

# Traffic Safety Basic Facts 2016



## Motorcycles and Mopeds



## General

In 2014, about 26.000 people were killed in road accidents throughout the EU. Motorcycle and moped fatalities, together referred to as Powered Two Wheelers (PTW), accounted for 17% of those fatalities (16% in 2005). The two types of PTW will be discussed separately when possible, but some countries do not distinguish between motorcycles and mopeds.

In 2014, at least 723 riders (drivers and passengers) of mopeds were killed in the EU in accidents. As compared to 2005, this count has decreased by almost 56% for the set of countries in Table 1a.

**Table 1a: Moped fatalities by country, 2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>BE</b>	30	36	26	32	25	22	20	15	13	17
<b>BG</b>	-	-	-	9	5	-	-	-	-	-
<b>CZ</b>	8	3	3	2	9	7	7	7	6	8
<b>DK</b>	29	24	48	30	15	11	14	14	11	13
<b>DE</b>	107	107	100	110	99	74	70	93	73	87
<b>EE</b>	2	2	4	6	3	0	-	1	0	0
<b>IE</b>	-	-	-	-	-	-	-	-	-	-
<b>EL</b>	58	57	43	41	28	36	34	35	25	20
<b>ES</b>	312	303	233	181	156	99	73	67	56	54
<b>FR</b>	356	317	324	291	299	248	220	179	159	165
<b>HR</b>	-	-	20	27	15	15	10	16	14	11
<b>IT</b>	385	346	358	292	212	206	165	127	125	112
<b>CY</b>	9	5	8	8	4	3	3	3	0	4
<b>LV</b>	5	6	4	4	1	4	5	3	3	6
<b>LT</b>	-	-	-	-	-	-	-	-	4	1
<b>LU</b>	0	0	1	0	0	0	0	0	0	0
<b>HU</b>	40	42	31	26	23	19	31	25	24	17
<b>MT</b>	-	-	-	-	-	-	-	-	-	-
<b>NL</b>	56	63	60	51	47	32	36	40	41	32
<b>AT</b>	41	39	24	25	30	18	18	19	15	16
<b>PL</b>	53	57	59	87	68	83	87	82	62	71
<b>PT</b>	106	97	71	71	58	77	71	57	51	43
<b>RO</b>	20	45	81	150	122	114	87	99	39	30
<b>SI</b>	5	12	12	8	3	7	2	3	4	-
<b>SK</b>	-	-	-	-	-	-	-	-	10	-
<b>FI</b>	4	13	11	13	11	9	10	7	5	3
<b>SE</b>	8	15	14	11	11	8	11	8	3	8
<b>UK</b>	23	29	18	21	16	10	10	12	4	6
<b>EU</b>	<b>1.657</b>	<b>1.618</b>	<b>1.552</b>	<b>1.496</b>	<b>1.260</b>	<b>1.102</b>	<b>984</b>	<b>912</b>	<b>743</b>	<b>723</b>
<b>Yearly Change</b>		-2%	-4%	-4%	-16%	-13%	-11%	-7%	-18%	-3%
<b>IS</b>	0	0	0	0	0	0	1	0	0	0
<b>NO</b>	4	3	7	5	2	0	4	4	3	2
<b>CH</b>	6	11	7	9	8	4	4	3	8	1

Source: CARE database, data available in May 2016

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 56% between 2005 and 2014.

In the EU the number of motorcycle rider fatalities decreased by about 32% between 2005 and 2014.

In 2014, at least 3.841 riders (drivers and passengers) of motorcycles were killed in the EU in road accidents. As compared to 2005 this count has decreased by about 32% for the set of countries in Table 1b.

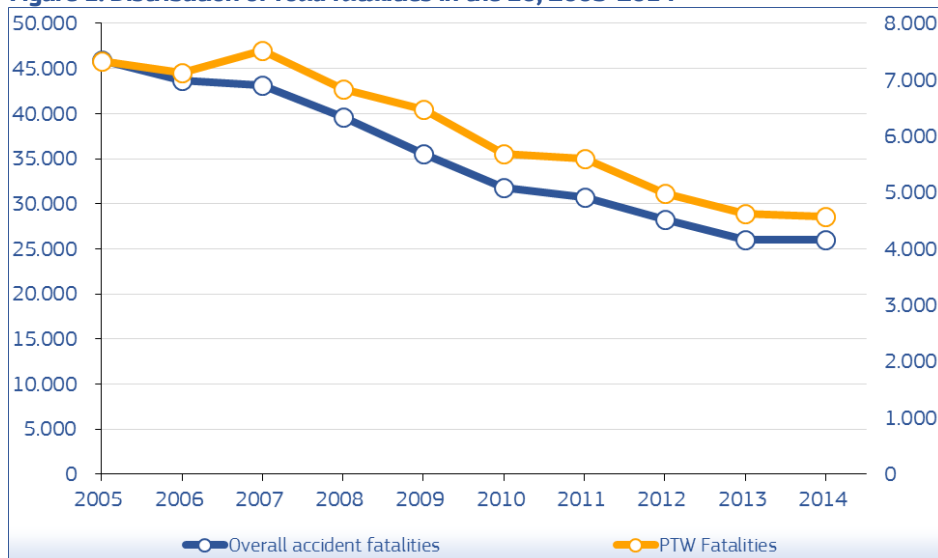
**Table 1b: Motorcycle fatalities by country, 2005-2014**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>BE</b>	123	130	139	108	137	102	127	87	102	85
<b>BG</b>	-	-	-	67	48	-	-	-	-	-
<b>CZ</b>	116	113	136	121	85	92	77	86	66	88
<b>DK</b>	16	21	36	40	27	22	23	10	15	18
<b>DE</b>	875	793	807	656	650	635	708	586	568	587
<b>EE</b>	5	5	10	1	2	0	0	0	0	0
<b>IE</b>	56	29	33	29	25	17	18	19	26	-
<b>EL</b>	399	440	420	394	405	367	305	282	271	278
<b>ES</b>	472	488	640	484	437	386	348	304	302	287
<b>FR</b>	892	789	853	817	908	734	786	692	658	649
<b>HR</b>	-	-	96	100	81	51	76	62	49	44
<b>IT</b>	1.120	1.127	1.182	1.085	1.037	950	923	847	728	704
<b>CY</b>	14	20	16	16	19	18	13	11	15	9
<b>LV</b>	11	10	10	14	10	17	6	7	10	10
<b>LT</b>	-	-	-	-	-	-	-	-	15	13
<b>LU</b>	6	8	5	9	7	1	3	5	8	8
<b>HU</b>	100	89	112	91	73	49	52	39	58	58
<b>MT</b>	3	2	4	3	2	3	-	-	-	-
<b>NL</b>	77	57	64	67	68	60	50	53	29	51
<b>AT</b>	98	95	96	91	87	68	67	68	87	76
<b>PL</b>	157	164	215	262	290	259	292	261	253	237
<b>PT</b>	188	137	145	116	115	126	116	104	78	91
<b>RO</b>	23	35	73	90	74	59	69	62	52	45
<b>SI</b>	33	42	41	40	28	17	25	18	17	-
<b>SK</b>	45	37	54	39	34	27	-	-	-	-
<b>FI</b>	32	26	32	36	27	18	29	21	24	17
<b>SE</b>	46	55	60	51	47	37	46	31	40	31
<b>UK</b>	561	583	596	488	472	403	359	320	337	347
<b>EU</b>	<b>5.631</b>	<b>5.458</b>	<b>5.942</b>	<b>5.315</b>	<b>5.195</b>	<b>4.566</b>	<b>4.596</b>	<b>4.053</b>	<b>3.871</b>	<b>3.841</b>
<b>Yearly Change</b>		-3%	9%	-10%	-2%	-12%	1%	-12%	-4%	-1%
<b>IS</b>	1	3	3	1	2	1	0	0	1	0
<b>NO</b>	31	34	33	32	27	26	13	17	21	20
<b>CH</b>	86	69	82	83	78	68	68	74	55	53

