Traffic Safety Basic Facts 2011

Motorcycles & Mopeds

Motorcycle and moped fatalities, together referred to as Powered Two Wheelers (PTW), accounted for 16% of the total number of road accident fatalities in 2009 in the EU-24 countries. The two types[1] will be discussed separately when possible, as some countries do not distinguish between motorcycles and mopeds, whereas in other cases it is not possible to analyse the data in detail because of small fatality numbers. In 2009, 1.209 riders (drivers and passengers) of mopeds were killed in the EU-18 in traffic accidents, 15% less than the number in 2008 in the same countries. The annual total decreased by more than 50% during the decade for these countries, an average of 7% per year.

In EU-18 the number of moped rider fatalities decreased by more than 50% between 2000 and 2009

Table 1: Moped fatalities by country, 2000-2009[2]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BE	66	63	68	45	33	30	36	26	32	25
CZ	16	9	17	11	5	8	3	3	2	9
DK	47	43	38	43	46	29	24	48	30	15
DE	157	138	131	134	122	107	107	100	110	99
EL	90	77	55	53	55	58	57	43	41	28
ES	474	461	383	391	361	312	303	233	181	156
FR	456	450	387	393	339	356	317	324	291	299
IT	637	578	452	520	456	385	346	358	292	212
LU	0	0	0	0	1	0	0	1	0	0
NL	107	78	98	94	57	56	63	60	51	47
AT	44	37	46	47	44	41	39	24	25	30
PL	-	63	59	54	51	53	57	59	87	68
PT	225	184	145	157	121	106	97	71	71	58
RO	3	4	6	10	1	20	45	81	150	122
SI	22	16	5	4	5	5	12	12	8	3
FI	9	7	7	12	14	4	13	11	13	11
SE	10	9	12	9	18	8	15	14	11	-
UK	15	14	21	25	26	23	29	18	21	16
EU-18	2.440	2.231	1.930	2.002	1.755	1.601	1.563	1.485	1.416	1.209
Yearly change		-8,6%	-13,5%	3,8%	-12,4%	-8,8%	-2,4%	-5,0%	-4,7%	-14,6%
EE	-	-	-	-	-	2	2	4	6	3
LV	-	-	-	-	4	5	6	4	4	1
HU	-	-	-	36	22	40	42	31	26	23
CH	-	-	-	-	9	-	-	-	9	8

Source: CARE Database / EC
Date of query: November 2011

[1] See Table "Country abbreviations used and definition of EU-level" on page 20 and "Definition and regulations on motorcycles and mopeds" on page 19.
[2] Where a number is missing for an EU-18/19/24 country in a particular year, its contribution to the EU-18/19/24 total is estimated as the closer known value. EU-23 is EU-24 without IE.

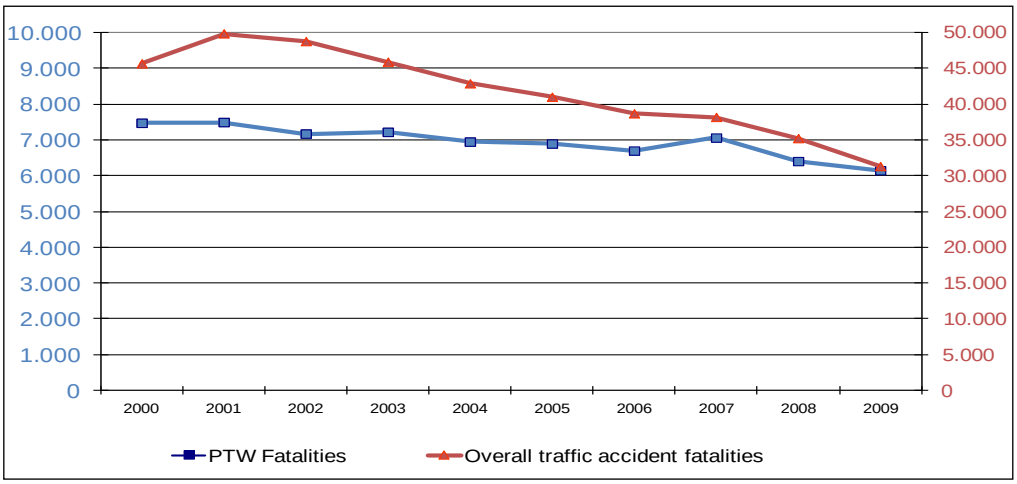
During the decade the number of motorcycle rider fatalities has decreased by 2% in EU-18

Table 2: Motorcycle fatalities by country, 2000-2009[2]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BE	118	147	158	124	120	123	130	139	108	137
CZ	100	86	117	101	97	116	113	136	121	85
DK	24	12	24	25	23	16	21	36	40	27
DE	945	964	913	946	858	875	793	807	656	650
EL	406	426	341	310	379	399	440	420	394	405
ES	392	370	401	367	399	472	488	640	484	437
FR	964	1.092	1.063	883	866	892	789	853	817	908
IT	770	848	907	1.035	1.139	1.120	1.127	1.182	1.085	1.037
LU	8	6	0	13	10	6	8	5	9	7
NL	89	76	93	95	84	77	57	64	67	68
AT	112	107	89	109	98	98	95	96	91	87
PL	-	169	167	145	181	157	164	215	262	290
PT	212	229	225	213	181	188	137	145	116	115
RO	15	9	13	8	19	23	35	73	90	74
SI	19	36	18	25	27	33	42	41	40	28
FI	10	16	22	23	22	32	26	32	36	27
SE	39	38	37	47	56	46	55	60	51	-
UK	597	580	607	690	581	561	583	596	488	472
EU-18	4.989	5.211	5.195	5.159	5.140	5.234	5.103	5.540	4.955	4.905
Yearly change		4,4%	-0,3%	-0,7%	-0,4%	1,8%	-2,5%	8,6%	-10,5%	-1,0%
EE	-	-	-	-	-	5	5	10	1	2
IE	40	50	44	55	49	56	29	33	29	-
LV	-	-	-	-	-	2	10	10	6	5
HU	-	-	-	66	72	100	89	112	91	73
MT	-	-	-	-	-	3	2	4	3	2
SK	-	-	-	-	-	45	37	54	39	34
CH	-	-	-	-	114	-	-	-	83	78
IS	-	-	-	-	2	1	3	3	1	2

