

Traffic Safety Basic Facts 2015



Motorcycles and Mopeds



General

In 2013, 26.090 people were killed in road accidents throughout the EU. Motorcycle and moped fatalities, together referred to as Powered Two Wheelers (PTW), accounted for 18% of those fatalities (15% in 2004). The two types of PTW will be discussed separately when possible, but some countries do not distinguish between motorcycles and mopeds.

In 2013, at least 741 riders (drivers and passengers) of mopeds were killed in the EU in accidents. As compared to 2004, this count has decreased by almost 60% for the set of countries in Table 1.

Table 1: Number of moped fatalities by country, 2004-2013

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BE	33	30	36	26	32	25	22	20	15	13
BG	-	-	-	-	-	5	-	-	-	-
CZ	5	8	3	3	2	9	7	7	7	6
DK	46	29	24	48	30	15	11	14	14	11
DE	122	107	107	100	110	99	74	70	93	73
EE	-	2	2	4	6	3	-	-	-	-
IE	0	0	0	0	0	0	0	0	0	-
EL	55	58	57	43	41	28	36	34	35	25
ES	361	312	303	233	181	156	99	73	67	56
FR	339	356	317	324	291	299	248	220	179	159
HR	-	-	-	20	27	15	15	10	16	14
IT	456	385	346	358	292	212	206	165	127	125
CY	11	-	-	8	8	4	3	3	3	0
LV	4	5	6	4	4	1	4	5	3	3
LT	-	-	-	-	-	-	-	-	-	-
LU	1	0	0	1	0	0	0	0	0	0
HU	22	40	42	31	26	23	19	31	25	24
MT	-	0	0	0	0	0	0	-	-	-
NL	57	56	63	60	51	47	32	36	40	41
AT	44	41	39	24	25	30	18	18	19	15
PL	51	53	57	59	87	68	83	87	82	62
PT	121	106	97	71	71	58	77	71	57	51
RO	1	20	45	81	150	122	114	87	99	39
SI	5	5	12	12	8	3	7	2	3	4
SK	-	0	0	0	0	0	0	-	-	-
FI	14	4	13	11	13	11	9	10	7	5
SE	18	8	15	14	11	11	8	11	8	3
UK	26	23	29	18	21	16	10	10	12	4
EU*	1.819	1.684	1.646	1.557	1.492	1.260	1.110	992	919	741
Yearly change		-7%	-2%	-5%	-4%	-16%	-12%	-11%	-7%	-19%
NO	8	4	3	7	5	2	0	4	4	3
CH	9	6	11	7	9	8	4	4	3	8

Source: CARE database, data available in May 2015

* Totals for EU countries include latest available data (data for Bulgaria, Ireland, Lithuania, Malta and Slovakia not included in the totals)

In the EU, the number of moped rider fatalities decreased by almost 60% between 2004 and 2013.

In 2013, at least 3.862 riders (drivers and passengers) of motorcycles were killed in the EU in road accidents. As compared to 2004 this count has decreased by about 30% for the set of countries in Table 2.

Table 2: Number of motorcycle fatalities by country, 2004-2013

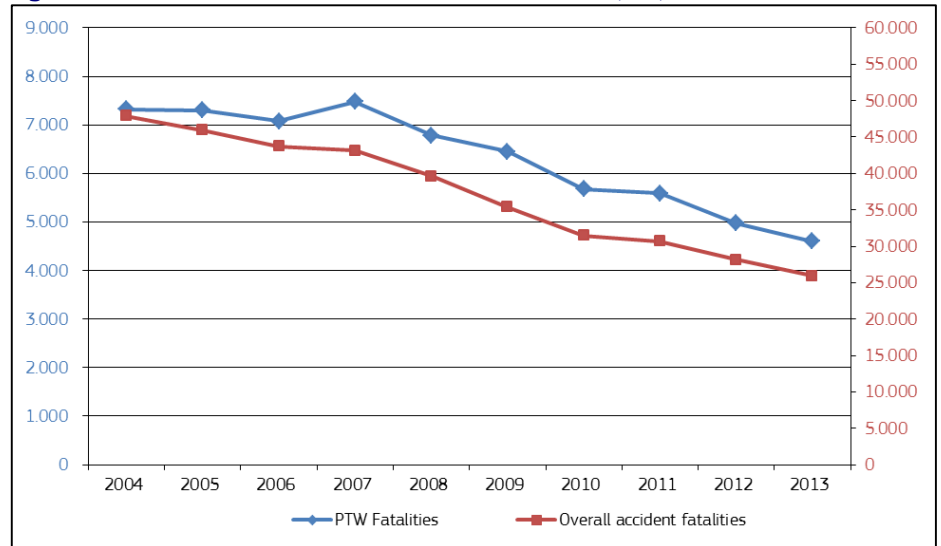
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BE	120	123	130	139	108	137	102	127	87	102
BG	-	-	-	-	-	48	-	-	-	-
CZ	97	116	113	136	121	85	92	77	86	66
DK	23	16	21	36	40	27	22	23	10	15
DE	858	875	793	807	656	650	635	708	586	568
EE	-	5	5	10	1	2	-	-	-	-
IE	49	56	29	33	29	25	17	18	19	-
EL	379	399	440	420	394	405	367	305	282	271
ES	399	472	488	640	484	437	386	348	304	302
FR	866	892	789	853	817	908	734	786	692	658
HR	-	-	-	96	100	81	51	76	62	49
IT	1.139	1.120	1.127	1.182	1.085	1.037	950	923	847	724
CY	24	-	-	16	16	19	18	13	11	15
LV	21	11	10	10	14	10	17	6	7	10
LT	-	-	-	-	-	-	-	-	-	-
LU	10	6	8	5	9	7	1	3	5	8
HU	72	100	89	112	91	73	49	52	39	58
MT	-	3	2	4	3	2	3	-	-	-
NL	84	77	57	64	67	68	60	50	53	29
AT	98	98	95	96	91	87	68	67	68	87
PL	181	157	164	215	262	290	259	292	261	253
PT	181	188	137	145	116	115	126	116	104	78
RO	19	23	35	73	90	74	59	69	62	52
SI	27	33	42	41	40	28	17	25	18	17
SK	-	45	37	54	39	34	27	-	-	-
FI	22	32	26	32	36	27	18	29	21	24
SE	56	46	55	60	51	47	37	46	31	40
UK	581	561	583	596	488	472	403	359	320	337
EU*	5.503	5.622	5.435	5.923	5.296	5.195	4.568	4.598	4.055	3.862
Yearly change		2%	-3%	9%	-11%	-2%	-12%	1%	-12%	-5%
IS	2	1	3	3	1	2	1	0	0	1
NO	33	31	34	33	32	27	26	13	17	21
CH	114	86	69	82	83	78	68	68	74	55

Source: CARE database, data available in May 2015

* Totals for EU include latest available data (Lithuanian data not included in the totals)

In the EU the number of motorcycle rider fatalities decreased by about 30% between 2004 and 2013.

Figure 1: Number of PTW and overall accident fatalities, EU, 2004-2013

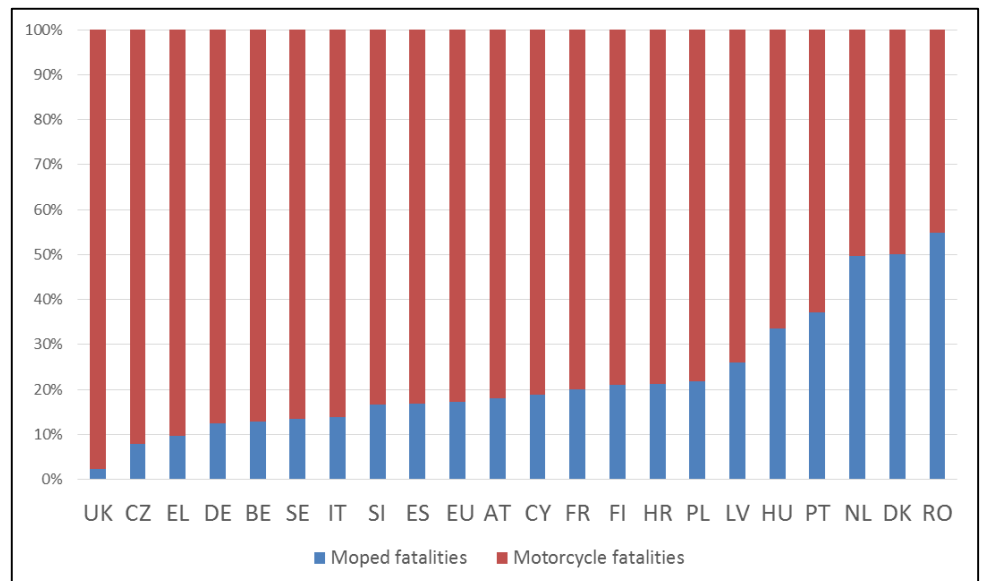


Source: CARE database, data available in May 2015

As there are no reliable data available about the exposure of PTWs (vehicle kilometres or fleet numbers) in most of the above countries, it is difficult to interpret the evolution of the PTW fatalities numbers or the difference in the distribution over mopeds and motorcycles. In some countries, like Greece and Czech Republic, the majority of PTW fatalities are motorcyclists. (Figure 2). By definition in Ireland and the United Kingdom there are hardly any moped fatalities (for UK the distinction between mopeds and motorcycles takes place in the CADAS database. Additionally, scooters with engine size <50cc are not included, as they are counted with motorcycles. IE does not distinguish between motorcycles and mopeds. Mopeds are counted as motorcycles).