Source: CARE database, data available in May 2016  
Totals for EU include latest available data

# Traffic Safety Basic Facts 2016 – Motorcycles & Mopeds

**Figure 1: Distribution of road fatalities in the EU, 2005-2014**

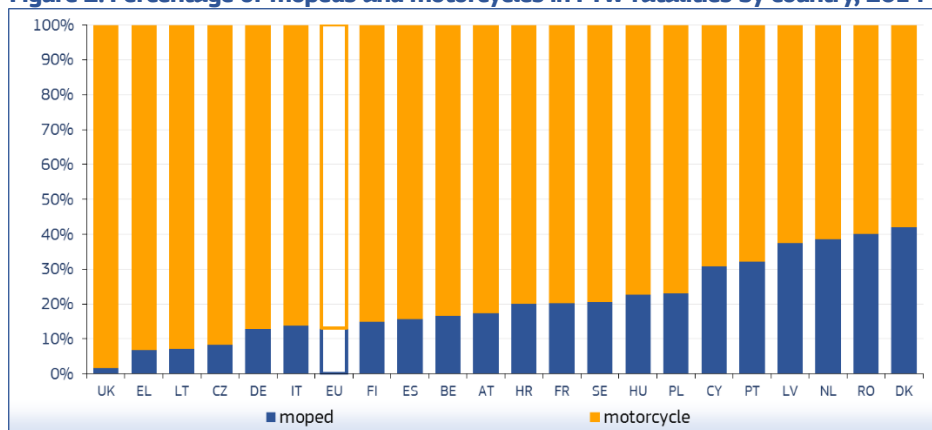


Source: CARE database, data available in May 2016

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

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. Ireland does not distinguish between motorcycles and mopeds. Mopeds are counted as motorcycles).

**Figure 2: Percentage of mopeds and motorcycles in PTW fatalities by country, 2014**



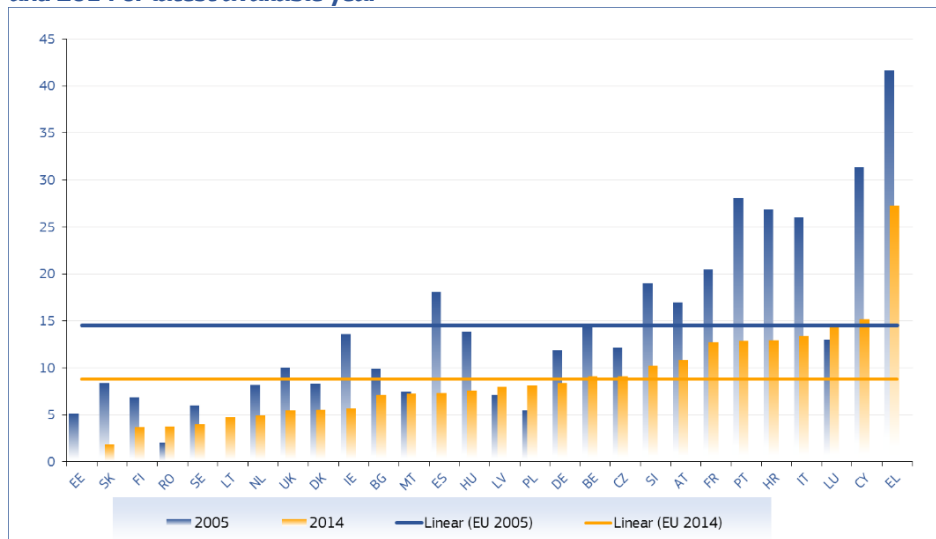
Source: CARE database, data available in May 2016



The fatality rate of PTW in 2014 is particularly high in Greece.

The most significant reduction in the number of motorcycle and moped fatalities between 2005 and 2014 occurred in Cyprus, Italy and Portugal.

**Figure 3: Motorcycle and moped rider fatalities per million population in the EU, 2005 and 2014 or latest available year**



Sources: CARE database (EUROSTAT for population data), data available in May 2016

Figure 3 indicates that between 2005 and 2014 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 2 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.

# Traffic Safety Basic Facts 2016 – Motorcycles & Mopeds

**Table 2: Fatality rate (per million population) of PTW riders by country, 2005-2014 or latest available year**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>BE</b>	14,6	15,8	15,6	13,1	15,1	11,4	13,4	9,2	10,3	9,1
<b>BG</b>	-	-	-	10,1	7,1	-	-	-	-	-
<b>CZ</b>	12,2	11,3	13,6	11,9	9,0	9,5	8,0	8,9	6,8	9,1
<b>DK</b>	8,3	8,3	15,4	12,8	7,6	6,0	6,7	4,3	4,6	5,5
<b>DE</b>	11,9	10,9	11,0	9,3	9,1	8,7	9,5	8,3	7,8	8,3
<b>EE</b>	5,2	5,2	10,4	5,2	3,7	0,0	0,0	0,8	0,0	0,0
<b>IE</b>	13,6	6,9	7,6	6,5	5,5	3,7	3,9	4,1	4,1	-
<b>EL</b>	41,7	45,2	42,0	39,3	39,0	36,2	30,5	28,6	26,9	27,3
<b>ES</b>	18,1	18,0	19,5	14,6	12,8	10,5	9,0	7,9	7,7	7,3
<b>FR</b>	20,5	18,0	19,0	17,8	19,3	15,6	16,0	13,7	12,8	12,7
<b>HR</b>	26,9	26,9	26,9	29,5	22,3	15,3	20,0	18,2	14,8	13,0
<b>IT</b>	26,0	25,4	26,4	23,5	21,2	19,5	18,3	16,4	14,3	13,4
<b>CY</b>	31,4	33,6	31,7	30,9	28,9	25,6	19,1	16,2	17,3	15,2
<b>LV</b>	7,1	7,2	6,3	8,2	5,1	9,9	5,3	4,9	6,4	8,0
<b>LT</b>	-	-	-	-	-	-	-	-	6,4	4,8
<b>LU</b>	13,0	17,1	12,6	18,6	14,2	2,0	5,9	9,5	14,9	14,6
<b>HU</b>	13,9	13,0	14,2	11,6	9,6	6,8	8,3	6,4	8,3	7,6
<b>MT</b>	7,5	4,9	9,9	7,4	4,9	7,2	-	-	-	-
<b>NL</b>	8,2	7,3	7,6	7,2	7,0	5,6	5,2	5,6	4,2	4,9
<b>AT</b>	16,9	16,2	14,5	14,0	14,0	10,3	10,1	10,3	12,1	10,8
<b>PL</b>	5,5	5,8	7,2	9,2	9,4	9,0	10,0	9,0	8,3	8,1
<b>PT</b>	28,0	22,2	20,5	17,7	16,4	19,2	17,7	15,3	12,3	12,9
<b>RO</b>	2,0	3,8	7,3	11,6	9,6	8,5	7,7	8,0	4,5	3,8
<b>SI</b>	19,0	27,0	26,4	23,9	15,3	11,7	13,2	10,2	10,2	-
<b>SK</b>	8,4	6,9	10,0	7,3	6,3	5,0	-	-	5,0	-
<b>FI</b>	6,9	7,4	8,1	9,2	7,1	5,0	7,3	5,2	5,3	3,7
<b>SE</b>	6,0	7,7	8,1	6,8	6,3	4,8	6,1	4,1	4,5	4,0
<b>UK</b>	10,0	10,4	10,4	8,6	8,2	6,6	5,9	5,2	5,3	5,5
<b>EU</b>	<b>14,9</b>	<b>14,4</b>	<b>15,2</b>	<b>13,7</b>	<b>13,0</b>	<b>11,3</b>	<b>11,1</b>	<b>9,9</b>	<b>9,1</b>	<b>9,0</b>
<b>IS</b>	3,4	10,0	9,8	3,2	6,3	3,1	3,1	0,0	3,1	0,0
<b>NO</b>	7,6	8,0	8,5	7,8	6,0	5,4	3,5	4,2	4,8	4,3
<b>CH</b>	12,4	10,7	11,9	12,1	11,2	9,2	9,1	9,7	7,8	6,6

Sources: CARE database (EUROSTAT for population data), data available in May 2016

# Traffic Safety Basic Facts 2016 – Motorcycles & Mopeds

**Map 1: PTW fatality rates per million population by country, 2014 or latest available year**



In 2014, riders of PTW made up 18% of the total road accident fatalities in EU.