Source: CARE Database / EC
Date of query: November 2011

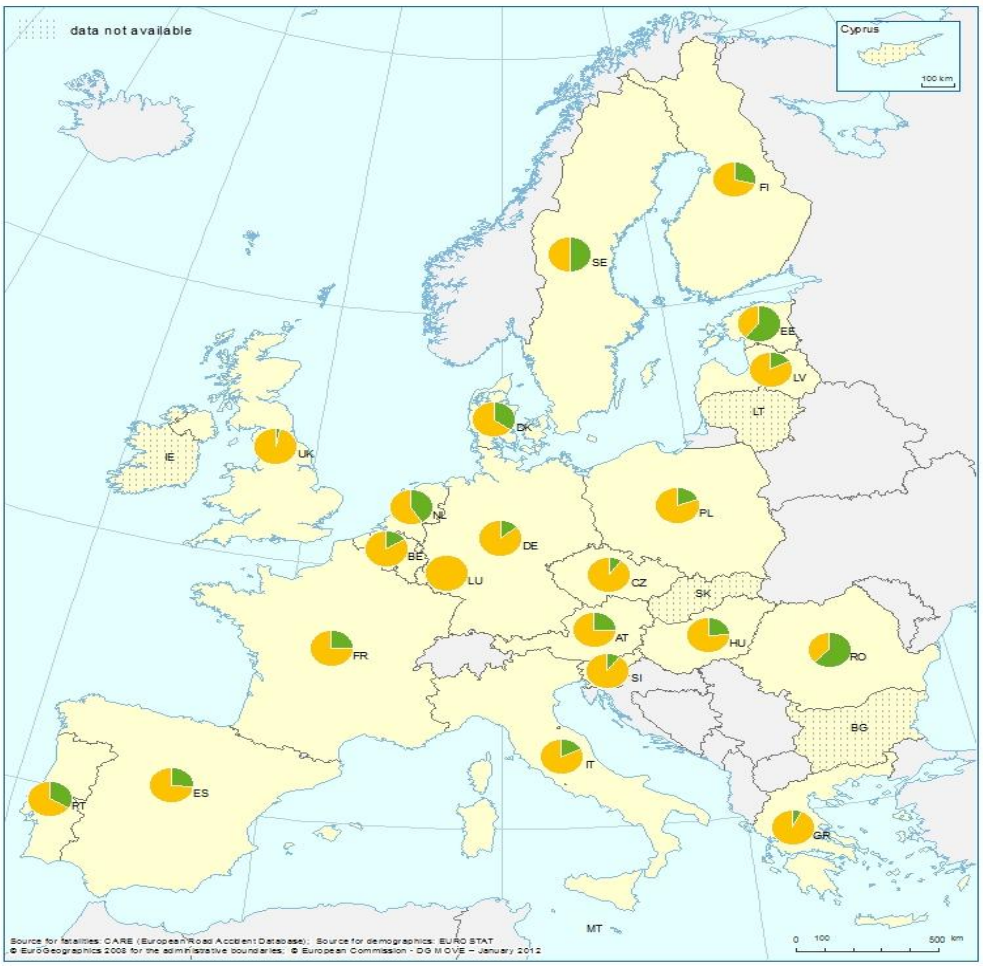
Figure 1: Distribution of road traffic fatalities in the EU-19[1] 2000-2009[2]



Source: CARE Database / EC
Date of query: November 2011

In 2009, 4.905 riders (drivers and passengers) of motorcycles were killed in the EU-18 countries in traffic accidents, only 1% less than the number reported in 2008 for the same countries. A similarly low annual total decrease for these countries by 2% is recorded during the decade, an average of 0,1% a year. As there is no reliable data available about the exposure of PTWs (vehicle kilometres or fleet numbers) in each of the above countries, it is difficult to interpret the numbers of fatalities in the group of PTW 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. By definition in Ireland and the United Kingdom there are hardly any moped fatalities.

Map 1: Percentage of mopeds and motorcycles in PTW fatalities, 2009[2]



Source: CARE Database / EC

Table 3 shows the fatality rate of motorcycle and moped riders, which is defined as the number of PTW rider fatalities per million inhabitants. The fatality rate is much higher in Southern European countries like Greece, Italy and Portugal than in the other countries.

[3] For UK 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.

The most significant reduction in the number of motorcycle and moped fatalities between 2000 and 2009 occurred in Portugal

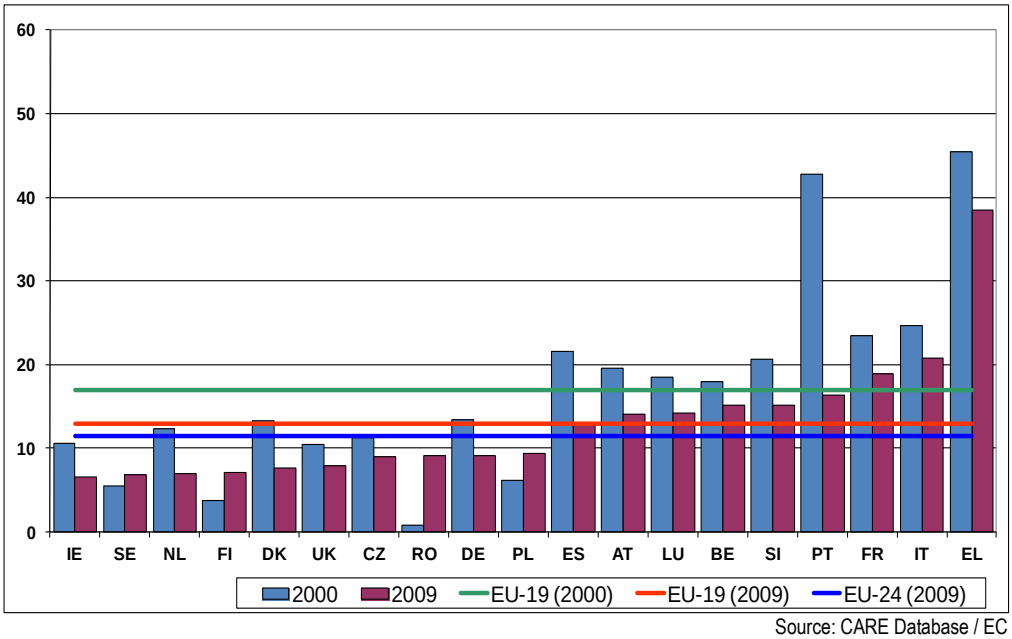
The fatality rate of PTW riders in Greece, Italy and France in 2009 was still above the EU-19 average of 2000

Table 3: Fatality rate (fatalities per million inhabitants) of PTW riders, 2000-2009[2]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BE	18,0	20,5	21,9	16,3	14,7	14,6	15,8	15,6	13,1	15,1
CZ	11,3	9,3	13,1	11,0	10,0	12,1	11,3	13,5	11,8	9,0
DK	13,3	10,3	11,5	12,6	12,8	8,3	8,3	15,4	12,8	7,6
DE	13,4	13,4	12,7	13,1	11,9	11,9	10,9	11,0	9,3	9,1
IE	40	50	44	55	49	56	29	33	29	-
EL	45,5	46,0	36,1	33,0	39,3	41,2	44,7	41,4	38,8	38,4
ES	21,6	20,5	19,1	18,2	17,9	18,2	18,1	19,6	14,7	12,9
FR	23,4	25,3	23,6	20,6	19,4	19,9	17,6	18,6	17,4	18,8
IT	24,7	25,0	23,8	27,1	27,6	25,7	25,1	26,0	23,1	20,8
LU	18,5	13,7	-	29,0	24,2	13,0	17,1	12,6	18,6	14,2
NL	12,4	9,6	11,9	11,7	8,7	8,2	7,3	7,6	7,2	7,0
AT	19,5	18,0	16,7	19,3	17,4	16,9	16,2	14,5	13,9	14,0
PL	-	6,1	5,9	5,2	6,1	5,5	5,8	7,2	9,2	9,4
PT	42,8	40,2	35,8	35,6	28,8	27,9	22,1	20,3	17,6	16,3
RO	0,8	0,6	0,9	0,8	0,9	2,0	3,7	7,1	11,1	9,1
SI	20,6	26,1	11,5	14,5	16,0	19,0	27,0	26,4	23,7	15,1
FI	3,7	4,4	5,6	6,7	6,9	6,9	7,4	8,1	9,2	7,1
SE	5,5	5,3	5,5	6,3	8,2	6,0	7,7	8,1	6,8	-
UK	10,4	10,1	10,6	12,0	10,2	9,7	10,1	10,1	8,3	7,9
EU-19	17,0	16,7	15,4	16,2	15,4	14,8	14,9	15,3	14,4	12,9
EE	-	-	-	-	-	5,2	5,2	10,4	5,2	3,7
LV	-	-	-	-	1,7	3,0	7,0	6,1	4,4	2,7
HU	-	-	-	10,1	9,3	13,9	13,0	14,2	11,6	9,6
MT	-	-	-	-	-	7,5	4,9	9,8	7,3	4,8
SK	-	-	-	-	-	8,4	6,9	10,0	7,2	6,3
EU-24	-	-	-	-	-	13,3	13,3	14,2	12,9	11,4
CH	-	-	-	-	16,7	-	-	-	-	11,2
IS	-	-	-	-	6,9	3,4	10,0	9,8	3,2	6,3

Source: CARE Database / EC
Date of query: November 2011
Source of population data: Eurostat

Figure 2: Motorcycle and moped rider fatalities per million inhabitants, 2000 versus 2009[2]



Source: CARE Database / EC
Date of query: November 2011
Source of population data: Eurostat

In 2009, riders of powered two wheelers made up 16% of the total road accident fatalities in EU-24

Motorcycle is the only mode of transport for which the number of fatalities increased between 2000 and 2009

Figure 2 indicates that between 2000 and 2009 the fatality rate of PTW declined in most of the EU-19 countries. The most significant reduction occurred in Portugal (62%), whereas the fatality rate increased in Finland, Sweden and Poland.