 In most EU countries the majority of PTW fatalities are motorcycle riders.

Figure 2: Distribution of moped and motorcycle fatalities in PTW fatalities by country, 2013

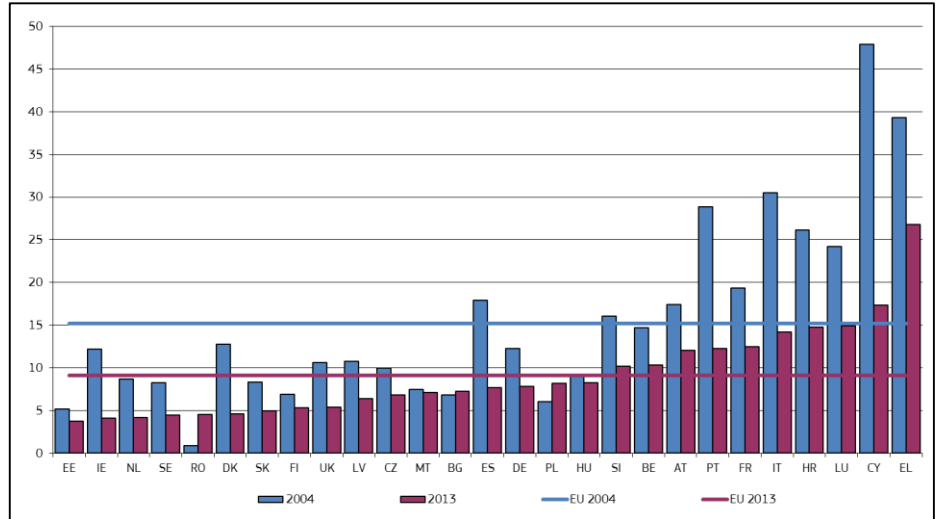


Source: CARE database, data available in May 2015

The fatality rate of PTW in 2013 is particularly high in Greece.

The most significant reduction in the number of motorcycle and moped fatalities between 2004 and 2013 occurred in Cyprus, Italy and Portugal.

Figure 3: PTW fatality rates per million population by country, 2004 and 2013 or latest available year



Sources: CARE database (EUROSTAT for population data), data available in May 2015

Figure 3 indicates that between 2004 and 2013 the fatality rate of PTW declined in most EU countries. Significant reduction occurred e.g. in Italy, Portugal, and Cyprus, whereas the fatality rate increased in Romania and Poland.

Table 3 shows the fatality rates of motorcycle and moped riders, defined as the number of fatalities per million population. Despite considerable improvements, the PTW fatality rates remain high in Greece and Cyprus.

Table 3: PTW fatality rates per million population by country, 2004-2013 or latest available year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BE	14,7	14,6	15,8	15,6	13,1	15,1	11,4	13,4	9,2	10,3
BG	6,8	6,8	6,9	6,9	6,9	7,0	7,0	7,2	7,2	7,3
CZ	10,0	12,1	11,3	13,5	11,8	9,0	9,4	8,0	8,9	6,8
DK	12,8	8,3	8,3	15,4	12,8	7,6	6,0	6,7	4,3	4,6
DE	12,3	12,3	11,3	11,4	9,6	9,4	8,9	9,5	8,3	7,8
EE	5,2	5,2	5,2	10,4	5,2	3,7	3,7	3,7	3,8	3,8
IE	12,2	13,6	6,9	7,7	6,6	5,6	3,8	3,9	4,1	4,1
EL	39,3	41,2	44,7	41,4	38,8	38,5	35,6	30,0	28,5	26,8
ES	17,9	18,2	18,1	19,6	14,7	12,9	10,6	9,1	7,9	7,7
FR	19,3	19,9	17,5	18,5	17,3	18,8	15,2	15,5	13,3	12,5
HR	26,1	26,1	26,1	26,1	28,6	21,6	14,9	19,5	18,2	14,8
IT	30,5	28,5	27,8	28,9	25,6	23,1	21,3	17,9	16,4	14,2
CY	47,9	46,7	31,3	30,8	30,4	28,9	25,6	19,1	16,2	17,3
LV	10,8	6,9	7,0	6,1	7,9	4,9	9,3	5,3	4,9	6,4
LT	-	-	-	-	-	-	-	-	-	-
LU	24,2	13,0	17,1	12,6	18,6	14,2	2,0	5,9	9,5	14,9
HU	9,3	13,9	13,0	14,2	11,6	9,6	6,8	8,3	6,4	8,3
MT	7,5	7,5	4,9	9,8	7,3	4,8	7,2	7,2	7,2	7,1
NL	8,7	8,2	7,3	7,6	7,2	7,0	5,6	5,2	5,6	4,2
AT	17,4	16,9	16,2	14,5	13,9	14,0	10,3	10,1	10,3	12,1
PL	6,1	5,5	5,8	7,2	9,2	9,4	9,0	9,8	8,9	8,2
PT	28,8	27,9	22,1	20,3	17,6	16,3	19,1	17,7	15,3	12,3
RO	0,9	2,0	3,7	7,1	11,1	9,1	8,1	7,3	8,0	4,5
SI	16,0	19,0	27,0	26,4	23,9	15,3	11,7	13,2	10,2	10,2
SK	8,4	8,4	6,9	10,0	7,2	6,3	5,0	5,0	5,0	5,0
FI	6,9	6,9	7,4	8,1	9,2	7,1	5,0	7,3	5,2	5,3
SE	8,2	6,0	7,7	8,1	6,8	6,3	4,8	6,1	4,1	4,5
UK	10,6	10,1	10,5	10,5	8,7	8,2	6,9	5,9	5,2	5,4
EU	15,2	15,1	14,5	15,3	13,8	13,1	11,5	11,0	9,8	9,1
IS	6,9	3,4	10,0	9,8	3,2	6,3	3,1	3,1	0,0	3,1
NO	9,0	7,6	8,0	8,5	7,8	6,0	5,4	3,5	4,2	4,8
CH	16,7	12,4	10,7	11,9	12,1	11,2	9,2	9,1	9,7	7,8

Sources: CARE database (EUROSTAT for population data), data available in May 2015

Table 4: Percentage of PTW fatalities of all road fatalities by country, 2004-2013 or latest available year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BE	13%	14%	16%	15%	15%	17%	15%	17%	13%	16%
BG	6%	6%	5%	5%	5%	6%	7%	8%	9%	9%
CZ	7%	10%	11%	11%	11%	10%	12%	11%	13%	11%
DK	19%	14%	15%	21%	17%	14%	13%	17%	14%	14%
DE	17%	18%	18%	18%	17%	18%	19%	19%	19%	19%
EE	4%	4%	3%	7%	5%	5%	6%	5%	6%	6%
IE	13%	14%	8%	10%	10%	11%	8%	10%	12%	10%
EL	26%	28%	30%	29%	28%	30%	32%	30%	32%	34%
ES	16%	18%	19%	23%	21%	22%	20%	20%	19%	21%
FR	22%	23%	23%	25%	26%	28%	25%	25%	24%	25%
HR	19%	19%	19%	19%	19%	18%	15%	21%	20%	17%
IT	26%	26%	26%	30%	29%	29%	28%	28%	27%	25%
CY	30%	34%	28%	27%	29%	32%	35%	23%	27%	34%
LV	5%	4%	4%	3%	6%	4%	10%	6%	6%	7%
LT	-	-	-	-	-	-	-	-	-	-
LU	22%	13%	19%	13%	26%	15%	3%	9%	15%	18%
HU	7%	11%	10%	12%	12%	12%	9%	13%	11%	14%
MT	23%	18%	18%	29%	20%	10%	20%	14%	33%	17%
NL	18%	18%	16%	17%	17%	18%	17%	16%	17%	15%
AT	16%	18%	18%	17%	17%	18%	16%	16%	16%	22%
PL	4%	4%	4%	5%	6%	8%	9%	9%	10%	9%
PT	23%	24%	24%	22%	21%	21%	22%	21%	22%	20%
RO	1%	2%	3%	6%	8%	7%	7%	8%	8%	5%
SI	12%	15%	21%	18%	22%	18%	17%	19%	16%	17%
SK	7%	7%	6%	8%	6%	9%	8%	8%	8%	11%
FI	10%	9%	12%	11%	14%	14%	10%	13%	11%	11%
SE	15%	12%	16%	16%	16%	16%	17%	18%	14%	17%
UK	18%	18%	19%	20%	19%	21%	22%	19%	18%	19%
EU	15%	16%	16%	17%	17%	18%	18%	18%	18%	18%
IS	9%	5%	10%	20%	8%	12%	13%	8%	0%	7%
NO	16%	16%	15%	17%	15%	14%	13%	10%	14%	13%
CH	24%	22%	22%	23%	26%	25%	22%	23%	23%	23%