**Table 3: PTW rider fatalities as percentages of the total number of road accident fatalities by country, 2005-2014 or latest available year**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>BE</b>	14%	16%	15%	15%	17%	15%	17%	13%	16%	14%
<b>BG</b>	-	-	-	7%	6%	-	-	-	-	-
<b>CZ</b>	10%	11%	11%	11%	10%	12%	11%	13%	11%	14%
<b>DK</b>	14%	15%	21%	17%	14%	13%	17%	14%	14%	17%
<b>DE</b>	18%	18%	18%	17%	18%	19%	19%	19%	19%	20%
<b>EE</b>	4%	3%	7%	5%	5%	0%	0%	1%	0%	0%
<b>IE</b>	14%	8%	10%	10%	11%	8%	10%	12%	10%	-
<b>EL</b>	28%	30%	29%	28%	30%	32%	30%	32%	34%	37%
<b>ES</b>	18%	19%	23%	21%	22%	20%	20%	19%	21%	20%
<b>FR</b>	23%	23%	25%	26%	28%	25%	25%	24%	25%	24%
<b>HR</b>	19%	19%	19%	19%	18%	15%	21%	20%	17%	18%
<b>IT</b>	26%	26%	30%	29%	29%	28%	28%	26%	25%	24%
<b>CY</b>	23%	29%	27%	29%	32%	35%	23%	27%	34%	29%
<b>LV</b>	4%	4%	3%	6%	4%	10%	6%	6%	7%	8%
<b>LT</b>	-	-	-	-	-	-	-	-	7%	5%
<b>LU</b>	13%	19%	13%	26%	15%	3%	9%	15%	18%	23%
<b>HU</b>	11%	10%	12%	12%	12%	9%	13%	11%	14%	12%
<b>MT</b>	18%	18%	33%	33%	13%	23%	-	-	-	-
<b>NL</b>	18%	16%	17%	17%	18%	17%	16%	17%	15%	17%
<b>AT</b>	18%	18%	17%	17%	18%	16%	16%	16%	22%	21%
<b>PL</b>	4%	4%	5%	6%	8%	9%	9%	10%	9%	10%
<b>PT</b>	24%	24%	22%	21%	21%	22%	21%	22%	20%	21%
<b>RO</b>	2%	3%	6%	8%	7%	7%	8%	8%	5%	4%
<b>SI</b>	15%	21%	18%	22%	18%	17%	19%	16%	17%	-
<b>SK</b>	7%	6%	8%	6%	9%	7%	-	-	8%	-
<b>FI</b>	9%	12%	11%	14%	14%	10%	13%	11%	11%	9%
<b>SE</b>	12%	16%	16%	16%	16%	17%	18%	14%	17%	14%
<b>UK</b>	18%	19%	20%	19%	21%	22%	19%	18%	19%	19%
<b>EU</b>	<b>16%</b>	<b>17%</b>	<b>18%</b>	<b>17%</b>	<b>18%</b>	<b>18%</b>	<b>18%</b>	<b>18%</b>	<b>18%</b>	<b>18%</b>
<b>IS</b>	5%	10%	20%	8%	12%	13%	8%	0%	7%	0%
<b>NO</b>	16%	15%	17%	15%	14%	13%	10%	14%	13%	15%
<b>CH</b>	22%	22%	23%	26%	25%	22%	23%	23%	23%	22%

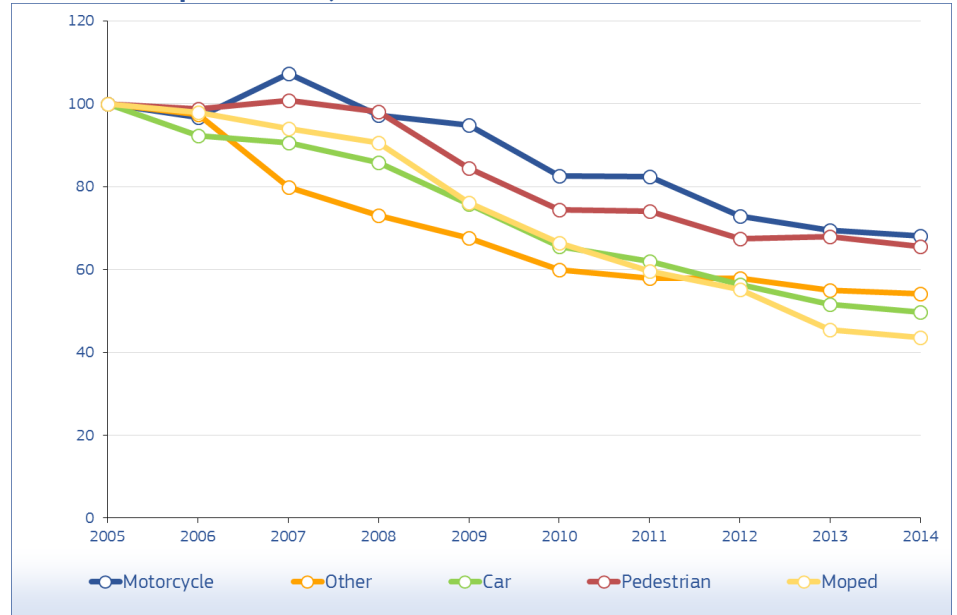
Source: CARE database, data available in May 2016

Table 3 shows that in 2014 the number of PTW fatalities as a proportion of the national fatality total varied in the EU countries from 4% (Romania) to 37% (Greece).



Motorcycling is the mode of transport for which the number of fatalities decreased least between 2005 and 2014.

**Figure 4: Index (2004=100) of motorcycle and moped fatalities compared with other modes of transport in the EU, 2005-2014**



Source: CARE database, data available in May 2016

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 2014, 91% of moped and 94% of motorcycle riders fatalities were males.

## Age and gender

Table 4 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 2014, 9% of moped riders and 6% of motorcycle riders who were killed were female.