Table 4: PTW rider fatalities as percentages of the total number of road accident fatalities by country, 2000-2009[2]

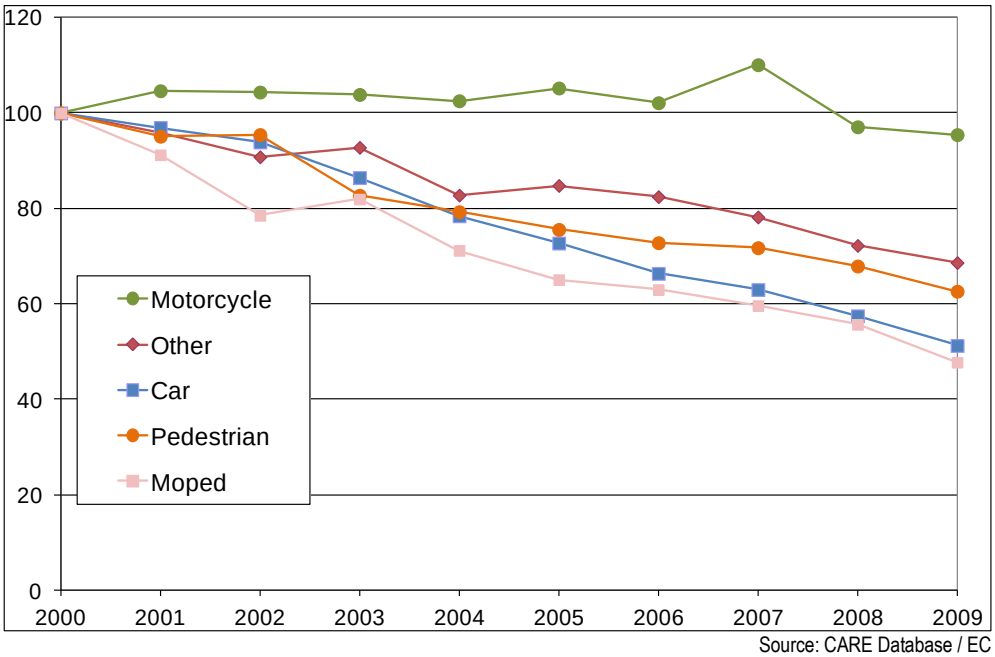
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BE	13%	14%	17%	14%	13%	14%	16%	15%	15%	17%
CZ	8%	7%	9%	8%	7%	10%	11%	11%	11%	10%
DK	14%	13%	13%	16%	19%	14%	15%	21%	17%	14%
DE	15%	16%	15%	16%	17%	18%	18%	18%	17%	18%
IE	10%	12%	12%	16%	13%	14%	8%	10%	10%	-
EL	24%	27%	24%	23%	26%	28%	30%	29%	28%	30%
ES	15%	15%	15%	14%	16%	18%	19%	23%	22%	22%
FR	18%	19%	19%	21%	22%	24%	24%	26%	26%	28%
IT	20%	20%	20%	24%	26%	26%	26%	30%	29%	30%
LU	11%	9%	-	25%	22%	13%	19%	13%	26%	15%
NL	18%	16%	19%	18%	18%	18%	16%	18%	17%	18%
AT	16%	15%	14%	17%	16%	18%	18%	17%	17%	19%
PL	-	4%	4%	4%	4%	4%	4%	5%	6%	8%
PT	24%	25%	22%	24%	23%	24%	24%	22%	21%	21%
RO	1%	1%	1%	1%	1%	2%	3%	6%	8%	7%
SI	13%	19%	9%	12%	12%	15%	21%	18%	22%	18%
FI	5%	5%	7%	9%	10%	10%	12%	11%	14%	14%
SE	8%	8%	9%	11%	15%	12%	16%	16%	16%	-
UK	17%	17%	18%	20%	18%	18%	19%	20%	19%	21%
EU-19	13%	14%	14%	15%	16%	16%	17%	17%	18%	18%
EE	-	-	-	-	-	4%	3%	7%	5%	5%
LV	-	-	-	-	1%	2%	4%	3%	3%	2%
HU	-	-	-	8%	7%	11%	10%	12%	12%	12%
MT	-	-	-	-	-	18%	18%	33%	33%	13%
SK	-	-	-	-	-	7%	6%	8%	6%	9%
EU-24	-	-	-	-	-	14%	15%	16%	17%	16%
CH	-	-	-	-	24%	-	-	-	26%	25%
IS	-	-	-	-	9%	5%	10%	20%	8%	12%

Source: CARE Database / EC
Date of query: November 2011
Source of population data: Eurostat

Table 4 shows that the number of PTW fatalities as a proportion of the national fatality total varied in the EU-24 countries from 2% to 30% in 2009.

Figure 3 shows that the trend for motorcycle user fatalities differs clearly from the trend for other modes of transport. Motorcycle is the only mode of transport for which number of fatalities has increased over the first eight years of the period studied and for the last two years there was only slight decreased compared to 2000, which stresses the importance of taking immediate appropriate counter measures. Additionally, the decrease in 2009 is eight times less than next smaller one of pedestrians.

Figure 3: Index (2000=100) of motorcycle and moped fatalities compared with other modes EU-19, 2000-2009[2]



Source: CARE Database / EC
Date of query: November 2011

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. In 2009 10% of moped and 6% of motorcycle riders fatalities, were females.

In 2009, 10% of moped and 6% of motorcycle riders fatalities, were females.

Table 5: Percentage of motorcycle and moped rider fatalities by gender, 2009[2]