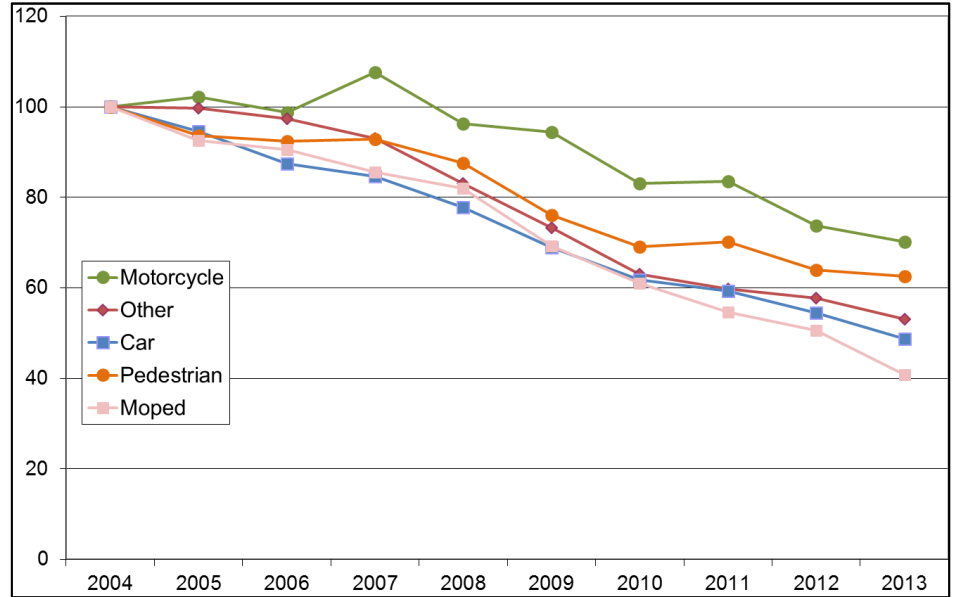
Source: CARE database, data available in May 2015

Table 4 shows that in 2013 the number of PTW fatalities as a proportion of the national fatality total varied in the EU countries from 5% (Romania) to 34% (Greece, Cyprus).

In 2013, riders of PTW made up 18% of the total road accident fatalities in EU.

Motorcycling is the mode of transport for which the number of fatalities decreased least between 2004 and 2013.

Figure 4: Index (2004=100) of road fatalities by mode of transport, EU, 2004-2013



Source: CARE database, data available in May 2015

Figure 4 shows that the trend for motorcycle riders' fatalities differs somewhat from the trend for other modes of transport. Motorcycling is the only mode of transport for which number of fatalities has increased during the period studied and only after 2007 a decrease set in.

In 2013, 91% of moped and 94% of motorcycle riders fatalities were males.

Age and gender

Table 5 shows the distribution of motorcycle and moped rider fatalities by gender. As presented, the large majority of the PTW fatalities were male in all countries, however, with considerable variation among countries. In 2013, 9% of moped riders and 6% of motorcycle riders who were killed were female.

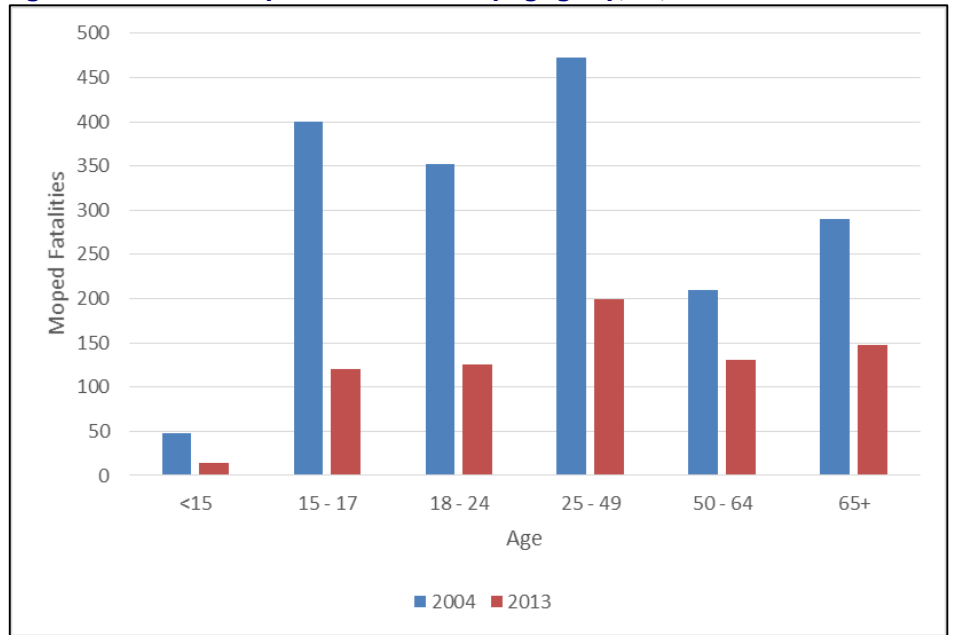
Table 5: Distribution of motorcycle and moped rider fatalities by country and gender, 2013 or latest available year

Gender	Mopeds		Motorcycles	
	Female	Male	Female	Male
BE	15%	85%	6%	94%
BG	0%	100%	2%	98%
CZ	17%	83%	2%	98%
DK	9%	91%	20%	80%
DE	7%	93%	6%	94%
EE	33%	67%	0%	100%
IE	0%	0%	16%	84%
EL	4%	96%	8%	92%
ES	8%	92%	9%	91%
FR	7%	93%	7%	93%
HR	0%	100%	12%	88%
IT	12%	88%	7%	93%
CY	0%	0%	0%	100%
LV	0%	100%	10%	90%
LT	-	-	-	-
LU	0%	0%	0%	100%
HU	8%	92%	7%	93%
MT	0%	0%	0%	100%
NL	29%	71%	0%	100%
AT	7%	93%	6%	94%
PL	10%	90%	4%	96%
PT	2%	98%	3%	97%
RO	0%	100%	6%	94%
SI	0%	100%	6%	94%
SK	0%	0%	0%	100%
FI	0%	100%	8%	92%
SE	33%	67%	5%	95%
UK	25%	75%	5%	95%
EU	9%	91%	6%	94%
NO	0%	100%	10%	90%
CH	13%	88%	11%	89%

Source: CARE database, data available in May 2015

The least decrease of moped rider fatalities is in the 50-64 years old.

Figure 5: Number of moped rider fatalities by age group, EU, 2004 and 2013



Source: CARE database, data available in May 2015

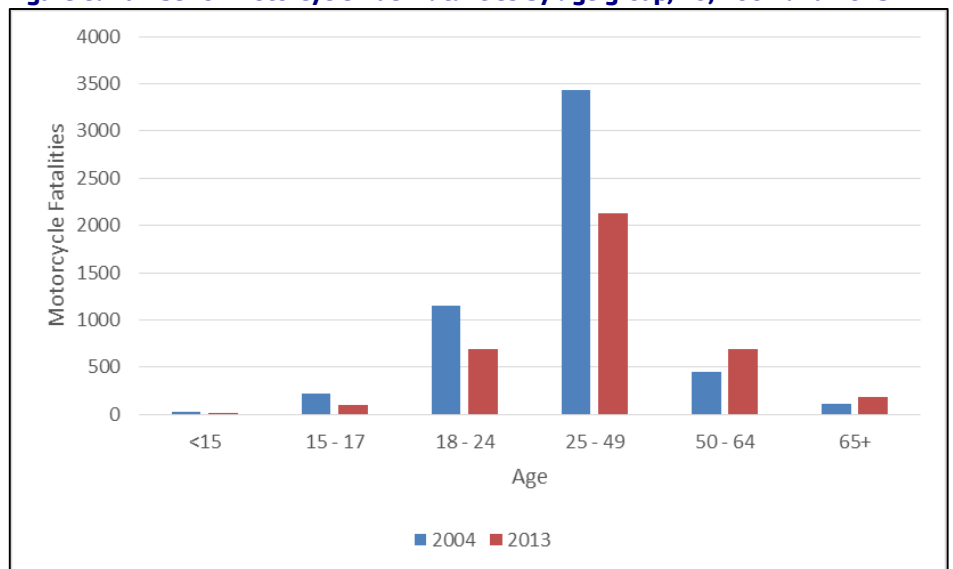
The number of moped and motorcycle rider fatalities by age group is presented in Figures 5 and 6. These figures express the numbers in 2013 relative to the numbers in 2004.