**Table 4: Percentage of motorcycle and moped rider fatalities by gender and by country, 2014 or latest available year**

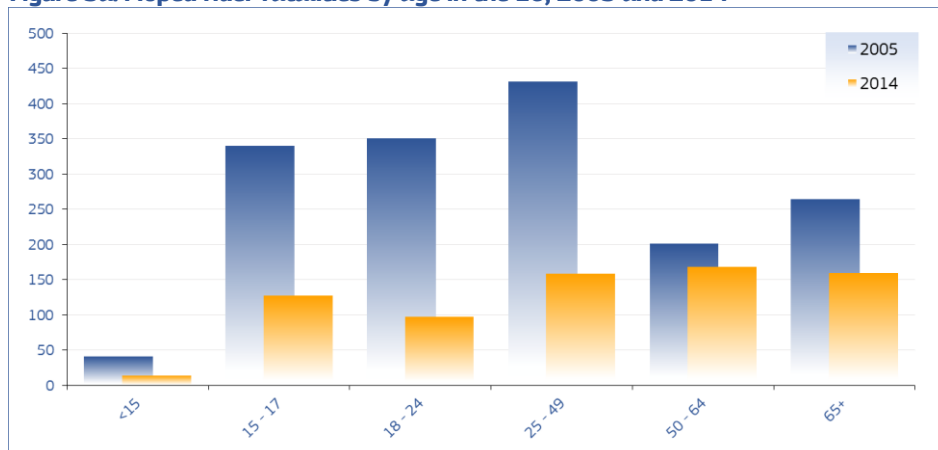
	Moped		Motorcycle	
	Female	Male	Female	Male
BE	24%	76%	5%	95%
BG	0%	100%	2%	98%
CZ	13%	88%	9%	91%
DK	0%	100%	6%	94%
DE	13%	87%	5%	95%
EE	33%	67%	0%	100%
IE	0%	0%	16%	84%
EL	10%	90%	9%	91%
ES	6%	94%	6%	94%
FR	7%	93%	8%	92%
HR	9%	91%	2%	98%
IT	10%	90%	6%	94%
CY	0%	100%	0%	100%
LV	0%	100%	10%	90%
LT	0%	100%	0%	100%
LU	0%	0%	0%	100%
HU	0%	100%	10%	90%
MT	0%	0%	0%	100%
NL	19%	81%	0%	100%
AT	0%	100%	7%	93%
PL	11%	89%	3%	97%
PT	9%	91%	0%	100%
RO	0%	100%	0%	100%
SI	0%	100%	6%	94%
SK	0%	0%	0%	100%
FI	33%	67%	6%	94%
SE	0%	100%	13%	87%
UK	17%	83%	4%	96%
<b>EU</b>	<b>9%</b>	<b>91%</b>	<b>6%</b>	<b>94%</b>
NO	50%	50%	15%	85%
CH	100%	0%	9%	91%

Source: CARE database, data available in May 2016

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

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

**Figure 5a: Moped rider fatalities by age in the EU, 2005 and 2014**



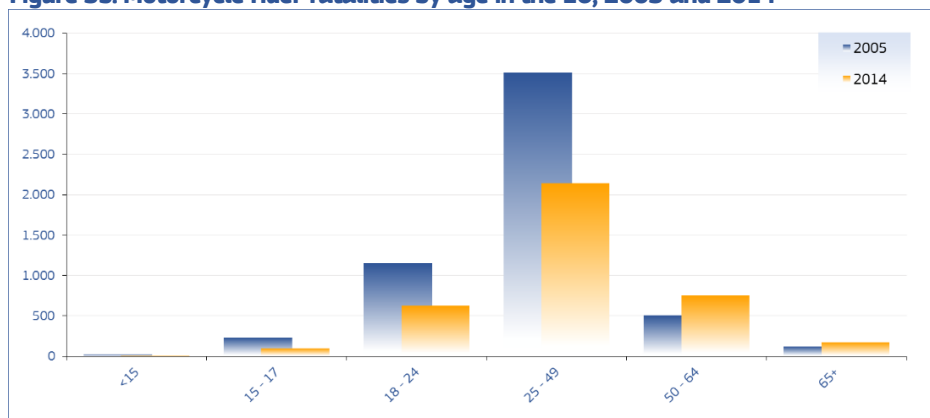
Source: CARE database, data available in May 2016

The number of moped and motorcycle rider fatalities by age group is presented in Figures 5a and 5b. These figures express the numbers in 2014 relative to the numbers in 2005.

Figure 5a shows that the number of moped rider fatalities fell between 2005 and 2014 for all ages.

The number of motorcycle rider fatalities fell between 2005 and 2014 for all age groups shown - except the 50+ group (Figure 5b).

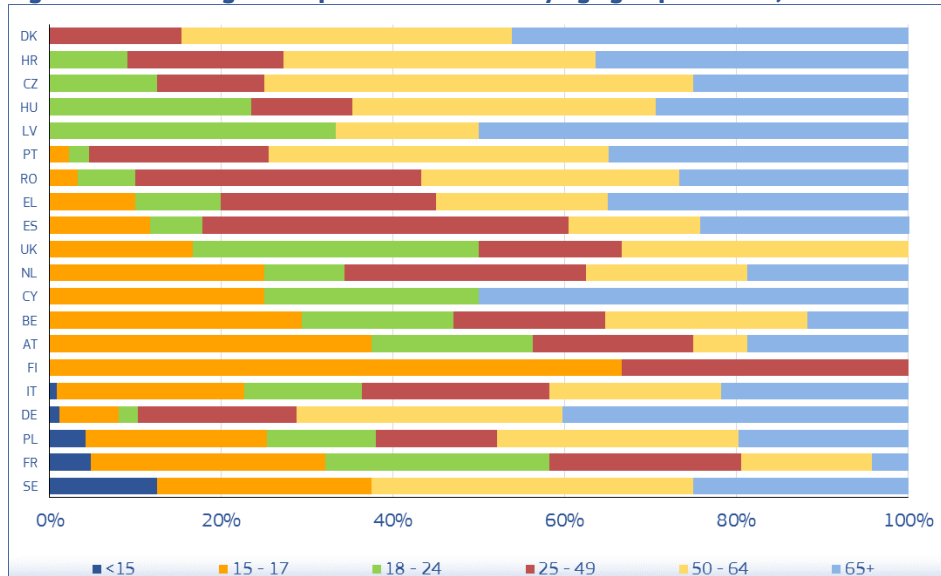
**Figure 5b: Motorcycle rider fatalities by age in the EU, 2005 and 2014**



Source: CARE database, data available in May 2016

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.

**Figure 6a: Percentage of moped rider fatalities by age group in the EU, 2014**



Source: CARE database, data available in May 2016

**Figure 6b: Percentage of motorcycle fatalities by age group in the EU, 2014**

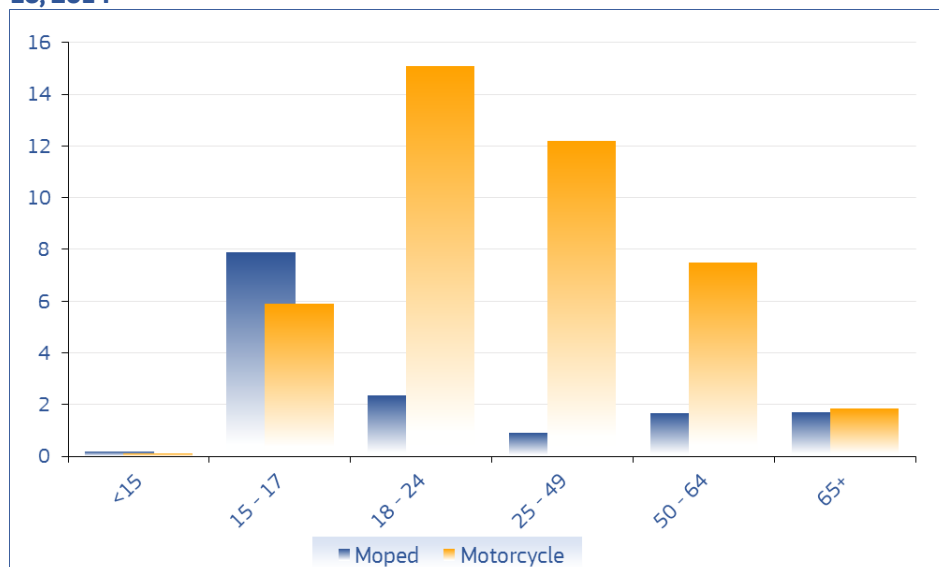


Source: CARE database, data available in May 2016

Figure 6a and 6b show the percentage of moped and motorcycle fatalities 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 7: Motorcycle and moped fatalities per million population by age group in the EU, 2014**



Source: CARE database (EUROSTAT for population data), data available in May 2016

Figure 7 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.