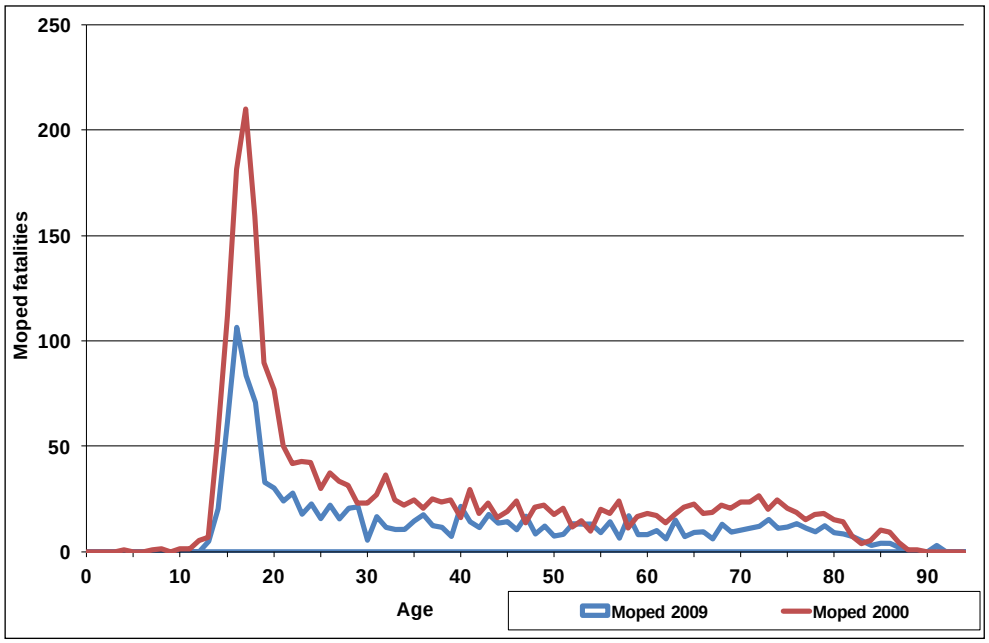
	Mopeds		Motorcycles	
Gender	female	male	female	male
BE	12%	88%	2%	98%
CZ	0%	100%	7%	93%
DK	27%	73%	7%	93%
DE	12%	88%	8%	92%
EE	33%	67%	0%	100%
IE	-	-	0%	100%
EL	7%	93%	4%	96%
ES	10%	90%	5%	95%
FR	8%	92%	7%	93%
IT	12%	88%	6%	94%
LV	0%	100%	0%	100%
LU	-	-	0%	100%
HU	4%	96%	4%	96%
MT	-	-	0%	100%
NL	30%	70%	7%	93%
AT	10%	90%	6%	94%
PL	10%	90%	3%	97%
PT	6%	94%	2%	98%
RO	1%	99%	4%	96%
SI	0%	100%	4%	96%
SK	-	-	6%	94%
FI	9%	91%	4%	96%
SE	9%	91%	11%	89%
UK	12%	88%	4%	96%
EU-24	10%	90%	6%	94%
CH	25%	75%	6%	94%
IS	-	-	0%	100%

Source: CARE Database / EC
Date of query: November 2011

The number of moped and motorcycle rider fatalities by single year of age is presented in Figures 4 and 5. These figures express the numbers in 2009 relative to the numbers in 2000 (the numbers have been averaged over the age one year before and after in order to smooth the age dependency). Figures 4 shows that the number of moped rider fatalities fell between 2000 and 2009 for almost all ages.

Almost 39% of the moped rider fatalities are aged between 15 and 24 years old in 2009

Figure 4: Moped rider fatalities by age in 2000 and 2009[2], both EU-19[1]

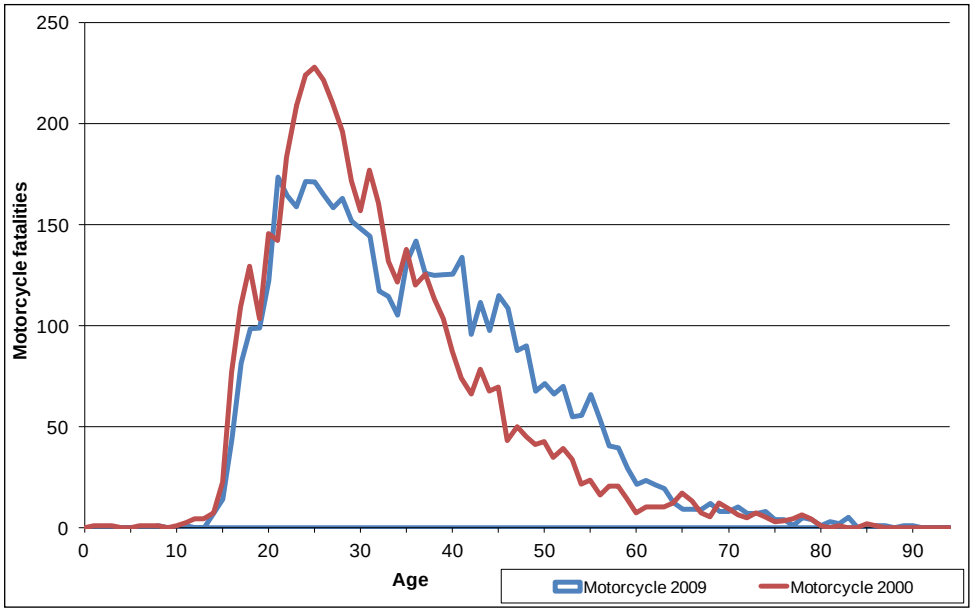


Source: CARE Database / EC
Date of query: November 2011

The number of motorcycle rider fatalities fell between 2000 and 2009 only for those between 23 and 38 years old, while it rose for most ages over 38.

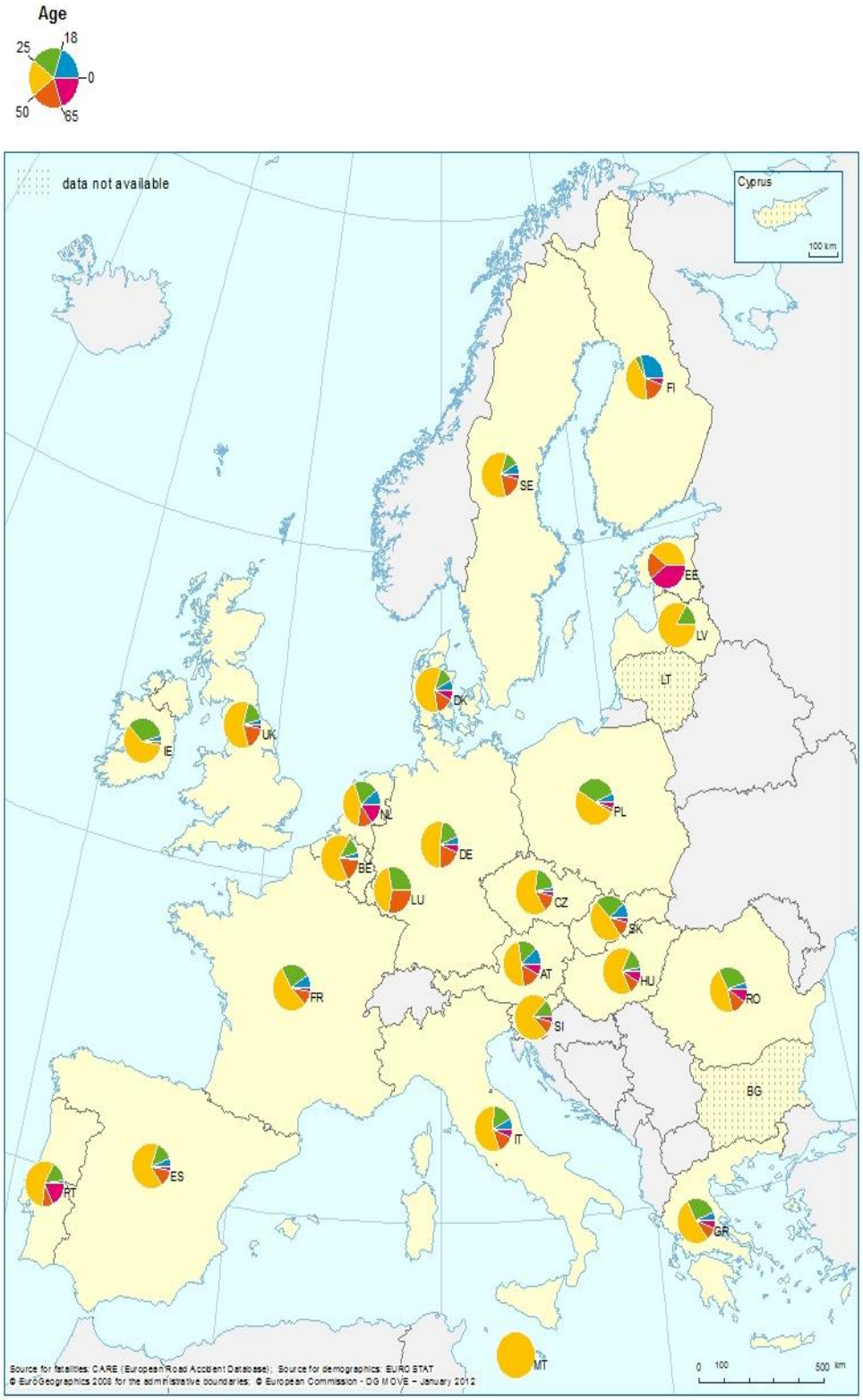
The number of motorcycle rider fatalities aged 40-60 year old doubled between 2000 and 2009

