ year olds and 22% aged less than 25 years old. **While the share of powered two-wheelers fatalities wearing no helmet among 0 to 24 year olds has dropped by 5 percentage points since 2012, the share of powered two-wheelers fatalities wearing no helmet has risen by 1 percentage point among senior citizens (65+ year olds) and by 4 percentage points among 25 to 64 year olds.**

Figure 16. Trend of powered two-wheelers fatalities wearing no helmet by age group in 14 EU and EFTA countries (2012-2022). Source: CARE



5. Notes

5.1 Definitions

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

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

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

Accident / crash

An 'injury' road crash concerns an incident on a public road involving at least one moving vehicle and at least one casualty (person injured or killed). Note: the definition of 'injury' varies considerably among EU countries and is open to interpretation by the police thus affecting the reliability of cross-country comparisons.

Fatalities

Total number of persons fatally injured; correction factors applied when needed. Death within 30 days of the road crash, confirmed suicide and natural death are not included.

Motorway

Public road with dual carriageways and at least two lanes each way. Entrance and exit sign posted. 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.

Safety equipment

Indicates the use of safety equipment of drivers/riders and passengers during the accident.

Not applicable

No safety equipment could be used on the specific vehicle (e.g. agricultural tractors).

No use of safety equipment

No seat belt or helmet was used during accident. Includes cases where seat belt was not worn and the airbag was released

Unknown

The use of any safety equipment by the road user was unknown.

5.2 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 April 2024.

5.3 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.

5.4 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.

5.5 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

5.6 COVID-19 pandemic

It is clear that the global COVID-19 pandemic had an impact on the CARE data for 2020 and 2021 and, to a lesser extent, also 2022 for some countries. 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.

5.7 More detailed data

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