# Traffic Safety Basic Facts 2016 – Motorcycles & Mopeds

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 5: Number and percentage of motorcycle driver and passenger fatalities by gender and country, 2014 or latest available year**

	Female		Male		Total	% Driver	% Passenger
	Driver	Passenger	Driver	Passenger			
<b>BE</b>	5%	3%	86%	6%	102	91%	9%
<b>BG</b>	0%	2%	92%	6%	53	92%	8%
<b>CZ</b>	1%	8%	89%	2%	96	90%	10%
<b>DK</b>	0%	3%	94%	3%	31	94%	6%
<b>DE</b>	4%	2%	92%	1%	674	97%	3%
<b>EE</b>	-	-	-	-	0	-	-
<b>IE</b>	8%	0%	92%	0%	26	100%	0%
<b>EL</b>	3%	6%	86%	4%	298	89%	11%
<b>ES</b>	3%	3%	93%	1%	341	96%	4%
<b>FR</b>	5%	3%	91%	1%	814	96%	4%
<b>HR</b>	4%	0%	93%	4%	55	96%	4%
<b>IT</b>	3%	3%	91%	3%	816	94%	6%
<b>CY</b>	0%	0%	100%	0%	13	100%	0%
<b>LV</b>	6%	0%	88%	6%	16	94%	6%
<b>LT</b>	-	-	-	-	14	-	21%
<b>LU</b>	0%	0%	100%	0%	8	100%	0%
<b>HU</b>	0%	8%	91%	1%	75	91%	9%
<b>MT</b>	0%	0%	100%	0%	3	100%	0%
<b>NL</b>	7%	0%	91%	1%	82	99%	1%
<b>AT</b>	3%	2%	93%	1%	92	97%	3%
<b>PL</b>	3%	2%	92%	3%	308	95%	5%
<b>PT</b>	1%	2%	94%	3%	134	95%	5%
<b>RO</b>	0%	0%	95%	5%	75	95%	5%
<b>SI</b>	5%	0%	95%	0%	21	100%	0%
<b>SK</b>	0%	0%	90%	10%	10	90%	10%
<b>FI</b>	10%	0%	85%	5%	20	95%	5%
<b>SE</b>	3%	8%	90%	0%	39	92%	8%
<b>UK</b>	2%	2%	93%	2%	353	96%	4%
<b>Moped</b>	<b>7%</b>	<b>2%</b>	<b>88%</b>	<b>3%</b>	<b>726</b>	<b>95%</b>	<b>5%</b>
<b>Motorcycle</b>	<b>3%</b>	<b>3%</b>	<b>92%</b>	<b>2%</b>	<b>3.805</b>	<b>95%</b>	<b>5%</b>
<b>EU</b>	<b>3%</b>	<b>3%</b>	<b>91%</b>	<b>2%</b>	<b>4.531</b>	<b>95%</b>	<b>5%</b>
<b>NO</b>	14%	5%	77%	5%	22	91%	9%
<b>CH</b>	6%	6%	89%	0%	54	94%	6%

Source: CARE database, data available in May 2016

The highest proportion of passengers among PTW fatalities is in Greece (11%) by comparison with other countries.

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

## 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.

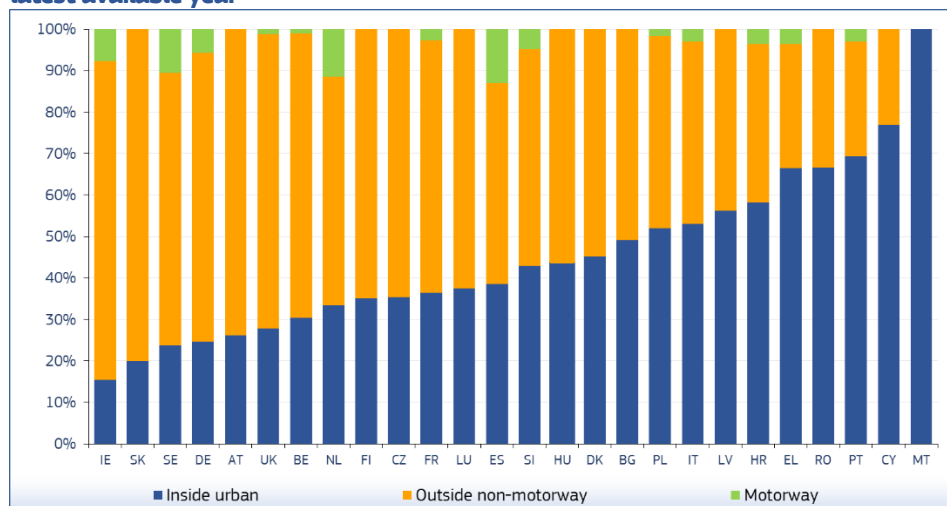
**Table 6: Motorcycle and moped rider fatalities by area, road type and country, 2014 or latest available year**

	Fatalities Moped				Fatalities Motorcycle				PTW fatalities as percentage of all fatalities by road type		
	Inside urban area	Outside urban area		Unknown	Inside urban area	Outside urban area		Unknown	Inside urban area	Outside urban area	
		Non motorway	Motorway			Non motorway	Motorway			Non motorway	Motorway
<b>BE</b>	9	8	0	0	22	62	1	0	16%	17%	1%
<b>BG</b>	5	0	0	0	21	27	0	0	8%	5%	0%
<b>CZ</b>	4	4	0	0	30	58	0	0	15%	14%	0%
<b>DK</b>	8	5	0	0	6	12	0	0	30%	14%	0%
<b>DE</b>	44	42	1	0	122	427	38	0	17%	23%	10%
<b>EE</b>	0	0	0	0	0	0	0	0	0%	0%	0%
<b>IE</b>	0	0	0	0	4	20	2	0	11%	14%	25%
<b>EL</b>	16	3	1	0	182	86	10	0	49%	26%	20%
<b>ES</b>	32	19	2	0	99	146	42	0	30%	17%	15%
<b>FR</b>	77	88	0	0	219	408	22	0	30%	23%	10%
<b>HR</b>	6	5	0	0	26	16	2	0	17%	22%	9%
<b>IT</b>	74	38	0	0	359	321	24	0	29%	23%	8%
<b>CY</b>	3	1	0	0	7	2	0	0	29%	38%	0%
<b>LV</b>	4	2	0	0	5	5	0	0	13%	5%	0%
<b>LT</b>	0	0	0	1	0	0	0	13	-	-	0%
<b>LU</b>	0	0	0	0	3	5	0	0	33%	22%	0%
<b>HU</b>	8	9	0	0	25	33	0	0	14%	12%	0%
<b>MT</b>	0	0	0	0	3	0	0	0	23%	0%	0%
<b>NL</b>	12	18	0	2	14	25	9	3	16%	21%	16%
<b>AT</b>	6	10	0	0	18	58	0	0	20%	25%	0%
<b>PL</b>	33	38	0	0	127	105	5	0	11%	9%	9%
<b>PT</b>	32	11	0	0	61	26	4	0	27%	15%	8%
<b>RO</b>	21	9	0	0	29	16	0	0	4%	4%	0%
<b>SI</b>	3	1	0	0	6	10	1	0	17%	20%	6%
<b>SK</b>	2	8	0	0	0	0	0	0	1%	5%	0%
<b>FI</b>	2	1	0	0	5	12	0	0	11%	8%	0%
<b>SE</b>	3	4	0	1	6	21	4	0	13%	16%	13%
<b>UK</b>	2	4	0	0	96	247	4	0	16%	22%	5%
<b>EU</b>	<b>406</b>	<b>328</b>	<b>4</b>	<b>4</b>	<b>1.495</b>	<b>2.148</b>	<b>168</b>	<b>16</b>	<b>19%</b>	<b>18%</b>	<b>9%</b>
<b>%</b>	<b>55%</b>	<b>44%</b>	<b>0,5%</b>	<b>0,5%</b>	<b>39%</b>	<b>56%</b>	<b>44%</b>	<b>0,4%</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>NO</b>	0	2	0	0	2	18	0	0	7%	17%	-
<b>CH</b>	1	0	0	0	15	37	0	0	17%	27%	0%