Figure 5: Motorcycle rider fatalities by age in 2000 and 2009[2], both EU-19[1]



Source: CARE Database / EC
Date of query: November 2011

Map 2: Percentage of motorcycle and moped rider fatalities by age group, 2009[2]



Source: CARE Database / EC

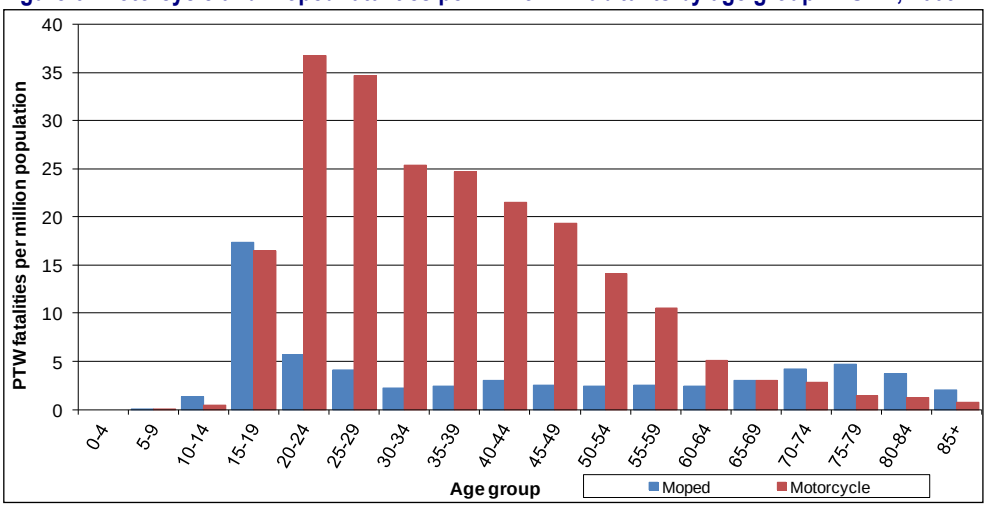
Figure 6 shows the fatality rate by age group in the EU-24 countries. The rates for moped riders aged 15-19 and motorcycle riders aged 20-29 are particularly high.

Almost all fatalities among PTW users were drivers, only 6% were passengers

Almost 80% of female moped riders who were killed were drivers

More than 61% of female motorcycle riders who were killed were passengers

Figure 6: Motorcycle and moped fatalities per million inhabitants by age group - EU-24, 2009[2]



Source: CARE Database / EC
Date of query: November 2011

Drivers and passengers

Table 6: Driver and passenger fatalities on motorcycle and mopeds, 2009[2]

	female		male		Total		
	driver	pass-enger	driver	pass-enger		driver	pass-enger
BE	4	2	156	0	162	99%	1%
CZ	2	4	86	2	94	94%	6%
DK	5	1	36	0	42	98%	2%
DE	35	27	678	9	749	95%	5%
EE	0	1	4	0	5	80%	20%
IE	0	1	26	2	29	90%	10%
EL	3	17	386	27	433	90%	10%
ES	20	19	534	20	593	94%	6%
FR	39	49	1.084	35	1.207	93%	7%
IT	43	43	1.130	33	1.249	94%	6%
LV	0	0	5	1	6	83%	17%
LU	0	0	7	0	7	100%	0%
HU	2	2	90	2	96	96%	4%
MT	0	0	2	0	2	100%	0%
NL	16	3	96	0	115	97%	3%
AT	6	2	107	2	117	97%	3%
PL	8	9	326	15	358	93%	7%
PT	2	3	166	1	173	97%	3%
RO	1	3	184	8	196	94%	6%
SI	1	0	30	0	31	100%	0%
SK	2	0	31	1	34	97%	3%
FI	1	1	35	1	38	95%	5%
SE	2	0	60	0	62	100%	0%
UK	13	9	457	9	488	96%	4%
Mopeds EU-24	99	25	1.070	50	1.244	93%	7%
Motorcycles EU-24	107	171	4.646	118	5.042	94%	6%
PTW-24	206	196	5.716	168	6.286	94%	6%
CH	5	2	77	2	86	93%	7%
IS	0	0	2	0	2	100%	0%

Source: CARE Database / EC
Date of query: November 2011

Moreover, the highest proportion of passengers among PTW fatalities is in Greece (10%) by comparison with other countries.

Road network: area and road type

The majority of PTW fatalities in all countries occur on non-motorway road network. In case of mopeds, this can be justified by the fact that mopeds are not allowed to circulate on motorways in most European countries. The existence of medians, separating opposite traffic flows on motorways, also results in a reduction in the number of fatal PTW accidents.

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

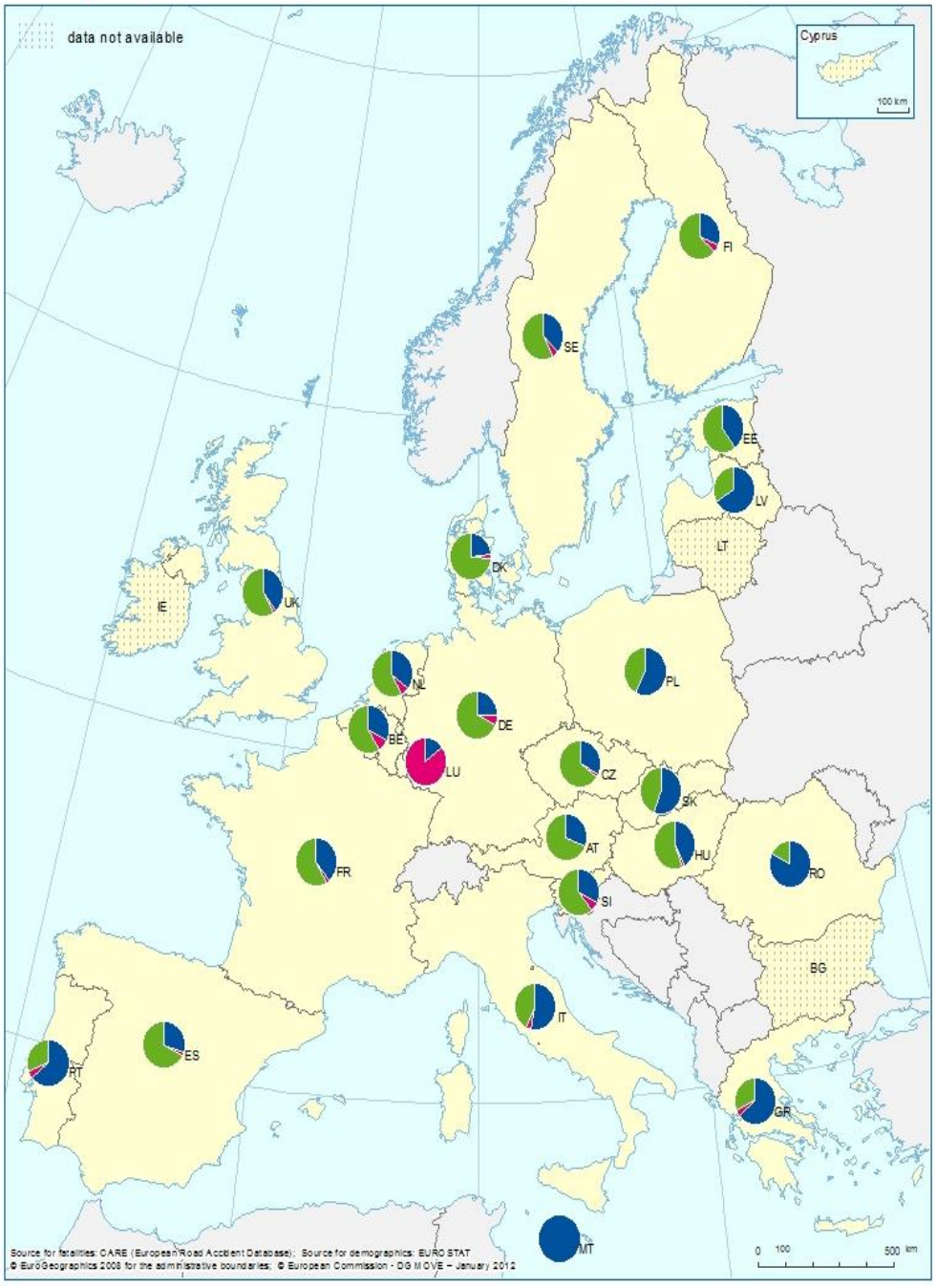
The majority of moped fatalities occur in urban areas whereas the majority of motorcycle fatalities occur in rural areas