Figure 5 shows that the number of moped rider fatalities fell between 2004 and 2013 for all ages.

Despite an overall downward trend, the number of motorcycle rider fatalities increased for older riders.

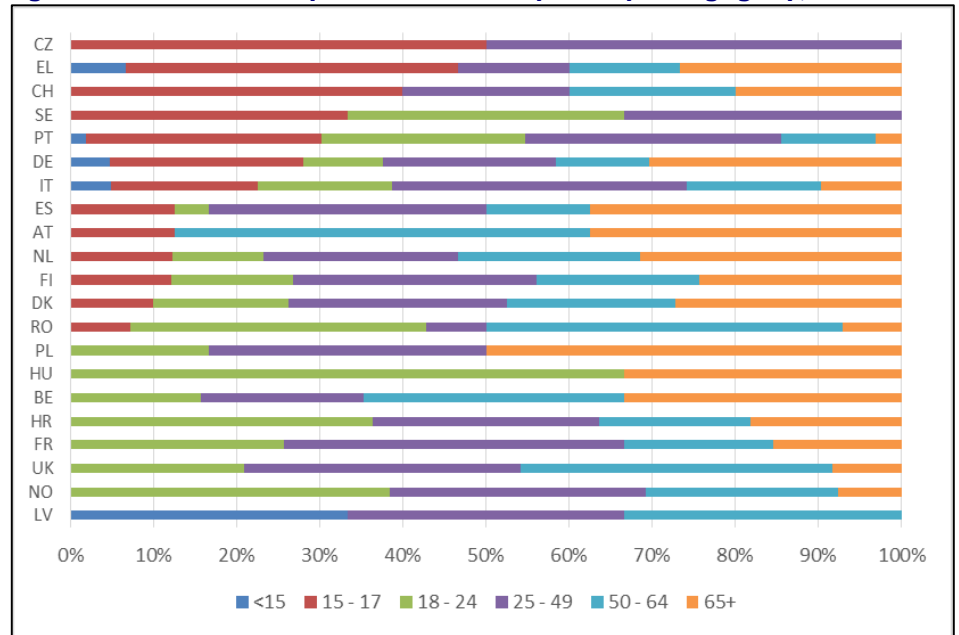
The number of motorcycle rider fatalities fell between 2004 and 2013 for all age groups shown - except the 50+ group (Figure 6).

Figure 6: Number of motorcycle rider fatalities by age group, EU, 2004 and 2013



Source: CARE database, data available in May 2015

Figure 7: Distribution of moped rider fatalities by country and age group, 2013



Source: CARE database, data available in May 2015

Figure 8: Distribution of motorcycle fatalities by country and age group, 2013



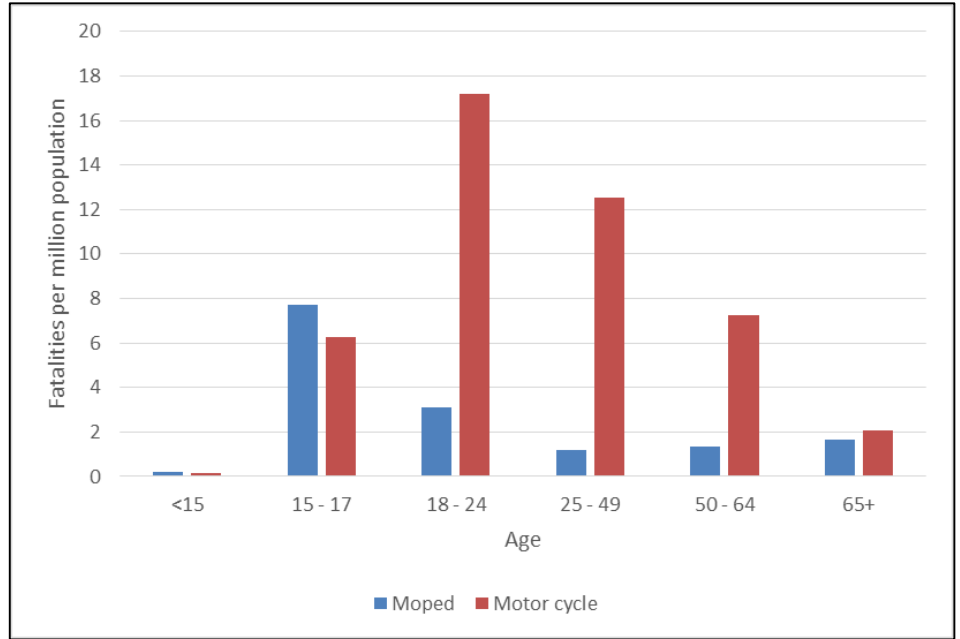
Source: CARE database, data available in May 2015

The enormous differences between countries in the age pattern of PTW fatalities indicate differences in the modal split for certain age groups, e.g. the 65+ moped riders.

Figures 7 and 8 show the fatality rate for moped and motorcycle riders by age group in the EU by country. The enormous differences between countries indicate differences in the modal split for certain age groups, e.g. the 65+ moped riders.

The fatality rates for PTWs users are high especially for young riders, age 15-17 for moped riders and age 18-24 for motorcycle riders.

Figure 9: Motorcycle and moped rider fatality rates per million population by age group, EU, 2013



Source: CARE database (EUROSTAT for population data), data available in May 2015

Figure 9 shows the fatality rate by age group in the EU. The rates for moped riders aged 15-17 and motorcycle riders aged 18-24 are particularly high.

For motorcycles, 4 out of 7 female riders who were killed were passengers; for mopeds 7 out of 9 female riders who were killed were drivers.

Table 6: Total number and distribution of PTW fatalities by country, driver and passenger and gender, 2013 or latest available year

	Female		Male		Total	Driver	Pass-enger
	Driver	Pass-enger	Driver	Pass-enger			
BE	3%	3%	92%	1%	115	96%	4%
BG	0%	2%	92%	6%	53	92%	8%
CZ	1%	1%	96%	1%	72	97%	3%
DK	8%	8%	81%	4%	26	88%	12%
DE	5%	2%	93%	1%	641	98%	2%
EE	0%	20%	80%	0%	5	80%	20%
IE	5%	11%	84%	0%	19	89%	11%
EL	2%	6%	88%	4%	296	90%	10%
ES	3%	6%	91%	0%	356	94%	6%
FR	3%	3%	90%	3%	817	94%	6%
HR	5%	5%	89%	2%	63	94%	6%
IT	4%	3%	89%	4%	849	93%	7%
CY	0%	0%	93%	7%	15	93%	7%
LV	8%	0%	77%	15%	13	85%	15%
LT	-	-	-	-	0	-	-
LU	0%	0%	100%	0%	8	100%	0%
HU	4%	4%	89%	4%	82	93%	7%
MT	0%	0%	100%	0%	3	100%	0%
NL	14%	3%	80%	3%	70	94%	6%
AT	3%	3%	93%	1%	102	96%	4%
PL	3%	2%	92%	3%	315	94%	6%
PT	2%	1%	94%	4%	129	95%	5%
RO	0%	3%	91%	5%	91	91%	9%
SI	0%	5%	95%	0%	21	95%	5%
SK	0%	0%	89%	11%	27	89%	11%
FI	7%	0%	90%	3%	29	97%	3%
SE	7%	0%	91%	2%	43	98%	2%
UK	3%	2%	93%	1%	341	96%	4%
Moped	7%	2%	88%	4%	740	95%	5%
Motorcycle	3%	4%	91%	2%	3.862	94%	6%
EU*	4%	3%	91%	3%	4.602	94%	6%
NO	4%	4%	92%	0%	24	96%	4%
CH	8%	3%	89%	0%	63	97%	3%

Source: CARE database, data available in May 2015

The highest proportion of passengers among PTW fatalities is in Latvia (15%) by comparison with other countries.