Source: CARE database, data available in May 2016

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 8: The distribution of PTW fatalities by area and road type in the EU, 2014 or latest available year**



Source: CARE database, data available in May 2016

Figure 8 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 7 indicates that less than a quarter of all motorcycle and moped rider fatalities occur at a junction (22%). The respective figure for car occupant fatalities occurring at a junction is only 12%.

Within junctions, most motorcycle and moped fatalities occurred at T or staggered junctions and crossroads.

Table 8 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.

# Traffic Safety Basic Facts 2016 – Motorcycles & Mopeds

**Table 7: Motorcycle and moped occupant fatalities by junction type and by country in the EU, 2014 or latest available year**

	Not at junction	Junction				Other	Un-known	Total
		Crossroad	Round-about	T or staggered junction	Not at grade (interchange)			
BE	70%	0%	1%	0%	0%	22%	8%	102
BG	77%	23%	0%	0%	0%	0%	0%	53
CZ	69%	5%	1%	24%	0%	0%	0%	95
DK	61%	26%	0%	13%	0%	0%	0%	31
DE	67%	0%	0%	0%	0%	0%	33%	674
EE	60%	20%	0%	0%	0%	20%	0%	5
IE	0%	8%	0%	15%	0%	0%	77%	26
EL	90%	0%	0%	0%	0%	0%	10%	298
ES	74%	9%	4%	10%	0%	3%	0%	341
FR	79%	8%	2%	9%	0%	2%	0%	814
HR	82%	5%	2%	11%	0%	0%	0%	55
IT	67%	13%	2%	18%	0%	0%	0%	816
CY	62%	8%	15%	15%	0%	0%	0%	13
LV	69%	0%	0%	0%	0%	31%	0%	16
LT	71%	0%	0%	0%	0%	0%	29%	14
LU	88%	13%	0%	0%	0%	0%	0%	8
HU	73%	13%	0%	13%	0%	0%	0%	75
MT	0%	0%	0%	0%	0%	0%	100%	3
NL	62%	34%	2%	0%	0%	1%	0%	82
AT	78%	17%	0%	2%	0%	2%	0%	92
PL	77%	0%	0%	0%	0%	23%	0%	308
PT	72%	7%	2%	17%	1%	0%	0%	134
RO	87%	13%	0%	0%	0%	0%	0%	75
SI	86%	14%	0%	0%	0%	0%	0%	21
SK	0%	0%	0%	0%	0%	0%	100%	10
FI	90%	0%	0%	0%	0%	0%	10%	20
SE	0%	0%	0%	0%	0%	0%	100%	39
UK	54%	5%	1%	29%	0%	11%	0%	353
EU	3.250	331	65	424	2	165	291	4.529
%	72%	7%	1%	9%	0%	4%	6%	100%
NO	0%	0%	0%	0%	0%	0%	100%	22
IS	0%	15%	0%	11%	0%	0%	74%	54

Source: CARE database, data available in May 2016

**Table 8: Fatalities by junction type and mode of transport in the EU, 2014**

	Not at junction	At junction	Unknown
pedestrian	76%	16%	8%
pedal cycle	62%	24%	14%
moped	68%	24%	8%
motor cycle	70%	21%	9%
car+taxi	82%	12%	7%
Lorry, under 3.5 tonnes	83%	11%	6%
Heavy goods vehicle	88%	6%	6%
Other/Unknown	62%	16%	21%
EU all modes	77%	15%	8%

Source: CARE database, data available in May 2016

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.

## Seasonality

**Table 9: Motorcycle and moped fatalities by month and by country, 2014 or latest available year**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>BE</b>	6	4	10	12	13	14	9	9	17	4	3	1	102
<b>BG</b>	0	0	2	5	9	8	6	10	8	3	1	1	53
<b>CZ</b>	0	0	6	7	12	11	15	24	10	7	2	2	96
<b>DK</b>	3	1	3	3	4	3	3	3	2	1	3	2	31
<b>DE</b>	12	10	47	73	80	118	92	79	78	57	21	7	674
<b>EE</b>	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>IE</b>	2	0	1	3	2	5	4	2	4	0	1	2	26
<b>EL</b>	14	13	16	25	33	33	35	40	28	23	19	19	298
<b>ES</b>	18	14	29	28	36	33	31	37	28	39	20	25	341
<b>FR</b>	38	32	65	73	80	93	69	86	105	80	44	49	814
<b>HR</b>	1	0	6	3	8	7	7	8	4	7	2	2	55
<b>IT</b>	32	37	57	61	87	105	88	115	83	85	28	38	816
<b>CY</b>	0	0	1	1	1	2	2	0	2	2	2	0	13
<b>LV</b>	0	0	0	2	1	1	4	4	3	1	0	0	16
<b>LT</b>	0	0	0	0	2	2	4	3	3	0	0	0	14
<b>LU</b>	0		1	1	0	2	1	0	1	2	0	0	8
<b>HU</b>	0	1	8	6	7	14	6	12	7	9	4	1	75
<b>MT</b>	0	0	0	2	0	0	0	1	0	0	0	0	3
<b>NL</b>	5	3	14	6	9	8	10	9	7	5	4	3	83
<b>AT</b>	0	2	7	6	17	23	10	10	9	2	4	2	92
<b>PL</b>	2	10	28	23	34	46	43	43	48	22	7	2	308
<b>PT</b>	6	5	7	9	7	11	13	21	11	11	15	18	134
<b>RO</b>	1	1	12	6	4	10	11	8	11	10	0	1	75
<b>SI</b>	1	0	0	3	3	7	2	2	2	1	0	0	21
<b>SK</b>			0	1	0	1	0	7	0	1	0	0	10
<b>FI</b>	0	0	1	1	2	4	7	3	2	0	0	0	20
<b>SE</b>	0	1	1	3	6	5	8	7	7	1	0	0	39
<b>UK</b>	13	16	29	32	36	44	41	35	53	21	15	18	353
<b>Moped</b>	<b>48</b>	<b>40</b>	<b>64</b>	<b>57</b>	<b>70</b>	<b>63</b>	<b>65</b>	<b>93</b>	<b>81</b>	<b>70</b>	<b>50</b>	<b>41</b>	<b>743</b>
<b>Motorcycle</b>	<b>106</b>	<b>110</b>	<b>287</b>	<b>338</b>	<b>423</b>	<b>547</b>	<b>456</b>	<b>485</b>	<b>452</b>	<b>324</b>	<b>145</b>	<b>152</b>	<b>3.827</b>
<b>EU</b>	<b>154</b>	<b>150</b>	<b>351</b>	<b>395</b>	<b>493</b>	<b>610</b>	<b>521</b>	<b>578</b>	<b>533</b>	<b>394</b>	<b>195</b>	<b>193</b>	<b>4.570</b>
<b>%</b>	<b>3%</b>	<b>3%</b>	<b>8%</b>	<b>9%</b>	<b>11%</b>	<b>13%</b>	<b>11%</b>	<b>13%</b>	<b>12%</b>	<b>9%</b>	<b>4%</b>	<b>4%</b>	<b>100%</b>
<b>IS</b>	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>NO</b>	0	0	0	3	3	4	6	3	1	2	0	0	22
<b>CH</b>	2	1	3	10	4	10	4	6	5	3	4	2	54