Table 7: Motorcycle and moped rider fatalities by area and road type, 2009[2]

	Fatalities Moped				Fatalities Motorcycle				PTW fatalities as percentage of all fatalities by road type			
		Outside urban area				Outside urban area				Outside urban area		
	Inside urban area	Non motorway	Motorway	Not defined	Inside urban area	Non motorway	Motorway	Not defined	Inside urban area	Non motorway	Motorway	Not defined
BE	18	7	0	0	35	88	14	0	21%	18%	9%	-
CZ	4	5	0	0	27	56	2	0	9%	11%	8%	-
DK	8	7	0	0	2	24	1	0	11%	17%	4%	-
DE	47	51	1	0	143	463	44	0	16%	21%	9%	-
EE	1	2	0	0	1	1	0	0	11%	4%	0%	-
EL	20	7	1	0	258	130	17	0	43%	20%	17%	-
ES	68	83	5	0	113	267	57	0	31%	21%	14%	-
FR	138	160	1	0	333	546	29	0	38%	25%	13%	-
IT	131	81	0		533	451	53	0	35%	27%	15%	-
LV	0	1	0	0	4	1	0	0	6%	1%	0%	-
LU	0	0	0	0	1	0	6	0	10%	0%	17%	-
HU	19	4	0	0	21	50	2	0	13%	11%	5%	-
MT	0	0	0	0	2	0	0	0	13%	0%	0%	-
NL	25	22	0	0	16	44	7	1	18%	20%	8%	50%
AT	13	17	0	0	23	63	1	0	21%	20%	2%	-
PL	38	30	0	0	167	120	3	0	9%	6%	7%	-
PT	38	21	0	0	73	33	9	0	29%	15%	10%	-
RO	105	17	0	0	55	18	1	0	9%	3%	4%	-
SI	3	0	0	0	7	19	2	0	16%	25%	7%	-
SK	0	0	0	0	19	15	0	0	11%	8%	0%	-
FI	5	6	0	0	7	18	2	0	16%	13%	17%	-
SE	2	9	0	0	21	27	3	0	23%	13%	20%	-
UK	13	3	0	0	177	283	12	0	19%	24%	9%	-
EU-23	696	537	3	0	2.038	2.764	218	1	19%	14%	8%	
%	56,3%	43,5%	0,2%	0,0%	40,6%	55,0%	4,4%	0,0%				
CH	3	5	0	0	21	51	6	0	18%	31%	18%	-
IS	0	0	0	0	1	1	0	0	20%	8%	0%	-

Source: CARE Database / EC
Date of query: November 2011

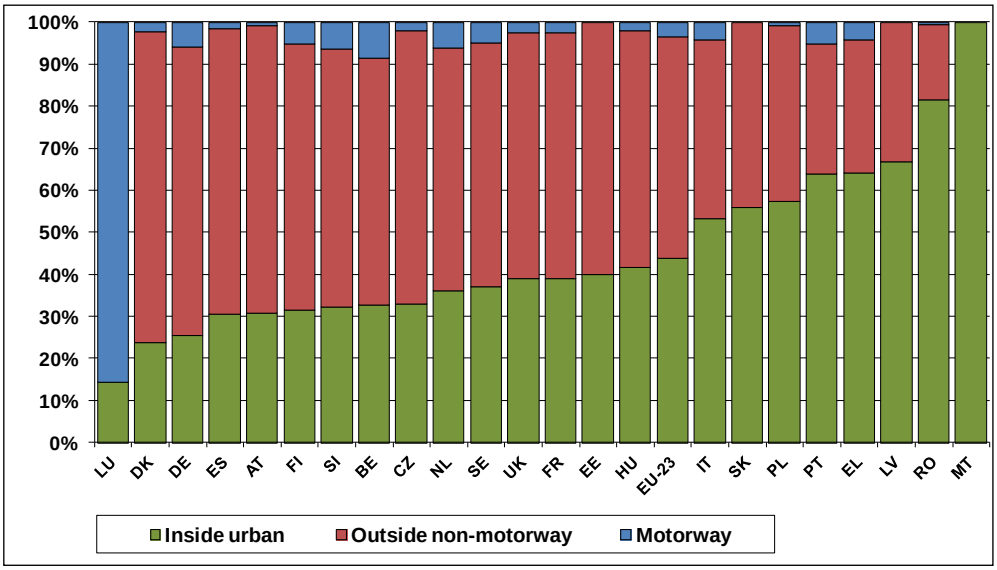
Map 3: Percentage of PTW rider fatalities by area type, 2009[2]



Source: CARE Database / EC

Figure 7 shows that in 2009, 41% of the motorcycle rider fatalities and 56% of the moped rider fatalities were killed inside urban areas.

Figure 7: The distribution of PTW fatalities by area and road type, 2009[2]



Source: CARE Database / EC

Date

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In Romania, Latvia, Greece and Portugal far more PTW fatalities occurred inside urban areas than outside

In 2008, relatively few motorcycle rider fatalities occurred on motorways (5%), compared to car occupant fatalities (8%).

Junction type

Table 8 indicates that less than a third of all motorcycle rider and moped rider fatalities occur at a junction (28%). 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 more than 52% of the overall respective fatalities recorded at a junction occurred there.