Road network: area and road type

The majority of PTW fatalities in all countries occurred on non-motorways (mopeds are not allowed on motorways in most European countries). The majority of moped fatalities occurred in urban areas whereas the majority of motorcycle fatalities in rural areas.

Table 7: Number of motorcycle and moped rider fatalities and percentage of all road fatalities by country, area and road type, 2013 or latest available year

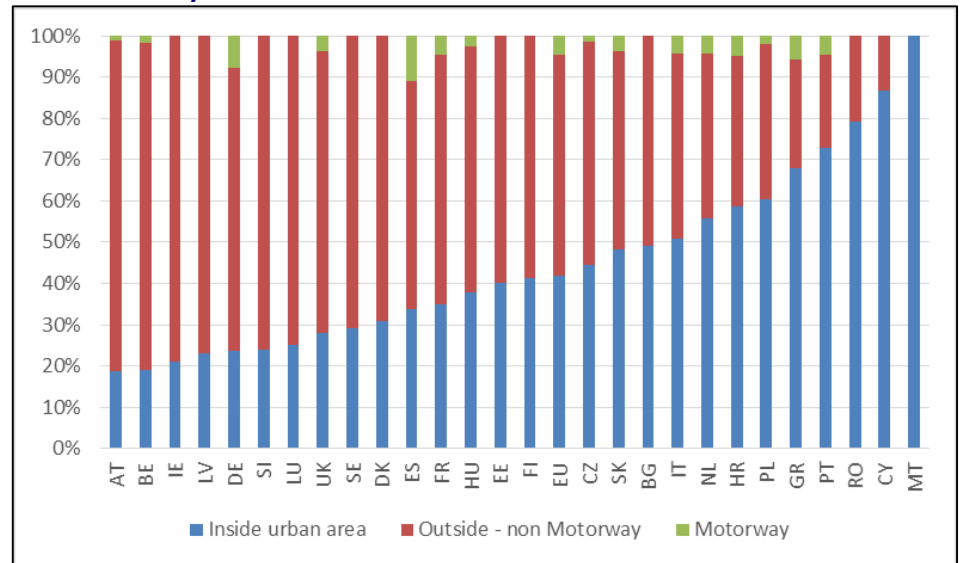
	Moped Fatalities				Motorcycle Fatalities				PTW fatalities as percentage of all fatalities by road type		
	Inside urban area	Outside urban area			Inside urban area	Outside urban area			Inside urban area	Outside urban area	
		Non motorway	Motorway	Not defined		Non motorway	Motorway	Not defined		Non motorway	Motorway
BE	4	9	0	0	18	82	2	0	12%	20%	2%
BG	5	0	0	0	21	27	0	0	8%	5%	0%
CZ	5	1	0	0	27	38	1	0	13%	10%	4%
DK	4	7	0	0	4	11	0	0	14%	15%	0%
DE	25	46	2	0	126	395	47	0	15%	23%	11%
EE	1	2	0	0	1	1	0	0	11%	4%	0%
IE	0	0	0	0	4	15	0	0	11%	12%	0%
GR	20	5	0	0	181	73	17	0	43%	23%	22%
ES	22	33	1	0	99	165	38	0	27%	21%	13%
FR	80	79	0	0	206	414	38	0	31%	23%	16%
HR	12	2	0	0	25	21	3	0	17%	20%	8%
IT	79	45	1	0	353	336	35	0	30%	23%	11%
CY	0	0	0	0	13	2	0	0	43%	17%	0%
LV	0	3	0	0	3	7	0	0	6%	8%	0%
LT	-	-	-	-	-	-	-	-	-	-	-
LU	0	0	0	0	2	6	0	0	13%	25%	0%
HU	14	10	0	0	17	39	2	0	13%	15%	7%
MT	0	0	0	0	3	0	0	0	23%	0%	0%
NL	28	11	0	2	10	16	3	0	19%	13%	5%
AT	8	7	0	0	11	75	1	0	17%	27%	3%
PL	42	20	0	0	148	99	6	0	12%	7%	15%
PT	36	13	2	0	58	16	4	0	27%	12%	14%
RO	32	7	0	0	40	12	0	0	6%	3%	0%
SI	2	1	0	0	3	15	0	0	12%	24%	0%
SK	0	0	0	0	13	13	1	0	8%	7%	7%
FI	3	2	0	0	9	15	0	0	21%	9%	0%
SE	1	2	0	0	11	27	0	2	22%	16%	0%
UK	2	2	0	0	93	231	13	0	17%	21%	14%
EU*	425	307	6	2	1.499	2.151	211	2	19%	17%	11%
%	57,4%	41,5%	0,8%	0,3%	38,8%	55,7%	5,5%	0,1%	-	-	-

Source: CARE database, data available in May 2015

The majority of moped fatalities occurred in urban areas whereas the majority of motorcycle fatalities occurred in rural areas.

The wide range in the distribution of PTW fatalities by area and road type mostly reflects the different share of mopeds and motorcycles in a country.

Figure 10: Distribution of PTW fatalities by country, area and road type, 2013 or latest available year



Source: CARE database, data available in May 2015

Figure 10 shows that there is a considerable variation in the EU countries in the distribution of PTW fatalities by area and road type.

Junction type

Table 8 indicates that less than a quarter of all motorcycle and moped fatalities occur at a junction (22%). The respective figure for car occupant fatalities occurring at a junction is only 14%.

Crossroads is the most dangerous type of junctions for motorcycles and mopeds, as 51% of the overall respective fatalities recorded at a junction occurred there.

Table 9 indicates that the majority of fatalities occurred away from junctions for all transport modes. The highest proportions of fatalities at junctions are found for bicycles and powered two-wheelers.

Table 8: Total number and distribution of motorcycle and moped occupant fatalities by country and junction type, 2013 or latest available year

	Not at junction	At junction					Not defined	Total
		Cross-road	Roundabout	T or staggered junction	Not at grade (interchange)	Other junction		
BE	77%	0%	3%	0%	0%	20%	0%	115
BG	77%	23%	0%	0%	0%	0%	0%	53
CZ	69%	18%	0%	13%	0%	0%	0%	72
DK	65%	4%	0%	31%	0%	0%	0%	26
DE	71%	0%	0%	0%	0%	0%	29%	641
EE	60%	20%	0%	0%	0%	20%	0%	5
IE	0%	0%	5%	0%	0%	0%	95%	19
EL	91%	0%	0%	0%	0%	0%	9%	296
ES	71%	11%	3%	12%	0%	3%	0%	358
FR	79%	10%	1%	8%	0%	3%	0%	817
HR	78%	8%	0%	11%	0%	0%	3%	63
IT	68%	12%	3%	18%	0%	0%	0%	849
CY	47%	13%	0%	40%	0%	0%	0%	15
LV	92%	0%	0%	0%	0%	8%	0%	13
LT	-	-	-	-	-	-	-	-
LU	75%	13%	0%	13%	0%	0%	0%	8
HU	73%	13%	0%	13%	0%	0%	0%	82
MT	0%	0%	0%	0%	0%	0%	100%	3
NL	56%	40%	3%	0%	0%	1%	0%	70
AT	74%	18%	1%	2%	0%	6%	0%	102
PL	77%	21%	0%	0%	0%	1%	0%	315
PT	68%	5%	3%	20%	1%	0%	2%	129
RO	81%	19%	0%	0%	0%	0%	0%	91
SI	90%	5%	5%	0%	0%	0%	0%	21
SK	70%	7%	0%	22%	0%	0%	0%	27
FI	66%	0%	0%	0%	0%	0%	34%	29
SE	0%	0%	0%	0%	0%	0%	100%	43
UK	54%	7%	4%	26%	0%	10%	0%	341
EU	3.289	429	70	420	1	103	291	4.603
%	71%	9%	2%	9%	0%	2%	6%	100%

Source: CARE database, data available in May 2015

Table 9: Distribution of fatalities by “junction” and mode of transport, EU, 2013

	Not at junction	At junction	Not defined
Pedestrian	76,1%	19,5%	4,4%
Bicycle	56,4%	34,8%	8,8%
Moped	64,5%	31,0%	4,5%
Motorcycle	68,0%	25,7%	6,3%
Car and taxi	82,3%	13,8%	3,9%
Lorry, under 3,5 t.	79,5%	10,8%	9,7%
Heavy goods vehicle	88,4%	6,8%	4,8%
Other / Unknown	71,9%	18,2%	10,0%
EU* all modes	75,9%	19,0%	5,0%

Source: CARE database, data available in May 2015

The highest percentage of fatalities occurring at junctions are found for cyclists and powered two-wheelers' riders.