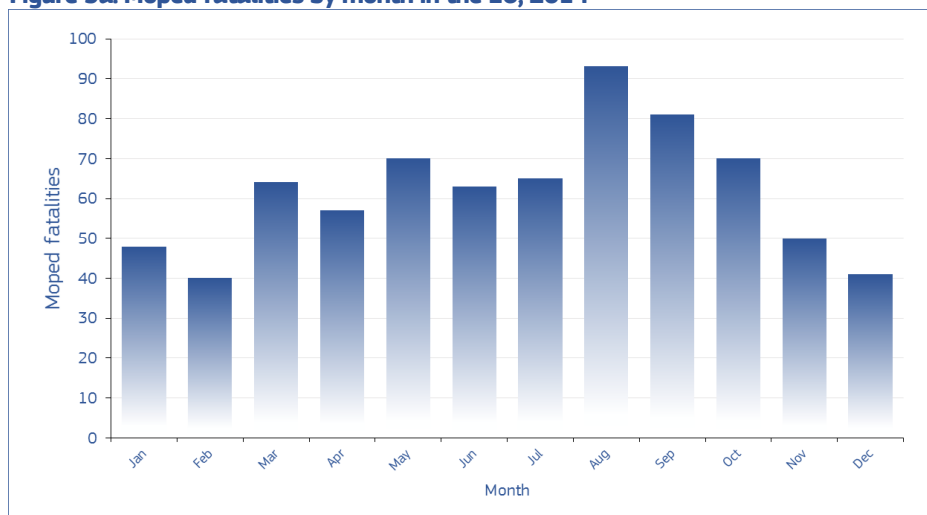
Source: CARE database, data available in May 2016

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.



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

**Figure 9a: Moped fatalities by month in the EU, 2014**

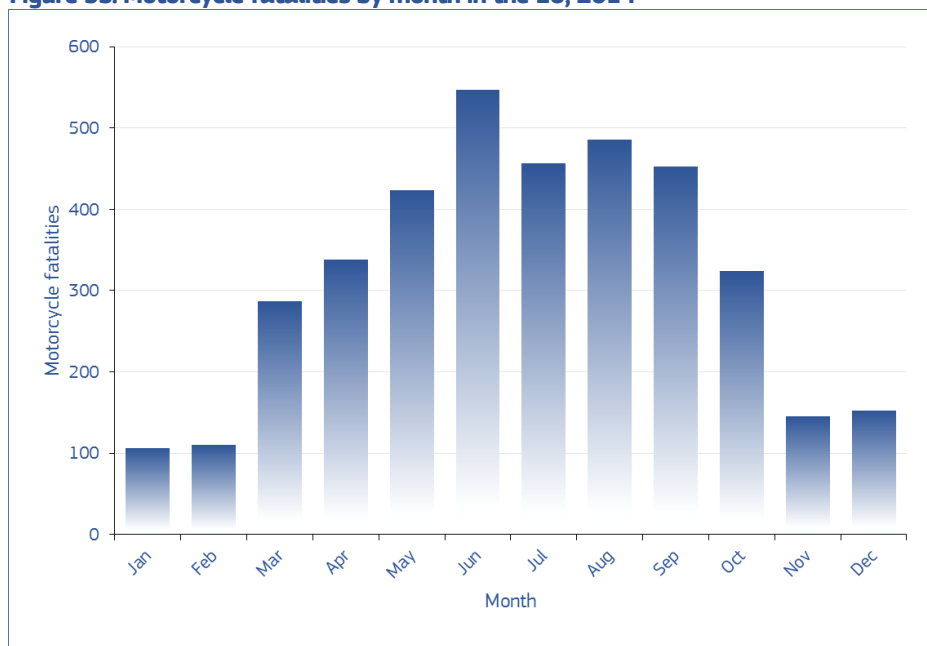


Source: CARE database, data available in May 2016

In Figures 9a and 9b 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).

**Figure 9b: Motorcycle fatalities by month in the EU, 2014**



Source: CARE database, data available in May 2016

Figure 9b confirms the seasonal pattern of motorcycle accidents, with most fatalities occurring from April to October.

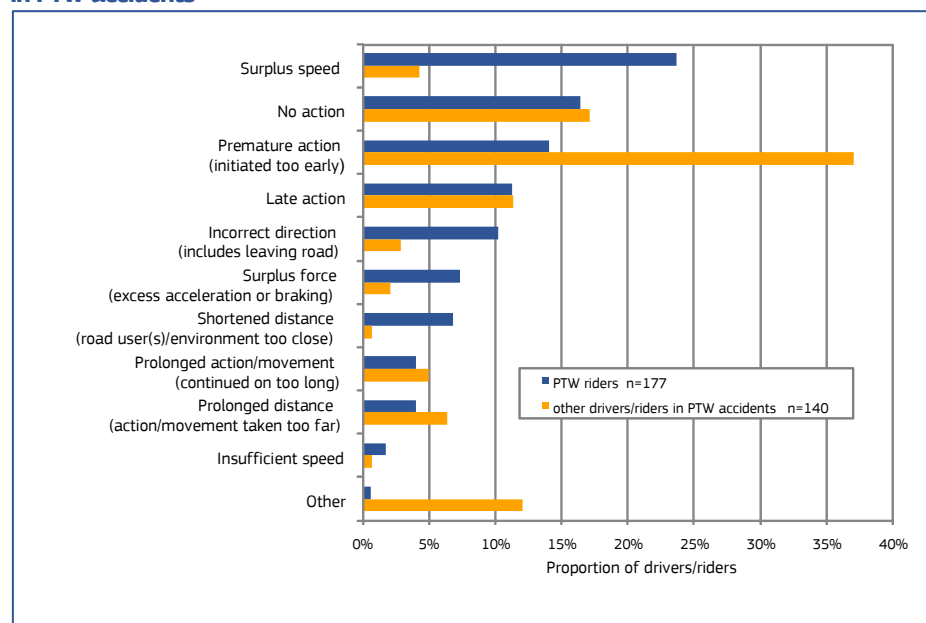
The most frequently recorded specific critical event for PTW riders is surplus speed.

## 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 UK<sup>12</sup>. 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 10 compares the distributions of specific critical events for PTW riders and other drivers or riders in PTW accidents.

**Figure 10: 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

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

<sup>2</sup> SafetyNet D5.8, In-Depth Accident Causation Database and Analysis Report

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

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

**Table 10: 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
<b>Total</b>	<b>196</b>

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).