Table 8: Motorcycle and moped occupant fatalities by junction type, 2009[2]

	Not at junction	At junction					Not defined	Total
		cross-road	t or y junction	level crossing	round-about	other junction type /unknown		
BE	125	0	0	0	0	37	0	162
CZ	66	16	0	1	11	0	0	94
DK	21	5	0	0	0	16	0	42
DE	318	230	0	0	0	40	161	749
EE	3	1	0	0	0	1	0	5
IE	0	2	1	2	0	1	23	29
EL	383	0	0	0	0	0	50	433
ES	421	66	0	21	73	12	0	593
FR	968	99	0	21	87	32	0	1.207
IT	804	214	0	39	0	192	0	1.249
LV	5	0	0	0	0	1	0	6
LU	7	0	0	0	0	0	0	7
HU	74	21	0	0	0	1	0	96
MT	0	0	0	0	0	0	2	2
NL	71	41	0	3	0	0	0	115
AT	82	25	0	0	8	2	0	117
PL	263	92	0	0	0	3	0	358
PT	120	19	0	3	27	2	1	173
RO	167	28	0	0	0	1	0	196
SI	30	1	0	0	0	0	0	31
SK	27	2	0	0	3	0	2	34
FI	30	0	0	0	0	8	0	38
SE	0	20	0	0	0	2	40	62
UK	284	25	0	15	113	51	0	488
EU-24	4.269	907	1	106	322	402	279	6.286
%	67,9%	14,4%	0,0%	1,7%	5,1%	6,4%	4,4%	100,0%
CH	9	0	0	15	0	0	62	0
IS	0	0	0	1	1	1	0	0

Source: CARE Database / EC
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The highest percentage of fatalities occurring at junctions are found for cyclists and powered two-wheelers' riders

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

Table 9: Fatalities by junction type and mode of transport - EU-24, 2009[2]

	Not at junction	At junction	Not defined
Pedestrian	73%	21%	6%
Bicycle	54%	39%	8%
Moped	65%	32%	3%
Motorcycle	69%	27%	5%
Car and taxi	80%	14%	7%
Lorry, under 3,5 t.	85%	10%	5%
Heavy goods vehicle	73%	9%	17%
Other / Unknown	79%	18%	4%
EU-24 all modes	74%	20%	6%

Source: CARE Database / EC
Date of query: November 2011

Month of the year

There are relatively few fatalities in the winter, and relatively many in the summer. This reflects the seasonal pattern of use of mopeds and motorcycles.

Fewer motorcycle and moped riders are killed in the winter than in the other seasons

Table 10: Motorcycle and moped fatalities by month, EU-24, 2009[2]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
BE	2%	2%	9%	10%	10%	11%	13%	14%	9%	11%	6%	2%	162
CZ	1%	1%	5%	10%	12%	12%	13%	20%	17%	5%	2%	2%	86
DK	5%	2%	7%	7%	21%	5%	17%	5%	19%	7%	2%	2%	42
DE	1%	2%	3%	15%	13%	15%	12%	17%	12%	6%	4%	1%	749
EE	0%	0%	0%	0%	0%	0%	80%	0%	20%	0%	0%	0%	5
IE	10%	3%	3%	14%	3%	17%	10%	24%	3%	3%	7%	0%	29
EL	6%	6%	8%	9%	10%	12%	11%	11%	8%	10%	5%	6%	433
ES	6%	8%	8%	6%	12%	11%	9%	12%	8%	9%	7%	5%	593
FR	3%	6%	7%	8%	12%	12%	11%	11%	10%	10%	6%	4%	1.207
IT	3%	4%	6%	8%	12%	12%	17%	13%	9%	9%	4%	2%	1.249
LV	0%	0%	0%	17%	0%	33%	0%	50%	0%	0%	0%	0%	6
LU	0%	0%	0%	0%	14%	29%	14%	29%	14%	0%	0%	0%	7
HU	1%	1%	7%	17%	16%	10%	15%	11%	13%	8%	0%	1%	96
MT	0%	0%	0%	0%	50%	0%	0%	0%	50%	0%	0%	0%	2
NL	2%	4%	9%	16%	12%	10%	11%	14%	7%	9%	7%	0%	115
AT	2%	0%	1%	8%	14%	12%	11%	27%	15%	6%	5%	0%	117
PL	1%	0%	5%	12%	15%	11%	16%	18%	13%	4%	4%	1%	358
PT	5%	6%	10%	9%	13%	10%	13%	10%	6%	6%	6%	5%	173
RO	0%	5%	6%	7%	12%	15%	13%	17%	14%	7%	6%	1%	196
SI	0%	0%	6%	10%	26%	10%	10%	13%	23%	0%	3%	0%	31
SK	0%	0%	3%	12%	24%	12%	12%	21%	12%	0%	6%	0%	34
FI	0%	0%	0%	16%	11%	16%	13%	18%	13%	11%	3%	0%	38
SE	0%	2%	2%	11%	15%	18%	21%	15%	13%	3%	2%	0%	62
UK	3%	4%	8%	12%	13%	12%	11%	12%	10%	9%	4%	3%	488
moped	4%	6%	6%	8%	9%	10%	11%	14%	10%	10%	8%	4%	1.244
motor-cycles	3%	4%	6%	10%	13%	13%	13%	14%	10%	8%	4%	2%	5.034
EU-24	183	267	399	604	769	758	804	858	640	528	300	167	6.278
PTW %	2,9%	4,2%	6,4%	9,6%	12,3%	12,1%	12,8%	13,7%	10,2%	8,4%	4,8%	2,7%	100%
CH	0	0	3	10	12	12	19	14	11	9	4	0	94
IS	0	0	0	0	1	0	0	1	0	0	0	0	2

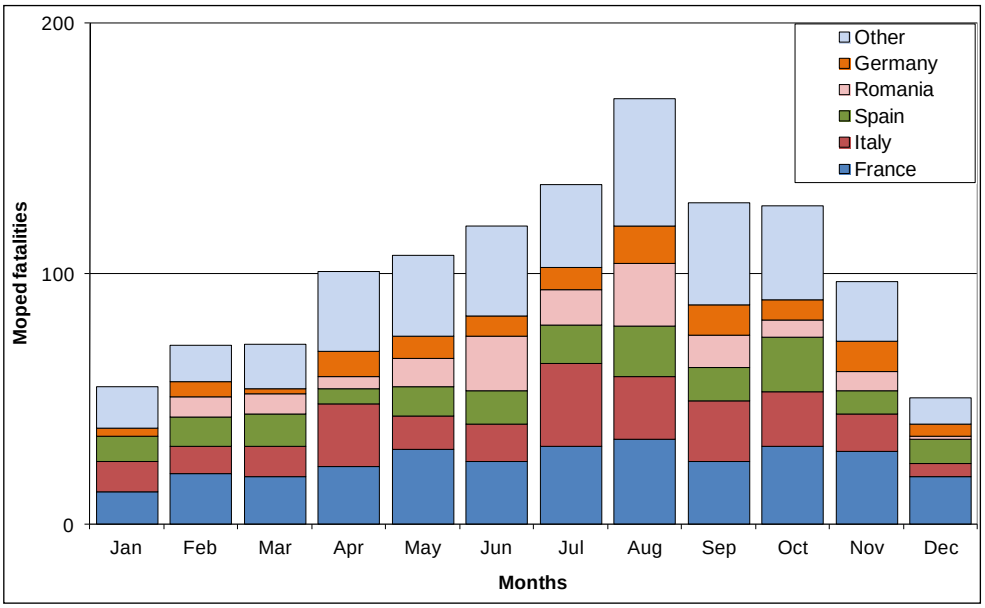
Source: CARE Database / EC
Date of query: November 2011

In Figures 8 and 9 the fatalities' annual distribution by month is displayed for mopeds and motorcycles respectively. The five countries with the largest numbers are displayed, as well as the total number of the remaining 19 countries from the EU-24.

The number of moped fatalities does not vary over the months as much as the numbers of motorcycle fatalities, however in all countries there are more fatalities per month in the period April-October, as indicated in Figure 9.