More than two thirds of PTW fatalities occurred from April to September.

Month of the year

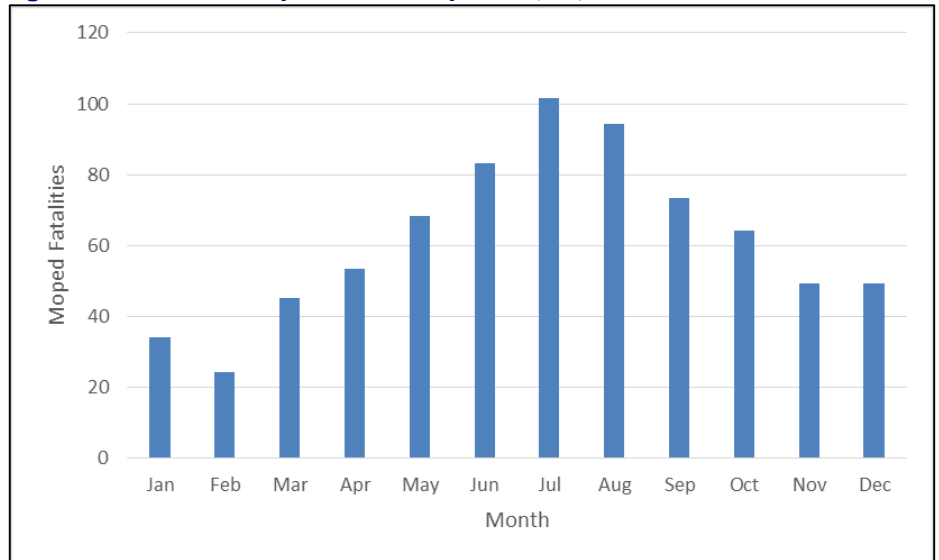
Table 10: Number of motorcycle and moped fatalities by country and month, 2013 or latest available year

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
BE	3	3	4	13	12	16	17	13	11	11	8	4	115
BG	0	0	2	5	9	8	6	10	8	3	1	1	53
CZ	0	0	0	10	9	4	16	16	9	8	0	0	72
DK	2	0	0	3	6	3	4	4	0	2	2	0	26
DE	7	0	20	46	83	89	118	103	86	67	14	8	641
EE	0	0	0	0	0	0	4	0	1	0	0	0	5
IE	0	3	1	2	2	1	4	0	3	3	0	0	19
GR	12	14	16	33	17	28	39	38	31	25	23	20	296
ES	18	22	22	25	34	38	44	45	31	27	26	24	358
FR	23	36	45	78	61	111	115	98	84	71	55	40	817
HR	0	0	1	4	7	11	14	5	11	5	2	3	63
IT	35	31	33	66	91	117	104	129	106	65	40	32	849
CY	0	0	1	2	3	2	1	0	1	0	4	1	15
LV	0	0	0	0	1	2	4	3	0	0	3	0	13
LT	-	-	-	-	-	-	-	-	-	-	-	-	-
LU	0	0	1	0	0	0	2	3	2	0	0	0	8
HU	1	0	2	10	11	9	11	14	13	9	2	0	82
MT	0	0	0	2	0	0	0	1	0	0	0	0	3
NL	1	1	5	4	7	3	7	11	7	11	4	9	70
AT	0	0	1	13	13	16	16	21	15	5	2	0	102
PL	1	3	5	22	45	54	51	57	32	31	8	6	315
PT	5	3	10	9	13	14	16	18	14	13	8	6	129
RO	1	1	4	10	10	12	14	15	11	7	4	2	91
SI	1	0	0	3	3	7	2	2	2	1	0	0	21
SK	0	1	0	4	1	6	3	6	1	4	1	0	27
FI	0	0	0	2	5	5	11	4	1	0	0	1	29
SE	0	0	1	2	10	6	10	4	7	2	1	0	43
UK	16	10	18	27	42	36	51	45	37	31	14	14	341
Moped	34	24	45	53	68	83	101	94	73	64	49	49	741
Motorcycle	92	104	147	342	427	515	583	571	451	337	172	122	3.862
EU*	126	128	192	395	495	598	684	665	524	401	222	171	4.603
%	3%	3%	4%	9%	11%	13%	15%	14%	11%	9%	5%	4%	100%
NO	1	1	0	1	3	0	4	6	7	1	0	0	24
CH	0	0	4	3	8	10	8	10	7	5	4	4	63

Source: CARE database, data available in May 2015

As a reflection of the seasonal pattern of the use of mopeds and motorcycles the majority of PTW fatalities occurred during the more warm and dry months of the year.


Figure 11: Number of moped fatalities by month, EU, 2013



Source: CARE database, data available in May 2015

In Figures 11 and 12 the fatalities' annual distribution by month is displayed for mopeds and motorcycles, respectively.

The number of moped fatalities does not vary over the months as much as the numbers of motorcycle fatalities which display a more distinct break between the summer and the winter season (November to March).



 The number of moped fatalities does not vary over the months as much as the numbers of motorcycle fatalities.


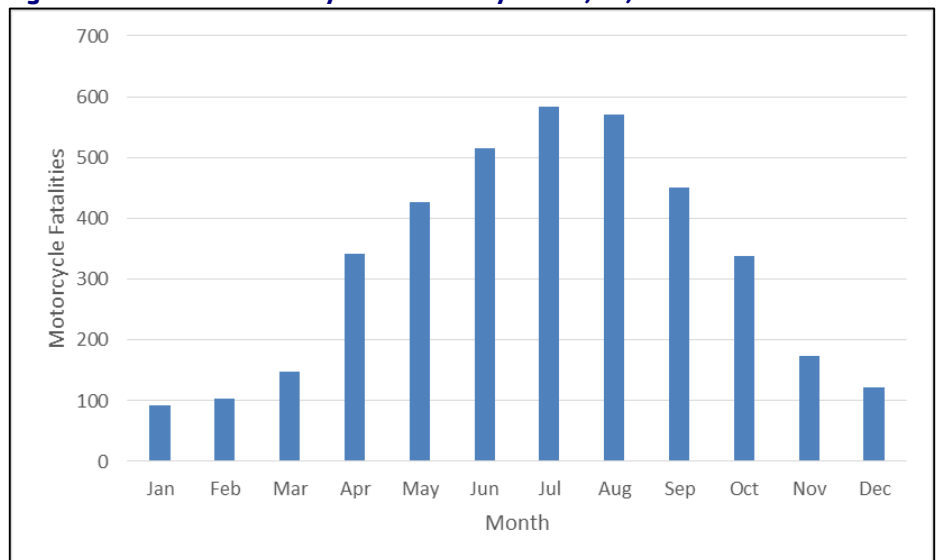
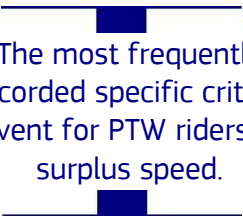


Figure 12: Number of motorcycle fatalities by month, EU, 2013



Source: CARE database, data available in May 2015

Figure 11 confirms the seasonal pattern of motorcycle accidents, with most fatalities occurring from April to October.



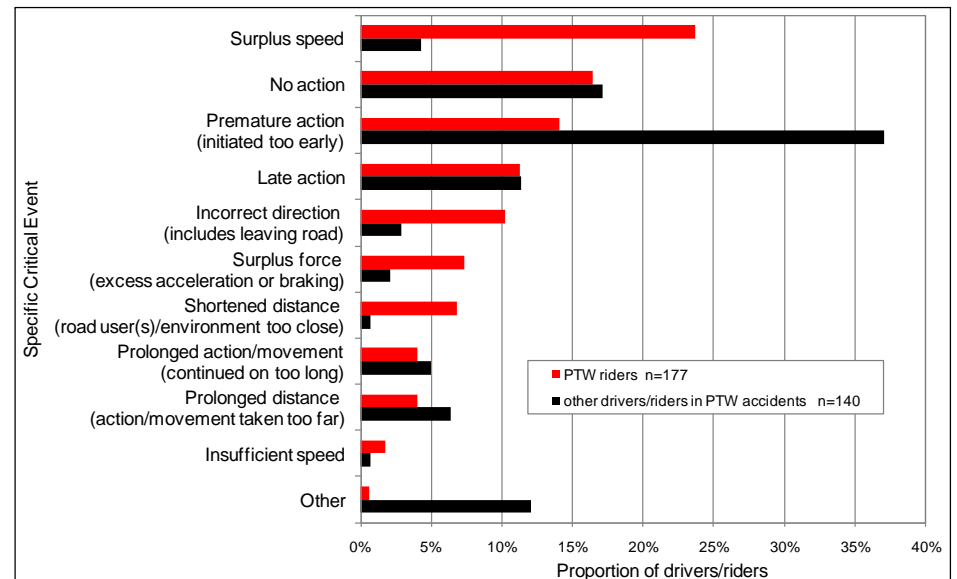
 The most frequently recorded specific critical event for PTW riders is surplus speed.