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

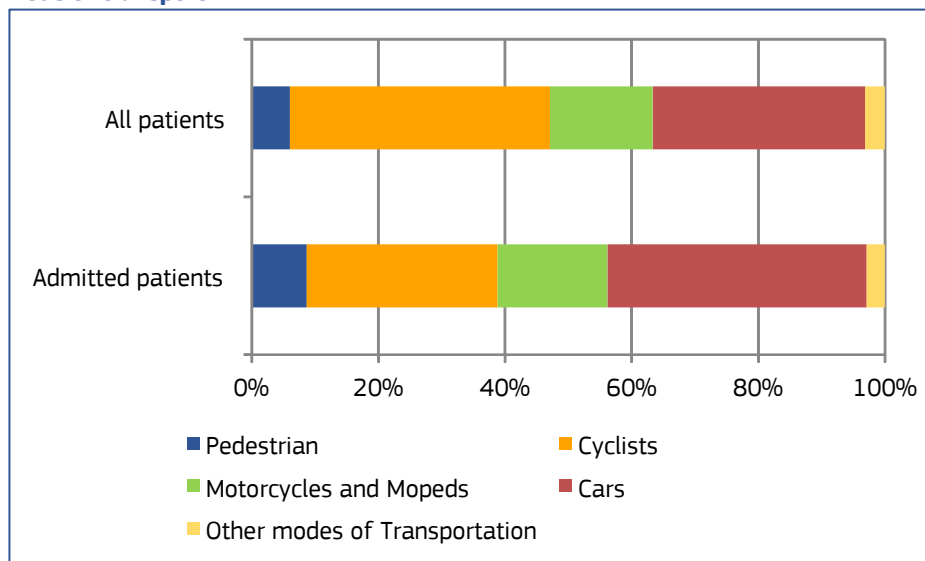
According to estimates based on the EU IDB more than four million people are injuries annually in road traffic accidents, one million of whom have to be admitted to hospital.

## 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.<sup>3</sup> At 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).<sup>4</sup>

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).

**Figure 11: 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 11 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%).

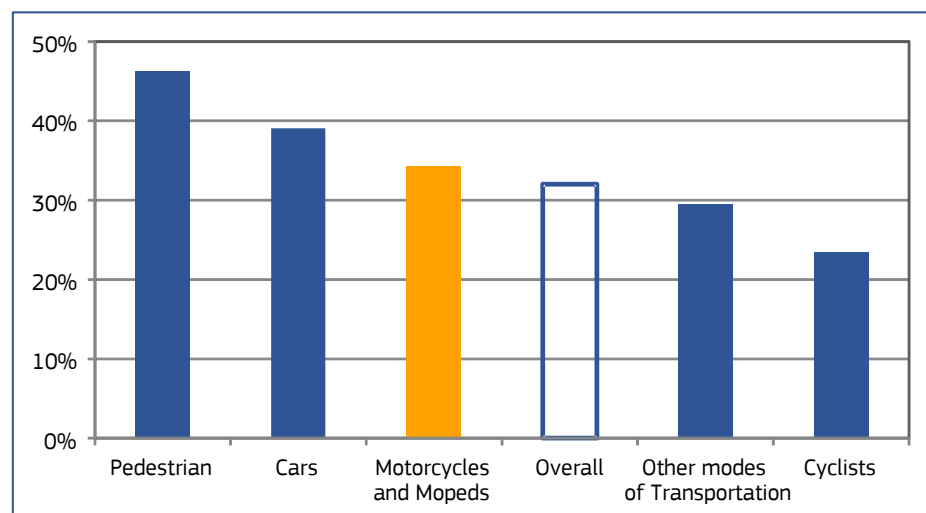
<sup>3</sup>OJ C 164/1, 18.7.2007

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

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

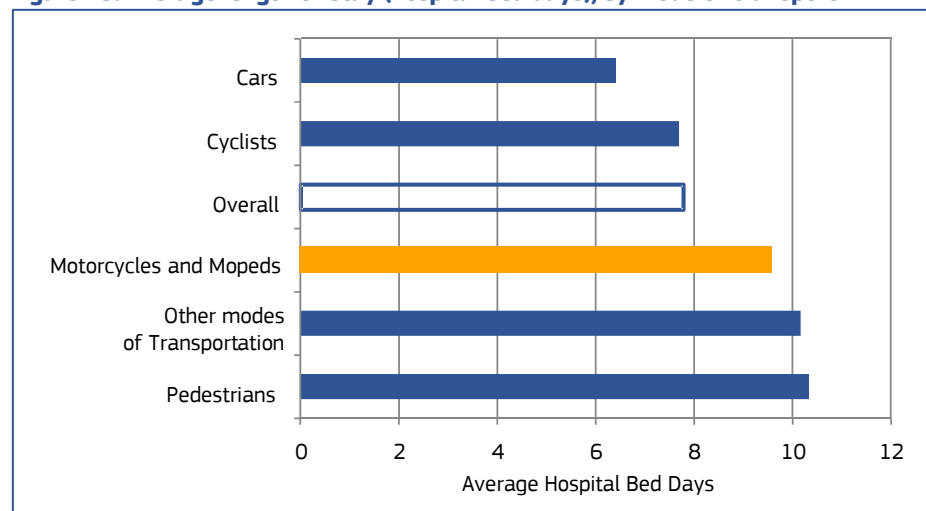
Figure 12 shows that overall 32% of road accident casualties recorded in the IDB were admitted to the hospital, compared with 34% of riders of mopeds and motorcycles. Figure 13 shows that the overall average length of stay was eight days, compared with almost ten days for riders of mopeds and motorcycles.

**Figure 12: Proportion of casualties who attended a hospital 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).

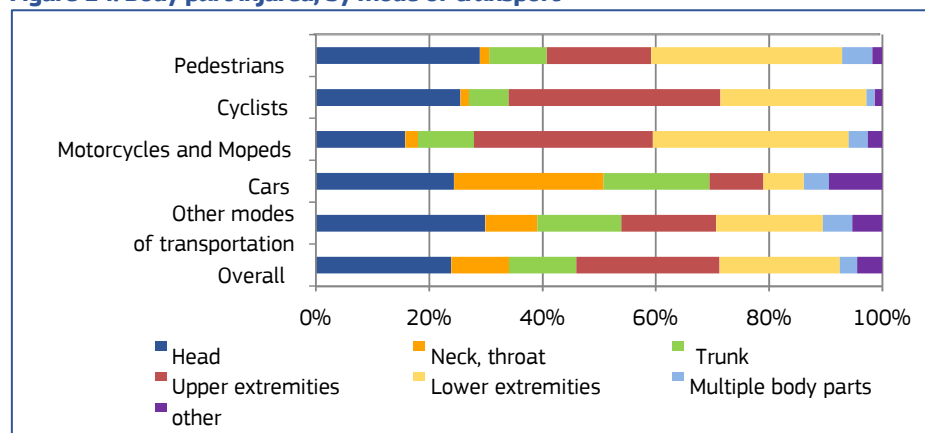
**Figure 13: Average length of stay (hospital bed days), by mode of transport**



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: Body part injured, 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).

Naturally, hospital data can provide information on the injury patterns sustained by the accident victims. Figure 14 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.

## 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](http://ec.europa.eu/transport/road_safety/pdf/statistics/cadas_glossary.pdf)

### 3. Data available in May 2016.

4. Data refer to 2014 and when not available the latest available data are used (2009 data for BG, 2010 data for MT and SK, and 2013 data for IE, SI and SK). Totals and related average percentages for EU also include latest available data.

5. Lithuanian data are not included in the totals of data comparing the years 2005-2014.

6. At the commenting of the tables and figures, countries with small figures are omitted.

7. This 2016 edition of Traffic Safety Basic Facts updates the previous versions produced within the EU co-funded research projects SafetyNet and DaCoTA.

### 8. Disclaimer

This report has been produced by the National Technical University of Athens ([NTUA](#)), the Austrian Road Safety Board ([KFV](#)) and the European Union Road Federation ([ERF](#)) under a contract with the [European Commission](#). Whilst every effort has been made to ensure that the matter presented in this report is relevant, accurate and up-to-date, the Partners cannot accept any liability for any error or omission, or reliance on part or all of the content in another context.

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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 2016.*