Germany, Romania, Spain, France and Italy are the 5 countries with the highest number of moped fatalities

Figure 8: Moped fatalities by month - top 5 countries and other EU-24, 2009[2]

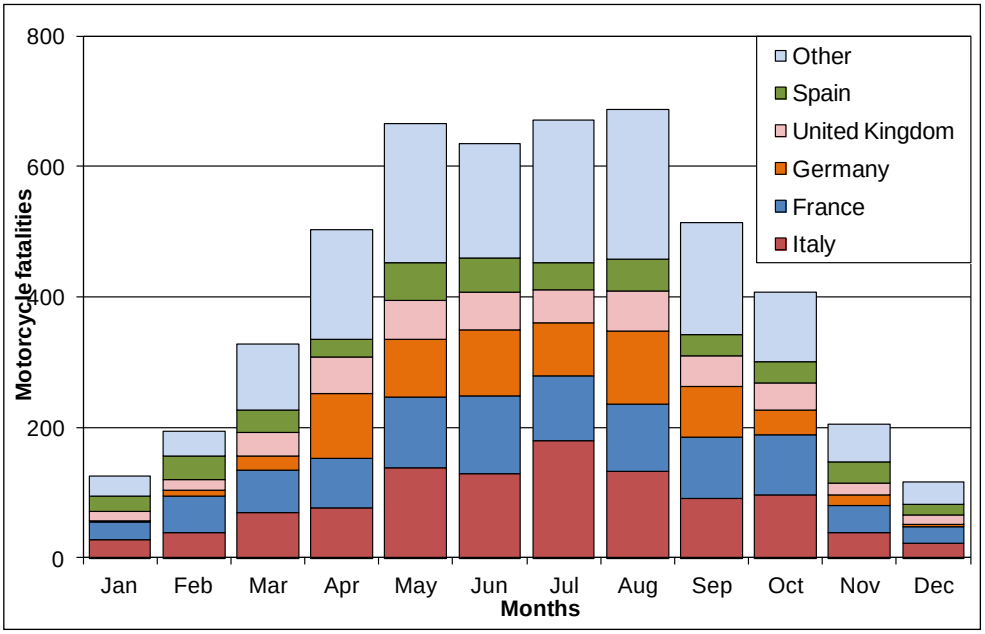


Source: CARE Database / EC
Date of query: November 2011

Figure 8 shows that a large number of motorcycle fatalities occurred when the weather was good, especially from May to September.

Spain, United Kingdom, Denmark, France and Italy are the 5 countries with the highest number of motorcycle fatalities

Figure 9: Motorcycle fatalities by month - top 5 countries and other EU-24, 2009[2]



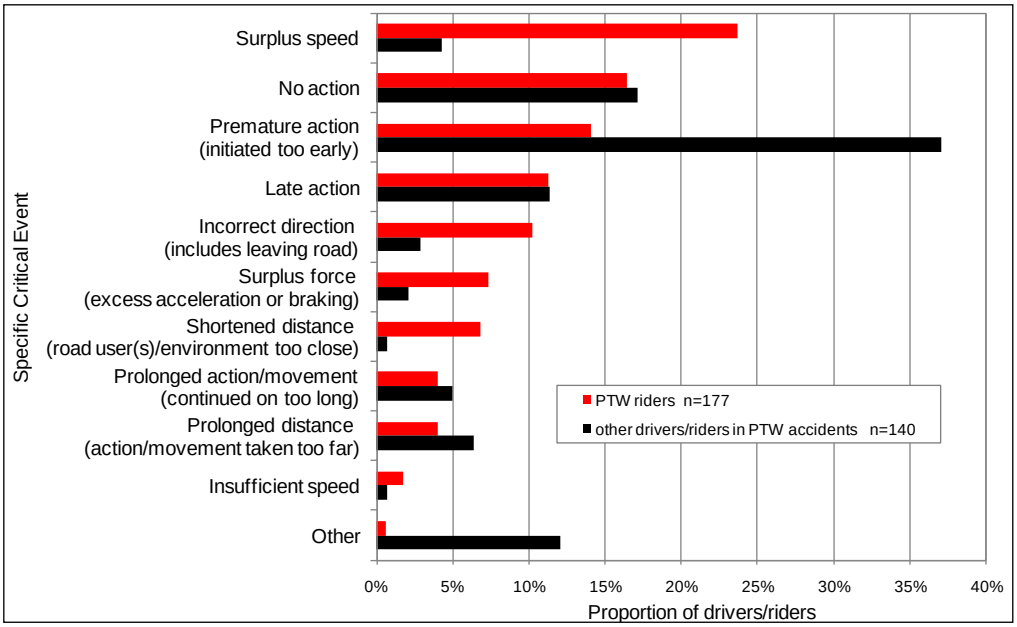
Source: CARE Database / EC
Date of query: November 2011

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[3] [4]. 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 2 compares the distributions of specific critical events for PTW riders and other drivers or riders in PTW accidents.

Figure 2: 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

[3] SafetyNet D5.5, Glossary of Data Variables for Fatal and Accident Causation Databases
[4] SafetyNet D8.8, In-Depth Accident Causation Database and Analysis Report

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 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

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

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).

Definition and regulations for motorcycles and mopeds

Moped:
In most EU countries a moped is defined as a PTW with an engine size below 50cc and design speed up to 50 km/h, prohibited on motorways. The minimum age for the driver varies between 14 and 16 years old. The use of a helmet is required in most of the countries, a compulsory theoretical test is often required and in most of the countries a practical test too. A licence plate and vehicle register is being introduced to more and more countries.

Motorcycle:
A motorcycle is a PTW with an engine size above 50cc, allowed on motorways. A driving licence is compulsory. The minimum age is allowed between 16 and 18 years old for engine sizes up to 125cc or power up to 11kW (A1). Larger engine sizes (A2, A) are allowed after 2 years of experience. A helmet is required. Scooters should be assigned to one of the categories depending on their engine size.
The country regulations are subject to (new) EU directives, see ec.europa.eu/transport/home/drivinglicence/index_en.htm.

Disclaimer

The information in this document is provided as it is and no guarantee or warranty is given that the information is fit for any particular purpose. Therefore, the reader uses the information at their own risk and liability.

For more information

Further statistical information about fatalities is available from the CARE database at the Directorate General for Mobility and Transport of the European Commission, 28 Rue de Mot, B -1040 Brussels.
Traffic Safety Basic Fact Sheets available from the European Commission concern:

- Main Figures
- Children (Aged <15)
- Youngsters (Aged 15-17)
- Young People (Aged 18-24)
- The Elderly (Aged >64)
- Pedestrians
- Cyclists
- Motorcycles and Mopeds
- Car occupants
- Heavy Goods Vehicles and Buses
- Motorways
- Junctions
- Urban areas
- Roads outside urban areas
- Seasonality
- Single vehicle accidents
- Gender

Country abbreviations used and definition of EU-level

EU-18	
BE	Belgium
CZ	Czech Republic
DK	Denmark
DE	Germany
EL	Greece
ES	Spain
FR	France
IT	Italy
LU	Luxembourg
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
FI	Finland
SE	Sweden
UK	United Kingdom (GB+NI)

EU-19 = EU-18 +	
IE	Ireland

EU-24 = EU-19 +	
EE	Estonia
LV	Latvia
HU	Hungary
MT	Malta
SK	Slovakia

Detailed data on traffic accidents are published annually by the European Commission in the Annual Statistical Report. This includes a glossary of definitions on all variables used.

More information on the DaCoTA Project, co-financed by the European Commission, Directorate-General for Mobility and Transport is available at the DaCoTA Website: http://www.dacota-project.eu/index.html.

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