Accident Causation

During the EC SafetyNet project, in-depth data were collected using a common methodology for samples of accidents that occurred in Germany, Italy, The Netherlands, Finland, Sweden and the UK¹². The SafetyNet Accident Causation Database was formed between 2005 and 2008 and contains details of 1,006 accidents covering all injury severities. A detailed process for recording causation (SafetyNet Accident Causation System – SNACS) attributes one specific critical event to each driver, rider or pedestrian. Links then form chains between the critical event and the causes that led to it. For example, the critical event of late action could be linked to the cause observation missed, which was a consequence of fatigue, itself a consequence of an extensive driving spell.

In the database, 17% (175) of the accidents involve the rider of a powered two wheeler (PTW – motorcycle or moped). Males account for 83% of this group and the mean age is 32 years old. Figure 13 compares the distributions of specific critical events for PTW riders and other drivers or riders in PTW accidents.

Figure 13: Distribution of specific critical events - PTW riders and other drivers/riders in PTW accidents



Source: SafetyNet Accident Causation Database 2005 to 2008 / EC; N=317
Date of query: 2010

The most frequently recorded specific critical event for PTW riders is surplus speed, very much in contrast to other drivers/riders in PTW accidents. Surplus speed describes speed that is too high for the conditions or manoeuvre being carried out, travelling above the speed limit and also if the rider is travelling at a speed unexpected by other road users.

It is recognised that the PTW riders here are in a mix of single vehicle and multiple vehicle accidents, whilst the other drivers/riders are, by

¹ SafetyNet D5.5, Glossary of Data Variables for Fatal and Accident Causation Databases

² SafetyNet D5.8, In-Depth Accident Causation Database and Analysis Report

selection, in multiple vehicle accidents. Single vehicle accidents will be reflected in higher representations of surplus speed and incorrect direction (as it includes leaving the road).

The events under the general category of ‘timing’, no action, premature action and late action, account for the next three most frequent events after surplus speed. Premature action (one undertaken before a signal has been given or the required conditions are established, for example entering a junction too early) is recorded far more often for the other drivers/riders in PTW accidents than for the PTW riders.

Table 11 gives the most frequent links between causes for PTW riders. For this group there are 196 such links in total.

Table 11: Ten most frequent links between causes – PTW riders

Links between causes	Frequency
Faulty diagnosis - Information failure (driver/environment or driver/vehicle)	26
Inadequate plan - Insufficient knowledge	24
Observation missed - Permanent obstruction to view	16
Observation missed - Temporary obstruction to view	16
Observation missed - Inadequate plan	13
Observation missed - Inattention	12
Faulty diagnosis - Communication failure	8
Inadequate plan - Psychological stress	8
Observation missed - Faulty diagnosis	5
Insufficient knowledge - Inadequate training	5
Others	63
Total	196

Source: SafetyNet Accident Causation Database 2005 to 2008 / EC
Date of query: 2010

Faulty diagnosis, inadequate plan and observation missed are frequently recorded causes. Faulty diagnosis is an incorrect or incomplete understanding of road conditions or another road user’s actions. It is linked to both information failure (for example, a rider thinking another vehicle was moving when it was in fact stopped and colliding with it) and communication failure (for example, pulling out in the continuing path of a driver who has indicated for a turn too early).

The main cause leading to inadequate plan (a lack of all the required details or that the driver’s ideas do not correspond to reality) is lack of knowledge (for example, not understanding a complex junction layout), followed by psychological stress. The causes leading to observation missed can be seen to fall into two groups, physical ‘obstruction to view’ type causes (for example, parked cars at a junction) and human factors (for example, not observing a red light due to distraction or inattention).

13% of the links between causes are observed to be between ‘faulty diagnosis’ and ‘information failure’.

By 2012, thirteen member states routinely collected data in a sample of hospitals and contributed them to the EU injury Database.

According to estimates based on the EU IDB more than four million people are injured annually in road traffic accidents, one million of whom have to be admitted to hospital.

Road Accident Health Indicators

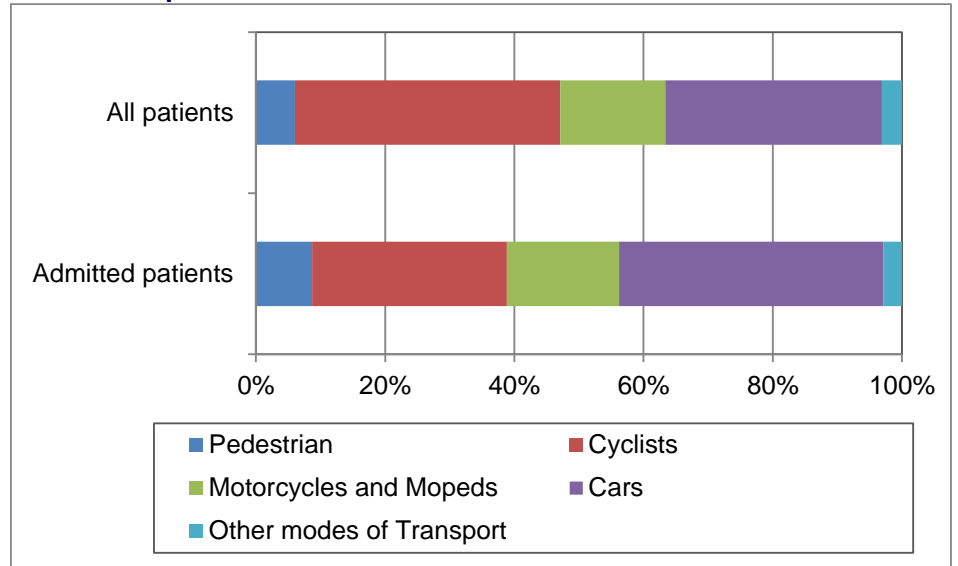
Injury data can be obtained from a wide range of sources, such as police and ambulance reports, national insurance schemes, and hospital records, each of which provides a specific but yet incomplete picture of the injuries suffered in road accidents. In order to obtain a comprehensive view of these injuries, the EU Council issued a Recommendation that urges member states to use synergies between existing data sources and to develop national injury surveillance systems rooted in the health sector.³At present, thirteen member states are routinely collecting injury data in a sample of hospitals and delivering these data to the Commission. This system is called the EU Injury Database (EU IDB).⁴

Within the EU IDB “transport module” road accidents are recorded by “mode of transport”, “role of injured person” and “counterpart”. These variables can complement information from police records, e.g. for injury patterns and improved assessment of injury severity (percentage of casualties admitted to hospital, the mean length of stay of hospital admissions, the nature and type of body part injured, and potentially also long term consequences of injuries).

³OJ C 164/1, 18.7.2007

⁴<https://webgate.ec.europa.eu/sanco/heid/index.php/IDB>

Figure 14: Distribution of non-fatal road accident casualties attending hospital by mode of transport

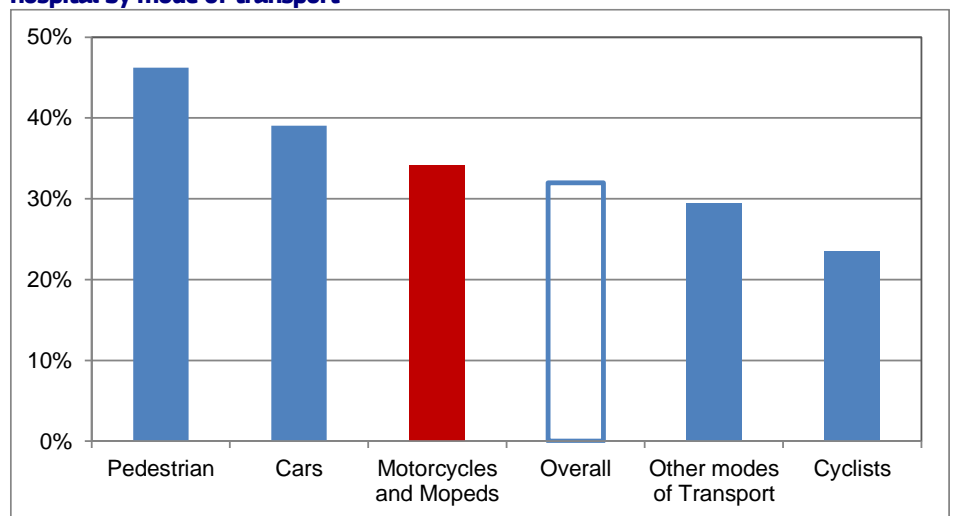


Source: EU Injury Database (EU IDB AI) - hospital treated patients. IDB AI Transport module and place of occurrence (code 6.n [public road]);n-all =73.600; n-admitted = 23.568 (DE, DK, LV, MT, AT, NL, SE, SI, CY, years 2005-2008).


Figure 14 indicates that vulnerable road users (pedestrians, cyclists, motorcycles and mopeds) accounted for almost two thirds (63%) of road accident casualties attending a hospital, and for over half of casualties admitted to a hospital (56%).

Figure 15 shows that overall 32% of road accident casualties recorded in the IDB were admitted to the hospital, compared with 34% of riders of mopeds and motorcycles. Figure 16 shows that the overall average length of stay was eight days, compared with almost ten days for riders of mopeds and motorcycles.

Figure 15: Percentage of non-fatal road accident casualties who were admitted to hospital by mode of transport



Source: EU Injury Database (EU IDB AI) - hospital treated patients. IDB AI Transport module and place of occurrence (code 6.n [public road]);n-all =73.600; n-admitted = 23.568 (DE, DK, LV, MT, AT, NL, SE, SI, CY, years 2005-2008).



 34% of the moped & motor cycle casualties who attended a hospital were admitted to the hospital; their average stay in hospital was almost ten days.


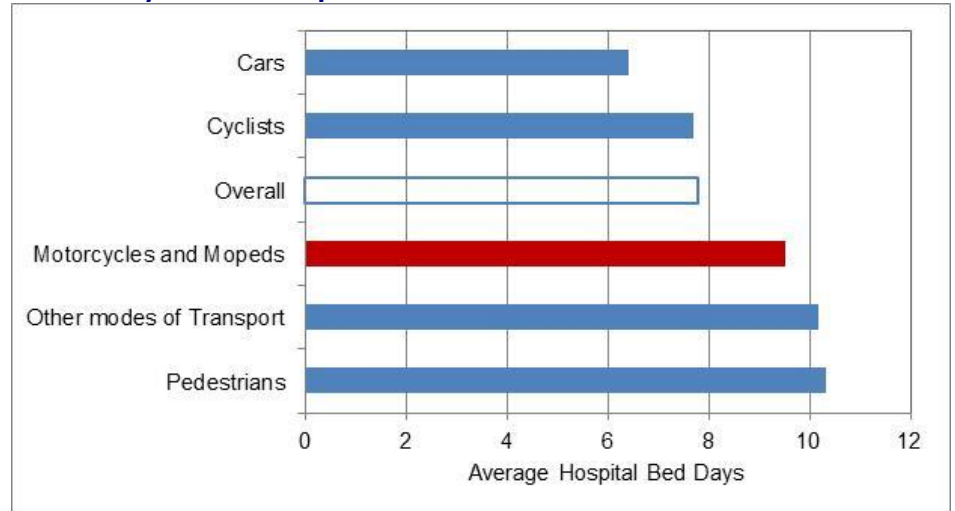
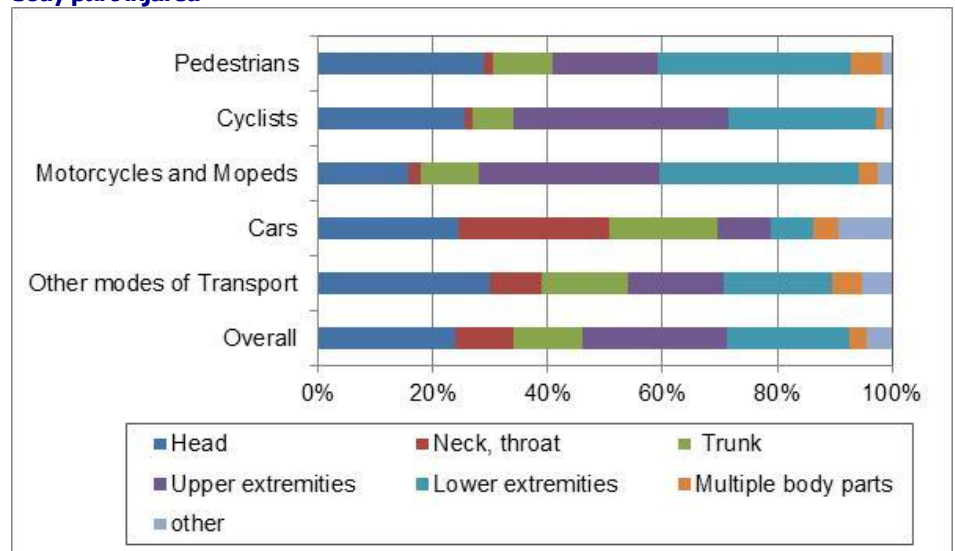


Figure 16: Average length of stay (hospital bed days) of non-fatal road accident casualties by mode of transport



Source: EU Injury Database (EU IDB AI) - hospital treated patients. IDB AI Transport module and place of occurrence (code 6.n [public road]);n-all =73.600: n-admitted = 23.568 (DE, DK, LV, MT, AT, NL, SE, SI, CY, years 2005-2008).

Figure 17: Distribution of non-fatal road accident casualties by mode of transport and body part injured



Source: EU Injury Database (EU IDB AI) - hospital treated patients. IDB AI Transport module and place of occurrence (code 6.n [public road]);n-all =73.600: n-admitted = 23.568 (DE, DK, LV, MT, AT, NL, SE, SI, CY, years 2005-2008).

Naturally, hospital data can provide information on the injury patterns sustained by the accident victims. Figure 17 presents the distribution of body parts injured of the various road user types. Injured riders of mopeds and motorcycles, for example, suffered relatively many injuries to the lower extremities.

Table 12 shows the types of injury most frequently recorded in the EU IDB. It compares the distribution of injuries among riders of mopeds and motorcycles and all types of road users.

Fractures account for more than 40% of all injuries inflicted on moped & motor cycle casualties attending hospital.

Table 12: Ten most frequently recorded types of injury by mode of transport

	Mopeds & motorcycles	All modes of transport
Contusion, bruise	26%	34%
Fracture	42%	27%
Open wound	10%	10%
Distortion, sprain	3%	8%
Concussion	6%	7%
Other specified brain injury	2%	2%
Luxation, dislocation	2%	2%
Injury to muscle and tendon	1%	2%
Abrasion	1%	1%
Injury to internal organs	1%	1%
Other specified types of injury	6%	6%
Total	100%	100%

Source: EU Injury Database (EU IDB AI) - hospital treated patients. IDB AI Transport module and place of occurrence (code 6.n [public road]);n-all =73.600: n-admitted = 23.568 (DE, DK, LV, MT, AT, NL, SE, SI, CY, years 2005-2008).

Notes

1. Country abbreviations

 Belgium	BE	 Italy	IT	 Romania	RO
 Bulgaria	BG	 Cyprus	CY	 Slovenia	SI
 Czech Republic	CZ	 Latvia	LV	 Slovakia	SK
 Denmark	DK	 Lithuania	LT	 Finland	FI
 Germany	DE	 Luxembourg	LU	 Sweden	SE
 Estonia	EE	 Hungary	HU	 United Kingdom	UK
 Ireland	IE	 Malta	MT		
 Greece	EL	 Netherlands	NL	 Iceland	IS
 Spain	ES	 Austria	AT	 Liechtenstein	LI
 France	FR	 Poland	PL	 Norway	NO
 Croatia	HR	 Portugal	PT	 Switzerland	CH

2. Sources: CARE (Community database on road accidents)

The full glossary of definitions of variables used in this Report is available at:
http://ec.europa.eu/transport/road_safety/pdf/statistics/cadas_glossary.pdf

3. Data available in May 2015.

4. Data refer to 2013 and when not available the latest available data are used (2009 data for BG and EE, 2010 data for MT and SK, and 2012 data for IE). Totals and related average percentages for EU also include latest available data.

5. Lithuanian data not included in the totals.

6. Data for 2013 for Italy have been modified after the publication of the 2015 edition of Traffic Safety Basic Facts.

7. This 2015 edition of Traffic Safety Basic Facts updates the previous versions produced within the EU co-funded research projects SafetyNet and DaCoTA.

8. Disclaimer

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9. Please refer to this Report as follows:

European Commission, Traffic Safety Basic Facts on Motorcycles & Mopeds, European Commission, Directorate General for Transport, June 2015.

